UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One):

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the fiscal year ended December 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**

For the transition period from __________ to __________

Commission File Number: 001-35975

Gogo Inc.
(Exact name of registrant as specified in its charter)

Delaware	**27-1650905**
(State or other jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**

111 North Canal St., Suite 1500
Chicago, IL 60606
(Address of principal executive offices)

Telephone Number (312) 517-5000
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Class	Trading Symbol	Name of Each Exchange on Which Registered
Common stock, par value $0.0001 per share	GOGO	NASDAQ Global Select Market

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting stock held by non-affiliates of the registrant as of June 28, 2019, the last business day of the registrant's most recently completed second fiscal quarter, was $226,694,957 based upon the closing price reported for such date on the NASDAQ Global Select Market.

As of March 9, 2020, 83,318,003 shares of $0.0001 par value common stock were outstanding.

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Documents Incorporated By Reference

Portions of the registrant's definitive Proxy Statement for its Annual Meeting of Stockholders scheduled to be held April 29, 2020 are incorporated by reference into Part III of this Form 10-K. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2019.

Gogo Inc.

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INTRODUCTORY NOTE

Unless the context otherwise indicates or requires, as used in this Annual Report on Form 10-K for the fiscal year ended December 31, 2019 references to: (i) "we," "us," "our," "Gogo," or the "Company" refer to Gogo Inc. and its directly and indirectly owned subsidiaries as a combined entity, except where otherwise stated or where it is clear that the term means only Gogo Inc. exclusive of its subsidiaries; (ii)"CA," "CA business" or "commercial aviation" refer to our Commercial Aviation North America, or CA-NA, segment and our Commercial Aviation Rest of World, or CA-ROW, segment, taken as a whole and (iii) "fiscal," when used in reference to any twelve-month period ended December 31, refers to our fiscal year ended December 31. Unless otherwise indicated, information contained in this Annual Report is as of December 31, 2019. We have made rounding adjustments to reach some of the figures included in this Annual Report and, unless otherwise indicated, percentages presented in this Annual Report are approximate.

Cautionary Note Regarding Forward-Looking Statements

Certain statements in this report may constitute "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, without limitation, statements regarding our industry, business strategy, plans, goals and expectations concerning our market position, international expansion, future technologies, future operations, margins, profitability, future efficiencies, capital expenditures, liquidity and capital resources and other financial and operating information. When used in this discussion, the words "anticipate," "assume," "believe," "budget," "continue," "could," "estimate," "expect," "forecast," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "future" and the negative of these or similar terms and phrases are intended to identify forward-looking statements in this Annual Report on Form 10-K. Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties that may cause actual results to differ materially. We describe risks and uncertainties that could cause actual results and events to differ materially under "Risk Factors," "Quantitative and Qualitative Disclosures about Market Risk," and "Management's Discussion and Analysis" in this report. We undertake no obligation to update or revise publicly any forward-looking statements, whether because of new information, future events, or otherwise.

Item 1. Business

Who We Are

Gogo is the in-flight Internet company. Our mission is to provide ground-like connectivity to every device on every flight around the globe, enabling superior passenger experiences and efficient flight operations. To accomplish our mission, we design, build and operate dedicated satellite and air-to-ground ("ATG") networks, engineer, install and maintain in-flight systems of proprietary hardware and software, and deliver customizable connectivity and wireless entertainment services and global support capabilities to our aviation partners.

We are the leading global provider of in-flight broadband connectivity and wireless entertainment services, with our equipment installed and services provided on approximately 3,200 commercial aircraft and approximately 5,700 business aircraft as of December 31, 2019. Our industry is characterized by rapid technological development, and we continually invest in research and development to maintain our leading global market share and support our aviation partners' needs. Since we announced our next-generation 2Ku global satellite system ("2Ku") in 2014, 20 domestic and international airlines have selected 2Ku for installation, and as of December 31, 2019, our 2Ku system had been installed on more than 1,400 aircraft with approximately 900 additional 2Ku aircraft in our backlog (as defined below under the heading "Contracts with Airline Partners"). Of the aircraft installed with 2Ku as of December 31, 2019, approximately 540 were upgrades from previously installed Gogo systems. The 2Ku system is capable of delivering peak speeds of 100 Mbps to the aircraft. We also continue to innovate and improve our North American terrestrial networks. In May 2019, we announced our plans to build our Gogo 5G network for use on business aviation aircraft, commercial regional jets and smaller mainline jets operating within the continental United States and Canada. We expect the new network to be available in 2021. Gogo 5G will support licensed, shared and unlicensed spectrum and high, low and middle bands and will allow us to take advantage of new advances in technology as they are developed. We will continue to provide service over our 3G and 4G networks in North America to provide redundancy to the Gogo 5G network when needed.

Our leading global market share supports our continued investment in ongoing research and development and the global operating capabilities required to support our aviation partners' needs. Our technology roadmap includes plans for continued rapid improvement in bandwidth speeds and other performance metrics of our in-flight systems.

Our Customers

We have served the aviation industry for nearly 30 years and are the only provider in our industry that is focused exclusively on in-flight connectivity and entertainment. Our customers are airlines in the commercial aviation market and aircraft owners/operators in the business aviation market. We have two reporting segments in the commercial aviation market: Commercial Aviation North America ("CA-NA") and Commercial Aviation Rest of World ("CA-ROW") (together with CA-NA, "CA") and we have one business aviation market reporting segment, Business Aviation ("BA"). We leverage our network solutions across the three segments and our customers benefit from our technology innovation and increased bandwidth.

Through CA-NA, we offer ATG and satellite connectivity and entertainment services to commercial aircraft flying routes generally within North America, operated by Aeromexico, Air Canada, Air Canada Rouge, Alaska Airlines, American Airlines, Delta Air Lines and United Airlines pursuant to long-term agreements. The systems currently in operation in CA-NA include ATG and ATG-4, our first and second generation ATG networks, and 2Ku. As of December 31, 2019, CA-NA had 2,442 aircraft online, 856 of which were equipped with ATG-4, 721 with ATG, 865 with 2Ku and more than 2,200 with Gogo Vision, our in-flight video-on-demand entertainment service.

Through CA-ROW, we offer satellite connectivity and entertainment services to commercial aircraft flying routes outside of North America operated by Air Canada, Air Canada Rouge, Air France, KLM, Cathay Pacific, Cathay Dragon, British Airways, Delta Air Lines, GOL, Iberia, Japan Air Lines, JTA, LATAM Airlines, LEVEL, Virgin Atlantic Airways and Virgin Australia pursuant to long-term agreements. As of December 31, 2019, our CA-ROW segment had 792 aircraft online, 250 of which were installed with Ku, our first-generation satellite-based system, 542 with 2Ku and more than 400 with Gogo Vision. In November 2019, we announced that Qatar Airways has selected Gogo to provide 2Ku connectivity and Live TV on 70 aircraft.

Through BA, we offer a broad suite of integrated equipment, network and Internet connectivity products and services to the business aviation market. Our offerings include a customizable suite of smart cabin systems for highly integrated connectivity, cabin management, in-flight entertainment and voice solutions. BA's customers include OEMs such as Pilatus, Beechcraft, Bombardier, Cessna, Dassault Falcon, Embraer, Gulfstream, and Learjet, as well as the largest fractional jet operators (including Delta Private Jets, Flexjet, Flight Options and NetJets), charter operators, corporate flight departments, and individuals. We have a global distribution network of approximately 170 independent certified dealers.

As of December 31, 2019, BA had a total of 5,669 aircraft online with Gogo Biz, our ATG network in North America, of which 841 were equipped with AVANCE L5™, a unified Gogo Biz technology platform, 348 were equipped with AVANCE L3™ , a compact version of AVANCE L5 modified for small business aircraft, and 851 were equipped with Gogo Vision. As of such date, BA also had 4,773 aircraft online equipped with Iridium, a lower bandwidth global satellite solution.

Our In-flight Internet Portfolio

We focus exclusively on aviation and implement our value proposition of offering the best products and services through a comprehensive portfolio consisting of our in-flight network, in-flight systems, in-flight services, and aviation partner support.

In-flight Network. Our network solutions are engineered to provide industry-leading cost, capacity, coverage, reliability and aero-performance. We offer aviation partners a variety of network solutions suitable for operation on most of the world's commercial and business aircraft. We market our global satellite network solutions to approximately 21,000 commercial aircraft. Our terrestrial network targets approximately 1,800 commercial regional jets and approximately 23,500 business aircraft. Approximately two-thirds of all business aircraft and regional commercial aircraft currently in operation are based in North America. Such aircraft generally fly over land and are well-suited for our ATG solutions given their smaller antenna, lighter weight and reduced equipment and operating costs (including fuel).

- *Global Satellite Network*: We operate a global Ku-band satellite network comprised of 34 satellites operated by SES, Intelsat and other providers and 18 leased teleports operated by Gogo. Our 2Ku and Ku in-flight systems both operate on this network. The capacity, speed, coverage and reliability of this network are continually improved by incorporating new satellites, including high throughput satellites ("HTS"). We also anticipate incorporating new satellite technologies that have yet to come online, such as low-earth orbit ("LEO") and mid-earth orbit ("MEO") satellites.
- *North American Terrestrial Network*: We operate a terrestrial network using 3 MHz of licensed spectrum in the 800 MHz band and approximately 260 terrestrial cell sites in the lower 48 states and parts of Alaska and Canada. As of December 31, 2019, this network supported 3.1 Mbps ATG service and 9.8 Mbps ATG-4 service to CA and BA aircraft. In May 2019, we announced that we are building our Gogo 5G network, which we expect to be available in 2021.
- *Ground Network:* We lease an extensive, predominantly fiber-optic network to connect our approximately 260 cell sites and 18 teleports to our two data centers, the Internet and cloud-based services, and our network operations center ("NOC"). Our data centers and cloud-based services provide redundant telecommunications connections to the Internet and contain numerous servers that enable the expansive set of features offered through the Gogo platform. The NOC monitors daily network operations, conducts network diagnostics and coordinates responses to any performance issues on the ground or in the air. We augment our ability to monitor, maintain and update our in-flight systems while aircraft are on the ground with a terrestrial modem utilizing 3G, 4G and Wi-Fi wireless service.

In-flight Systems. To utilize our in-flight network and provide our in-flight services, we have developed proprietary systems of airborne equipment and software. Our in-flight systems are designed for superior performance, future adaptability and ease of certification, installation and maintenance. Each system consists of: (i) an antenna specifically designed for the network and technology being used to provide the service; (ii) a modular in-cabin Wi-Fi network that includes state-of-the art servers, modems and wireless access points; and (iii) system software designed to reliably support a variety of in-flight services provided by Gogo, our aviation partners and third parties. Our 2Ku system employs a modular, open architecture that is adaptable to current and future satellites of multiple types provided by multiple satellite providers, supports different modems and is upgradeable with minimum disruption to the flight schedules and operations of our aviation partners.

In-flight Services. We provide a wide range of in-flight services for passengers, flight and cabin crews and operational use by our aviation partners. We leverage our increased bandwidth to expand our connectivity and entertainment services.

- *Passenger Connectivity Services*. Passengers connect to the Internet from their personal electronic devices, as they would on the ground, to access corporate and personal applications that include streaming services on our higher capacity networks. Our continued increases in bandwidth enable us to serve more passengers per flight. In CA, passengers may select from a variety of pricing options tailored to devices, routes, available bandwidth and session durations, in addition to monthly and annual subscriptions. In BA, we offer a variety of connectivity services tailored to our various networks and technologies that are generally priced per aircraft per month. Passenger connectivity services are and will continue to be a significant source of our revenue.

- *Passenger Entertainment Services*. Through Gogo Vision, our video-on-demand product accessible from passengers' personal electronic devices, commercial and business aircraft passengers can access a large library of entertainment options, which currently include on-demand movies and television shows. Through Gogo TV, we deliver live television content to passengers on satellite-equipped flights using our in-cabin network. As of December 31, 2019, Gogo Vision was available on more than 2,600 aircraft and Gogo TV was available on more than 850 aircraft. In addition, in 2019, we began commercial service of Gogo Vision Touch, a new wireless seatback product that enables passengers to stream entertainment and other content to a tablet mounted on the seatback. As of December 31, 2019, Gogo Vision Touch was available on 28 aircraft.
- *Connected Aircraft Services*. Using our Connected Aircraft Services ("CAS"), our aviation partners can access connectivity-based, data-oriented applications designed to improve the flying experience and enhance the operational efficiency of our airline partners by leveraging the connectivity we provide to the aircraft. CAS provides value by capturing key data from aircraft sensors, databases and crew inputs and combining it with data coming from the ground to provide comprehensive and real-time visibility into operations. For example, CAS currently supports route optimization, turbulence avoidance, electronic flight bag ("EFB") applications, real-time credit card processing and weather data. In 2019, BA partnered with ForeFlight to bring new GPS location information and altitude to the ForeFlight Mobile iOS-based application for business aviation. Using the onboard Gogo AVANCE system or ATG 4000/5000, ForeFlight Mobile can deliver flight location information throughout the cockpit and cabin using the onboard Wi-Fi signal, information typically provided via a separate GPS system requiring additional onboard hardware and antennas. We are also working with our airline partners to develop solutions that enable class-of-service based entitlements to passengers.

Aviation Partner Support.

- *Account Team*. Each CA airline has a dedicated Gogo account team that provides assistance during the certification and installation process and throughout the term of our partnership. BA has a customer operations team that assists our dealers with installation, troubleshooting and system activations, and its flight department is supported by field service engineering teams located at key locations across the United States and Europe. Both the dealer network and flight department have access to our technical and logistical support 24 hours a day, seven days a week.
- *Operational Support*. We provide a variety of services required to install and maintain our in-flight systems. In CA, our experienced technical engineers do the engineering work necessary to certify and install our equipment on commercial aircraft of all major models and work with the Federal Aviation Administration ("FAA") and international regulators to obtain Supplemental Type Certificates ("STCs") and other required approvals. Our installation technicians work with airline partners or third parties to assist in installation, which can be completed overnight for our terrestrial network systems and in less than 48 hours for our satellite systems. In our BA business, we support the certification and installation functions of our customers. Supply chain organizations in CA and BA receive, inspect, test, warehouse, kit and ship materials. Following installation, our NOC continually monitors the network and its usage and performance. We operate a 24/7 maintenance coordination and scheduling service and perform or support maintenance for aviation partners at a variety of U.S. and international locations.
- *Comprehensive Analytics*. We have extensive databases, a big data platform and analytical capabilities to evaluate our system and operational performance. Our analytical capabilities are used by us, our aviation partners and our vendors in designing, manufacturing, and operating our systems to maximize performance and minimize disruptions and system downtime.

Competitive Strengths

We maintain the leading global market position in connectivity for each of the CA and BA markets. We have designed our value proposition to align with our aviation partners' priorities and we believe that our comprehensive product and service portfolio sets us apart from competitors by better meeting customer needs through:

- Leading Performance. Our networks and systems are designed to provide the best in-flight Internet experience and highest network and system availability across the broadest range of aircraft wherever they fly.

  We offer the broadest array of in-flight connectivity technologies in the market, including our proprietary 2Ku, Ku, ATG-4/ATG, AVANCE L5 and AVANCE L3 systems. We are the only in-flight connectivity provider to offer both ATG and satellite-based solutions and our satellite network offers the most comprehensive global coverage in our industry. The breadth of our technologies allows our customers to select the best solution based on aircraft size and route – serving everything from smaller BA aircraft to the largest widebody CA aircraft.

  2Ku is capable of delivering peak speeds to the aircraft of 100 Mbps and enables end users to enjoy a ground-like experience, including streaming and other bandwidth-intensive applications. It employs two low-profile satellite antennas with higher spectral efficiency, superior equatorial performance, and lower drag and fuel burn as compared to competing satellite antennas.

- Continuous Innovation. We continuously innovate and have a strong track record of innovation. We pioneered and have led innovation in our industry for nearly 30 years, as evidenced by the nine network technologies, six of which are proprietary to Gogo, that we have deployed. In addition, we hold more than 250 U.S. and international patents, most of which relate to network technology.

  We design our solutions to provide leading performance and to last for many years, as evidenced by our 2Ku system. The 2Ku system is designed to deliver maximum satellite capacity, and its open, modular architecture enables us to obtain satellite capacity from multiple existing and anticipated satellites operated by multiple providers, thereby enabling our aviation partners to offer leading performance for many years without the need for antenna swaps or other invasive changes to the aircraft. This open architecture is facilitated by our proprietary antenna system and our investments in modem and antenna positioner hardware and software. We are currently researching and developing a fully electronic phased array antenna. The 2Ku architecture is designed to enable adoption of new technologies and new satellite constellations such as LEOs and MEOs in the future while minimizing the impact of hardware changes on aircraft.

  By leasing satellite capacity, we maximize our flexibility to adopt rapid innovations in satellites and to obtain capacity when, where and in the amount required by our aviation customers. We expect continued rapid innovation in satellites to yield improved global coverage and redundancy, increased capacity and peak speed, and lower latency. With approximately 80% of the commercial air traffic concentrated in less than 20% of the global airspace, our multi-provider, multi-satellite approach most efficiently matches supply with demand. We are band agnostic, and as more open Ka band capacity has become available, we have begun to offer regional Ka band satellite solutions for sale where appropriate.

  Our innovation also continues with our ATG networks. In May 2019, we announced that we are building our fourth ATG network – Gogo 5G, which is scheduled to be available in 2021. Gogo 5G will improve the passenger experience by providing lower latency and higher throughput than our current network through the use of both our proprietary licensed spectrum and available unlicensed spectrum.

- Customer-Focus. We provide a hardware and software platform that allows connectivity-enabled services to be deployed quickly, easily and flexibly across all of our networks.

  Gogo supports airline partners with customized portals and applications. These portals are managed by Gogo, airlines or third parties that rely on Gogo's platform for many functions, including user accounts and passwords, payments, entertainment and other stored content. These capabilities are common regardless of which network the aircraft operates on, enabling our airline partners to bring their customized user experiences to their full fleets. We offer various levels of customization based on our airline partners' needs, ranging from a look and feel consistent with the airline's branding to fully customized portals designed to provide unique passenger experiences based on the airline's specifications.

We are continually engaged in enhancing our services in order to enhance the user experience. For example, we employ sophisticated network management techniques intended to improve the user experience by ensuring that sufficient bandwidth is available for various services such as messaging, browsing and streaming. In addition, our captive portal enables us to develop system improvements that improve the user experience by streamlining the sign-on process and making it easier for users to access our IFC service.

Our AVANCE system provides BA customers with a common software platform that operates across all Gogo networks and allows aviation partners to customize their passengers' in-flight experiences by selecting from a variety of offerings that include various levels of connectivity; on-demand entertainment; information and applications; smart cabin customization; and real-time support and tools. The flexibility of the AVANCE system enables BA owners and operators to add or reduce system capabilities as their needs change.

Additionally, both our CA and BA platforms provide hosting, reporting, data labels, storage and other capabilities for an increasing array of CAS applications from a variety of third-party partners.

- Long-Term Support. There are unique requirements that separate aviation from terrestrial markets and we have the necessary scale and expertise to address this market.

  Gogo supports the largest fleet of connected aircraft and we have acquired significant technological and operational expertise and developed long-term and robust supplier relationships in both business and commercial aviation. In commercial aviation, we have the capability to install ATG equipment overnight and satellite solutions in less than two days, and to deploy software upgrades remotely. As of December 31, 2019, we were operating or supporting 57 installation lines at 44 installation locations around the globe. Some of our airline customers perform their own installations with Gogo's support. After installation, our support continues and in 2019, we provided maintenance services for customer aircraft that flew more than 4.7 million flights to or from six continents. Airlines are increasingly assuming responsibility for equipment maintenance and we are leveraging our experience to support them, including by training them in best practices.

Growth Strategy

The four key drivers fueling Gogo's growth and financial performance are: increasing the number of Gogo-connected aircraft, growing service revenue by increasing usage of Gogo's in-flight services, reducing investment per aircraft and improving margins.

Increase Number of Gogo-Connected Aircraft

Less than half of the global fleet of approximately 23,000 commercial aircraft and 31,300 business aircraft are currently broadband connected. We expect that nearly all of the world's commercial aircraft and a rapidly increasing percentage of business aircraft will be broadband connected over the next decade. These new connections will increasingly occur on new aircraft through the OEM channel.

- Commercial Aviation. As of December 31, 2019, we provided our connectivity services on 3,234 commercial aircraft. Based on the strength of our comprehensive portfolio, we expect to continue to sign contracts with airlines to equip existing and new aircraft. Our 2Ku system has been factory line-fit on Airbus A220 and Boeing 737 MAX aircraft and we have obtained the certifications required for OEM retrofit installation on Boeing 737 MAX and 787 aircraft and Airbus A-330, A-340, A-350 and A-380 aircraft. In addition, 2Ku is conditionally offerable (that is, available for factory line-fit upon request by an airline but not yet in Airbus's catalog) on the A-320 family and A-330neo aircraft, and we expect to install Airbus A-321 aircraft as factory line-fit later this year.

- Business Aviation. As of December 31, 2019, the business aviation market was comprised of approximately 23,500 business aircraft in North America and approximately 7,700 business aircraft in the rest of the world, and we had approximately 5,700 business aircraft online with broadband connectivity, principally in North America. We increased our number of broadband business aircraft online by more than 400 in 2019. A significant number of BA aircraft are new aircraft on which our systems are installed and sold by OEMs, including Pilatus, Beechcraft, Bombardier, Cessna, Dassault Falcon, Embraer, Gulfstream, and Learjet. Since 2017, we have offered our customers AVANCE L5, an integrated and customizable in-flight system that employs our ATG-4 network in North America and is faster than our Gogo Biz solution. In 2018, we introduced AVANCE L3, a more compact integrated, customizable in-flight system that uses our ATG network and is targeted at light jets and turbo props in North America, and we announced that we are building our state-of-the-art Gogo 5G network, which we expect to be available in 2021. By leveraging networks shared with CA, we now have in-flight systems that address nearly all segments of the business aviation market. Our ability to provide CAS and our flexibility in providing various pricing options further support our strategy of targeting various segments of the market.

Grow Service Revenue through Increased Usage

We expect to continue to grow our service revenue by increasing the take rates for passenger connectivity and the adoption of additional services, including entertainment and CAS.

Our strategies for increasing usage of our in-flight services include the following:

- Increase Passenger Adoption of Connectivity. We intend to leverage our existing technology and our technology roadmap to continue to enhance the passenger experience and the number and quality of available services. Our mission is to provide all passengers on every flight a "ground-like" experience, including video streaming. We expect to engage additional passengers through a combination of multiple tiers of service and multiple payers. In CA-ROW, we expect passenger adoption to increase, particularly on aircraft operated by airlines who recently became our partners, as their Gogo-installed fleets expand and mature. In BA, we continue to introduce a variety of broadband and voice services and related pricing plans, allowing aircraft operators and owners various options based on data usage, flight frequency and the number and size of aircraft serviced. In CA, the increased bandwidth of 2Ku supports tiered services such as messaging, browsing and streaming and enables a variety of experiences and price points for passengers. Delta Air Lines has announced that it intends to offer free in-flight connectivity services to all of its passengers, and we believe that other airlines will wish to provide complimentary service to some or all of their passengers. We believe that the availability of free service will significantly increase passenger adoption and, correspondingly, the amount of bandwidth airlines must purchase to support the increased demand. We also expect to continue to receive service revenue from third parties. For example, we are currently engaged by T-Mobile to make our in-flight services available to its subscribers.

- Increase Adoption of Wireless Entertainment and CAS. Gogo Vision was available on nearly all Gogo-connected aircraft in CA and approximately 850 BA aircraft as of December 31, 2019. Through our Gogo Vision platform, airlines offer passengers a library of movies and TV shows for wireless streaming to personal devices. We expect wireless entertainment views to continue to grow, driven by increased awareness of the service, availability of additional content, increased use of Gogo TV (which delivers live content streamed directly to wireless devices), and the launch of Gogo Vision Touch, our seatback tablet screen technology developed in collaboration with Delta Air Lines. Additionally, we expect that the demand by airlines for connectivity-based applications that improve the passenger experience and operational efficiency will increase over the next several years. This trend will drive data usage on our network and demand for platform services from Gogo.

Reduce Our Investment per Aircraft

In CA, we define investment per aircraft as the installed cost of airborne equipment less the proceeds received from an airline partner. Our investment per aircraft varies depending on the commercial terms of our contract with the airline, the technology deployed, and the type of aircraft equipment installed. We are leveraging our experience in reducing installation times to assist our airline partners and their installers in conducting installations as quickly and efficiently as possible. Our ability to leverage our growing portfolio of STCs will further reduce the cost and time required to install new fleets. We have a broad portfolio of STCs and service bulletins for aircraft types to be equipped with 2Ku, which allows us to reuse STCs to reduce the time and cost required to obtain certification and to accelerate installation schedules. As of December 31, 2019, we had STCs to support over 95% of the installations we plan to complete in 2020. In addition, the price paid by airline partners for our airborne equipment under our recently executed or amended contracts has increased compared to 2Ku's launch pricing.

Improve Profit Margins

We have made substantial investments in our network, in-flight systems, in-flight service platforms and aviation partner support in order to serve aircraft operators globally. As we increase the number of aircraft online, particularly in BA and CA-ROW, we expect to achieve benefits of scale as we have in CA-NA. In addition, through execution of our Integrated Business Plan, Gogo 2020, which was designed to improve our operational and financial performance by reducing our cost structure, improving quality, increasing revenue and streamlining business processes, we saw profit margin improvement in 2019 and expect our profit margins to continue to improve. We also anticipate continued decreases in unit costs for satellite capacity which, together with our bandwidth management capabilities, are expected to contribute to improvement in profitability over time.

Contracts with Airline Partners

In CA, we enter into connectivity agreements with our airline partners under which the airlines commit to have our equipment installed on some or all of the aircraft they operate, and we commit to provide passenger connectivity and/or entertainment services, and, in some circumstances, CAS, on such aircraft. We currently have definitive agreements to provide service on 21 commercial airlines. We have the exclusive right to provide Internet connectivity services on Gogo-installed aircraft throughout the term of the agreement in contracts with airline partners from which we derived a substantial majority of our consolidated revenue in 2019. The majority of our contracts with our airline partners have 10-year terms, with staggered expiration dates occurring on a fleet-by-fleet basis based on installation dates or on a contract basis, depending on the contract. Under our current contracts, the first expiration will occur in 2020 and the last in 2030 or later, depending on the timing of future installations.

We offer airline partners a variety of business models and work with each airline to tailor the model to meet its needs. We began our CA business with the turnkey model, under which we provide the airline with the full range of our services, charge the passenger for passenger connectivity or Gogo Vision services at prices we determine and remit to the airline a specified percentage of passenger revenue. Under such model, for satellite-based connectivity services, the airline typically pays Gogo a monthly fee for network monitoring and management services. Under some of our agreements, airlines have adopted or have the option to adopt an airline-directed model, whereby the airline partner has flexibility to determine which of the many end-to-end services it wants Gogo to provide, which services it wants to provide itself and how it wishes to price the services provided to passengers. For example, an airline may elect to be the retailer for in-flight connectivity and entertainment services to its passengers, rather than using Gogo as the distributor, or to offer our services on a complimentary basis to some or all of its passengers. In such case, we negotiate the fees the airline pays us for the connectivity and entertainment services provided, the bandwidth consumed, and any other services provided by Gogo.

Depending on the contract, installation and maintenance services may be performed by us and/or the airline. When we provide such services, under some agreements, we include charges for installation and maintenance in our equipment pricing package; in other circumstances, the airline pays us directly for such services. Under certain contracts, we provide equipment credits or other incentives based on the number of aircraft installed with our equipment and the timing of such installations. Our contracts with airline partners set forth specified timelines for the installation or delivery of our airborne equipment, as well as service level commitments, and our failure to meet such timelines or service level commitments generally requires us to pay penalties or liquidated damages to the airlines and in certain circumstances may result in our airline partners being permitted to terminate all or a portion of the contract.

As of December 31, 2019, inflight entertainment (“IFE”), which includes Gogo Vision, Gogo TV or Gogo Vision Touch, was included in the scope of services under agreements with eleven of our airline partners and we are discussing with other airline partners the possibility of providing IFE on their installed fleets. We also provide certain airline partners with CAS, such as real-time credit card processing for passenger food and beverage purchases, flight crew access to real-time weather information, EFB applications and voice services in the cockpit.

Revenue from service provided on aircraft operated by Delta Air Lines (“Delta”) accounted for approximately 28% of our consolidated revenue for the year ended December 31, 2019 (equipment revenue from Delta was immaterial due to the fact that equipment transactions under the turnkey model are not considered a sale for accounting purposes). We are currently the exclusive in-flight connectivity service provider for Delta. As of February 29, 2020, we provided (i) ATG service on 334 domestic regional jets and 185 domestic mainline aircraft; (ii) Ku service on 175 aircraft, two-thirds of which operate primarily on international routes; and (iii) 2Ku service on 575 aircraft of which the vast majority fly primarily domestic routes. We have three principal contracts with Delta, all of which extend to 2027 with the exception of the 185 domestic mainline aircraft on which ATG service is provided, the contract for which will expire in 2022.

We are currently in discussions with Delta with respect to its plans to provide free in-flight connectivity services to passengers. Based on such discussions, it is likely that Delta, as part of its transition to free service, will seek to pursue a supplier diversification strategy for its domestic mainline fleet (on which we predominantly provide 2Ku service) and divide such fleet between Gogo and another in-flight connectivity provider. Delta has not issued any notice of termination with respect to any Gogo-installed aircraft, and we do not believe that Delta has made any decisions as to the number or types of aircraft to be awarded to Gogo and other providers. While our negotiations are ongoing, we expect that Delta’s transition to free-to-passengers service will significantly increase demand and enable us to increase our revenue from the Delta relationship.

Our contracts with Delta provide for early termination by the airline in specified circumstances and allow the airline to terminate the contract should the percentage of passengers using the Gogo service on the airline’s flights not meet certain thresholds. We currently experience, and for the last five years have experienced, connectivity take rates in excess of those thresholds. Such contracts also permit termination by the airline prior to expiration upon the occurrence of other certain contractually stipulated events, including our failure to meet service level requirements and the circumstance in which another company provides an alternate connectivity service that is a material improvement over our passenger connectivity service, such that failing to adopt such service would likely cause competitive harm to the airline, and we are unable to match the competitive offer in terms of price, technology and schedule. Delta also has the right to terminate its contracts for convenience with respect to certain fleets on or after specified dates, subject to payment of a specified termination fee.

No other airline partner accounted for more than 10% of our consolidated revenue for the year ended December 31, 2019.

As of December 31, 2019, we had approximately 900 CA aircraft on which we expected to install our 2Ku system under existing contracts and awards not yet under contract, which we refer to as “backlog.” Our backlog includes current aircraft online that are being upgraded to 2Ku. Our backlog may be impacted by a number of factors including decisions by airlines to exercise their contractual rights to have aircraft installed or deinstalled with our equipment, as a result of changes in fleet plans or otherwise. As backlog is based on various estimates and assumptions of management, we can provide no assurance that our backlog is indicative of future aircraft online.

Competition

Commercial Aviation

Our key competitors include Global Eagle Entertainment Inc., Inmarsat, SITAONAIR, Panasonic Avionics Corp., Collins Aerospace, Thales, ViaSat and Safran (formerly known as Zodiac Inflight Innovations), all of which provide different technologies and strategies to provide in-flight connectivity and/or entertainment. We are the only telecommunications company focused exclusively on in-flight connectivity and in-flight entertainment and their unique requirements. We believe that our competitive advantages include the breadth of our technological solutions, our global coverage, our operational excellence, the variety of business models we offer to airlines and, increasingly, our ability to offer equipment through the OEM channel. The strategic priorities, offerings and capabilities of our competitors vary, including the variety of technologies available for various aircraft types, the ability to offer in-flight Internet solutions and video entertainment offerings, the ability to cost-effectively provide offerings on a global basis, the ability to manage capacity constraints, and the ability to offer, incorporate and manage new in-flight connectivity technologies and solutions as they become available.

Business Aviation

We compete against both equipment and telecommunications service providers to the business aviation market, including Honeywell Aerospace, Collins Aerospace, Satcom Direct, Inmarsat and ViaSat. Also, Global Eagle Entertainment Inc., Panasonic Avionics Corp. and SmartSky Networks have announced that they intend to enter the business aviation market.

Licenses and Regulation

Federal Aviation Administration

The FAA prescribes standards and certification requirements for the manufacturing of aircraft and aircraft components, and certifies repair stations to perform aircraft maintenance, preventive maintenance and alterations, including the installation and maintenance of aircraft components. Each type of aircraft operated in the United States under an FAA-issued standard airworthiness certificate must possess an FAA Type Certificate, which constitutes approval of the design of the aircraft type based on applicable airworthiness standards. When a party other than the holder of the Type Certificate develops a major modification to an aircraft already type-certificated, that party must obtain an FAA-issued STC approving the design of the modified aircraft type. We regularly obtain STCs for each aircraft type operated by each airline partner on whose aircraft our equipment will be installed and separate STCs typically are required for different configurations of the same aircraft type, such as when they are configured differently for different airlines.

After obtaining an STC, a manufacturer desiring to manufacture components to be used in the modification covered by the STC must apply to the FAA for a Parts Manufacturer Approval, or PMA, which permits the holder to manufacture and sell components manufactured in conformity with the PMA and its approved design and data package. In general, each initial PMA is an approval of a manufacturing or modification facility’s production quality control system. PMA supplements are obtained to authorize the manufacture of a particular part in accordance with the requirements of the pertinent PMA, including its production quality control system. We routinely apply for and receive such PMAs and supplements.

Certain of our FCC licenses are conditioned upon our ability to obtain from the FAA a “No Hazard Determination” for our cell sites, which indicates that a proposed structure will not, if built as specified, create a hazard to air navigation. When building or altering certain cell sites, we may first be required to obtain such a determination.

Our business depends on our continuing access to, or use of, these FAA certifications, authorizations and other approvals, and our employment of, or access to, FAA-certified engineering and other professionals.

In accordance with these certifications, authorizations and other approvals, the FAA requires that we maintain, review and document our quality assurance processes. The FAA may visit our facilities at any time as part of our agreement for certification as a manufacturing facility and repair station to ensure that our facilities, procedures, and quality control systems continue to meet FAA requirements. In addition, we are responsible for informing the FAA of significant changes to our organization and operations, product failures or defects, and any changes to our operational facilities or FAA-approved quality control systems. Other FAA requirements include training procedures and drug and alcohol screening for safety-sensitive employees working at our facilities or on aircraft.

Foreign Aviation Regulation

According to the Convention on International Civil Aviation, the airworthiness of U.S.-registered and FAA type-certificated aircraft on which FAA-certified Gogo equipment is installed is recognized by civil aviation authorities (“CAAs”) worldwide that are signatories to that Convention. As a result, Gogo does not expect to require further airworthiness certification formalities in countries outside of the United States for U.S.-registered aircraft that already have an STC issued by the FAA covering Gogo equipment. For aircraft registered with a CAA other than the United States, the installation of Gogo equipment requires airworthiness certification from an airworthiness certification body. Typically, the CAA of the country in which the aircraft is registered is responsible for ensuring the airworthiness of any aircraft modifications under its authority.

The FAA holds bilateral agreements with a number of certification authorities around the globe. Bilateral agreements facilitate the reciprocal airworthiness certification of civil aeronautical products that are imported/exported between two signatory countries. A Bilateral Airworthiness Agreement (“BAA”) or Bilateral Aviation Safety Agreement (“BASA”) with Implementation Procedures for Airworthiness provides for airworthiness technical cooperation between the FAA and its counterpart CAA. Under a BAA or BASA, the CAA of the aircraft’s country of registration generally validates STCs issued by the FAA and then issues a Validation Supplemental Type Certificate. For countries with which the FAA does not have a BAA or BASA, Gogo must apply for certification approval with the CAA of the country in which the aircraft is registered. In order to obtain the necessary certification, Gogo will be required to comply with the airworthiness regulations of the country in which the aircraft is registered. Failure to address all foreign airworthiness and aviation regulatory requirements at the commencement of each airline partner’s service in any country in which it registers aircraft when there are no applicable bilateral agreements may lead to significant additional costs related to certification and could impact the timing of our ability to provide our service on our airline partners’ fleets.

U.S. Department of Transportation

The U.S. Department of Transportation (“DOT”) established an Advisory Committee on Accessible Air Transport to negotiate and develop a proposed rule concerning accommodations for passengers with disabilities in three basic areas, including IFE and closed captioning of IFE. The Committee issued a resolution in late 2016 which included its recommendations to the DOT for a rule on IFE. Since a final rule on IFE has not been issued, however, it is unclear how, if at all, it may impact Gogo. According to the Report on DOT Significant Rulemakings dated August 2019, the publication of a Notice of Proposed Rulemaking (“NPRM”) by DOT on Accessible IFE has been delayed and the new projected date for publication of the NPRM on Accessible IFE is October 30, 2020.

Federal Communications Commission

Under the Communications Act of 1934, as amended (the "Communications Act"), the FCC licenses the spectrum that we use and regulates the construction, operation, acquisition and sale of our wireless operations. The Communications Act and FCC rules also require the FCC's prior approval of the assignment or transfer of control of an FCC license, or the acquisition, directly or indirectly, of more than 25% of the equity or voting control of Gogo by non-U.S. individuals or entities.

Our various services are regulated differently by the FCC. For example, our BA business provides some of its voice and data services (not including Gogo Biz or AVANCE) by reselling the telecommunications services of two satellite operators. Because we provide these services on a common carrier basis, we are subject to the provisions of Title II of the Communications Act, which require, among other things, that the charges and practices of common carriers be just, reasonable and non-discriminatory. In addition, our BA segment provides an interconnected voice over Internet protocol ("VoIP") service. The FCC applies many, but not all, of the same regulatory requirements to interconnected VoIP service as it does to common carrier telecommunications services.

We offer connectivity service in the United States to commercial and business aviation aircraft through our own facilities, using our ATG License, a nationwide commercial air-ground radiotelephone license in the 800 MHz band. We obtained and paid for this spectrum through an auction conducted by the FCC. See "ATG License Terms and Conditions."

On June 12, 2015, our mobile wireless broadband Internet access services became classified as Title II telecommunications services, subject to FCC common carrier regulation and broad net neutrality rules pursuant to an FCC order released March 12, 2015 (the "Open Internet Order"). The Open Internet Order prohibited broadband providers from blocking access to lawful content, applications, services or non-harmful devices; impairing or degrading lawful Internet traffic on the basis of content, applications, services or non-harmful devices; favoring some lawful Internet traffic over other lawful traffic in exchange for consideration of any kind; or prioritizing the content and services of their affiliates. Other than for paid prioritization, the rules contained an exception for "reasonable network management."

However, on January 4, 2018, the FCC released an order (the "Restoring Internet Freedom Order") that repealed most of the Open Internet Order, reclassifying broadband Internet access service as a lightly regulated, non-common carrier "information service," and removed virtually all of the compliance obligations that the Open Internet Order imposed on our mobile wireless broadband Internet access services. The Restoring Internet Freedom Order went into effect on June 11, 2018. Under the Restoring Internet Freedom Order, Gogo may remain subject to certain modified transparency obligations that require disclosure of network management practices, performance, and commercial terms. In its October 1, 2019 *Mozilla Corp. v. FCC* decision, a panel of the U.S. Court of Appeals for the D.C. Circuit partially upheld the Restoring Internet Freedom Order but vacated the FCC's categorical preemption of state regulation and remanded several issues back to the FCC for further explanation. To the extent the FCC further restricts reasonable network management on remand, or to the extent the *Mozilla* petitioners prevail on further appellate review, our business may be affected.

Our Internet access service is also subject to the FCC's data roaming rules, which require commercial mobile data service ("CMDS") providers like Gogo to negotiate roaming arrangements with any requesting facilities-based, technologically compatible providers of CMDS. The rules do not give other providers the right to install equipment on Gogo-equipped aircraft and do not require the Gogo service to be provided on a discounted basis, although the arrangement must be "commercially reasonable." The rules allow us to take reasonable measures to safeguard the quality of our service against network congestion that may result from roaming traffic. Neither the Open Internet Order nor the Restoring Internet Freedom Order altered Gogo's obligations with respect to data roaming, but the FCC has committed to revisiting data roaming rules in the future.

In addition, most of our services are subject to various rules that seek to ensure that the services are accessible to persons with disabilities, including requirements related to the pass-through of closed captioning for certain IP-delivered video content offered through our Gogo Vision and Gogo TV services.

In addition to the two ATG licenses, we hold other FCC licenses, including microwave licenses that are used for backhaul in our terrestrial network, one fixed satellite earth station license used for network testing and support, one experimental license used for testing equipment, two aircraft radio licenses, and an authorization for the provision of voice and data services between the United States and foreign points. We also hold a license for blanket authority to operate up to 2,000 Ku-band satellite transceivers on aircraft at any one time, which allows us to provide domestic and international broadband service (although some countries require additional authorizations of their own).

ATG License Terms and Conditions

The FCC issued our ATG License on October 31, 2006, for a renewable 10-year term. We have satisfied our obligation under the license to provide “substantial service” to aircraft, and on January 25, 2017, we received confirmation from the FCC that the license has been renewed until October 31, 2026.

Our 1 MHz ATG license obtained in 2013 from LiveTV Airfone, LLC was also originally issued on October 31, 2006, for a renewable 10-year term, although there is no “substantial service” obligation that attaches to this license. Our application to renew our license was subsequently granted for an additional 10-year term. On August 3, 2017, the FCC released an order which, among other things, revised the wireless license renewal rules. As a result of this order, which applies to the industry generally, all licensees will need to make a showing (or certification) at renewal to demonstrate that the licensee provided and continues to provide service to the public. Because the 1 MHz ATG license has no construction or substantial service requirement, it is not currently clear what level and length of service the FCC will find adequate when considering the next renewal of the 1 MHz ATG license in 2026.

Our two ATG licenses contain certain conditions that require us to comply with all applicable FCC and FAA rules as well as all bilateral agreements between the United States and Canada and the United States and Mexico regarding the frequencies that are allocated for ATG services. These agreements apply to our use of the spectrum in areas adjacent to the United States’ northern and southern borders and in and out of Canadian and Mexican airspace.

A bilateral ATG spectrum coordination agreement between the U.S. and Canada has been negotiated and approved and a bilateral agreement between the United States and Mexico is pending. In 2012, Industry Canada issued to our Canadian subsidiary a subordinate license that allows us to use Canadian ATG spectrum of which SkySurf Communications Inc. is the primary licensee. In 2012, we entered into the License Agreement with SkySurf, which has an initial term of ten years commencing on August 14, 2012, and, provided that the primary spectrum license agreement issued by Industry Canada (now Innovation, Science and Economic Development Canada or ISED) to SkySurf remains in effect at such dates, is renewable at our option for an additional 10-year term following the initial expiration and thereafter for a further five-year term. The term of the License Agreement, including the initial 10-year term and any renewals, is contingent on the effectiveness of the primary spectrum license issued by Industry Canada to SkySurf which was recently renewed for an eight-year term expiring June 29, 2027.

Any future coordination agreement with Mexico and/or a Mexican ATG licensee could affect our ability to provide our broadband Internet service in the border areas using our current cell sites at current operating power levels and could affect our ability to establish or maintain ATG service in the border areas as aircraft fly into and out of Mexican airspace. Once a provider of ATG services is licensed in Mexico, we hope to negotiate an arrangement that will provide seamless connectivity on flights between Mexico and the United States.

Equipment Certification

We may not lease, sell, market or distribute any radio transmission equipment used in the provision of CA or BA services unless such equipment is certified by the FCC as compliant with the FCC's technical rules. All certifications required for equipment currently used in the provision of our services have been obtained.

Privacy and Data Security-Related Regulations

We collect personal information, such as name, address, e-mail address and credit card information, directly from our users when they register to use our service. We also may obtain information about our users from third parties. We use the information that we collect to, for example, consummate their purchase transaction, customize and personalize advertising and content for our users and enhance the entertainment options when using our service. Our collection and use of such information are intended to comply with our privacy policy, which is posted on our website; applicable law; and our contractual obligations to airlines, customers, and other third parties; as well as industry standards such as the Payment Card Industry Data Security Standard.

Notwithstanding the Restoring Internet Freedom Order, which reclassified broadband Internet access as a Title I information service, we must continue to comply with certain Communications Act and FCC privacy and data security rules for our services, including certain provisions applicable to customer proprietary network information.

We are also subject to other federal and state consumer privacy and data security requirements. For example, Section 5 of the Federal Trade Commission ("FTC") Act prohibits "unfair or deceptive acts or practices in or affecting commerce." Although the FTC's authority to regulate the non-common carrier services offered by communications common carriers has not been fully delineated, we believe that the FTC has jurisdiction over all of our services. The FTC has brought enforcement actions under the FTC Act against companies that among other things: (1) collect, use, share, or retain personal information in a way that is inconsistent with the representations, commitments, and promises that they make in their privacy policies and other public statements; (2) have privacy policies that do not adequately inform consumers about the company's actual practices; and (3) fail to reasonably protect the security, privacy and confidentiality of nonpublic consumer information.

We are also subject to state "mini-FTC Acts," which prohibit unfair or deceptive acts or practices, along with data security breach notification laws requiring entities holding certain personal data to provide notices in the event of a breach of the security of that data. A few states have also imposed specific data security obligations. These state mini-FTC Acts, data security breach notification laws, and data security obligations may not extend to all of our services and their applicability may be limited by various factors, such as whether an affected party is a resident of a particular state.

Certain states have also enacted specific privacy laws to which we may be subject. For example, the California Consumer Privacy Act ("CCPA") took effect January 1, 2020 and provides broad new privacy rights for California consumers, including, among others, the right to obtain copies of their personal information collected in the past 12 months, the ability to opt out from the sale of personal information, and the right to demand deletion of personal information. The CCPA also imposes compliance requirements on companies that do business in California and collect personal information from consumers, including, among others, notice, consent, and service provider requirements. The CCPA also provides for civil penalties for violations, as well as a private right of action for data breaches that may increase data breach litigation. The CCPA was recently amended to, among other things, delay certain of the notice, deletion, and opt-out requirements with respect to employees and contractors, and to data collected in certain business-to-business communications, until January 1, 2021. The California Office of the Attorney General has proposed regulations to implement portions of the CCPA. The California Legislature may consider amendments to the CCPA during this year's legislative session. Additionally, an initiative proposing a California Privacy Rights Act, which would amend the CCPA, may be on the November 2020 ballot in California. Depending on the final text of the regulations, any legislative amendments, and the passage of the ballot initiative, the measures we are required to take to comply with the CCPA may be significantly impacted.

Congress and state legislatures have also been considering legislation relating to privacy and data breaches. Should any additional laws be enacted, they could affect our business.

As we expand our operations to include a physical international presence, or otherwise expand our collection of personally identifiable information of residents in other countries, we may be subject to the data protection regulations of the relevant countries. On May 25, 2018, the European Union's General Data Protection Regulation ("GDPR") took effect, which has imposed more restrictive privacy-related requirements for entities outside the European Union that process personally identifiable information about European data subjects. In addition, certain countries have laws which restrict the transfer of personally identifiable information outside of such countries. For example, both Switzerland and the member states of the European Union impose restrictions on transferring such data to countries, including the U.S., that they do not deem to offer a similar standard of protection as they require. Certain mechanisms apply under Swiss and European Union member state laws that permit the cross-border transfer of personal information to countries that are not deemed adequate, such as the United States. Gogo has entered into standard contractual clauses approved by the European Union and Switzerland to legitimize these transfers.

The regulation of data privacy and security in the EU and in other jurisdictions continues to evolve. EU member states also have some flexibility to supplement the GDPR with their own laws and regulations and may apply stricter requirements for certain data processing activities

Truth in Billing and Consumer Protection

The FCC's Truth in Billing rules require full and fair disclosure of all charges on customer bills for telecommunications services, except for broadband Internet access services. Thus, these rules apply to our satellite-based BA services. This disclosure must include brief, clear and non-misleading plain language descriptions of the services provided. However, the FCC has recently initiated a proceeding to revise and potentially extend certain of its Truth in Billing rules, and any changes the FCC adopts may affect our compliance obligations. States also have the right to regulate wireless carriers' billing; however, we are not currently aware of any states that impose billing requirements on ATG services.

CALEA

The FCC has determined that facilities-based broadband Internet access providers, which include Gogo, are subject to the Communications Assistance for Law Enforcement Act, or CALEA, which requires covered service providers to build certain law enforcement surveillance assistance capabilities into their communications networks and to maintain CALEA-related system security policies and procedures. We have implemented such policies and procedures and, based upon our periodic self-assessments, we believe that our network is compliant with CALEA.

Foreign Government Approvals

In connection with our satellite service, we have implemented a process for obtaining any required authority needed to provide our service in the airspace over foreign countries or verifying that no additional authorization is needed. Each country over which a Gogo-equipped aircraft flies has the right to limit, regulate (*e.g*., through a licensing regime) or prohibit the offering of our service. We may not be able to obtain the necessary authority for every country over which a partner airline flies. For some countries, we have not been and do not expect to be able to obtain a definitive answer regarding their potential regulation of our service, and we may incur some regulatory risk by operating in the airspace over these countries. Failure to comply with foreign regulatory requirements could result in penalties being imposed on Gogo and/or on its airline partners, allow airline partners affected by such requirements to terminate their contracts with us prior to expiration or, under a contract with one of our airline partners, require us to pay liquidated damages. Regulation by U.S. and foreign government agencies, including the FCC, which issued our exclusive ATG spectrum license, and the FAA, which regulates the civil aviation manufacturing and repair industries in the United States, may increase our costs of providing service or require us to change our services. Moreover, even countries that have previously provided clearance for our service have the right to change their regulations at any time.

Seasonality

The demand for air travel, including business travel, is subject to significant seasonal fluctuations. We generally expect our overall passenger opportunity to be greater in the second and third quarters compared to the rest of the year due to an increase in leisure travel offset in part by a decrease in business travel during the summer months and holidays. See "Item 7A. Quantitative and Qualitative Disclosures About Market Risk."

Intellectual Property

We rely on a combination of intellectual property rights, including trade secrets, patents, copyrights, trademarks and domain names, as well as contractual restrictions to protect intellectual property and proprietary technology owned or used by us.

We have patented certain of our technologies in the United States and certain countries outside of the United States. As of December 31, 2019, we held U.S. patents expiring on dates ranging from June 2020 to January 2038, and foreign patents expiring on dates ranging from August 2020 to June 2035. We do not believe that our business is dependent to any material extent on any single patent or group of patents that we own. We also have a number of patent applications pending both in and outside of the United States and we will continue to seek patent protection in the United States and certain other countries to the extent we believe such protection is appropriate and cost-effective.

We consider our brands to be important to the success of our business and our competitive position. We rely on both trademark registrations and common law protection for trademarks. Our registered trademarks in the United States and certain other countries include, among others, "Gogo," "Gogo Biz" and "Gogo Vision," although we have not yet obtained registrations for our most important marks in all markets in which we currently do business or intend to do business in the future. Generally, the protection afforded for trademarks is perpetual, if they are renewed on a timely basis, if registered, and continue to be used properly as trademarks.

We license or purchase from third parties technology, software and hardware that are critical to providing our products and services. Much of this technology, software and hardware is customized for our use and would be difficult or time-consuming to obtain from alternative vendors. We also license our proprietary technology and software to third parties to enable them to integrate such technology and software into the products they provide to us. Many of our agreements with such third parties are renewable for indefinite periods of time unless either party chooses to terminate, although some of our agreements expire after fixed periods and require renegotiation prior to expiration in order to extend the term. Among the most material of our technology-related agreements are those for modems, base stations and antennas. Our agreements for modems, base stations and antennas do not renew automatically and thus require periodic renegotiation. Such agreements as well as certain licenses to commercially available software are material to our business.

We have developed certain ideas, processes, and methods that contribute to our success and competitive position that we consider to be trade secrets. We protect our trade secrets by keeping them confidential through the use of internal and external controls, including contractual protections with employees, contractors, customers, vendors, and airline partners. Trade secrets can be protected for an indefinite period so long as their secrecy is maintained.

Employees

As of December 31, 2019, we had 1,115 employees. None of our employees are represented by a labor union.

Corporate Information

Gogo Inc. is a holding company that does business through its subsidiaries. Our principal operating subsidiaries are Gogo LLC and Gogo Business Aviation LLC, which are direct, wholly-owned subsidiaries of Gogo Intermediate Holdings LLC. Our international business is conducted through a number of subsidiaries, including Gogo Air International GmbH, a Swiss limited liability company and a direct wholly-owned operating subsidiary of Gogo International Holdings LLC.

Our principal executive offices are located at 111 N. Canal St., Suite 1500, Chicago, IL 60606. Our telephone number is (312) 517-5000. Our website addresses are www.gogoair.com and www.business.gogoair.com.

Available Information

Our websites are located at www.gogoair.com and www.business.gogoair.com, and our investor relations website is located at http://ir.gogoair.com. Our Proxy Statements, Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), are available free of charge on the investor relations website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We also provide a link to the section of the SEC’s website at www.sec.gov that has all of our public filings, including Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, all amendments to those reports, our Proxy Statements, and other ownership related filings.

We webcast our earnings calls and certain events we participate in or host with members of the investment community on our investor relations website. Additionally, we provide notifications of news or announcements regarding our financial performance, including SEC filings, investor events, press and earnings releases, and blogs as part of our investor relations website. Investors and others can receive notifications of new information posted on our investor relations website in real-time by signing up for email alerts and RSS feeds. Further corporate governance information, including our certificate of incorporation, bylaws, corporate governance guidelines, board committee charters, and code of business conduct, is also available on our investor relations website under the heading “Corporate Governance.” The contents of our websites are not intended to be incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our websites are intended to be inactive textual references only.

Item 1A. Risk Factors

You should consider and read carefully all of the risks and uncertainties described below, as well as other information included in this Annual Report, including our consolidated financial statements and related notes. The risks described below are not the only ones facing us. The occurrence of any of the following risks or additional risks and uncertainties not presently known to us or that we currently believe to be immaterial could materially and adversely affect our business, financial condition and results of operations. This Annual Report also contains forward-looking statements and estimates that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of specific factors, including the risks and uncertainties described below.

Risks Related to Our CA Business

We are dependent on agreements with our airline partners to be able to access passengers and provide services to airlines for use by the crew and airline operations. Payments for our services on commercial airlines have provided, and will continue to provide, a significant portion of our revenue. Our failure to realize the anticipated benefits from these agreements on a timely basis or to renew any existing agreements upon expiration or termination may have a material adverse effect on our financial condition and results of operations.

As of December 31, 2019, we had our equipment installed and provided our Gogo service to passengers on aircraft operated by 20 airlines and we had a definitive contract with one additional airline. For the years ended December 31, 2019, 2018 and 2017, the Gogo service we provide on commercial aircraft generated approximately 53%, 49% and 64% of our consolidated revenue, respectively. Our ability to meet our commitments to certain of our customers requires us to reach agreements with OEMs to have our equipment installed on newly manufactured aircraft by the OEM, which will require us to comply with OEM specifications, which may be costly and time-consuming. Our growth is dependent on our ability to have our equipment installed on additional aircraft and increase passenger use of the Gogo service on installed aircraft. Any delays in installations under these contracts may negatively affect our relationships with airline partners and our ability to maintain or grow our passenger user base and revenue, as may unavailability or degradation of our service resulting from the failure of our equipment or software or other factors. In addition, we have no assurance that any of our current airline partners will renew their existing contracts with us upon expiration, or that they will not terminate their contracts prior to expiration upon the occurrence of certain contractually stipulated events. Contractual termination events include our bankruptcy and our material breach of contract, which in certain contracts is defined to include material breach of our service level agreements, and/or failure to achieve certain certification, equipment delivery, installation or other milestones within agreed-upon time frames. Several contracts with airline partners permit such airline to terminate the contract if the percentage of passengers using connectivity on such airline's flights falls below certain negotiated thresholds. One contract with an airline partner from which we derived a significant portion, but less than a majority, of our 2019 consolidated revenue permits such airline partner to terminate its contract with us if the airline's revenue share falls below certain thresholds and Gogo elects to not make the airline whole for such revenue share shortfall. Contracts with airline partners from which in the aggregate we derived a significant portion, but less than a majority of our 2019 consolidated revenue allow those airlines to terminate a portion or all of their respective agreements for convenience, in some instances with no fee required. Depending on the contract, the airline may exercise such termination right at any time following contract signing or after a specified period of time passes following signing. Additionally, our contracts with Delta and certain other airline partners, from which in the aggregate we derived a significant portion, but less than a majority of our 2019 consolidated revenue, permit such airline partners to terminate all or a portion of their contracts if another company provides a connectivity service that is a material improvement over our service, such that failing to adopt such alternative service would likely cause competitive harm to the airline, and we are unable to match the competitive offer in terms of price, technology and schedule. Such termination right was previously exercised by one of our airline partners as a basis for early termination of its contract with respect to certain Gogo-installed aircraft and could in the future be invoked by airline partners who wish to deinstall Gogo equipment from certain aircraft prior to contract expiration, including for the purpose of achieving supplier diversification. To the extent that our airline partners terminate or fail to renew their contracts with us for any reason, our business prospects, financial condition and results of operations may be materially adversely affected.

Certain of our contracts with our airline partners include provisions that, under certain circumstances, entitle our airline partners to the benefit of certain more favorable provisions in other airline partners' connectivity agreements, including terms related to termination, maintenance, service and equipment and bandwidth pricing. These provisions, some of which have retroactive effect, may limit the benefits we realize from contracts containing such provisions. In addition, our inability to identify and offer improved terms to an airline partner in accordance with such a provision could negatively affect our relationship with that airline partner or give rise to a claim that we are in breach of such connectivity agreement.

A failure to maintain airline and passenger satisfaction with our equipment or the Gogo service could have a material adverse effect on our revenue and results of operations.

Our relationships with our airline partners are critical to the growth and success of our business. For the years ended December 31, 2019, 2018 and 2017, use of the Gogo service on Delta aircraft accounted for approximately 28%, 23% and 26%, respectively, of consolidated revenue. If our airline partners are not satisfied with our equipment or the Gogo service for any reason, they may reduce efforts to co-market the Gogo service to their passengers, which together with passenger dissatisfaction could result in lower passenger usage and reduced revenue. In addition, airline dissatisfaction with us for any reason, including delays in obtaining certification for or installation of our equipment, failure of our system to meet specifications, or our failure to comply with our service level obligations, could negatively affect our relationship with the airline partner and our reputation among passengers and other airlines and constitute a breach of contract resulting in penalties, claims for damages or termination rights.

We have experienced and continue to experience capacity constraints in the United States on our ATG network and may in the future experience additional capacity demands on that network and our United States and international satellite networks. If we fail to meet capacity demands, our business and results of operations may be materially and adversely affected.

The success of our CA business depends on our ability to provide adequate bandwidth to meet customer demands. The capacity of our ATG network is limited by the spectrum licensed and, as a result, we have in the past experienced significant capacity constraints in the United States and continue to encounter occasional capacity constraints on flights where demand for our service is high and certain routes on which multiple ATG aircraft are within range of the same cell site at one time. As part of our plan to alleviate such constraints, we are deploying our satellite-based technology and developing a next-generation ATG technology, which will provide additional capacity, but the successful implementation of such technology is subject to certain risks and uncertainties as described elsewhere in this Risk Factors section under the heading "*—We may be unsuccessful or delayed in developing and deploying our next-generation ATG technology.*" In addition, our ability to meet capacity demands on our ATG network depends in part on the willingness of airline partners to agree to install or upgrade to our next generation ATG network if and when we deploy that solution.

In addition, we may in the future experience capacity constraints on our satellite network. We obtain the capacity required for our Ku and 2Ku satellite-based systems from satellite partners with whom we contract on a non-exclusive basis, and our ability to obtain sufficient capacity in the United States and internationally is subject to certain risks and uncertainties. See the disclosure elsewhere in this Risk Factors section under the heading "*—We face risks related to satellites and satellite capacity.*"

We expect capacity demands to increase on both our ATG and satellite networks as we install our equipment on more airlines and aircraft and as passenger adoption and bandwidth requirements grow. In particular, we are currently negotiating amendments to contracts with certain airline partners under which our services would be provided by the airlines to passengers free of charge. We expect passenger adoption and associated capacity demands to increase significantly if airline partners implement free passenger connectivity service. If our airline partners move to a free-to-passengers business model, in order to meet such demands, we will be required to negotiate agreements with existing and new satellite providers to obtain additional Ku-band satellite capacity. Our ability to successfully support our airline partners, including those providing free service to passengers, will depend in part on our ability to obtain sufficient satellite capacity, particularly in the continental United States, at prices and on other terms acceptable to us. If our airline partners implement free service to passengers on aircraft operating on our ATG network, the capacity constraints discussed above could be exacerbated. Furthermore, we may be required to develop and deploy systems employing Ka-band satellite technology for our airline partners and to obtain sufficient Ka-based capacity to support such technologies. We have in the past committed to purchase and, in some circumstances, paid for our satellite capacity in advance of employing it, and we may be required to do so in the future.

We use bandwidth management tools to manage capacity in both our ATG and satellite networks. In June 2015, the FCC adopted broad net neutrality rules pursuant to an order released in March 2015 (the “Open Internet Order”). The Open Internet Order prohibited broadband providers from blocking access to lawful content, applications, services or non-harmful devices; impairing or degrading lawful Internet traffic on the basis of content, applications, services or non-harmful devices; favoring some lawful Internet traffic over other lawful traffic in exchange for consideration of any kind; or prioritizing the content and services of their affiliates. Other than for paid prioritization, the rules contained an exception for “reasonable network management.” In June 2018, the FCC’s partial repeal of the Open Internet Order (the “Restoring Internet Freedom Order”) became effective, eliminating virtually all of the then-existing net neutrality obligations applicable to us. A federal appeals court partially upheld the Restoring Internet Freedom Order in October 2019 with some exceptions that include vacating provisions of the Restoring Internet Freedom Order that categorically preempts states from imposing any rule or requirement that the FCC repealed or declined to impose, as well as state net neutrality rules or regulations that are more stringent than those adopted in the Restoring Internet Freedom Order. Members of Congress have proposed legislation that would reinstate certain net neutrality rules and the outcome of such proposals or other attempts to reinstate net neutrality rules cannot be predicted at this time. In addition, several states, including California, have proposed or enacted net neutrality legislation similar in substance to the Open Internet Order. The U.S. Department of Justice has filed suit to block the California legislation and California has agreed to delay implementation of the law pending the outcome of such litigation. If the federal neutrality rules were reinstated, they could constrain our ability to manage our network and make it more difficult for us to meet capacity demands, as could existing or future state net neutrality laws or additional federal net neutrality laws.

There can be no assurance that the actions we are taking will be sufficient to provide enough capacity in the United States or internationally. If we fail to meet capacity demands, it could negatively affect our relationship with our airline partners and our reputation among passengers and other airlines and constitute a breach of contract resulting in penalties, claims for damages or termination rights, and our business prospects and results of operations may be materially adversely affected.

Our business is highly dependent on the airline industry, which is itself affected by factors beyond the airlines’ control, including the novel strain of coronavirus first identified in Wuhan, China. The airline industry is highly competitive and sensitive to changing economic conditions.

Our business is directly affected by the number of passengers flying on commercial aircraft, the financial condition of the airlines and other economic factors. If consumer demand for air travel declines, including due to environmental concerns or regulation, increased use of technology such as videoconferencing for business travelers, or the number of aircraft and flights shrinks due to, among other reasons, reductions in capacity by airlines, the number of passengers available to use the Gogo service will be reduced, which may have a material adverse effect on our business and results of operations. Unfavorable general economic conditions and other events that are beyond the airlines’ control, including higher unemployment rates, higher interest rates, reduced stock prices, reduced consumer and business spending, outbreaks of communicable diseases and terrorist attacks or threats could have a material adverse effect on the airline industry. In particular, the recent outbreak of the novel strain of coronavirus (“COVID-19”) first identified in Wuhan, China has resulted in global travel restrictions and the suspension of certain commercial flights by some of our airline partners, which has had, and is expected to continue to have, an adverse impact on our CA business. In recent weeks, we have seen significantly reduced demand on aircraft operated in the Asia Pacific region as compared to demand levels in January 2020 before COVID-19 affected travel. More recently, demand for both business and leisure airline travel on a global basis has declined significantly due to COVID-19, and airlines are responding by cancelling additional flights, including domestic U.S. flights. All of our U.S. airline partners have announced international and domestic capacity reductions, and in the week in which this report is being filed, we are seeing for the first time reduced demand on domestic U.S. flights as a result of COVID-19. In addition, on March 11, 2020 the President of the United States announced a 30-day suspension of travel from 26 European countries to the U.S. and similar or other U.S. or foreign governmental actions could further materially impact business and leisure airline travel. We expect COVID-19 to continue to have a significant negative impact on CA revenue and are unable to predict how long that impact will continue. To date, we have not seen any impact of COVID-19 on our BA business. The extent of the impact of COVID-19 on the CA and BA businesses and our financial and operational performance will depend on future developments, including the duration, spread and severity of the outbreak, the duration and geographic scope of related travel advisories and restrictions and the extent of the impact of COVID-19 on overall demand for commercial and business aviation travel, all of which are highly uncertain and cannot be predicted. If our airline partners continue to experience significantly reduced demand for passenger traffic for an extended period, our 2020 consolidated results of operations and our liquidity and financial condition may be materially adversely affected. The extent to which the outbreak affects our earnings and liquidity will depend in part on our ability to implement various measures intended to reduce expenses and/or conserve cash. Earnings in CA-ROW may be particularly affected if reduced demand for travel continues, as we provide service in that segment solely via satellite-based systems and satellite capacity and certain other costs are largely fixed. Further, travel and other restrictions adopted in response to COVID-19 may impact our ability to complete installations on certain aircraft and successfully operate our services on aircraft that operate in regions affected by the coronavirus, particularly where travel is restricted. Additionally, our suppliers or other third parties we rely upon to install and maintain our services may experience delays or shortages, which could have an adverse effect on our business prospects and results of operations.

A general reduction or shift in discretionary spending could result in decreased demand for leisure and business travel and lead to a reduction in airline flights offered and the number of passengers flying. Consolidation within the airline industry could also adversely affect our relationships with our existing airline partners or lead to Gogo-equipped aircraft being taken out of service.

Further, unfavorable economic conditions, including conditions associated with COVID-19, could also limit airlines' ability to counteract increased fuel, labor or other costs through raised prices. Our airline partners operate in a highly competitive business market and, as a result, continue to face pressure on offerings and pricing. These unfavorable conditions and the competitiveness of the air travel industry could cause one or more of our airline partners to reduce expenditures on passenger services including deployment of the Gogo service or to file for bankruptcy. If one or more of our airline partners were to file for bankruptcy, bankruptcy laws could give them rights to terminate their contracts with us, they could reduce their total fleet size and capacity and/or their total number of flights, and/or they could attempt to renegotiate the terms of their contracts with us including the pricing of our equipment and services. Any of these events may have a material adverse effect on our business prospects, financial condition and results of operations.

We face risks related to satellites and satellite capacity.

We rely on third-party suppliers for the satellite capacity required to provide our Ku and 2Ku services and currently have agreements with several satellite partners to provide Ku-band satellite service on a non-exclusive basis. Service is typically provided through individual service orders for specified transponders, which range in duration from one to ten years. If any of these agreements were terminated or not renewed upon expiration, or if any of our satellite partners fail to obtain, or lose, necessary regulatory authorizations, we could face material delays or interruptions in the provision of service to our customers that rely on satellite service for connectivity or other services and we may not be able to find alternative satellite partners on terms that are acceptable to us, or at all. Certain of our agreements with satellite service providers commit us to purchase bandwidth up to ten years in advance, which may be inadequate to meet capacity demands or may exceed passenger demand and require us to incur unnecessary costs. See "—*We have experienced and continue to experience capacity constraints in the United States on our ATG network and may in the future experience additional capacity demands on that network and our United States and international satellite networks. If we fail to meet capacity demands, our business and results of operations may be materially and adversely affected.*"

The usefulness of the satellites upon which we currently rely and may rely on in the future is limited by each satellite's minimum design life. For example, the satellites through which we provide Ku-band service have minimum design lives ranging from 10 to 15 years. Our ability to offer in-flight connectivity outside North America and alleviate capacity constraints throughout our network depends on the continued operation of the satellites or any replacement satellites, each of which has a limited useful life. We can provide no assurance, however, as to the actual operational lives of those or future satellites, which may be shorter than their design lives, nor can we provide assurance that replacement satellites will be developed, authorized or successfully deployed.

In the event of a failure or loss of any of these satellites, our satellite service providers may relocate another satellite and use it as a replacement for the failed or lost satellite, which may have a material adverse effect on our business, financial condition and results of operations. Such a relocation may require regulatory approval, including through, among other things, a showing that the replacement satellite would not cause additional interference compared to the failed or lost satellite. We cannot be certain that our satellite service providers could obtain such regulatory approval. In addition, we cannot guarantee that another satellite will be available for use as a replacement for a failed or lost satellite, or that such relocation can be accomplished without disrupting or otherwise adversely impacting our business.

Certain satellites we currently plan to utilize to provide Ku-band satellite service have not yet been launched. Satellite construction and launch are subject to significant risks, including delays, launch failure and incorrect orbital placement. Launch failures result in significant delays in the deployment of satellites because of the need both to construct replacement satellites and to obtain other launch opportunities. Construction and launch delays, including any delay in the launch of satellites intended to replace one of the satellites we currently plan to utilize to provide Ku-band satellite service, may materially adversely affect our business and results of operations.

We may not be able to grow our business with current airline partners or successfully negotiate agreements with airlines to which we do not currently provide the Gogo service; the outcome of negotiations with airline partners regarding a business model under which the airlines provide free service to passengers and the effect of this shift and other possible shifts in business models on our revenue and results of operations cannot be predicted.

We are currently in negotiations or discussions with certain of our airline partners to provide our equipment and the Gogo service on additional aircraft in their fleets. We have no assurance that these efforts will be successful. We are also in discussions with other airlines to provide our equipment and the Gogo service to some or all of their aircraft. Negotiations with current and prospective airline partners require substantial time, effort and resources. The time required to reach a final agreement with an airline is unpredictable and may lead to variances in our operating results from quarter to quarter. We may ultimately fail in our negotiations and any such failure could harm our results of operations due to, among other things, a diversion of our focus and resources, actual costs incurred in the negotiation process and opportunity costs.

In addition, the terms of any future agreements could be materially different and less favorable to us than the terms included in our existing agreements with our airline partners, which could trigger most favored nations provisions of contracts with certain existing airline partners, which could result in our inability to achieve the originally anticipated benefits of such contracts.

Under our turnkey model, we provide the connectivity service, determine passenger pricing and share revenue with the airline. Several of our airline partners have adopted or have the option to adopt the airline-directed model, under which the airlines purchase bandwidth from us and distribute it to their passengers on a paid or complimentary basis. Under the airline-directed model, the airline retains pricing discretion over the cost of our service to passengers and the extent to which we receive revenue under this model is directly related to passenger usage. As a result, a failure by airlines to price our service appropriately has and could continue to adversely affect our results. We are currently in negotiations with certain airline partners regarding amendments to our existing contracts that would enable such partners to offer free Gogo service to their passengers under our airline-directed business model and other airline partners may elect to move to a free-to-passengers business model. We expect commercial models and contract terms to continue to evolve, and we anticipate that third-party payors (including airlines) will generate an increasing portion of our revenue and that the portion of our revenue paid by passengers using our service will decline. Certain airline partners have recently shifted or informed us that they intend to shift from the airline-directed model to the turnkey model, and we are unable to predict to what extent future shifts in commercial models will occur or the effect that such shifts in models will have on our results of operations. In addition, our growth will depend in part on our ability to reach agreements with OEMs to have our equipment factory-installed on certain aircraft, which will require us to comply with OEM specifications, which may be costly and time-consuming. To the extent that any negotiations with current or potential airline partners are unsuccessful, or any existing or future agreements, including those reflecting evolving business models and/or a shift to free passenger service under the airline-directed model, prove generally less favorable to us than expected or as compared to previous agreements, our business, financial condition and results of operations may be materially adversely affected.

Competition could result in price reduction, reduced revenue and loss of market position and harm our results of operations.

We face intense competition from providers of satellite-based broadband connectivity and in-flight entertainment services. Some of our competitors are larger, more diversified corporations, have greater financial, marketing, production, and research and development resources and may be better able to withstand the effects of pricing pressures or periodic economic downturns or may offer a broader product line to customers, including services we do not currently provide and/or may not provide in the future. With respect to our ATG services, while we are currently the only provider of ATG service in North America, a competitor is developing a North American air-to-ground 4G network that may become available this year using unlicensed spectrum, and other competitors could enter this business using the same or other spectrum. Internationally, one of our competitors has built a hybrid satellite and air-to-ground network to provide broadband service over Europe that became operational in 2019.

With respect to our satellite services, the increased availability, development and adoption of satellite-based services by commercial airlines around the world has and will continue to put additional pressure on our ability to maintain our market position, and we expect our market position to decline as our competitors install more aircraft with their satellite-based systems in the U.S. and internationally. Two of our competitors are satellite owners and operators and it is possible that other satellite providers will enter the market and sell bandwidth directly to airlines. Due to their different business model, such competitors may be able to provide equipment and services at prices more competitive than ours or offer services we do not provide. We believe that the principal points of competition in CA are technological capabilities, geographic coverage, price, customer service, product development, conformity to customer specifications, quality of support and timeliness, and, increasingly, the availability of factory installation. Some of our competitors offer factory installation on aircraft types on which Gogo has not yet met OEM requirements.

Airlines' desire for supplier diversification is also a factor in selection of connectivity providers. Several of our earlier contracts where we were the sole connectivity provider for the airline were signed at a time when our industry had fewer competitors. Over time, more providers have entered our business and many airlines have come to desire supplier diversification. We are currently in discussions with Delta with respect to its plans to provide free in-flight connectivity services to passengers. Based on such discussions, it is likely that Delta, as part of its transition to free service, will seek to pursue a supplier diversification strategy for its domestic mainline fleet and divide such fleet between Gogo and another connectivity provider. Delta has not issued any notice of termination with respect to any Gogo-installed aircraft, and we do not believe that Delta has made any decisions as to the number or types of aircraft to be awarded to Gogo and other providers. Depending on the number and type of aircraft that Delta determines to award to other providers, such action could have a material adverse impact on our business, financial condition and results of operations. In addition, if existing airline partners determine to award Gogo-installed or new aircraft to competitors, our ability to maintain or gain market position could be adversely affected.

Maintaining and improving our competitive position will require continued investment in technology, manufacturing, engineering, quality standards, marketing and customer service and support. If we do not maintain sufficient resources to make these investments or are not successful in maintaining our competitive position, our business and results of operations may be materially adversely affected. Increased competition for airline partners and aircraft or other market forces could force us to lower the prices we charge airlines for equipment and service or lose market share and could adversely affect our growth prospects and profitability. In addition, to the extent that competing in-flight connectivity or entertainment services offered by commercial airlines are available on more aircraft or offer improved quality or reliability as compared to the Gogo service, our business and results of operations may be materially adversely affected. Competition among airlines with respect to the pricing of passenger services, as well as passengers' expectations regarding pricing, may limit our ability to increase the price of our services under the turnkey model. Competition could increase our sales and marketing expenses and related customer acquisition costs. We may not have the financial resources, technical expertise or marketing and support capabilities to continue to compete successfully. A failure to effectively respond to established and new competitors could have a material adverse effect on our business and results of operations.

We face limitations on our ability to grow our domestic operations which could harm our operating results and financial condition.

Our addressable market and our ability to expand domestically are limited by factors that include limitations on the number of U.S. commercial airlines with which we could partner, the number of planes in which our equipment can be installed, the passenger capacity within each plane, the ability of our network infrastructure or bandwidth to accommodate increasing capacity demands and our ability to successfully implement our technology roadmap on a timely and cost-effective basis. Our growth may slow, or we may stop growing altogether, to the extent that we have exhausted all potential airline partners and as we approach installation on full fleets and maximum penetration rates for passenger connectivity service on all flights. In such circumstances, to continue to grow our domestic revenue, we would have to rely on passenger and airline partner adoption of other currently available and new or developing services and additional offerings, including Gogo Vision, Gogo TV, and CAS. We may not be able to profitably expand our domestic operations and if we fail to do so, our business and results of operations may be materially adversely affected.

Our CA-ROW business has a limited operating history, which may make it difficult to evaluate our current business and predict our future performance, and we may be unsuccessful in expanding our operations internationally.

We began our CA-ROW business in the first quarter of 2014, and its limited operating history may make it difficult to evaluate the CA-ROW business and predict its future performance. The growth of our CA-NA segment since inception is not necessarily indicative of the future growth of CA-ROW. Any assessments of our current business and predictions that we or you make about the future financial and operating performance of CA-ROW or its effect on our consolidated financial and operating performance may not be as accurate as they could be if we had a longer operating history in that segment. Our ability to grow and achieve profitability in CA-ROW involves various risks, including the need to invest significant resources in unfamiliar markets, limitations on such investment under the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement (each as defined below) and economic and financial market conditions. Further, our expansion plans require significant management attention and resources, and our CA business has limited experience in selling our solutions in international markets as compared to North American markets, or in conforming to local cultures, standards or policies. Certain of our competitors, including current providers of satellite service, have more experience than we do in the international commercial airline connectivity and in-flight entertainment markets. As a result, such competitors may have pre-existing relationships with international airlines and more experience in obtaining regulatory approvals in foreign jurisdictions or may already offer their equipment as standard, line-fit options on aircraft types, which may negatively affect our ability to enter into agreements with international airline partners or to increase the number of aircraft on which our equipment is installed thereunder. As we expand our international business we expect to incur increased expenses related to establishing facilities and hiring employees in certain foreign locations and expanding international marketing and advertising efforts. We may not be able to compete successfully in these international markets, and we may be unable to enter into agreements on satisfactory terms to provide connectivity and entertainment services to international fleets of our existing North American airline partners and to new international airline partners. In addition, our ability to expand will be limited by the demand for in-flight broadband Internet access in international markets. Any failure to compete successfully in international markets could also negatively impact our reputation and domestic operations.

Our current and future international operations may fail to succeed due to risks inherent in foreign operations, including:

- legal and regulatory restrictions, including communications, privacy, censorship, aerospace and liability standards, intellectual property laws and enforcement practices, as well as United States and foreign export and import controls;
- changes in international regulatory requirements and tariffs;
- restrictions on the ability of U.S. companies to do business in foreign countries, including restrictions on foreign ownership of telecommunications providers and imposed by the U.S. Office of Foreign Assets Control ("OFAC");
- inability to find content or service providers to partner with on commercially reasonable terms;
- compliance with the Foreign Corrupt Practices Act (the "FCPA"), the (U.K.) Bribery Act 2010 and other similar anticorruption laws and regulations in the jurisdictions in which we operate and related risks, which risks could be increased by our interaction with employees of certain foreign government-owned airlines who are deemed "government officials" under the FCPA and certain other anti-corruption laws and regulations;
- uncertainties and effects arising from the United Kingdom's departure from the European Union, including financial, trade, tax and legal implications;
- difficulties in staffing and managing foreign operations;
- currency fluctuations; and
- potential adverse tax consequences.

As a result of these obstacles, we may find it difficult or prohibitively expensive to grow our business internationally or we may be unsuccessful in our attempt to do so, which could harm our business, future operating results and financial condition. Our failure to successfully grow our business internationally or comply with laws and regulations to which we become subject as a result of doing business internationally may materially adversely affect our business, financial condition and results of operations.

We may be unsuccessful or delayed in continuing to deploy and operate our 2Ku technology.

As of December 31, 2019, we had more than 1,400 2Ku systems installed and approximately 900 systems in our backlog. There can be no assurance that we can meet our installation goals on our current timeline, due to risks that include delays in airlines making aircraft available for installation (including without limitation delays resulting directly or indirectly from the FAA's order grounding Boeing 737 MAX aircraft); the failure of 2Ku-related equipment and software to perform as expected during testing or following installation, problems arising in the manufacturing process, our reliance on single-source and other suppliers to provide certain components and services, and delays in obtaining or failures to obtain the required regulatory approvals for installation and operation of such equipment and the provision of service to passengers. We have encountered delays and quality problems as we deploy 2Ku, including problems related to deicing fluid or other moisture entering our antennas which we believe that we have largely remediated, and may continue to do so given the aggressive installation schedule that we are undertaking and the demands that the schedule places on employees, suppliers and other resources.

In addition, other providers of satellite-based connectivity services currently have services available for commercial deployment that are intended to compete directly with 2Ku, and airlines may choose to adopt such a service over 2Ku. Twenty domestic and international airlines have selected 2Ku for installation on all or a portion of their fleets. The failure of the 2Ku system to meet contractually agreed-upon specifications or to perform as expected, or significant delays in our ability to install 2Ku systems, have triggered and in the future may trigger the payment of liquidated damages under certain such agreements, and could result in material breaches of such agreements which could in turn result in claims by airlines for damages or termination of such agreements.

If 2Ku fails to perform as expected, including as a result of past quality issues recurring or new issues arising, or we fail to meet the installation timelines and performance metrics for which we have contracted, our business, financial condition and results of operations may be materially adversely affected. In addition, our failure to timely deliver 2Ku could have a material adverse effect on our ability to alleviate capacity constraints in our network. See "—*We have experienced and continue to experience capacity constraints in the United States on our ATG network and may in the future experience additional capacity demands on that network and our United States and international satellite networks. If we fail to meet capacity demands, our business and results of operations may be materially and adversely affected.*"

We may be unsuccessful in generating or increasing revenue from Gogo Vision, our in-flight platform, Gogo TV, CAS and other services that we may offer in the future.

The future growth prospects for our CA business depend, in part, on airlines or passengers paying for Gogo Vision on-demand video services, Gogo TV, CAS and new products and services that we develop in response to airline and passenger needs. Our ability to generate revenue from such services depends on:

- our ability to offer our services on new airlines and more aircraft and increase passenger adoption;
- our ability to obtain content (including digital rights to such content) from third parties for Gogo TV, Gogo Vision and new entertainment services;
- our ability to customize and improve services in response to trends and customer interests;
- our ability to develop new services;
- our ability to monetize existing and new services;
- the extent to which and pace at which airlines and other companies in the aviation industry adopt and utilize operational applications; and
- our ability to partner with third parties to develop and implement operational applications that are compatible with our networks.

If we are unsuccessful in generating or increasing revenue from these services and our in-flight platform, our business and results of operations may be materially and adversely affected.

A future act or threat of terrorism, cyber-attack or other event could result in reduced demand for our products and services or result in a prohibition on the use of Wi-Fi enabled devices on aircraft.

A future act of terrorism or cyber-attack on an aircraft, the threat of such acts or unrelated airline accidents could have an adverse effect on the airline industry. In such event, our industry may experience significantly reduced passenger demand. The U.S. federal government or foreign governments could respond to such events by prohibiting the use of Wi-Fi enabled devices on aircraft, which would eliminate demand for our products and services. In addition, any association or perceived association between our equipment or service and the threat of terrorism, cyber-attacks or accidents involving aircraft on which our systems operate would likely have an adverse effect on demand for our products and services. Such reduced demand for our products and services may have a material adverse effect on our business, financial condition and results of operations.

Air traffic congestion at airports, air traffic control inefficiencies, weather conditions, such as hurricanes or blizzards, increased security measures, new travel-related taxes, the outbreak of disease or any other similar event could harm the airline industry.

Airlines are subject to cancellations or delays due to weather conditions or natural disasters, air traffic control problems, including work stoppages or reduced government funding (including as a result of a government shutdown), breaches in security, outbreaks of communicable diseases or other factors. Such cancellations or delays could reduce the number of passengers on commercial flights, reduce demand for our products and services and materially adversely affect our business, results of operations and financial condition.

Risks Related to Our BA Business

Equipment sales to OEMs and after-market dealers account for a substantial portion of our revenue and earnings in the BA segment, and the loss of an OEM or dealer customer could materially and adversely affect our business and profitability.

Revenue from equipment sales on contracts with OEMs and after-market dealers accounted for approximately 28%, 32% and 28%, respectively, of the revenue generated by our BA segment for the fiscal years ended December 31, 2019, 2018 and 2017. Almost all of BA's contracts with OEM and dealer customers are terminable at will by either party. If a key OEM or dealer terminates its relationship with us for any reason or our contract expires and is not renewed, our business and results of operations may be materially and adversely affected.

Our OEM customers may be materially adversely impacted by economic downturns and market disruptions. In anticipation of changing economic conditions, our customers may be more conservative in their production, which may reduce our market opportunities. Further, unfavorable market conditions could cause one or more of our OEM customers to file for bankruptcy, which may have a material adverse effect on our business, financial condition and results of operations.

Competition could result in price reduction, reduced revenue and loss of market position and could harm our results of operations.

Our BA equipment and service are sold in highly competitive markets. Some of our competitors are larger, more diversified corporations and have greater financial, marketing, production, and research and development resources. As a result, they may be better able to withstand pricing pressures and the effects of periodic economic downturns or may offer a broader product line to customers. Our business and results of operations may be materially adversely affected if our competitors:

- develop equipment or service that is superior to our equipment and service;
- develop equipment or service that is priced more competitively than our equipment and service;
- develop methods of more efficiently and effectively providing equipment and services; or
- adapt more quickly than we do to new technologies or evolving customer requirements.

We believe that the principal points of competition in our BA segment are technological capabilities, price, customer service, product development, conformity to customer specifications, quality of support after the sale and timeliness of delivery and installation. Maintaining and improving our competitive position will require continued investment in technology, manufacturing, engineering, quality standards, marketing and customer service and support. If we do not maintain sufficient resources to make these investments or are not successful in maintaining our competitive position, our operations and financial performance will suffer. In addition, competition may subject us to downward pricing pressures. Pricing at too high a level could adversely affect our ability to gain new customers and retain current customers, while increased competition could force us to lower our prices or lose market position and could adversely affect growth prospects and profitability. We may not have the financial resources, technical expertise or support capabilities to continue to compete successfully. A failure to respond to established and new competitors may have a material adverse impact on our business and results of operations. A competitor is developing a North American air-to-ground 4G network that may become available as early as 2020 using unlicensed spectrum, and other competitors could enter this business using the same or other spectrum.

We generally do not have guaranteed future sales of our equipment. Further, we enter into fixed price contracts with some of our customers, so we take the risk for cost overruns.

Many of our OEM customers may terminate their contracts with us on short notice and, in many cases, our customers have not committed to buy any minimum quantity of our equipment. In addition, in certain cases, we must anticipate the future volume of orders based upon non-binding production schedules provided by OEMs, the historical purchasing patterns of customers, and informal discussions with customers as to their anticipated future requirements. Cancellations, reductions or delays by customers may have a material adverse effect on our business, financial condition and results of operations. Furthermore, pursuant to many of our contracts with our OEM customers, we have agreed to deliver equipment and/or services, including equipment and services not yet in production, for a fixed price and, accordingly, take the risk of any cost overruns or delays in the completion of the design and manufacturing of the product.

Many of the risks that could harm our CA business could also adversely affect our BA business.

In our BA segment for the years ended December 31, 2019, 2018 and 2017, sales of ATG equipment accounted for more than 60% of equipment revenue, and subscriptions for our Gogo Biz in-flight broadband Internet service accounted for more than 85% of service revenue. Accordingly, many of the risks described above relating to our CA business may also have a material adverse effect on our BA business, including expected capacity constraints on our network in the near-term and our ability to manage those constraints, our ability to successfully develop and implement Gogo 5G and any next generation technology, our ability to successfully implement technology enhancements to our network and our ability to successfully develop and deploy new products and services and generate revenue and profits from the sale of such products and services.

Risks Related to Our Technology and Intellectual Property and Regulation

We may be unsuccessful or delayed in developing and deploying our next generation ATG technology.

In May 2019, we announced that we are developing a next generation ATG network using 5G technology and unlicensed spectrum which we expect to become available in 2021. Gogo 5G will be capable of working with different spectrums and supporting different next generation technologies. There can be no assurance that we will launch Gogo 5G or any next generation technology in sufficient time to meet capacity demands and to effectively compete in ATG markets, due to, among other things, risks associated with: (i) our failure to design and develop a technology that provides the features and performance we require; (ii) integrating the solution with our existing ATG network; (iii) the availability of adequate spectrum; (iv) the failure of spectrum to perform as expected; (v) the failure of equipment and software to perform as expected; (vi) problems arising in the manufacturing process; (vii) our ability to negotiate contracts with suppliers on acceptable commercial and other terms; (viii) our reliance on single-source suppliers for the development and manufacturing of the core elements of the network and on other suppliers to provide certain components and services; and (ix) delays in obtaining or failures to obtain the required regulatory approvals for installation and operation of such equipment and the provision of service to passengers. If Gogo 5G or any next generation ATG technology fails to perform as expected or its commercial availability is significantly delayed as compared to the timelines we establish, our business, financial condition and results of operations may be materially adversely affected. In addition, our failure to timely deliver Gogo 5G or any next generation ATG technology could have a material adverse effect on our ability to alleviate capacity constraints in our network. See also "—Risks Related to our CA Business—*We have experienced and continue to experience capacity constraints in the United States on our ATG network and may in the future experience additional capacity demands on that network and our United States and international satellite networks. If we fail to meet capacity demands, our business and results of operations may be materially and adversely affected.*"

Our CA-NA and BA businesses are dependent on the availability of spectrum.

In June 2006, we purchased at FCC auction an exclusive ten-year, 3 MHz license for ATG spectrum, and in April 2013, as part of our acquisition of LiveTV Airfone, LLC, we acquired an additional 1MHz ATG spectrum license. In 2017, our applications to renew our licenses were granted for additional ten-year terms without further payment. Any breach of the terms of our FCC licenses or FCC regulations including foreign ownership restrictions, permitted uses of the spectrum and compliance with FAA regulations could result in the revocation, suspension, cancellation or reduction in the term of our licenses or a refusal by the FCC to renew the licenses upon expiration. Further, in connection with an application to renew our licenses upon expiration, a competitor could file a petition opposing such renewal on anti-competitive or other grounds. On August 3, 2017, the FCC released an order which, among other things, revised the wireless license renewal rules. As a result of this order, which applies to the industry generally, all licensees will need to make a showing (or certification) at renewal to demonstrate that the licensee provided and continues to provide service to the public. Because the 1 MHz ATG license has no construction or substantial service requirement, it is currently not clear what level and length of service the FCC will find adequate when considering the next renewal of the 1 MHz ATG license in 2026. While we do not currently use this license, changes in technology may enable its use in our network in the future. An ambiguous renewal requirement could impair our flexibility to use or otherwise realize the value of such spectrum beyond 2026.

Our ability to offer in-flight broadband Internet access through our ATG service currently depends on our ability to maintain rights to use the 3 MHz ATG spectrum in the U.S. and our failure to do so may have a material adverse effect on our business, financial condition and results of operations. In addition, our ability to meet increasing capacity demands and expand our service offerings in the United States will depend in part upon our ability to successfully roll-out our plans to employ unlicensed spectrum in the 2.4 GHz band for concurrent use with the licensed 3 MHz spectrum and to launch Gogo 5G.

While we are the exclusive licensee of the only United States spectrum dedicated to ATG connectivity, additional ATG spectrum, whether licensed or unlicensed, is or may become available in the United States or internationally in the future.

While we have exclusive rights to the only spectrum licensed by the FCC for ATG use and are currently the only provider of ATG service in the United States, the FCC may in the future decide to auction additional spectrum for ATG use that is not currently designated for that purpose, or a competitor could develop technology or a business plan that allows it to cost effectively use spectrum not specifically reserved for ATG, but on which ATG use is not prohibited, to provide broadband connectivity.

The availability of additional spectrum in the marketplace that is available for ATG use may increase the possibility that we may face competition from one or more other ATG service providers in the future. For example, a competitor has announced that it is developing a North American 4G ATG network using the same unlicensed spectrum that we intend to use in our Gogo 5G network.

Additionally, one competitor in CA-ROW has built a European hybrid satellite and air-to-ground network to provide aviation customers connectivity service in Europe that became operational in 2019. Discussions occur in other regions from time to time regarding the use of spectrum for ATG service, and as a result, we may face competition from ATG providers in such regions.

If we fail to comply with the Communications Act and FCC regulations limiting ownership and voting of our capital stock by non-U.S. persons we could lose our FCC license.

Under the Communications Act and applicable FCC regulations, we are effectively restricted from having more than 25% of our capital stock owned or voted directly or indirectly by non-U.S. persons, including individuals and entities organized outside the United States or controlled by non-U.S. persons. We have established procedures to ascertain the nature and extent of our foreign ownership, and we believe that the indirect ownership of our equity by foreign persons or entities is below the 25% cap. However, as a publicly traded company we may not be able to determine with certainty the exact amount of our stock that is held by foreign persons or entities at any given time. A failure to comply with applicable restrictions on ownership by non-U.S. persons could result in an order to divest the offending ownership, fines, denial of license renewal and/or spectrum license revocation proceedings, any of which may have a material adverse effect on our business, financial condition and results of operations.

We could be adversely affected if we suffer service interruptions or delays, technology failures, damage to our equipment or system disruptions or failures arising from, among other things, force majeure events, cyber-attacks or other malicious activities, or satellite failures.

Our brand, reputation and ability to attract, retain and serve our customers depend upon the reliable performance of our in-flight portal, network infrastructure, content delivery processes and payment systems. We have experienced interruptions in these systems in the past, including server failures that temporarily slowed down our portal's performance and users' access to the Internet, or made our portal inaccessible, and we may experience service interruptions, service delays or technology or systems failures in the future, which may be due to factors beyond our control. In the past, failures resulting in users not being able to access the service have often been remedied by bypassing the payment processing step for users and directly connecting such users to the Internet, leading to a loss of revenue for those sessions. If we experience frequent system or network failures, our reputation, brand and customer retention could be harmed, we may lose revenue to the extent that we have to bypass the payment processing step in order to maintain users' connectivity to the Internet, and such failures could be material breaches of airline contracts resulting in termination rights, penalties or airline claims for damages.

Our operations and services depend upon the extent to which our equipment and the equipment of our third-party network providers is protected against damage or interruption from fire, floods, earthquakes, tornados, power loss, solar flares, telecommunication failures, break-ins, acts of war or terrorism and similar events. The capacity, reliability and security of our network infrastructure are important to the operation of our business, which may suffer in the event of system disruptions or failures, such as computer hackings, cyber-attacks, computer viruses, worms or other destructive or disruptive software, process breakdowns, denial of service attacks or other malicious activities. Our networks and those of our third-party service providers may be vulnerable to these attacks and unauthorized access. In addition, the satellites upon which we rely for current services and will rely for future services are and will be subject to significant operational risks while in orbit. These risks include malfunctions or outages, which have occurred and may occur in the future as a result of various factors, such as satellite design and manufacturing defects, improper maintenance, problems with the power or control systems of the satellites, collisions with space debris and general failures resulting from certain weather conditions or other network impacting issues that may arise when satellites operate in the harsh environment of space. Certain satellites on which we rely or will rely have limited or no operating history. Our satellite network currently includes high throughput satellites, which were first launched in 2017, and may include LEOs and MEOs in the future. Damage to our or third parties' networks could cause interruptions in the services that we provide. Such interruptions in our services could have a material adverse effect on service revenue, our reputation and our ability to attract or retain customers.

Assertions by third parties of infringement, misappropriation or other violations by us of their intellectual property rights could result in significant costs and materially adversely affect our business and results of operations.

In recent years, there has been significant litigation involving intellectual property rights in many technology-based industries, including the wireless communications industry. We have faced, are currently facing and may in the future face claims that we or a supplier or customer have violated patent, trademark or other intellectual property rights of third parties. Many companies, including our competitors, are devoting significant resources to obtaining patents that could potentially cover many aspects of our business. In addition, there are numerous patents that broadly claim means and methods of conducting business on the Internet. We have not exhaustively searched patents relevant to our technologies and business and therefore it is possible that we may be unknowingly infringing the patents of others.

Any infringement, misappropriation or related claims, whether or not meritorious and whether or not they result in litigation, are time-consuming, divert technical and management personnel and are costly to resolve. As a result of any such dispute, we may have to develop non-infringing technology, pay damages, enter into royalty or licensing agreements, cease providing certain products or services, adjust our merchandizing or marketing and advertising activities or take other actions to resolve the claims. These actions, if required, may be costly or unavailable on terms acceptable to us. Pursuant to our contracts with our airline partners and certain BA customers, we have agreed to indemnify our airline partners and such customers against such claims, and our indemnification obligations generally include defending or paying for the defense of the action and paying any judgments or other costs assessed against the aviation partner in the event of an adverse outcome. In most cases, our contracts do not cap our indemnification obligations. In addition, certain of our suppliers do not indemnify us for third party infringement or misappropriation claims arising from our use of supplier technology, and we may be liable in the event of such claims. Our inability to meet our indemnification obligations and our airline partners terminating or failing to renew their contracts may have a material adverse effect on our business and financial condition.

We or our technology suppliers may be unable to continue to innovate and provide products and services that are useful to consumers, airlines and other aircraft operators.

The market for our services is characterized by evolving technology, changes in aviation partner and passenger needs and frequent new service and product introductions. Our success will depend, in part, on our and our suppliers' ability to continue to enhance existing technology and services or develop new technology and services for both passenger and aircraft operational use on a timely and cost-effective basis. If we or our suppliers fail to adapt quickly enough to changing technology, aviation partner and passenger requirements and/or regulatory requirements, our business and results of operations may be materially adversely affected. We expect to have to invest significant capital to keep pace with innovation and changing technology, and if the amount of such investment exceeds our plans or the amount of investment permitted under the indenture governing the 2024 Senior Secured Notes or the ABL Credit Agreement, it may have a material adverse effect on our results of operations.

Furthermore, the proliferation of new mobile devices and new operating platforms poses challenges for our research and development efforts. If we are unable to create, or obtain rights to, cost effective solutions for a particular device or operating platform, we will be unable to effectively attract users of these devices or operating platforms and our business may be materially adversely affected.

As is common in industries like ours, changing technology may result in obsolescence as we implement new technologies and products and retire old technologies and products. As we encounter such obsolescence, we need to ensure that we have a sufficient supply of parts, products and equipment compatible with our existing technology, as well as access to maintenance, repair and other critical support services, until the transition is completed. Certain suppliers may determine to stop manufacturing and supplying end-of-life parts, products and equipment, or may stop providing related services, prior to completion of our transition. In the event that we are unable to obtain sufficient inventory from existing suppliers we would be required to engage new suppliers who have access to the intellectual property required to manufacture and support components that meet our specifications, and we may not be able to contract with such suppliers on commercially reasonable terms, or at all. We have implemented policies and procedures intended to ensure that we timely anticipate technology and product transitions and have access to sufficient inventory and services, but if such policies prove ineffective and we are unable to continue to engage suppliers with the capabilities or capacities required by our business to effect a transition, or if such suppliers fail to deliver quality products, parts, equipment and services in sufficient quantities or on a timely basis consistent with our schedule, our business, financial condition and results of operations may be materially adversely affected. In addition, following our retirement of end-of-life technologies and products, we may find that we have either obsolete or excess inventory on hand and might have to write off unusable inventory, which could have a material adverse effect on our results of operations.

We may not be able to protect our intellectual property rights.

We regard our trademarks, service marks, copyrights, patents, trade secrets, proprietary technologies, domain names and similar intellectual property as important to our success. We rely on trademark, copyright and patent law, trade secret protection, and confidentiality agreements with our employees, vendors, airline partners, customers and others to protect our proprietary rights. We have sought and obtained patent protection for certain of our technologies in the United States and certain other countries. Many of the trademarks that we use (including marks we have applied to register) contain words or terms having a somewhat common usage, such as “Gogo” and “Gogo Vision” and, as a result, we may have difficulty registering them in certain jurisdictions. We do not own, for example, the domain www.gogo.com and we have not yet obtained registrations for our most important marks in all markets in which we do business or may do business in the future, including China and India. If other companies have registered or have been using in commerce similar trademarks for services similar to ours in foreign jurisdictions, we may have difficulty in registering, or enforcing an exclusive right to use, our marks in those foreign jurisdictions.

There can be no assurance that the efforts we have taken to protect our proprietary rights will be effective, that any patent and trademark applications will lead to issued patents and registered trademarks in all instances, that others will not obtain intellectual property rights to similar or superior technologies, products or services, or that our intellectual property will not be challenged, invalidated, misappropriated or infringed by others. Furthermore, the intellectual property laws and enforcement practices of other countries in which our service is or may in the future be offered may not protect our intellectual property rights to the same extent as the laws of the United States. If we are unable to protect our intellectual property from unauthorized use, our ability to exploit our proprietary technology or our brand image may be harmed, which may materially adversely affect our business and results of operations.

Our use of open source software could limit our ability to commercialize our technology.

Open source software is software made widely and freely available to the public in human-readable source code form, usually with liberal rights to modify and improve such software. Some open source licenses require as a condition of use that proprietary software that is combined with licensed open source software and distributed must be released to the public in source code form and under the terms of the open source license. Accordingly, depending on the manner in which such licenses were interpreted and applied, we could face restrictions on our ability to commercialize certain of our products and we could be required to: (i) release the source code of certain of our proprietary software to the public, including competitors, if the open source software was linked to in a manner that would require such release of our proprietary software source code; (ii) seek licenses from third parties for replacement software; and/or (iii) re-engineer our software in order to continue offering our products. Such consequences may materially adversely affect our business.

The failure of our equipment or material defects or errors in our software may damage our reputation, result in claims against us that exceed our insurance coverage, thereby requiring us to pay significant damages, and impair our ability to sell our service.

Our products contain complex systems, components and software that could contain errors or defects, particularly when we incorporate new technology or when new software is first introduced or new versions or enhancements are released. If any of our products are defective, we could be required to redesign or recall those products or pay substantial damages or warranty claims. In addition, such events could result in significant expenses and diversion of development and other resources, a reduction in sales or delay in market acceptance of our products and services, loss of existing customers, terminations of, failures to renew, penalties or damage claims under aviation partner contracts, harm to our reputation and brand image and increased insurance costs. If our in-flight system has a malfunction resulting from an error or defect or a problem with installation or maintenance and such malfunction causes physical damage to an aircraft or impairs its on-board electronics or avionics, significant property loss and serious personal injury or death could result. Any such failure could expose us to substantial personal injury claims, product liability claims or costly repair obligations. The aircraft operated by our aviation partners may be very costly to repair and the damages in any product liability claims could be material. We carry aircraft and non-aircraft product liability insurance consistent with industry norms; however, such insurance coverage may not be sufficient to fully cover claims. A product recall or a product liability claim not covered by insurance could have a material adverse effect on our business, financial condition and results of operations. Further, we indemnify most of our airline partners for losses due to third-party claims and in certain cases the causes of such losses may include failure of our products. Should we be required by the FAA or otherwise to cease providing the Gogo service, even on a temporary basis, as a result of a product malfunction or defect, our business, financial condition and results of operations may also be materially adversely affected.

Regulation by United States and foreign government agencies, including the FCC, which issued our exclusive ATG spectrum license, and the FAA, which regulates the civil aviation manufacturing and repair industries in the United States, may increase our costs of providing service or require us to change our services.

We are subject to various regulations, including those regulations promulgated by various federal, state and local regulatory agencies and legislative bodies and comparable agencies outside the United States where we may do business. The two U.S. government agencies that have primary regulatory authority over our operations are the FCC and the FAA.

The FCC regulates our use of the spectrum licensed to us and the licensing, construction, modification, operation, ownership, sale and interconnection of wireless telecommunications systems. Any breach of the terms of our ATG spectrum licenses or other licenses and authorizations obtained by us from time to time, or any violation of the Communications Act or the FCC's rules, could result in the revocation, suspension, cancellation or reduction in the term of a license or the imposition of fines. From time to time, the FCC may monitor or audit compliance with the Communications Act and the FCC's rules or with our licenses, including if a third party were to bring a claim of breach or noncompliance. In addition, the Communications Act, from which the FCC obtains its authority, may be amended in the future in a manner that could be adverse to us.

The commercial and private aviation industries, including civil aviation manufacturing and repair industries, are highly regulated in the United States by the FAA. FAA certification is required for all equipment we install on commercial aircraft and type certificated business aircraft, and certain of our operating activities require that we obtain FAA certification as a parts manufacturer. As discussed in more detail in the section entitled "Business—Licenses and Regulation—Federal Aviation Administration," FAA approvals required to operate our business include STCs and Parts Manufacturing Authority (PMA). Obtaining STCs and PMAs is an expensive and time-consuming process that requires significant focus and resources. Prior to installation of our equipment, any inability to obtain, delay in obtaining (including as a result of a government shutdown or funding shortages), or change in, needed FAA certifications, authorizations, or approvals, could have an adverse effect on our ability to meet our installation commitments, manufacture and sell parts for installation on aircraft, or expand our business. Following installation of our equipment, if we were to discover that our equipment or components of our equipment were not in compliance with specifications on which the STC authorizing installation was based, or if the FAA's requirements changed, our non-compliance could result in our incurring material costs to inspect and in some circumstances modify or replace such equipment, and could in rare circumstances result in our system being turned off or installed aircraft being grounded. Our failure to comply with FAA regulations could have a material adverse effect on our business and operating results. The FAA closely regulates many of our operations. If we fail to comply with the FAA's many regulations and standards that apply to our activities, we could lose the FAA certifications, authorizations, or other approvals on which our manufacturing, installation, maintenance, preventive maintenance, and alteration capabilities are based. In addition, from time to time, the FAA or comparable foreign agencies adopt new regulations or amend existing regulations. The FAA could also change its policies regarding the delegation of inspection and certification responsibilities to private companies, which could adversely affect our business. To the extent that any such new regulations or amendments to existing regulations or policies apply to our activities, our compliance costs would likely increase.

We are required to contribute a percentage of all revenue generated from interstate or international telecommunications services or interconnected VoIP services, which we offer in the BA segment, to the federal Universal Service Fund, which subsidizes telecommunications services in areas that are expensive to serve. Broadband Internet access services are currently exempt from these USF contribution requirements.

As a broadband Internet provider, we must comply with CALEA, which requires communications carriers to ensure that their equipment, facilities and services can accommodate certain technical capabilities in executing authorized wiretapping and other electronic surveillance. Currently, our CALEA solution is fully deployed in our network. However, we could be subject to an enforcement action by the FCC or law enforcement agencies for any delays in complying or failure to comply with, CALEA, or similar obligations. Such enforcement actions could subject us to fines, cease and desist orders, or other penalties, all of which may materially adversely affect our business and financial condition. Further, to the extent the FCC adopts additional capability requirements applicable to broadband Internet providers, its decision may increase the costs we incur to comply with such regulations.

We are also subject to regulation by foreign laws and regulatory bodies in jurisdictions in which our international airline partners are registered, as well as foreign government agencies that choose to assert jurisdiction over us as a result of the service we provide on aircraft that fly international routes, including Innovation, Science and Economic Development Canada (formerly Industry Canada), which issued our exclusive Canadian ATG subordinate spectrum license and regulates our use of the spectrum licensed to us. Many non-U.S. jurisdictions require us to assist law enforcement by allowing access to our network for surveillance purposes in a manner similar to CALEA.

Adverse decisions or regulations of these U.S. and foreign regulatory bodies may have a material adverse effect on our business and results of operations and could delay the deployment of our services and have other adverse consequences for us. Our ability to obtain certain regulatory approvals to offer the Gogo service internationally may also be the responsibility of our aviation partners or third parties, and therefore may be out of our control. We are unable to predict the impact of regulations and other policy changes that could be adopted by the various governmental entities that oversee portions of our business.

If government regulation of the Internet changes, including with respect to e-commerce or online video distribution, we may need to change the way we conduct our business to a manner that incurs greater operating expenses, which may have a material adverse effect on our results of operations.

The current legal environment for Internet communications, products and services is uncertain and subject to statutory, regulatory or interpretive change. We cannot be certain that we, our vendors and media partners or our aviation customers are currently in compliance with applicable regulatory or other legal requirements in the countries in which our service is used. Regulators may disagree with our interpretations of laws or regulations or the applicability of laws or regulations to our business, and existing laws, regulations and interpretations may change in unexpected ways. Our failure, or the failure of our vendors and media partners, customers and others with whom we transact business to comply with existing or future legal or regulatory requirements may materially adversely affect our business, financial condition and results of operations.

Risks Related to Our Business and Industry

If our efforts to retain and attract passenger users are not successful, our revenue will be adversely affected.

For the years ended December 31, 2019, 2018 and 2017, the Gogo service we provide on commercial aircraft generated approximately 53%, 49% and 64% of our consolidated revenue, respectively. We must continue to retain existing users and attract new users. If we are unable to do so, our business, financial condition and results of operations may be materially adversely affected.

Unreliable service levels, lack of sufficient capacity, the scope and nature of our service offerings, uncompetitive pricing, difficulty or delay in accessing our portal, lack of availability and cybersecurity and privacy risks are some of the factors that may adversely impact our ability to retain existing users and attract new and repeat users. If passengers are able to satisfy their in-flight entertainment needs through activities other than broadband Internet access, at no or lower cost, they may not perceive value in our products and services. If our efforts to satisfy and retain our existing users are not successful, we may not be able to continue to attract new users through word-of-mouth referrals. Any of these factors could slow the growth of our service revenue, which may have a material adverse effect on our business, financial condition and results of operations. In addition, our contract with one airline partner from which we derived a significant portion but less than a majority of our 2019 consolidated revenue allows for termination rights if the percentage of passengers using connectivity aboard the airline's Gogo-equipped flights falls below certain thresholds.

The demand for in-flight broadband Internet access service may decrease or develop more slowly than we expect. We cannot predict with certainty the development of the U.S. or international in-flight broadband internet access market or the market acceptance for our products and services.

Our future success depends upon growing demand for in-flight broadband Internet access services, which is inherently uncertain. We have invested significant resources in the deployment of new systems and service offerings, which represent a substantial part of our growth strategy. We face the risk that the U.S. and international demand for in-flight broadband Internet access services may decrease or develop more slowly or differently than we currently expect, or that our services, including our new offerings, may not achieve widespread market acceptance. We may be unable to market and sell our services successfully and cost-effectively to a sufficiently large number aviation partners.

Our business depends on the continued proliferation of Wi-Fi as a standard feature in mobile devices. The growth in demand for in-flight broadband Internet access services also depends in part on the continued and increased use of laptops, smartphones, tablet computers, and other Wi-Fi enabled devices and the rate of evolution of data-intensive applications on the mobile Internet. If Wi-Fi ceases to be a standard feature in mobile devices, if the rate of integration of Wi-Fi on mobile devices decreases or is slower than expected, or if the use of Wi-Fi enabled devices or development of related applications decreases or grows more slowly than anticipated, the market for our services may be substantially diminished.

Our business requires substantial investment and there can be no assurance that such investment will result in increased revenue or growth in our business.

Our business requires substantial investment and there can be no assurance that such investment will result in increased revenue or growth in our business. Since our initial public offering ("IPO"), we have obtained debt financing through our entry into our previous credit facility, issuances of convertible notes and issuances of senior secured notes. Excluding the impact of such financing activities, we have not generated positive cash flows on a consolidated basis, and our ability to do so will depend in large part on our ability to increase revenue and manage costs in each of our three business segments. See the disclosure elsewhere in this Risk Factors section under the heading "—*We may need additional financing to execute our business plan or new initiatives, which we may not be able to secure on acceptable terms, or at all.*" We expect to continue to expend substantial financial and other resources on the continued roll-out of our technology roadmap and international expansion. The amount and timing of these costs are subject to numerous variables and such initiatives may require funding beyond the funding we currently expect and/or the funding we can secure. Such variables include, for our technology roadmap, the availability of and costs associated with development and deployment of Gogo 5G, our next generation ATG solution, the timely and successful installation of our equipment, and the timing of the deployment of other technologies in the future, as well as costs incurred to develop and implement changes to ground and airborne software and hardware, costs associated with subsidizing our airline partners' equipment purchases, including upgrades to ATG-4, 2Ku or other contractually obligated upgrades to our connectivity services and, with respect to satellite technologies, the cost of obtaining satellite capacity. With respect to our international expansion, additional variables may include costs incurred to modify our portal for international deployment, costs related to sales and marketing activities and administrative support functions, additional legal and regulatory expenses associated with operating in the international commercial aviation market, costs incurred to set up branch offices, subsidiaries or other entities required to do business in certain countries, costs incurred to set up physical foreign offices and employment related costs for individuals located in those countries. In certain international market segments, we have relatively little operating experience and may not benefit from any first-to-market advantages. It is costly to establish, develop, and maintain international operations and promote our brand internationally. These investments may not result in increased revenue or growth in our business. If we fail to continue to grow our revenue and overall business, it may have a material adverse effect on our financial condition and results of operations.

We may need additional financing to execute our business plan or new initiatives and we expect that we will need additional financing to refinance or repay our existing indebtedness at maturity; we may not be able to secure additional financing on acceptable terms, or at all.

As of December 31, 2019, our total cash, cash equivalents and short-term investments totaled $170 million. However, to date, excluding the impact of financing activities, we have not generated positive cash flows on a consolidated basis. As a result, we may require additional financing at some point in the future to fully execute our business plan, including our technology roadmap, international or domestic expansion plans or other changes. Our success may depend on our ability to raise such additional financing on reasonable terms and on a timely basis. The amount and timing of our capital needs will depend in part on the resources required to develop our next generation ATG solution, the extent of deployment of 2Ku and our next generation ATG service, the rate of customer penetration, the adoption of our service by airline partners and other factors set forth above that may adversely affect our business. In addition, we may actively consider from time to time other significant technological, strategic and operational initiatives. In order to execute on any of these initiatives, we may require additional financing. Furthermore, we expect that we will require additional financing to refinance, or repay at maturity, our indebtedness, including $237.8 million of 2022 Convertible Notes (as defined below) that mature on May 15, 2022. Conditions in the economy and the financial markets may make it more difficult for us to obtain necessary additional capital or financing on acceptable terms, or at all. In addition, our ability to obtain additional financing for working capital, capital expenditures, acquisitions, debt service requirements or general corporate purposes is also limited by the indenture governing the 2024 Senior Secured Notes, as amended, and the ABL Credit Agreement. As of December 31, 2019, Gogo Intermediate Holdings LLC and its subsidiaries would have been able to incur approximately $40 million of additional indebtedness, in the form of capital leases and borrowing under the ABL Credit Agreement. See "—*Risks Related to our Indebtedness—We may have future capital needs and may not be able to obtain additional financing to fund our capital needs on acceptable terms, or at all*." If we cannot secure sufficient additional financing, we will be forced to forego strategic opportunities or delay, scale back or eliminate additional service deployment, operations and investments or employ unplanned internal cost savings measures any of which could have a material adverse effect on our business prospects, financial condition and results of operations.

Increased costs and other demands associated with our growth could impact our ability to achieve profitability and could strain our personnel, technology and infrastructure resources.

Our costs could increase in future periods, which could have a material adverse effect on our future operating results. We continue to experience growth in our operations, which has placed significant demands on our management, administrative, technological, operational and financial infrastructure. Such growth, as well as anticipated future growth, including growth related to the broadening of our service offerings, the wide deployment of 2Ku, the development and implementation of Gogo 5G and other components of the technology roadmap, and continued investment in CA-ROW, have required and will require the outlay of significant operating and capital expenditures and will continue to place strains on our personnel, technology and infrastructure. Our success will depend in part upon our ability to contain these costs and other costs associated with growth opportunities. To successfully manage the expected growth of our operations on a timely and cost-effective basis we will need to continue to improve our operational, financial, technological and management processes and controls and our reporting systems and procedures. In addition, as we continue to grow, we must effectively integrate new employees and develop and motivate all employees, and we must maintain the beneficial aspects of our corporate culture. If we fail to successfully manage our growth, our business, financial condition and results of operations may be materially adversely affected.

Adverse economic conditions may have a material adverse effect on our business.

Macro-economic challenges are capable of creating volatile and unpredictable environments for doing business. We cannot predict the nature, extent, timing or likelihood of any economic slowdown or the strength or sustainability of any economic recovery, worldwide, in the United States or in the airline industry. For many travelers, air travel and spending on in-flight Internet access are discretionary purchases that they can eliminate in difficult economic times. Additionally, a weaker business environment could lead to a decrease in overall business travel, which has historically been an important contributor to our service revenue, or cause BA owners and operators of business aircraft to cut costs by reducing their purchases or use of private aircraft. Should an economic slowdown occur in the U.S. or globally, our business and results of operations may be materially adversely affected.

Our operating results may fluctuate unpredictably and may cause us to fail to meet the expectations of investors, adversely affecting our stock price.

We operate in a dynamic industry and our future quarterly operating results may fluctuate significantly. Our revenue and operating results may vary from quarter to quarter due to many factors, many of which are not within our control. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Further, it is difficult to accurately forecast our revenue, margin and operating results, and if we fail to match our expected results or the results expected by financial analysts or investors, the trading price of our common stock may be adversely affected.

In addition, due to generally lower demand for business travel during the summer months and holiday periods, and leisure and other travel at other times during the year, our quarterly results may not be indicative of results for the full year. Due to these and other factors, quarter-to-quarter comparisons of our historical operating results should not be relied upon as accurate indicators of our future performance.

We may be unsuccessful at evaluating or pursuing strategic opportunities, which could adversely affect our revenue, operating results and financial condition

Our Board and management continuously assess whether shareholder value would be increased by engaging in strategic and/or financial relationships, transactions or other opportunities, including those that are suggested to us by third parties. There can be no assurance that we will pursue any strategic or financial relationship, transaction or other opportunity, the outcome of which is inherently uncertain. Further, the process of evaluating and pursuing any such relationship, transaction or other opportunity will involve the dedication of significant resources and the incurrence of significant costs and expenses. If we are unable to mitigate these or other potential risks relating to assessing and undertaking strategic opportunities, it may disrupt our business or adversely impact our revenue, operating results and financial condition.

Our possession and use of personal information and the use of credit cards by users of our services present risks and expenses that could harm our business. Unauthorized disclosure or manipulation of such data, whether through breach of our network security or otherwise, could expose us to costly litigation and damage our reputation.

In the ordinary course of our business, we or our third-party providers collect, process and store sensitive data, including personal information of aircraft passengers and our employees and credit card information. The secure processing, maintenance and transmission of this information (and other sensitive data such as our proprietary business information and that of our customers and suppliers) is critical to our operations and business strategy. We depend on the security of our networks and, in part, on the security of the network infrastructures of our third-party providers of telecommunications, cloud computing, customer support and payment processing services, and other vendors. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or compromised due to employee error, malfeasance, hardware or software defects or other disruptions. Further, our in-cabin network operates as an open, unsecured Wi-Fi hotspot, and non-encrypted transmissions users send over this network may be vulnerable to access by other users on the same plane. Unauthorized use of our, or our third-party service providers', networks, computer systems and services could potentially jeopardize the security of confidential information, including personal information and credit card information of passengers using our service. Data security threats are constantly evolving and may be difficult to anticipate or to detect for long periods of time. There can be no assurance that any security measures we, or third parties, take will be effective in preventing these activities, given the constantly changing nature of the threats. Any such security incidents, unauthorized access or disclosure, or other loss of information could result in legal claims or proceedings and liability under our contracts with airline partners, which generally require us to indemnify the airline for passenger and other third-party claims arising from data security breaches. In addition, such incidents may disrupt our operations and the services we provide to customers, damage our reputation, and cause a loss of confidence in our products and services, all of which may have a material adverse effect on our business prospects, financial condition and results of operations.

Failure to protect confidential user data or to provide users with adequate notice of our privacy policies could also subject us to investigations and regulatory penalties imposed by United States federal and state regulatory agencies, non-U.S. regulatory agencies or courts. For example, the FTC could assert jurisdiction to impose penalties if it found our privacy policies or security measures to be inadequate under existing federal law. We could also be subject to certain state laws, including so-called "mini-FTC Acts", that impose data breach notification requirements, specific data security obligations, or other consumer privacy-related requirements. Our failure to comply with any of these rules or regulations may have a material adverse effect on our business, financial condition and results of operations.

We also must comply with certain Communications Act and FCC privacy and data security rules for our voice services, including certain provisions applicable to customer proprietary network information. Our failure to comply with these requirements may have a material adverse effect on our business, financial condition and results of operations.

Other countries in which we may operate or from which our services may be offered, including those in the European Union ("EU"), also have certain privacy and data security requirements that may apply to our business, either now or in the future. These countries' laws may in some cases be more stringent than the requirements in the United States. For example, European Union member countries have specific requirements relating to cross-border transfers of personal information to certain jurisdictions, including to the United States. In addition, some countries have stricter consumer notice and/or consent requirements relating to personal information collection, use or sharing. Moreover, international privacy and data security regulations have become more complex. In May 2018, the GDPR took effect, which has imposed even more restrictive privacy-related requirements. Despite the substantial preparation and related expenditures that we undertook to be in compliance with the GDPR as of its effective date, there can be no assurance that we are or will continue to be in compliance. The regulation of data privacy and security in the EU and in other jurisdictions continues to evolve, and it is not possible to predict the ultimate effect of evolving regulation and implementation over time. EU member states also have some flexibility to supplement the GDPR with their own laws and regulations and may apply stricter requirements for certain data processing activities.

Certain states have also enacted specific privacy laws to which we may be subject. For example, in September 2018, the governor of California signed into law an amended version of the CCPA. The CCPA provides broad new privacy rights for California consumers, including, among others, the right to obtain copies of their personal information collected in the past 12 months, the ability to opt-out from the sale of personal information, and the right to demand deletion of personal information. The CCPA will also impose compliance requirements on companies that do business in California and collect personal information from consumers, including notice, consent, and data retention requirements, which took effect on January 1, 2020. The CCPA also provides for civil penalties for violations, as well as a private right of action for data breaches that may increase data breach litigation. The CCPA was recently amended to, among other things, delay certain of the notice, deletion, and opt-out requirements with respect to employees and contractors, and to data collected in certain business-to-business communications, until January 1, 2021. The California Office of the Attorney General has proposed regulations to implement portions of the CCPA. The California Legislature may consider amendments to the CCPA during this year's legislative session. Additionally, an initiative proposing a California Privacy Rights Act, which would amend the CCPA, may be on the November 2020 ballot in California. Depending on the final text of the regulations, any legislative amendments, and the passage of the ballot initiative, the measures we are required to take to comply with the CCPA may be significantly impacted.

Our failure to comply with GDPR, CCPA or other privacy or data security-related laws, rules or regulations imposed by U.S. federal or state governments or agencies or foreign governments or agencies could result in material penalties imposed by regulators or cause us to be in material breach under our airline agreements, which may have a material adverse effect on our business, financial condition and results of operations.

In addition, substantially all connectivity customers use credit cards to purchase our products and services. Problems with our or our vendors' billing software could adversely affect our customer satisfaction and could cause one or more of the major credit card companies to disallow our continued use of their payment services. If our billing software fails to work properly and, as a result, we do not automatically charge our subscribers' credit cards on a timely basis or at all, our business, financial condition and results of operations could be adversely affected. In addition, we are required by the Payment Card Industry Security Standards Council, founded by major credit card companies, to comply with their data security standards to protect payment card information. New and revised standards may be imposed that may be difficult for us to meet and could increase our costs.

We cannot be sure that a regulator would deem our security measures to be appropriate given the lack of prescriptive measures in certain data protection laws. Without more specific guidance, we cannot know whether our chosen security safeguards are adequate according to each applicable data protection law. Given the evolving nature of security threats and evolving safeguards, we cannot be sure that our chosen security safeguards will protect against security threats to our business. Even security measures that are appropriate, reasonable, and/or in accordance with applicable legal requirements may not be able to fully protect our or our partners' information technology systems and the data contained in those systems. Moreover, interpretations or changes to new or existing data protection laws may impose on us responsibility for our employees and third parties that assist with aspects of our data processing. As a result, our employees' or third parties' intentional, unintentional, or inadvertent actions may increase our vulnerability or expose us to security threats, such as phishing attacks, and we may remain responsible for a successful phishing attack despite the quality and otherwise legal sufficiency of our security measures.

We depend upon third parties, many of which are single-source providers, to manufacture equipment components, provide services for our network and install and maintain our equipment.

We rely on third-party suppliers for equipment components and services that we use to provide our ATG and satellite services. Many suppliers of critical components of our equipment are single-source providers. Components for which we rely on single-source suppliers include, among others, the antennas and modems for all systems, the radomes for our satellite systems and the equipment used at our ATG cell site base stations. If we are required for any reason (including expiration of the contract, termination by one party for material breach or other termination events) to find one or more alternative suppliers, we estimate that the replacement process could take up to two years depending upon the component, and we may not be able to contract with such alternative suppliers on a timely basis, on commercially reasonable terms, or at all. Finding and contracting with suppliers of some components may be delayed or made more difficult by current suppliers' ownership of key intellectual property that requires alternative suppliers to either obtain rights to such intellectual property or develop new designs that do not infringe on such intellectual property. In addition, many of our components, such as the equipment used in our base stations, are highly integrated with other system components, which may further lengthen the time required for an alternative supplier to deliver a component that meets our system requirements. We also rely on a third party to provide the links between our data centers and our ground network. If we are not able to continue to engage suppliers with the capabilities or capacities required by our business, or if such suppliers fail to deliver quality products, parts, equipment and services in sufficient quantities or on a timely basis consistent with our schedule, our business, financial condition and results of operations may be materially adversely affected.

In our CA business, installation and maintenance of our airborne ATG and satellite equipment is performed by employees of third-party service providers with whom we contract, and in some cases, by our airline partners, third-party service providers with whom the airline partners contract, or OEMs. In our BA segment, installation of our equipment is performed by the OEMs or dealers who purchase our equipment. Having third parties or our customers install or maintain our equipment reduces our control over the processes, including timeliness and quality. If there is an equipment failure, including due to problems with the installation or maintenance processes, our reputation and our relationships with our customers could be harmed. The passenger jets operated by our airline partners are very costly to repair and therefore damages for claims related to faulty installation or maintenance could be material. Additionally, we may be forced to pay significant remediation costs and/or penalties to airlines to cover equipment failure due to installation or maintenance problems and we may not be able to be indemnified for these costs.

The supply of third party components and services could be interrupted or halted by a termination of our relationships, a failure of quality control or other operational problems at such suppliers or a significant decline in their financial condition. If we are not able to continue to engage suppliers with the capabilities or capacities required by our business, or if such suppliers fail to deliver quality products, parts, equipment and services on a timely basis consistent with our schedule, our business, financial condition and results of operations may be materially adversely affected.

Our agreements with our equipment and service providers may contain terms, such as those related to termination, pricing and service levels and related penalties, that are not consistent with our obligations under our agreements with customers that rely on such equipment for connectivity. Should we breach such customers' agreements, we may be unable to seek indemnification for such losses from our providers. Further, if our suppliers were to increase their prices and we could not pass these increased costs on to our customers, it would increase our cost of service, which may have a material adverse effect on our business and results of operations.

We depend upon ZTE to provide support services for our existing ATG network.

ZTE USA, Inc. ("ZTE USA") has historically developed, supplied and supported the base stations and associated core network elements used in our current ATG network, and we continue to rely on it for support services. In April 2018, the U.S. Commerce Department's Bureau of Industry and Security ("BIS") found that China-based affiliates of ZTE USA (together with ZTE USA, "ZTE") had violated a settlement agreement related to sanctions against Iran and North Korea. As a result of that finding, BIS issued a denial order prohibiting ZTE for seven years from participating in any transaction involving certain technology exported from the United States. The prohibited transactions precluded us from, among other things, obtaining support services from ZTE. In July 2018, BIS lifted the denial order.

On May 15, 2019, the President signed an Executive Order declaring a national emergency with respect to certain enumerated national security threats, including with respect to technology created or disseminated by foreign adversaries. The Executive Order prohibits "any acquisition, importation, transfer, installation, dealing in, or use of any information and communications technology or service (transaction) by any person, or with respect to any property, subject to the jurisdiction of the United States" for certain covered transactions, such as those that pose "an unacceptable risk to the national security of the United States or the security and safety of United States persons." In addition, in November 2019, the FCC adopted a rule that prospectively prohibits the use of universal service fund support to purchase or obtain any equipment or services produced or provided by a covered company posing a national security threat to the integrity of communications networks or the communications supply chain. The FCC initially designated ZTE as a covered company for purposes of this rule.

If these or other government actions (including penalties that could be imposed if ZTE again violates the settlement agreement) limit or prohibit ZTE's performance of its obligations under our existing contract, we may be required to contract with a new supplier or suppliers for the services previously provided by ZTE for our existing ATG network. If we are unable to timely identify one or more alternate suppliers adequate to meet our needs and to negotiate commercially reasonable terms, our business, financial condition and results of operations may be materially adversely affected.

We may fail to recruit, train and retain the highly skilled employees that are necessary to remain competitive and execute our growth strategy. The loss of one or more of our key personnel could harm our business.

Competition for key technical personnel in high-technology industries such as ours is intense. We believe that our future success depends in large part on our continued ability to hire, train, retain and leverage the skills of qualified engineers and other highly skilled personnel needed to maintain and grow our ATG and satellite networks and related technology and develop and successfully deploy our technology roadmap and new wireless telecommunications products and technology. We may not be as successful as our competitors at recruiting, training, retaining and utilizing these highly skilled personnel. In particular, we have had and may continue to have more difficulty attracting or retaining highly skilled personnel during periods of poor operating performance. Any failure to recruit, train and retain highly skilled employees may have a material adverse effect on our business and results of operations.

We depend on the continued service and performance of our key personnel, including Oakleigh Thorne, our President and Chief Executive Officer. Such individuals have acquired specialized knowledge and skills with respect to Gogo and its operations. As a result, if any of our key personnel were to leave Gogo, we could face substantial difficulty in hiring qualified successors and could experience a loss of productivity while any such successor obtains the necessary training and expertise. We do not maintain key man insurance on any of our officers or key employees. In addition, much of our key technology and systems is custom-made for our business by our personnel. The loss of key personnel, including key members of our management team, could disrupt our operations and may have a material adverse effect on our business.

Businesses or technologies we acquire could prove difficult to integrate, disrupt our ongoing business, dilute stockholder value or have a material adverse effect on our results of operations.

As part of our business strategy, we may engage in acquisitions of businesses or technologies to augment our organic or internal growth. We do not have any meaningful experience with integrating and managing acquired businesses or assets. Acquisitions involve challenges and risks in negotiation, execution, valuation and integration. Moreover, we may not be able to find suitable acquisition opportunities on terms that are acceptable to us. Even if successfully negotiated, closed and integrated, certain acquisitions may not advance our business strategy, may fall short of expected return-on-investment targets or may fail. Any future acquisition could involve numerous risks, including:

- potential disruption of our ongoing business and distraction of management;
- difficulty integrating the operations and products of the acquired business;

- use of cash to fund the acquisition or for unanticipated expenses;
- limited market experience in new businesses;
- exposure to unknown liabilities, including litigation against the companies we acquire;
- additional costs due to differences in culture, geographical locations and duplication of key talent;
- delays associated with or resources being devoted to regulatory review and approval;
- acquisition-related accounting charges affecting our balance sheet and operations;
- difficulty integrating the financial results of the acquired business in our consolidated financial statements;
- controls in the acquired business;
- potential impairment of goodwill;
- dilution to our current stockholders from the issuance of equity securities; and
- potential loss of key employees or customers of the acquired company.

In the event we enter into any acquisition agreements, closing of the transactions could be delayed or prevented by regulatory approval requirements, including antitrust review, or other conditions. We may not be successful in addressing these risks or any other problems encountered in connection with any attempted acquisitions, and we could assume the economic risks of such failed or unsuccessful acquisitions.

Difficulties in collecting accounts receivable could have a material effect on our results of operations.

The provision of equipment to our airline partners results in significant accounts receivable. In 2019, a significant portion of the service revenue in CA was generated from passenger credit card transactions resulting in credit card accounts receivable, which are typically settled within one to three business days following the charge. Going forward, we expect an increasing portion of our CA services revenue to be billed directly to airline partners operating under the airline-directed model and to third-party distributors of our service. Service and equipment revenues in our BA segment are directly billed to customers. We may not be able to collect our receivables on a timely basis. Difficulties in enforcing contracts and collecting accounts receivable, as well as longer payment cycles, could lead to material fluctuations in our cash flows, which may have a material adverse effect on our business, financial condition and results of operations.

Expenses or liabilities resulting from litigation could adversely affect our results of operations and financial condition.

We and several of our airline partners are currently defendants in a patent infringement lawsuit. In addition, we and certain of our current and former executives are defendants in a securities class action lawsuit, and we are a nominal defendant, and members of our board of directors and certain current and former executives are defendants, in a related stockholder derivative lawsuit. We are required to indemnify our airline partner co-defendants in the infringement lawsuits and the directors and current and former officers who are defendants in the class action and derivative lawsuits for their defense costs and any judgments resulting from such suits. In the future, we may be subject to additional securities class action or derivative litigation. From time to time, we may also be subject to other claims or litigation in the ordinary course of our business, including for example, claims related to employment matters. Our operations are characterized by the use of new technologies and services across multiple jurisdictions that implicate various statutes and a range of rules and regulations that may be subject to broad or creative interpretation. This may result in litigation, including class action lawsuits, the outcome of which may be difficult to assess or quantify due to the potential ambiguity inherent in these regulatory schemes and/or the nascence of our technologies and services. Plaintiffs may seek recovery of very large or indeterminate amounts, and the magnitude of the potential loss relating to such lawsuits may remain unknown for substantial periods of time. Any such claims or litigation may be time-consuming and costly, divert management resources, require us to change our products and services, or require us to pay significant monetary damages, which may have a material adverse effect on our results of operations. In addition, costly and time-consuming litigation could be necessary to enforce our existing contracts and, even if successful, may have a material adverse effect on our business. In addition, litigation by or against any airline partner, customer or supplier could have the effect of negatively impacting our reputation and goodwill with existing and potential airline partners, customers and suppliers.

Governmental action related to trade with China or other foreign countries could have a material adverse effect on our business and results of operations.

The U.S. government has indicated its intent to alter its approach to international trade policy and in some cases to renegotiate, or potentially terminate, certain existing bilateral or multi-lateral trade agreements and treaties with foreign countries. In addition, the U.S. government has initiated or is considering imposing tariffs on certain foreign goods, and related to this action, certain foreign governments, including China, have instituted or are considering imposing tariffs on certain U.S. goods. It remains unclear what the U.S. government or foreign governments will or will not do with respect to tariffs or other international trade agreements and policies. A trade war or other governmental action related to tariffs or international trade agreements or policies has the potential to adversely impact our supply chain and foreign demand for our products and services and, thus, to have a material adverse effect on our business and results of operations.

Risks Related to Our Indebtedness

We and our subsidiaries have substantial debt and may incur substantial additional debt in the future, which could adversely affect our financial health, reduce our profitability, limit our ability to obtain financing in the future and pursue certain business opportunities and reduce the value of your investment.

As of December 31, 2019, we had total consolidated indebtedness of approximately $1.2 billion, including $925.0 million outstanding of our 9.875% senior secured notes due 2024 (the "2024 Senior Secured Notes"), $237.8 million outstanding of our 6.00% convertible senior notes due 2022 (the "2022 Convertible Notes") and $2.5 million outstanding of our 3.75% convertible senior notes due 2020 (the "2020 Convertible Notes"). Subject to certain limitations set forth in the indenture governing the 2024 Senior Secured Notes, as amended, we and our subsidiaries may incur additional debt in the future, including up to $30.0 million, subject to borrowing base availability (and including letter of credit and swingline sub-facilities) under our asset-based revolving credit facility (the "ABL Credit Facility") pursuant to the credit agreement, dated as of August 26, 2019 (the "ABL Credit Agreement"), which could increase the risks described below and lead to other risks. The amount of our debt or such other obligations could have important consequences for holders of our common stock, including, but not limited to:

- a substantial portion of our cash flow from operations must be dedicated to the payment of principal and interest on our indebtedness, thereby reducing the funds available to us for other purposes;
- our ability to obtain additional financing for working capital, capital expenditures, acquisitions, debt service requirements or general corporate purposes is limited, and our ability to satisfy our obligations with respect to our indebtedness may be impaired in the future;
- we may be at a competitive disadvantage compared to our competitors with less debt or with comparable debt at more favorable interest rates and which, as a result, may be better positioned to withstand economic downturns;
- our ability to refinance indebtedness may be limited or the associated costs may increase;
- our ability to engage in acquisitions without raising additional equity or obtaining additional debt financing may be impaired in the future;

- it may be more difficult for us to satisfy our obligations to our creditors, resulting in possible defaults on and acceleration of such indebtedness;
- we may be more vulnerable to general adverse economic and industry conditions; and
- our flexibility to adjust to changing market conditions and our ability to withstand competitive pressures could be limited, or we may be prevented from making capital investments that are necessary or important to our operations in general, growth strategy and efforts to improve operating margins of our business units.

We may have future capital needs and may not be able to obtain additional financing to fund our capital needs on acceptable terms, or at all.

We have from time to time evaluated, and we continue to evaluate, our potential capital needs in light of increasing demand for our services, limitations on bandwidth capacity and generally evolving technology in our industry. We may utilize one or more types of capital raising in order to fund any initiative in this regard, including the issuance of new equity securities and new debt securities, including debt securities convertible into our common stock. Since our IPO, we have obtained debt financing through our entry into our previous credit facility, issuances of convertible notes and issuances of senior secured notes. Excluding the impact of such financing activities, we have not generated positive cash flows on a consolidated basis, and our ability to do so will depend in large part on our ability to increase revenue and manage costs in each of our three business segments. In addition, our ability to generate positive cash flows from operating activities and the timing of certain capital and other necessary expenditures are subject to numerous variables, such as costs related to international expansion and execution of our current technology roadmap, including continuing development of our 2Ku and ATG systems, and other potential future technologies. The market conditions and the macroeconomic conditions that affect the markets in which we operate could have a material adverse effect on our ability to secure financing on acceptable terms, if at all. We may be unable to secure additional financing on favorable terms or at all or our operating cash flow may be insufficient to satisfy our financial obligations under the indenture governing the 2024 Senior Secured Notes, the indenture governing the 2022 Convertible Notes, the ABL Credit Agreement and other indebtedness outstanding from time to time.

Our ability to obtain additional financing for working capital, capital expenditures, acquisitions, debt service requirements or general corporate purposes is limited by the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement. As of December 31, 2019, the remaining permitted indebtedness for Gogo Intermediate Holdings LLC (a wholly owned subsidiary of Gogo Inc.) and its subsidiaries was approximately $40 million in the form of capital leases and borrowings under the ABL Credit Agreement. In the future, if our subsidiaries are in compliance with certain incurrence ratios set forth in the indenture governing the 2024 Senior Secured Notes and in the ABL Credit Agreement, our subsidiaries may be able to incur additional indebtedness, which may increase the risks created by our current substantial indebtedness. Neither the indenture governing the 2024 Senior Secured Notes nor the ABL Credit Agreement prohibits Gogo Inc. from incurring additional indebtedness under any circumstances, but they do limit the amount of cash that our subsidiaries may dividend, transfer or otherwise distribute to us, including cash distributed to us to pay interest on the 2022 Convertible Notes or to pay interest on other indebtedness incurred by us, including indebtedness or preferred stock incurred to refinance, replace, renew or refund the 2022 Convertible Notes.

The terms of any additional financing may further limit our financial and operating flexibility. Our ability to satisfy our financial obligations will depend upon our future operating performance, the availability of credit generally, economic conditions and financial, business and other factors, many of which are beyond our control. Furthermore, if financing is not available when needed, or is not available on acceptable terms, we may be unable to take advantage of business opportunities or respond to competitive pressures, any of which may have a material adverse effect on our business, financial condition and results of operations. Even if we are able to obtain additional financing, we may be required to use the proceeds from any such financing to repay a portion of our outstanding debt.

If we raise additional funds through further issuances of equity, convertible debt securities or other securities convertible into equity, our existing stockholders could suffer significant dilution in their percentage ownership of our company. In addition, any new securities we issue could have rights, preferences and privileges senior to those of holders of our common stock, and we may grant holders of such securities rights with respect to the governance and operations of our business. If we are unable to obtain adequate financing or financing on terms satisfactory to us, if and when we require it, our ability to grow or support our business and to respond to business challenges could be significantly limited.

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to satisfy our obligations under our existing indebtedness and any future indebtedness we may incur and to make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as reducing or delaying investments or capital expenditures, selling assets, refinancing or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance existing indebtedness or future indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities on desirable terms or at all, and such alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations, which could result in a default on existing indebtedness or future indebtedness.

We cannot make assurances that we will be able to refinance any of our indebtedness or obtain additional financing, particularly because of our high levels of debt and the debt incurrence restrictions imposed by the agreements and instruments governing our debt. In addition, we do not currently have a revolving credit facility under which we can borrow to make payments of the principal of, to pay interest on or to refinance any indebtedness. In the absence of such sources of capital, we could face substantial liquidity problems and might be required to dispose of material assets or operations to meet our debt service and other obligations. The indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement restrict our ability to dispose of assets and how we use the proceeds from any such dispositions. We cannot make assurances that we will be able to consummate those dispositions or, if we do, what the timing of the dispositions will be or whether the proceeds that we realize will be adequate to meet our debt service obligations when due.

The agreements and instruments governing our debt contain restrictions and limitations that could significantly impact our ability to operate our business.

The indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement contain covenants that, among other things, limit the ability of our subsidiaries and, in certain circumstances, us to:

- incur additional debt;
- pay dividends, redeem stock or make other distributions;
- make certain investments;
- create liens;
- transfer or sell assets;
- merge or consolidate with other companies; and
- enter into certain transactions with our affiliates.

Our ability to comply with the covenants and restrictions contained in the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement may be affected by economic, financial and industry conditions beyond our control. Our failure to comply with obligations under the agreements and instruments governing our indebtedness may result in an event of default under such agreements and instruments. We cannot be certain that we will have funds available to remedy these defaults. A default, if not cured or waived, may permit acceleration of our indebtedness. If our indebtedness is accelerated, we cannot be certain that we will have sufficient funds available to pay the accelerated indebtedness or have the ability to refinance the accelerated indebtedness on terms favorable to us or at all. All of these covenants and restrictions could affect our ability to operate our business, may limit our ability in the future to satisfy currently outstanding obligations and may limit our ability to take advantage of potential business opportunities as they arise.

Additionally, any indebtedness under our ABL Credit Agreement will bear interest at variable rates that use the London inter-bank offered rate ("LIBOR"). On July 27, 2017, the United Kingdom's Financial Conduct Authority, which regulates LIBOR, announced that it intends to stop persuading or compelling banks to submit LIBOR quotations after 2021 (the "FCA Announcement"). The FCA Announcement indicates that the continuation of LIBOR on the current basis may not be assured after 2021, and LIBOR may cease to exist or otherwise be unsuitable for use as a benchmark. Recent proposals for LIBOR reforms may result in the establishment of new methods of calculating LIBOR or the establishment of one or more alternative benchmark rates. The expected phase out of LIBOR could cause market volatility or disruption and may adversely affect our access to the capital markets and cost of funding. Furthermore, while the ABL Credit Agreement contains provisions providing for use of alternative rate calculations in the event LIBOR is unavailable, these provisions may not adequately address the actual changes to LIBOR or successor rates.

The 2024 Senior Secured Notes, and any indebtedness under the ABL Credit Facility, are secured by substantially all of our consolidated assets. As a result of these security interests, such assets would only be available to satisfy claims of our general creditors or to holders of our equity securities if we were to become insolvent to the extent the value of such assets exceeded the amount of our secured indebtedness and other obligations. In addition, the existence of these security interests may adversely affect our financial flexibility.

The 2024 Senior Secured Notes, and any indebtedness under the ABL Credit Facility, are secured by a lien on substantially all of our assets. Accordingly, if an event of default were to occur under the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement, the holders of the 2024 Senior Secured Notes and, to the extent amounts were outstanding under the ABL Credit Facility, the lenders party to the ABL Credit Agreement would have a prior right to our assets, to the exclusion of our general creditors in the event of our bankruptcy, insolvency, liquidation, or reorganization. In that event, our assets would first be used to repay in full all indebtedness and other obligations under the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement, resulting in all or a portion of our assets being unavailable to satisfy the claims of our unsecured indebtedness. Only after satisfying the claims of our unsecured creditors and our subsidiaries' unsecured creditors would any amount be available for our equity holders. The pledge of these assets and other restrictions may limit our flexibility in raising capital for other purposes. Because substantially all of our assets are pledged under these financing arrangements, our ability to incur additional secured indebtedness or to sell or dispose of assets to raise capital may be impaired, which could have an adverse effect on our financial flexibility.

We may not have sufficient cash flow or the ability to raise the funds necessary to settle conversions of the 2022 Convertible Notes, to repay the 2022 Convertible Notes at maturity or to purchase the 2022 Convertible Notes upon a fundamental change, and the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement may limit our ability to pay interest, or dividends, on indebtedness, or preferred stock, issued to refinance the 2022 Convertible Notes.

Holders of the 2022 Convertible Notes will have the right to require us to purchase their 2022 Convertible Notes upon the occurrence of a fundamental change at a purchase price equal to 100% of the principal amount of the 2022 Convertible Notes to be purchased, plus accrued and unpaid interest, if any, to, but not including, the fundamental change purchase date. In addition, in the event the conditional conversion feature of the 2022

Convertible Notes is triggered, holders of the 2022 Convertible Notes will be entitled to convert the 2022 Convertible Notes at any time during specified periods at their option. Upon conversion of the 2022 Convertible Notes, we will be required to make cash payments in respect of the 2022 Convertible Notes being converted, unless we elect to deliver solely shares of our common stock to settle such conversion (other than cash in lieu of any fractional share). Moreover, we will be required to repay the 2022 Convertible Notes in cash on May 15, 2022, their maturity date, unless earlier converted or repurchased. We may not have enough available cash or be able to obtain financing at the time we are required to make purchases of 2022 Convertible Notes surrendered therefor or repay the 2022 Convertible Notes at maturity or upon 2022 Convertible Notes being converted. The indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement also does not allow our subsidiaries to distribute cash to us for the payment of the principal of the 2022 Convertible Notes. In addition, the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement limits the amount of cash our subsidiaries may dividend, transfer or otherwise distribute to us, including cash distributed to pay interest on the 2022 Convertible Notes or to pay any interest on other indebtedness incurred by us, including indebtedness or preferred stock incurred to refinance, replace, renew or refund the 2022 Convertible Notes, which may limit our ability to issue debt or other securities in an amount necessary to refinance the outstanding 2022 Convertible Notes or at rates that such distributions could support. While we have reserved a portion of the net proceeds from the issuance of the 2022 Convertible Notes to fund a portion of future interest payments on the 2022 Convertible Notes, the amount of such funds, together with funds up-streamed from subsidiaries and from other potential sources of liquidity (if any) may not be adequate to fund any future liquidity shortfall. See "—*We may have future capital needs and may not be able to obtain additional financing to fund our capital needs on acceptable terms, or at all*."

Our failure to purchase 2022 Convertible Notes as required by the indenture governing the 2022 Convertible Notes or to pay cash payable upon future conversions of the 2022 Convertible Notes as required by the indenture governing the 2022 Convertible Notes would constitute a default under the indenture governing the 2022 Convertible Notes. A default under the indenture governing the 2022 Convertible Notes or the fundamental change itself could also lead to a default under the agreements and instruments governing our other indebtedness and the acceleration of amounts outstanding thereunder, including the indenture governing the 2024 Senior Secured Notes and the ABL Credit Agreement. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and purchase the 2022 Convertible Notes or make cash payments upon conversions thereof. A default under the indenture governing the 2022 Convertible Notes may have a material adverse effect on our financial condition and results of operations and could cause us to become bankrupt or otherwise insolvent.

The change of control repurchase feature of the 2024 Senior Secured Notes and the 2022 Convertible Notes, as well as certain restrictions contained in the ABL Credit Agreement, may delay or prevent an otherwise beneficial attempt to take over our company.

The terms of the 2024 Senior Secured Notes and the 2022 Convertible Notes require our subsidiaries or us, respectively, to repurchase the 2024 Senior Secured Notes or the 2022 Convertible Notes, respectively, in the event of a change of control. A takeover of our company would trigger an option of the holders of the 2024 Senior Secured Notes and the 2022 Convertible Notes to require our subsidiaries or us, respectively, to repurchase the 2024 Senior Secured Notes or the 2022 Convertible Notes, respectively. In addition, under the terms of the ABL Credit Agreement, a takeover of our company would allow the administrative agent and/or the lenders to terminate their commitments under the ABL Credit Agreement and declare any and all outstanding amounts to be due and payable. These provisions may have the effect of delaying or preventing a takeover of our company that would otherwise be beneficial to our stockholders.

A downgrade, suspension or withdrawal of the rating assigned by a rating agency to us, our subsidiaries or our indebtedness, if any, could cause our cost of capital to increase.

The 2024 Senior Secured Notes have been rated by nationally recognized rating agencies and may in the future be rated by additional rating agencies. We cannot assure you that any rating assigned will remain for any given period of time or that a rating will not be lowered or withdrawn entirely by a rating agency if, in that rating agency's judgment, circumstances relating to the basis of the rating, such as adverse changes in our business, so warrant. Any future lowering of ratings may make it more difficult or more expensive for us to obtain additional debt financing.

Risks Relating to Our Common Stock

The price of our common stock may be volatile, and the value of your investment could decline.

The trading price of our common stock has been volatile since our IPO, which occurred on June 21, 2013 and in which shares of common stock were sold at a price of $17.00 per share. From the IPO date through March 1, 2020, the price of our common stock has ranged from a closing low of $2.93 per share to a closing high of $34.34 per share. In addition to the factors discussed in this Annual Report, the trading price of our common stock may fluctuate widely in response to various factors, many of which are beyond our control. They include:

- airline industry or general market conditions, including those related to the impact of COVID-19 on restrictions on and demand for air travel, as well as disruptions to supply chains and installations;
- domestic and international economic factors unrelated to our performance;
- changes in technology or customer usage of Wi-Fi and Internet broadband services;
- any inability to timely and efficiently roll out Gogo 5G or any next generation ATG technology or other components of our technology roadmap;
- any inability to sufficiently execute our international growth strategy;
- uncertainties and consequences arising from the United Kingdom's departure from the European Union, including any financial, trade, tax and legal implications
- any inability to obtain satellite service on commercially reasonable terms or at all, currently and in the future;
- new regulatory pronouncements and changes in regulatory guidelines;
- actual or anticipated fluctuations in our quarterly operating results and any inability to generate positive cash flows on a consolidated basis in the future or to obtain additional financing;
- changes in or failure to meet publicly disclosed expectations as to our future financial performance;
- changes in securities analysts' estimates of our financial performance or lack of research and reports by industry analysts;
- action by institutional stockholders or other large stockholders, including future sales;
- short-selling or other transactions involving derivatives of our securities;
- speculation in the press or investment community;
- investor perception of us and our industry;
- changes in market valuations or earnings of similar companies;
- announcements by us or our competitors of significant products, contracts, contract amendments, acquisitions or strategic partnerships;
- developments or disputes concerning patents or proprietary rights, including increases or decreases in litigation expenses associated with intellectual property lawsuits we may initiate, or in which we may be named as defendants;
- failure to complete significant sales;

- any future sales of our common stock or other securities;
- renewal of our FCC license and our ability to obtain additional spectrum; and
- additions or departures of key personnel.

In addition, the stock markets have experienced extreme price and volume fluctuations in recent years that have affected and continue to affect the market prices of equity securities of many technology companies. Stock prices of many such companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. These broad market fluctuations may adversely affect the trading price of our common stock. In the past, following periods of volatility in the market price of a company's securities, class action litigation has often been instituted against such company. Any litigation of this type brought against us could result in substantial costs and a diversion of our management's attention and resources, which may have a material adverse effect on our business, financial condition and results of operations.

Adjustments by holders of the 2022 Convertible Notes of their hedging positions in our common stock and the forward stock purchase transactions, or any modifications of the forward stock purchase transactions, may have a negative effect on the market price of our common stock.

Any buying or selling of shares of our common stock by holders of the 2022 Convertible Notes to establish or adjust hedged positions with respect to our common stock may affect the market price of our common stock. In addition, the existence of the 2022 Convertible Notes may also encourage short selling by market participants because any conversions of the 2022 Convertible Notes could depress our common stock price. The price of our common stock could be affected by possible sales of our common stock by investors who view the 2022 Convertible Notes as a more attractive means of equity participation, and by hedging or arbitrage trading activity, which we expect to occur involving our common stock.

On December 11, 2019, we entered into an amended and restated privately negotiated prepaid forward stock purchase transaction (the "Amended and Restated Forward Transaction") with JPMorgan Chase Bank, National Association (the "Forward Counterparty"), which replaced the prepaid forward stock purchase transaction entered into with the Forward Counterparty in connection with the issuance of the 2020 Convertible Notes. The Amended and Restated Forward Transaction is generally expected to facilitate privately negotiated derivative transactions, including swaps, between the Forward Counterparty and investors in the 2022 Convertible Notes relating to shares of our common stock by which investors in the 2022 Convertible Notes will establish short positions relating to shares of our common stock and otherwise hedge their investments in the 2022 Convertible Notes. The maturity date of such Amended and Restated Forward Transaction is on or around May 15, 2022, the maturity date for the 2022 Convertible Notes. Such investors may enter into other transactions in connection with or in addition to such derivative transactions, including the purchase or sale of shares of our common stock. As a result of the existence of the Amended and Restated Forward Transaction, such derivative transactions and any related market activity could cause more purchases or sales of shares of our common stock over the term of the Amended and Restated Forward Transaction than there otherwise would have been had we not entered into the Amended and Restated Forward Transaction. Such purchases or sales, including sales made in connection with any refinancing or repurchase of our 2022 Convertible Notes, could potentially increase (or reduce the size of any decrease in) or decrease (or reduce the size of any increase in) the market price of our common stock. In addition, in connection with any repurchase of our 2022 Convertible Notes, the Forward Counterparty may elect to settle a portion of the Amended and Restated Forward Transaction early in accordance with its terms, which would result in a delivery of shares of our common stock to us earlier than the maturity date described above.

In addition, we may request that the Forward Counterparty modify the settlement terms of the Amended and Restated Forward Transaction to provide that, in lieu of the delivery of the number of shares of our common stock to us to settle a portion of the Amended and Restated Forward Transaction in accordance with its terms, the Forward Counterparty would pay to us the net proceeds from the sale by the Forward Counterparty (or its affiliate) of a corresponding number of shares of our common stock in a registered offering (which may include block sales, sales on the NASDAQ Global Select Market ("NASDAQ"), sales in the over-the-counter market, sales pursuant to negotiated transactions or otherwise, at market prices prevailing at the time of sale or at negotiated prices). Any such sales could potentially decrease (or reduce the size of any increase in) the market price of our common stock. The Forward Counterparty is not required to effect any such settlement in cash in lieu of delivery of shares of our common stock and, if we request for the Forward Counterparty to effect any such settlement, it will be entered into in the discretion of the Forward Counterparty on such terms as we may agree with the Forward Counterparty at the time.

Additionally, the Forward Counterparty (or its affiliates) is likely to modify its hedge positions in respect of the Amended and Restated Forward Transaction by entering into or unwinding various derivative transactions with respect to shares of our common stock and/or by purchasing the shares of common stock or other securities of ours in secondary market transactions prior to maturity of the Amended and Restated Forward Transaction (and are likely to do so during the final valuation period under the Amended and Restated Forward Transaction and on or around any election by the Forward Counterparty to settle all of a portion of the Amended and Restated Forward Transaction early). The effect, if any, of any of these transactions and activities on the market price of our common stock will depend in part on market conditions and cannot be ascertained at this time, but any of these activities could adversely affect the value of our common stock.

The Forward Counterparty is a financial institution, and we will be subject to the risk that it might default under the Amended and Restated Forward Transaction. Our exposure to the credit risk of the Forward Counterparty is not secured by any collateral. Global economic conditions have in the recent past resulted in, and may again result in, the actual or perceived failure or financial difficulties of many financial institutions. If the Forward Counterparty becomes subject to insolvency proceedings, we will become an unsecured creditor in those proceedings, with a claim equal to our exposure at that time under our transactions with the Forward Counterparty. Our exposure will depend on many factors, but, generally, an increase in our exposure will be correlated to an increase in the market price of our common stock. In addition, upon a default by the Forward Counterparty, we may suffer more dilution than we currently anticipate with respect to our common stock.

Conversion of the 2022 Convertible Notes may dilute the ownership interest of existing stockholders or may otherwise depress the price of our common stock.

The conversion of some or all of the 2022 Convertible Notes may dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of any of the 2022 Convertible Notes. Any sales in the public market of the common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the 2022 Convertible Notes may encourage short selling by market participants because the conversion of the 2022 Convertible Notes could be used to satisfy short positions. In addition, the anticipated conversion of the 2022 Convertible Notes into shares of our common stock could depress the price of our common stock.

Future stock issuances could cause substantial dilution and a decline in our stock price.

We may issue additional shares of common stock or other equity or debt securities convertible into common stock from time to time in connection with a financing, acquisition, litigation settlement, employee arrangement, as consideration to third party service or equipment providers or otherwise. In addition, a substantial number of shares of our common stock are reserved for issuance upon the exercise of stock options and other equity incentives and the conversion of 2022 Convertible Notes. We may reserve additional shares of our common stock for issuance upon the exercise of stock options or other similar forms of equity incentives. We cannot predict the size of future issuances or the effect, if any, that they may have on the market price for our common stock. Any of these issuances could result in substantial dilution to our existing stockholders and could cause the trading price of our common stock to decline.

If securities or industry analysts do not publish research or publish misleading or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. If securities or industry analysts covering Gogo downgrade our stock or publish misleading or unfavorable research about our business, our stock price would likely decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which could cause our stock price or trading volume to decline.

Our President and CEO is a significant stockholder and could exert influence over our company, and if the ownership of our common stock continues to be concentrated, or becomes more concentrated in the future, it could prevent our other stockholders from influencing significant corporate decisions.

As of December 31, 2019, Oakleigh Thorne, our President and CEO and a member of our Board of Directors, and the entities affiliated with Mr. Thorne (the “Thorne Entities”) beneficially owned nearly 30% of the outstanding shares of our common stock. As a result, Mr. Thorne is able to exercise influence over all matters requiring stockholder approval for the foreseeable future, including approval of significant corporate transactions and the election of directors. Such ability to influence may reduce the market price of our common stock.

As our President and CEO, Mr. Thorne has control over our day-to-day management and the implementation of major strategic initiatives and investments by our company, subject to authorization and oversight by our Board of Directors. As a member of our Board of Directors, Mr. Thorne owes a fiduciary duty to our stockholders and must act in good faith in a manner he reasonably believes to be in the best interests of our stockholders. As a stockholder, Mr. Thorne is entitled to vote his shares, and shares over which he has voting control, in his own interest, which may not always be in the interests of stockholders generally.

Our corporate governance guidelines address potential conflicts between a director’s interests and our interests, and our code of business conduct, among other things, requires our employees and directors to avoid actions or relationships that might conflict or appear to conflict with their job responsibilities or our interests and to disclose their outside activities, financial interests or relationships that may present a possible conflict of interest or the appearance of a conflict to management or corporate counsel. These corporate governance guidelines and code of business ethics do not, by themselves, prohibit transactions with the Thorne Entities.

Fulfilling our obligations associated with being a public company, including with respect to the requirements of and related rules under the Sarbanes-Oxley Act of 2002 (“Sarbanes-Oxley”), is expensive and time-consuming, and any delays or difficulties in satisfying these obligations may have a material adverse effect on our future results of operations and our stock price.

As a public company, Sarbanes-Oxley and the related rules and regulations of the SEC, as well as NASDAQ rules, require us to implement various corporate governance practices and adhere to a variety of reporting requirements and complex accounting rules. Compliance with these public company obligations requires us to devote significant time and resources and places significant additional demands on our finance and accounting staff and on our financial accounting and information systems. Our business is complex and the accounting treatment for airline equipment and services transactions may vary depending on the business model that an airline selects. Ensuring that our business processes and systems evolve with the changing needs of the business creates challenges which may increase the risks we encounter in meeting our financial reporting obligations. We have hired additional accounting and financial staff with appropriate public company reporting experience and technical accounting knowledge. Other expenses associated with being a public company include increased auditing, accounting and legal fees and expenses, investor relations expenses, increased directors’ fees and director and officer liability insurance costs, registrar and transfer agent fees and listing fees, as well as other expenses.

We are required under Sarbanes-Oxley to document and test the effectiveness of our internal control over financial reporting, and our independent registered public accounting firm is required to provide an attestation report on the effectiveness of our internal control over financial reporting. In addition, we are required under the Exchange Act to maintain disclosure controls and procedures and internal control over financial reporting. Any failure to maintain effective controls or implement required new or improved controls, or difficulties encountered in their implementation or the implementation of our financial system upgrade, may materially adversely affect our results of operations or cause us to fail to meet our reporting obligations. If we are unable to conclude that we have effective internal control over financial reporting, or if our independent registered public accounting firm is unable to provide us with an unqualified report regarding the effectiveness of our internal control over financial reporting, investors could lose confidence in the reliability of our financial statements. This could result in a decrease in the value of our common stock. Failure to comply with Sarbanes-Oxley could potentially subject us to sanctions or investigations by the SEC, NASDAQ, or other regulatory authorities.

Anti-takeover provisions in our charter documents and Delaware law, and certain provisions in our existing and any future credit facility could discourage, delay or prevent a change in control of our company and may affect the trading price of our common stock.

Our amended and restated certificate of incorporation and amended and restated bylaws include a number of provisions that may discourage, delay or prevent a change in our management or control over us that stockholders may consider favorable. These provisions include:

- Authorization of the issuance of “blank check” preferred stock that could be issued by our Board of Directors to thwart a takeover attempt;
- Establishment of a classified Board of Directors, as a result of which our board will be divided into three classes, with each class serving for staggered three-year terms, which prevents stockholders from electing an entirely new Board of Directors at an annual meeting;
- A requirement that directors only be removed from office for cause and only upon a supermajority stockholder vote;
- A provision that vacancies on the Board of Directors, including newly-created directorships, may be filled only by a majority vote of directors then in office;
- A limitation on who may call special meetings of stockholders;
- A prohibition on stockholder action by written consent, thereby requiring all actions to be taken at a meeting of the stockholders; and
- A requirement of supermajority stockholder voting to effect certain amendments to our amended and restated certificate of incorporation and amended and restated bylaws.

These provisions may prevent our stockholders from receiving the benefit from any premium to the market price of our common stock offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of these provisions may adversely affect the prevailing market price of our common stock if the provisions are viewed as discouraging takeover attempts in the future.

Our amended and restated certificate of incorporation and amended and restated bylaws may also make it difficult for stockholders to replace or remove our management. These provisions may facilitate management entrenchment that may delay, deter, render more difficult or prevent a change in our control, which may not be in the best interests of our stockholders.

We do not intend to pay dividends on our common stock for the foreseeable future.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain any future earnings to finance the operation and growth of our business, and we do not expect to declare and pay any dividends on our common stock for the foreseeable future. In addition, our operations are conducted almost entirely through our subsidiaries. Accordingly, to the extent that we determine to pay dividends on our common stock, none of our subsidiaries will be obligated to make funds available to us for the payment of dividends. Furthermore, Delaware law may impose requirements that may restrict our ability to pay dividends to holders of our common stock.

Our corporate charter and bylaws include provisions limiting ownership by non-U.S. citizens, including the power of our Board of Directors to redeem shares of our common stock from non-U.S. citizens.

The Communications Act and FCC regulations impose restrictions on foreign ownership of FCC licensees, as described in the above risk factor, "*—Risks Related to Our Technology and Intellectual Property and Regulation—If we fail to comply with the Communications Act and FCC regulations limiting ownership and voting of our capital stock by non-U.S. persons we could lose our FCC license*." Our corporate charter and bylaws include provisions that permit our Board of Directors to take certain actions in order to comply with FCC regulations regarding foreign ownership, including but not limited to, a right to redeem shares of common stock from non-U.S. citizens at prices at or below fair market value. Non-U.S. citizens should consider carefully the redemption provisions in our certificate of incorporation prior to investing in our common stock.

These restrictions may also decrease the liquidity and value of our stock by reducing the pool of potential investors in our company and making the acquisition of control of us by third parties more difficult. In addition, these restrictions could adversely affect our ability to attract equity financing or consummate an acquisition of a foreign entity using shares of our capital stock.

Regulations related to conflict minerals force us to incur additional expenses and may make our supply chain more complex.

We are subject to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which requires us to diligence, disclose and report whether or not our products contain certain minerals and metals, known as "conflict minerals." These requirements could adversely affect the sourcing, availability and pricing of certain of the materials used in the manufacture of components in our products and equipment. In addition, we have and will continue to incur costs to comply with the disclosure requirements, including costs related to conducting diligence procedures to determine the sources of conflict minerals that may be used or necessary to the production of our products and, if applicable, potential changes to products, processes or sources of supply as a consequence of such verification activities.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Currently, we lease approximately 260,000 square feet for our CA business and corporate headquarters in Chicago, Illinois, under a lease agreement that expires in 2030, which was recently amended to reduce the square footage of the leased property to approximately 150,000 square feet beginning in 2021. We also lease approximately 26,000 square feet for our CA manufacturing facility in Bensenville, Illinois under a lease agreement that expires in 2021. Additionally, our lease for our BA business in Broomfield, Colorado is for approximately 120,000 square feet and expires in 2029. We believe our facilities will be adequate for the foreseeable future.

Item 3. Legal Proceedings

Linksmart Litigation—On April 20, 2018, Linksmart Wireless Technology, LLC filed suit against us and eight of our airline partners in the U.S. District Court for the Central District of California alleging that our redirection server and login portal infringe a patent owned by the plaintiff. The suits seek an unspecified amount of damages. We are required under our contracts with these airlines to indemnify them for defense costs and any liabilities resulting from the suit. The Court has stayed the suits against our airline customers pending resolution of the suit against Gogo. Linksmart has also filed suit against other defendants asserting the same patent. Following the filing by one of those defendants of a petition to commence an *inter partes* review against the asserted patent in the U.S. Patent and Trademark Office, the Court stayed the litigation against such other defendant and Gogo, but such stay was lifted in July 2019 when the U.S. Patent and Trademark Office determined that the petitioner had not met the standard of proof required to commence the *inter partes* review. We believe that the plaintiff's claims are without merit and intend to defend them vigorously. The outcome of this litigation is inherently uncertain. No amounts have been accrued for any potential losses under this matter, as we cannot reasonably predict the outcome of the litigation or any potential losses.

Securities Litigation—On June 27, 2018, a purported stockholder of the Company filed a putative class action lawsuit in the United States District Court for the Northern District of Illinois, Eastern Division styled Pierrelouis v. Gogo Inc., naming the Company, its former Chief Executive Officer and Chief Financial Officer and its current Chief Financial Officer and President, Commercial Aviation as defendants purportedly on behalf of all purchasers of our securities from February 27, 2017 through May 4, 2018. The complaint asserts claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder, alleging misrepresentations or omissions by us purporting to relate to our 2Ku antenna's reliability and installation and remediation costs. The plaintiffs seek to recover from us and the individual defendants an unspecified amount of damages. In December 2018 the plaintiffs filed an amended complaint and in February 2019, we filed a motion to dismiss such amended complaint. In October 2019 the judge granted the motion to dismiss on two independent grounds, finding that plaintiffs failed to plausibly allege that defendants made materially false or misleading statements and that plaintiffs failed to plead with particularity that defendants acted with scienter. The amended complaint was dismissed without prejudice, and in December 2019, defendants filed a second amended complaint. In February 2020 we filed a motion to dismiss such second amended complaint and that motion is pending. We believe that the claims are without merit and intend to continue to defend them vigorously. In accordance with Delaware law, we will indemnify the individual named defendants for their defense costs and any damages they incur in connection with the suit. We have filed a claim with the issuer of our Directors' and Officers' insurance policy with respect to this suit. No amounts have been accrued for any potential losses under this matter, as we cannot reasonably predict the outcome of the litigation or any potential losses.

Derivative Litigation—On September 25, 2018 and September 26, 2018, two purported stockholders of the Company filed substantively identical derivative lawsuits in the United States District Court for the Northern District of Illinois, Eastern Division, styled Nanduri v. Gogo Inc. and Hutsenpiller v. Gogo Inc., respectively. Both lawsuits were purportedly brought derivatively on behalf of us and name us as a nominal defendant and name as defendants each member of the Company's Board of Directors, its former Chief Executive Officer and Chief Financial Officer and its current Chief Executive Officer, Chief Financial Officer and President, Commercial Aviation. The complaints assert claims under Section 14(a) of the Securities Exchange Act of 1934, breach of fiduciary duty, unjust enrichment, and waste of corporate assets, and allege misrepresentations or omissions by us purporting to relate to our 2Ku antenna's reliability and installation and remediation costs, as well as allegedly excessive bonuses, stock options, and other compensation paid to current Officers and Directors and excessive severance paid to former Officers. The two lawsuits were consolidated and are stayed until a final disposition of the motion to dismiss in the class action suit. We believe that the claims are without merit and intend to defend them vigorously if the litigation resumes. The plaintiffs seek to recover, on our behalf, an unspecified amount of damages from the individual defendants. We have filed a claim with the issuer of our Directors' and Officers' insurance policy with respect to these suits. No amounts have been accrued for any potential costs under this matter, as we cannot reasonably predict the outcome of the litigation or any potential costs.

From time to time we may become involved in legal proceedings arising in the ordinary course of our business. We cannot predict with certainty the outcome of any litigation or the potential for future litigation. Regardless of the outcome of any particular litigation and the merits of any particular claim, litigation can have a material adverse impact on our company due to, among other reasons, any injunctive relief granted, which could inhibit our ability to operate our business, amounts paid as damages or in settlement of any such matter, diversion of management resources and defense costs.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information for Common Stock

Our common stock has been listed on the NASDAQ Global Select Market (“NASDAQ”) under the symbol “GOGO” since June 21, 2013.

Holders of Record

As of March 9, 2020, there were 49 stockholders of record of our common stock, and the closing price of our common stock was $2.83 per share as reported on the NASDAQ. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Repurchases of Equity Securities

None.

Recent Sale of Unregistered Securities

None.

Use of Proceeds from Registered Securities

None.

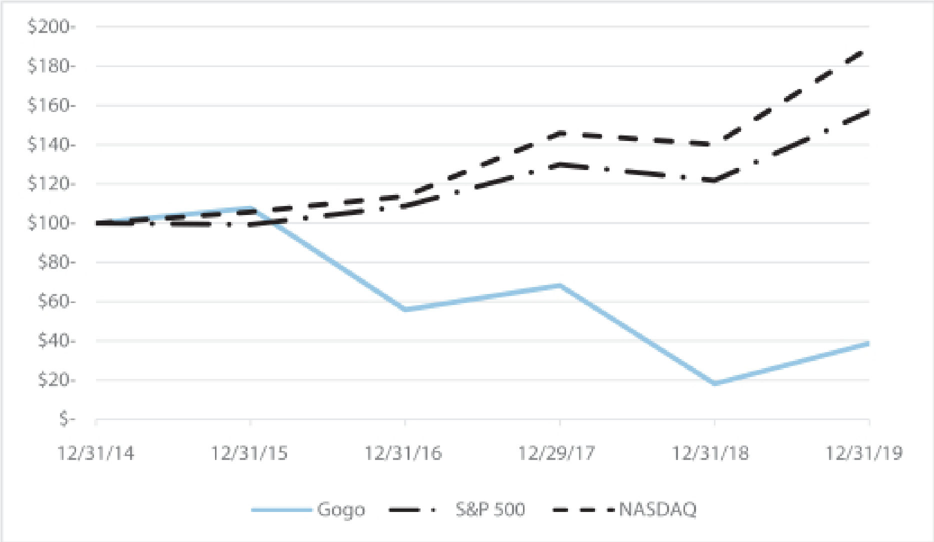
Securities Authorized for Issuance Under Equity Compensation Plans

See Item 12, “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” for information regarding securities authorized for issuance.

Performance

This performance graph shall not be deemed “soliciting material” or to be “filed” with the SEC for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Gogo Inc. under the Securities Act of 1933, as amended (the “Securities Act”), or the Exchange Act.

The following graph shows a comparison of cumulative total return for our common stock, the Standard & Poor's 500 Stock Index ("S&P 500") and the Nasdaq Composite Index ("NASDAQ Composite") for the period from December 31, 2014 through December 31, 2019, the last trading day of 2019. The graph assumes that $100 was invested at the market close on December 31, 2014 in our common stock, the S&P 500 and the NASDAQ Composite and assumes reinvestments of dividends, if any. The comparisons in the graph below are based upon historical data and are not indicative of, nor intended to forecast, future performance of our common stock.



Item 6. Selected Financial Data

The following tables present selected historical financial data as of and for the periods indicated. You should read this information together with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our consolidated financial statements and the related notes included in this Annual Report on Form 10-K.

The consolidated statement of operations data and other financial data for the years ended December 31, 2019, 2018 and 2017 and the consolidated balance sheet data as of December 31, 2019 and 2018 have been derived from our audited consolidated financial statements included in this Annual Report on Form 10-K. The consolidated statement of operations data and other financial data for the years ended December 31, 2016 and 2015 and the consolidated balance sheet data as of December 31, 2017, 2016 and 2015 have been derived from our audited consolidated financial statements not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of our results to be expected in any future period.

	For the Years Ended December 31,				
	2019	2018	2017	2016	2015
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Revenue:					
Service revenue	$ 664,353	$ 630,147	$ 617,906	$ 514,293	$ 419,975
Equipment revenue (1)	171,373	263,617	81,184	82,257	80,913
Total revenue	835,726	893,764	699,090	596,550	500,888
Total operating expenses (1) (2)	799,002	920,685	763,352	623,187	545,730
Operating income (loss) (2)	36,724	(26,921)	(64,262)	(26,637)	(44,842)
Other (income) expense:					
Interest expense (3)	130,572	122,809	111,944	83,647	58,889
Extinguishment of debt	57,962	19,653	—	15,406	—
Adjustment of deferred financing costs	—	—	—	(792)	2,251
Interest income and other	(6,812)	(4,059)	(2,214)	(1,707)	393
Total other expense	181,722	138,403	109,730	96,554	61,533
Loss before income taxes	(144,998)	(165,324)	(173,992)	(123,191)	(106,375)
Income tax provision (benefit)	1,006	(3,293)	(1,997)	1,314	1,238
Net loss attributable to common stock	$ (146,004)	$ (162,031)	$ (171,995)	$ (124,505)	$ (107,613)
Net loss per share attributable to common stock—basic and diluted (4)	$ (1.81)	$ (2.02)	$ (2.17)	$ (1.58)	$ (1.35)
Weighted average shares used in computing net loss attributable to common stock—basic and diluted (4)	80,766	80,038	79,407	78,915	79,701

	As of December 31,				
	2019	2018	2017	2016	2015
			(in thousands)		
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 170,016	$ 184,155	$ 196,356	$ 117,302	$ 147,342
Short-term investments	—	39,323	212,792	338,477	219,491
Total cash, cash equivalents and short-term investments	170,016	223,478	409,148	455,779	366,833
Working capital (5)	172,183	285,839	276,619	353,667	270,429
Total assets (6)	1,214,700	1,265,096	1,403,175	1,246,196	1,004,353
Indebtedness and long-term finance leases, net of current portion (7)	1,102,260	1,025,094	1,001,993	802,709	545,359
Total liabilities (6)	1,613,590	1,533,857	1,594,739	1,286,589	938,158
Total stockholders' equity (deficit)	(398,890)	(268,761)	(191,564)	(40,393)	66,195

Note: 2018 reflects the impact of adoption of ASC 606. The historical financial statements have not been restated and are reported under the revenue accounting standard in effect for those periods. See Note 2, "Summary of Significant Accounting Policies—Recently Issued Accounting Pronouncements," for further information.

(1) The increase during the year ended December 31, 2018 was primarily due to the post-adoption impact of ASC 606 on equipment shipments, which are now fully recognized upon customer acceptance for airline-directed equipment transactions, and the accounting impact of one of our airline partners transitioning to the airline-directed model. See Note 2, "Summary of Significant Accounting Policies—Recently Issued Accounting Pronouncements," for further information.

(2) Includes depreciation and amortization expense of $118.8 million, $133.6 million, $145.5 million, $105.6 million and $87.0 million, respectively, for each of the years ended December 31, 2019, 2018, 2017, 2016 and 2015.

(3) See Note 8, "Interest Costs," for further information.

(4) The calculation of weighted average shares outstanding as of December 31, 2019, 2018, 2017, 2016 and 2015 excludes approximately 7.2 million shares that were to be repurchased as a result of the Forward Transactions (as defined below) as of such dates. Between March 5-6, 2020, approximately 5.1 million shares of common stock were delivered to us pursuant to the Forward Transactions. See Note 7, "Long-Term Debt and Other Liabilities," for further information.

(5) We define working capital as total current assets less total current liabilities. The increase as of December 31, 2018 was primarily due to increases in inventory. See Note 5, "Composition of Certain Balance Sheet Accounts," for further information.

(6) 2019 reflects the impact from adoption of ASC 842. See Note 2, "Summary of Significant Accounting Policies—Recently Issued Accounting Pronouncements," for further information.

(7) Includes deferred financing costs of $24.3 million, $17.1 million, $16.2 million, $16.3 million and $14.6 million for each of the years ended December 31, 2019, 2018, 2017, 2016 and 2015, respectively.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis is intended to help the reader understand our business, financial condition, results of operations, liquidity and capital resources. You should read this discussion in conjunction with our consolidated financial statements and the related notes contained in this Annual Report on Form 10-K.

The statements in this discussion regarding industry outlook, our expectations regarding our future performance, liquidity and capital resources and other non-historical statements in this discussion are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described under "Risk Factors" in this report. Our actual results may differ materially from those contained in or implied by any forward-looking statements.

Our fiscal year ends December 31 and, unless otherwise noted, references to years or fiscal are for fiscal years ended December 31. See "—Results of Operations."

Company Overview

Gogo ("we," "us," "our") is the global leader in providing broadband connectivity solutions and wireless in-flight entertainment to the aviation industry. We operate through the following three segments: Commercial Aviation North America, or "CA-NA," Commercial Aviation Rest of World, or "CA-ROW," and Business Aviation, or "BA."

Services provided by our CA-NA and CA-ROW businesses include Passenger Connectivity, which allows passengers to connect to the Internet from their personal Wi-Fi-enabled devices; Passenger Entertainment, which offers passengers the opportunity to enjoy a broad selection of in-flight entertainment options on their personal Wi-Fi enabled devices; and Connected Aircraft Services ("CAS"), which offers airlines connectivity for various operations and currently include, among others, real-time credit card transaction processing, electronic flight bags and real-time weather information. Services are provided by CA-NA on commercial aircraft flying routes that generally begin and end within North America, which for this purpose includes the United States, Canada and Mexico. CA-ROW provides service on commercial aircraft operated by foreign-based commercial airlines and flights outside of North America for North American-based commercial airlines. The routes included in our CA-ROW segment are those that begin and/or end outside of North America (as defined above) on which our international service is provided. BA provides in-flight Internet connectivity and other voice and data communications products and services and sells equipment for in-flight telecommunications to the business aviation market. BA services include Gogo Biz, our in-flight broadband service, Gogo Vision, our in-flight entertainment service, and satellite-based voice and data services through our strategic alliances with satellite companies.

Factors and Trends Affecting Our Results of Operations

We believe that our operating and business performance is driven by various factors that affect the commercial airline and business aviation industries, including trends affecting the travel industry and trends affecting the customer bases that we target, as well as factors that affect wireless Internet service providers and general macroeconomic factors. Key factors that may affect our future performance include:

- costs associated with the implementation of, and our ability to implement on a timely basis our technology roadmap, upgrades and installation of our ATG-4 and 2Ku technologies, Gogo 5G, any technology to which our ATG or satellite networks evolve and other new technologies (including technological issues and related remediation efforts and failures or delays on the part of antenna and other equipment developers and providers, some of which are single source, or delays in obtaining STCs including as a result of any government shutdown), the potential licensing of additional spectrum, and the improvements to our network and operations as technology changes and we experience increased demand and network capacity constraints, including as a result of airline partners deciding to provide free service to passengers;

- costs associated with, and our ability to execute, our continued international expansion, including our ability to obtain and comply with foreign telecommunications, aviation and other licenses and approvals necessary for our international operations;
- our ability to obtain sufficient satellite capacity, including for heavily-trafficked areas, in the United States and internationally;
- costs of satellite capacity in the United States and internationally, to which we may have to commit well in advance;
- the pace and extent of adoption of our service for use on domestic and international commercial aircraft by our current and new airline partners and customers;
- the number of aircraft in service in our markets, including consolidation of the airline industry or changes in fleet size by one or more of our commercial airline partners or BA large-fleet customers;
- the economic environment and other trends that affect both business and leisure aviation travel, including the impact of COVID-19 on restrictions on and demand for air travel, as well as disruptions to supply chains and installations;
- the extent of passengers' and aviation partners' adoption of our products and services, which is affected by, among other things, willingness to pay for the services that we provide, the quality and reliability of our products and services, changes in technology and competition from current competitors and new market entrants;
- our ability to enter into and maintain long-term connectivity arrangements with airline partners and customers, which depends on numerous factors including the real or perceived availability, quality and price of our services and product offerings as compared to those offered by our competitors;
- the impact of a change in business models and contract terms on the profitability of our connectivity agreements with airline partners, including as a result of changes in accounting standards;
- the results of our ongoing discussions with Delta with respect to its transition to free service, which may involve seeking to pursue supplier diversification for Delta's domestic mainline fleet, and our ability to offset the impact of any deinstalled aircraft through increased demand and revenue;
- our ability to engage suppliers of equipment components and network services on a timely basis and on commercially reasonable terms;
- continued demand for connectivity and proliferation of Wi-Fi enabled devices, including smartphones, tablets and laptops;
- changes in domestic or foreign laws, regulations or policies that affect our business or the business of our customers and suppliers;
- changes in laws, regulations and interpretations affecting telecommunications services, including those affecting our ability to maintain our licenses for ATG spectrum in the United States, obtain sufficient rights to use additional ATG spectrum and/or other sources of broadband connectivity to deliver our services, expand our service offerings and manage our network; and
- changes in laws, regulations and interpretations affecting aviation, including, in particular, changes that impact the design of our equipment and our ability to obtain required certifications for our equipment.

Recent Developments

On March 1, 2020, the 2020 Convertible Notes (defined below) matured in accordance with their terms. Upon maturity, we repaid the remaining $2.5 million outstanding aggregate principal amount of the 2020 Convertible Notes, plus accrued and unpaid interest, in order to satisfy our obligations, and the 2020 Convertible Notes were no longer outstanding as of such date.

Between March 5-6, 2020, approximately 5.1 million shares of our common stock were delivered to us in connection with the Forward Transactions. The approximately 2.1 million shares remaining under the Amended and Restated Forward Transaction (as defined below) are expected to be delivered to us in May 2022.

In December 2019, a novel strain of coronavirus, COVID-19, was identified in Wuhan, China which has resulted in global travel restrictions and the suspension of certain commercial flights by some of our airline partners, which has had, and is expected to continue to have, an adverse impact on our CA business. In recent weeks, we have seen significantly reduced demand on aircraft operated in the Asia Pacific region as compared to demand levels in January 2020 before COVID-19 affected travel. More recently, demand for both business and leisure airline travel on a global basis has declined significantly due to COVID-19, and airlines are responding by cancelling additional flights, including domestic U.S. flights. All of our U.S. airline partners have announced international and domestic capacity reductions, and in the week in which this report is being filed, we are seeing for the first time reduced demand on domestic U.S. flights as a result of COVID-19. In addition, on March 11, 2020 the President of the United States announced a 30-day suspension of travel from 26 European countries to the U.S. and similar or other U.S. or foreign governmental actions could further materially impact business and leisure airline travel. We expect COVID-19 to continue to have a significant negative impact on CA revenue and are unable to predict how long that impact will continue. To date, we have not seen any impact of COVID-19 on our BA business. The extent of the impact of COVID-19 on the CA and BA businesses and our financial and operational performance will depend on future developments, including the duration, spread and severity of the outbreak, the duration and geographic scope of related travel advisories and restrictions and the extent of the impact of COVID-19 on overall demand for commercial and business aviation travel, all of which are highly uncertain and cannot be predicted. If our airline partners continue to experience significantly reduced demand for passenger traffic for an extended period, our 2020 consolidated results of operations and our liquidity and financial condition may be materially adversely affected. The extent to which the outbreak affects our earnings and liquidity will depend in part on our ability to implement various measures intended to reduce expenses and/or conserve cash. Earnings in CA-ROW may be particularly affected if reduced demand for travel continues, as we provide service in that segment solely via satellite-based systems and satellite capacity and certain other costs are largely fixed. Further, travel and other restrictions adopted in response to COVID-19 may impact our ability to complete installations on certain aircraft and successfully operate our services on aircraft that operate in regions affected by the coronavirus, particularly where travel is restricted. Additionally, our suppliers or other third parties we rely upon to install and maintain our services may experience delays or shortages, which could have an adverse effect on our business prospects and results of operations.

Key Business Metrics

Our management regularly reviews financial and operating metrics, including the following key operating metrics for the CA-NA, CA-ROW and BA reportable segments, to evaluate the performance of our business and our success in executing our business plan, make decisions regarding resource allocation and corporate strategies, and evaluate forward-looking projections.

Commercial Aviation North America

	For the Years Ended December 31,		
	2019	2018	2017
Aircraft online (at period end)	2,442	2,551	2,840
Satellite	865	670	416
ATG	1,577	1,881	2,424
Total aircraft equivalents (average during the period)	2,496	2,818	2,835
Net annualized average monthly service revenue per aircraft equivalent (net annualized ARPA) (in thousands)	$ 122	$ 111	$ 114

Commercial Aviation Rest of World

	For the Years Ended December 31,		
	2019	2018	2017
Aircraft online (at period end)	792	589	391
Total aircraft equivalents (average during the period)	632	418	268
Net annualized ARPA (in thousands)	$ 130	$ 149	$ 192

- *Aircraft online.* We define aircraft online as the total number of commercial aircraft on which our equipment is installed and service has been made commercially available as of the last day of each period presented. We assign aircraft to CA-NA or CA-ROW at the time of contract signing as follows: (i) all aircraft operated by North American airlines and under contract for ATG or ATG-4 service are assigned to CA-NA, (ii) all aircraft operated by North American airlines and under a contract for satellite service are assigned to CA-NA or CA-ROW based on whether the routes flown by such aircraft under the contract are anticipated to be predominantly within or outside of North America at the time the contract is signed, and (iii) all aircraft operated by non-North American airlines and under a contract are assigned to CA-ROW. The decline in CA-NA's aircraft online is due to the deinstallation of our equipment from certain American Airlines aircraft during 2018 and the first half of 2019.

- *Aircraft equivalents*. We define aircraft equivalents for a segment as the number of commercial aircraft online (as defined above) multiplied by the percentage of flights flown by such aircraft within the scope of that segment, rounded to the nearest whole aircraft and expressed as an average of the month-end figures for each month in the period. This methodology takes into account the fact that during a particular period certain aircraft may fly routes outside the scope of the segment to which they are assigned for purposes of the calculation of aircraft online. The decline in CA-NA's aircraft equivalents is due to the deinstallation of our equipment from certain American Airlines aircraft during 2018 and the first half of 2019.

- *Net annualized average monthly service revenue per aircraft equivalent* ("ARPA"). We define net annualized ARPA as the aggregate service revenue plus monthly service fees, some of which are reported as a reduction to cost of service revenue for that segment for the period, less revenue share expense and other transactional expenses which are included in cost of service revenue for that segment, divided by the number of months in the period, and further divided by the number of aircraft equivalents (as defined above) for that segment during the period, which is then annualized and rounded to the nearest thousand.

Business Aviation

	For the Years Ended December 31,		
	2019	2018	2017
Aircraft online (at period end)			
Satellite	5,001	5,124	5,443
ATG	5,669	5,224	4,678
Average monthly service revenue per aircraft online			
Satellite	$ 249	$ 243	$ 237
ATG	3,113	3,027	2,876
Units sold			
Satellite	560	460	412
ATG	909	1,062	831
Average equipment revenue per unit sold (in thousands)			
Satellite	$ 39	$ 39	$ 43
ATG	69	66	57

- *Satellite aircraft online*. We define satellite aircraft online as the total number of business aircraft for which we provide satellite services as of the last day of each period presented.
- *ATG aircraft online.* We define ATG aircraft online as the total number of business aircraft for which we provide ATG services as of the last day of each period presented.
- *Average monthly service revenue per satellite aircraft online*. We define average monthly service revenue per satellite aircraft online as the aggregate satellite service revenue for the period divided by the number of months in the period, divided by the number of satellite aircraft online during the period (expressed as an average of the month end figures for each month in such period).
- *Average monthly service revenue per ATG aircraft online.* We define average monthly service revenue per ATG aircraft online as the aggregate ATG service revenue for the period divided by the number of months in the period, divided by the number of ATG aircraft online during the period (expressed as an average of the month end figures for each month in such period).
- *Units sold*. We define units sold as the number of satellite or ATG units for which we recognized revenue during the period.
- *Average equipment revenue per satellite unit sold*. We define average equipment revenue per satellite unit sold as the aggregate equipment revenue earned from all satellite units sold during the period, divided by the number of satellite units sold.
- *Average equipment revenue per ATG unit sold.* We define average equipment revenue per ATG unit sold as the aggregate equipment revenue from all ATG units sold during the period, divided by the number of ATG units sold.

Key Components of Consolidated Statements of Operations

The following briefly describes certain key components of revenue and expenses for the CA-NA, BA and CA-ROW segments, as presented in our consolidated statements of operations.

Revenue:

We generate two types of revenue through each of our operating segments: service revenue and equipment revenue.

For CA-NA and CA-ROW, pursuant to contractual agreements with our airline partners, we place our equipment on commercial aircraft operated by the airlines in order to deliver our service to passengers on the aircraft. We currently have two types of commercial airline arrangements: turnkey and airline-directed. Under the airline-directed model, we have transferred control of the equipment to the airline and therefore the airline is our customer in these transactions. Under the turnkey model, while our airline partner generally has legal title to our equipment, we do not transfer control of our equipment to our airline partner and, as a result, the airline passenger is deemed to be our customer. Transactions with our airline partners under the turnkey model are accounted for as an operating lease of space on an aircraft.

CA-NA and CA-ROW Service Revenue:

CA-NA and CA-ROW revenue consists of service revenue primarily derived from connectivity services and, to a lesser extent, from entertainment services and CAS. Connectivity is provided to our customers using both our ATG and satellite technologies.

Airline-directed connectivity revenue:

As noted above, under the airline-directed model, the airline is our customer and we earn service revenue as connectivity services are consumed directly by the airline or indirectly by passengers.

Turnkey connectivity revenue (passenger connectivity):

Under the turnkey model, passenger connectivity revenue is generated by services paid for by passengers, airlines and third parties.

Passenger paid revenue represents point-of-sale sessions (which may be flight-based, time-based, multiple individual session packages ("multi-pack") or subscriptions). Flight-based, time-based and multi-pack revenue is recognized when the sessions are used. Subscription revenue is recognized evenly throughout the subscription period, regardless of the number of times the customer uses the network.

Third party and airline-paid revenue is generated by sales of connectivity services to airlines or third parties in sponsorship, wholesale, enterprise and roaming arrangements. Sponsorship revenue is recognized over the sponsorship term. Revenue from wholesale, enterprise and roaming arrangements is recognized as sessions are used by the passenger.

Entertainment revenue:

Entertainment revenue consists of entertainment services we provide to the airline for use by its passengers. Revenue is recognized as the services are provided to the airline.

CAS revenue:

CAS revenue includes, among other things, real-time credit card transaction processing, electronic flight bags and real-time weather information. Revenue is recognized as the service is provided.

BA Service Revenue:

BA service revenue primarily consists of monthly subscription and usage fees paid by aircraft owners and operators for telecommunication, data, and in-flight entertainment services. Revenue is recognized as the services are provided to the customer.

Equipment Revenue:

Equipment revenue primarily consists of the sale of ATG and satellite connectivity equipment and the sale of entertainment equipment. CA-NA and CA-ROW recognize equipment revenue upon acceptance by our airline customers. BA primarily recognizes equipment revenue when the equipment is shipped to OEMs and dealers.

Equipment revenue also includes revenue generated by our installation of the connectivity or entertainment equipment on commercial aircraft, which is recognized when the installation is complete.

Cost of Service Revenue:

Commercial Aviation North America and Rest of World:

Cost of service revenue for the CA-NA and CA-ROW segments includes network related expenses (ATG and satellite network expenses, including costs for transponder capacity and backhaul, as well as data centers, network operations center and network technical support), aircraft operations, component assembly, portal maintenance, revenue share and transactional costs.

Revenue share for CA-NA and CA-ROW consists of payments made to our airline partners under our connectivity agreements. Under the turnkey model, our airline partners make an upfront payment for our equipment and take legal title to such equipment. These upfront payments are accounted for as deferred airborne lease incentives and amortized on a straight-line basis as a reduction of cost of service revenue over the term of the agreement. Additionally, monthly service fees we receive from our airline partners under the turnkey model are accounted for as a reduction to our cost of service revenue.

CA-NA and CA-ROW transactional costs include billing costs and transaction fees incurred internally and charged by third-party service providers.

Business Aviation:

Cost of service revenue for the BA segment consists of satellite provider service costs, transaction costs and costs related to network operations.

Beginning in January 2019, the BA segment assumed responsibility for operating and maintaining our ATG network and was allocated the majority of the 2019 ATG network costs. In 2020, we adopted a new allocation methodology for the ATG network costs utilizing aircraft online, pricing and usage for each of CA-NA and BA. Under this new methodology, we expect that BA will continue to be allocated the majority of the ATG network costs.

Cost of Equipment Revenue:

Our cost of equipment revenue primarily consists of the purchase costs for component parts used in the manufacture of our equipment and the production, installation, technical support and quality assurance costs associated with the equipment sales.

Engineering, Design and Development Expenses:

Engineering, design and development expenses include the costs to design and develop next generation technologies and to obtain and maintain FAA and other regulatory certifications. This includes the development of ground and airborne systems, including customization of network and airborne equipment, along with the design of airborne system installation processes. Engineering, design and development expenses also include costs associated with the enhancement of existing products. Upon adoption of the revenue recognition standard on January 1, 2018, certification and other regulatory costs directly attributable to our new airline-directed customers are capitalized and amortized over the life of the contract.

Sales and Marketing Expenses:

Commercial Aviation North America and Rest of World:

Sales and marketing expenses for the CA-NA and CA-ROW segments consist primarily of costs associated with cultivating our relationships with our airline customers and airline partners and attracting additional passengers as our customers. Sales and marketing activities related to the airlines include contracting with new airlines to offer our service on their aircraft, contracting to add additional aircraft operated by our existing airline partners to the installed fleet, joint marketing of our service with our airline partners and airline customers, program management related service launches and trade shows. Sales and marketing activities related to passengers include advertising and marketing campaigns and promotions as well as customer service related activities and product management.

Business Aviation:

Sales and marketing expenses for the BA segment consist of costs associated with activities related to customer sales (including sales commissions), digital marketing and lead generation, advertising and promotions, product management, trade shows and customer service support related activities to end users.

General and Administrative Expenses:

General and administrative expenses include staff and related operating costs of the business support functions, including finance and accounting, legal, human resources, administrative, information technology, facilities and executive groups.

Depreciation and Amortization:

Depreciation expense for both the CA-NA and BA segments includes depreciation expense associated with our office equipment, furniture, fixtures and leasehold improvements. Additionally, depreciation expense for the CA-NA segment includes depreciation of our airborne equipment for the turnkey model and ground network-related equipment. Depreciation expense for CA-ROW primarily includes depreciation of our airborne equipment for the turnkey model and satellite network-related equipment. We depreciate these assets on a straight-line basis over their estimated useful lives that range from three to 25 years, depending on the assets being depreciated.

Amortization expense includes the amortization of our finite-lived intangible assets on a straight-line basis over their estimated useful lives that range from three to ten years, depending on the assets being amortized.

Reportable Segment Profit (Loss)

We measure our reportable segments' performance on the basis of reportable segment profit (loss), which is calculated as net income (loss) attributable to common stock before unallocated corporate costs, interest expense, interest income, income taxes, depreciation and amortization, and certain non-cash charges (including amortization of deferred airborne lease incentives, stock compensation expense, amortization of STC costs, loss on extinguishment of debt and the accounting impact of the transition to the airline-directed model) and other income (expense). During the fourth quarter of 2019, we revised the presentation of our reportable segments' operating results in order to exclude the impact of certain corporate costs from the calculation of total reportable segment profit (loss). All amounts from prior years have been reclassified to conform to the current year's presentation. This change is intended to provide better visibility to the profitability of our reportable segments by excluding the costs of broad corporate functions that are not directly attributable to the reportable segments (including executive, legal, finance and human resources).

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). The preparation of our consolidated financial statements and related disclosures requires us to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities, revenue, costs and expenses, and related exposures. We base our estimates and assumptions on historical experience and other factors that we believe to be reasonable under the circumstances. In some instances, we could reasonably use different accounting estimates, and in some instances results could differ significantly from our estimates. We evaluate our estimates and assumptions on an ongoing basis. To the extent that there are differences between our estimates and actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected.

We believe the following accounting estimates are the most critical to aid in fully understanding and evaluating our reported financial results, and they require our most difficult, subjective or complex judgments, resulting from the need to make estimates. For a discussion of our significant accounting policies to which many of these critical estimates relate, see Note 2, "Summary of Significant Accounting Policies," in our consolidated financial statements.

We believe that the assumptions and estimates associated with revenue recognition, long-lived assets and stock-based compensation have the greatest potential impact on consolidated financial statements. Therefore, we consider these to be our critical accounting policies and estimates.

Revenue Recognition:

We account for revenue in accordance with Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers* ("ASC 606"). Our CA-NA and CA-ROW airline-directed contracts contain multiple performance obligations, which primarily include the sale of equipment, installation services, connectivity services and entertainment services. For these contracts, we account for each distinct good or service as a separate performance obligation. We allocate the contract's transaction price to each performance obligation using the relative standalone selling price, which is based on the actual selling price for any good or service sold separately to a similar class of customer, if available. To the extent a good or service is not sold separately, we use our best estimate of the standalone selling price and maximize the use of observable inputs. The primary method we use to estimate the standalone selling price is the expected cost-plus margin approach.

The contractual consideration used for allocation purposes includes connectivity and entertainment services, which may be based on a fixed monthly fee per aircraft or a variable fee based on the volume of connectivity activity, or a combination of both. Examples of variable consideration within our contracts include megabyte overages and pay-per-use sessions.

We constrain our estimates to reduce the probability of a significant revenue reversal in future periods, allocate variable consideration to the identified performance obligations and recognize revenue in the period the services are provided. Our estimates are based on historical experience, anticipated future performance, market conditions and our best judgment at the time.

A significant change in one or more of these estimates could affect our estimated contract value. For example, estimates of variable revenue within certain contracts require estimation of the number of sessions or megabytes that will be purchased over the contract term and the average revenue per connectivity session, which varies based on the connectivity options available to passengers on each airline. Estimated revenue under these contracts anticipates increases in take rates over time and assumes an average revenue per session consistent with our historical experience. Our estimated contract revenue may differ significantly from our initial estimates to the extent actual take rates and average revenue per session differ from our historical experience.

We regularly review and update our estimates and recognize adjustments under the cumulative catch-up method. Any adjustments under this method are recorded as a cumulative adjustment in the period identified and revenue for future periods is recognized using the new adjusted estimate.

See Note 4, "Revenue Recognition," for additional information.

Long-Lived Assets:

Our long-lived assets (other than goodwill and indefinite-lived assets which are separately tested for impairment) are evaluated for impairment whenever events indicate that the carrying amount of such assets may not be recoverable. Within the Commercial Aviation segment, certain certification and installation programs under some of our turnkey airline contracts are still in progress. Accordingly, we evaluate whether an indication of impairment exists for turnkey airline contracts based on our projected future cash flows associated with such contracts.

When an indication of impairment exists, we evaluate long-lived assets for impairment by comparing the carrying value of the long-lived assets with the estimated future net undiscounted cash flows expected to result from the use of the assets, including cash flows from disposition. If the future net undiscounted cash flows are less than the carrying value, we then calculate an impairment loss. The impairment loss is calculated by comparing the long-lived asset's carrying value with its estimated fair value, which may be based on estimated future discounted cash flows. We would recognize an impairment loss by the amount the long-lived asset's carrying value exceeds its estimated fair value. If we recognize an impairment loss, the adjusted balance becomes the new cost basis and is depreciated (amortized) over the remaining useful life of the asset. We also periodically reassess the useful lives of our long-lived assets due to advances and changes in our technologies.

Our impairment loss calculations contain uncertainties because they require management to make assumptions and to apply judgment to estimate future cash flows and long-lived asset fair values, including forecasting useful lives of the long-lived assets and selecting discount rates.

We do not believe there is a reasonable likelihood that there will be a material change in the nature of the estimates or assumptions used to evaluate whether an indication of impairment of long-lived assets exists. However, if actual results are not consistent with our assumptions used, we could experience an impairment triggering event and be exposed to losses that could be material.

Stock-Based Compensation Expense:

We account for stock-based compensation expense based on the grant date fair value of the award. We recognize this cost as an expense over the requisite service period, which is generally the vesting period of the respective award. We use the Black-Scholes option-pricing model to determine the estimated fair value of stock options. Critical inputs into the Black-Scholes option-pricing model include: the annualized volatility of our common stock; the expected term of the option in years; the grant date fair value of our common stock; the option exercise price; the risk-free interest rate; and the annual rate of quarterly dividends on the stock, which are estimated as follows:

- ***Volatility.*** We have not been a public company long enough to calculate volatility based exclusively on our own common stock. Therefore, the expected volatility is calculated as of each grant date based on a weighting of our own common stock and reported data for a peer group of publicly traded companies for which historical information is available. While we are not aware of any news or disclosure by our peers that may impact their respective volatilities, there is a risk that peer group volatility may increase, thereby increasing the future compensation expense resulting from future option grants. Beginning in 2020, we will calculate volatility based exclusively on our own common stock.
- ***Expected Term.*** The expected term of the stock options is determined based upon the simplified approach, allowed under SEC Staff Accounting Bulletin No. 110, which assumes that the stock options will be exercised evenly from vesting to expiration, as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. As we obtain data associated with future exercises, the expected term of future grants will be adjusted accordingly.
- ***Fair Value of Our Common Stock.*** The fair value of our common stock underlying the stock options and other stock-based awards was valued by reference to the publicly traded closing price of our common stock on the grant date.
- ***Option Exercise Price.*** The option exercise price was determined based on the publicly traded closing price of our common stock on the date of grant.

- ***Risk-Free Interest Rate.*** The risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term of the options for each option group.
- ***Dividend Yield.*** We have never declared or paid any cash dividends and do not presently plan to pay cash dividends in the foreseeable future. Consequently, we use an expected dividend yield of zero.

If any of the assumptions used in the Black-Scholes model changes significantly, stock-based compensation expense for future awards may differ materially compared with the awards previously granted. The inputs that create the most sensitivity in our option valuation are the volatility and expected term. See Note 12, "Stock-Based Compensation," in our consolidated financial statements for additional information regarding the assumptions used in the Black-Scholes model.

Recent Accounting Pronouncements

See Note 2, "Summary of Significant Accounting Policies," in our consolidated financial statements for additional information.

Results of Operations

The following table sets forth, for the periods presented, certain data from our consolidated statements of operations. The information contained in the table below should be read in conjunction with our consolidated financial statements and related notes.

Consolidated Statements of Operations Data
(in thousands)

	For the Years Ended December 31,		
	2019	**2018**	**2017**
Revenue:			
Service revenue	$ 664,353	$ 630,147	$ 617,906
Equipment revenue	171,373	263,617	81,184
Total revenue	835,726	893,764	699,090
Operating expenses:			
Cost of service revenue (exclusive of items shown below)	297,848	291,642	268,334
Cost of equipment revenue (exclusive of items shown below)	134,728	222,244	58,554
Engineering, design and development	108,610	120,090	133,286
Sales and marketing	49,156	58,823	64,017
General and administrative	89,843	94,269	93,671
Depreciation and amortization	118,817	133,617	145,490
Total operating expenses	799,002	920,685	763,352
Operating income (loss)	36,724	(26,921)	(64,262)
Other (income) expense:			
Interest income	(4,210)	(4,292)	(2,964)
Interest expense	130,572	122,809	111,944
Loss on extinguishment of debt	57,962	19,653	—
Other (income) expense	(2,602)	233	750
Total other expense	181,722	138,403	109,730
Loss before incomes taxes	(144,998)	(165,324)	(173,992)
Income tax provision (benefit)	1,006	(3,293)	(1,997)
Net loss	$ (146,004)	$ (162,031)	$ (171,995)

Years Ended December 31, 2019 and 2018

Revenue:

Revenue by segment and percent change for the years ended December 31, 2019 and 2018 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31, 2019	2018	% Change 2019 over 2018
Service Revenue:			
CA-NA	$354,366	$367,368	(3.5%)
BA	221,922	196,377	13.0%
CA-ROW	88,065	66,402	32.6%
Total Service Revenue	$664,353	$630,147	5.4%
Equipment Revenue:			
CA-NA	$ 23,653	$101,849	(76.8%)
BA	87,063	93,776	(7.2%)
CA-ROW	60,657	67,992	(10.8%)
Total Equipment Revenue	$171,373	$263,617	(35.0%)
Total Revenue:			
CA-NA	$378,019	$469,217	(19.4%)
BA	308,985	290,153	6.5%
CA-ROW	148,722	134,394	10.7%
Total Revenue	$835,726	$893,764	(6.5%)

Commercial Aviation North America:

CA-NA revenue decreased to $378.0 million for the year ended December 31, 2019, as compared with $469.2 million for the prior year, due to decreases in both equipment and service revenue.

Equipment revenue decreased to $23.7 million for the year ended December 31, 2019, as compared with $101.8 million for the prior year, due to fewer 2Ku installations, a shift in mix from airline-directed to turnkey installations and the transition to the airline-directed model by one airline in January 2018, which increased equipment revenue by approximately $45.4 million for the year ended December 31, 2018. See Note 2, "Summary of Significant Accounting Policies," for additional information.

A summary of the components of CA-NA's service revenue for the years ended December 31, 2019 and 2018 is as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31, 2019	2018	% Change 2019 over 2018
Passenger Connectivity revenue *(1)*	$322,783	$339,791	(5.0%)
Passenger Entertainment and CAS revenue	31,583	27,577	14.5%
Total service revenue	$354,366	$367,368	(3.5%)

(1) Includes non-session related revenue of $12.6 million and $6.9 million for the years ended December 31, 2019 and 2018, respectively.

CA-NA service revenue decreased to $354.4 million for the year ended December 31, 2019, as compared with $367.4 million for the prior year, due to a decrease in Connectivity revenue, offset in part by an increase in Entertainment and CAS revenue.

CA-NA Connectivity revenue decreased to $322.8 million for the year ended December 31, 2019, as compared with $339.8 million for the prior year, primarily due to the deinstallation of Gogo equipment from certain American Airlines aircraft during 2018 and the first half of 2019 and the full impact of American Airlines switching to the airline-directed model, offset in part by an increase in passenger-paid and airline-paid revenue from non-American Airlines aircraft. The decrease was also partially offset by the one-time impact of a contract renewal with one of our airline customers.

CA-NA Entertainment and CAS revenue increased to $31.6 million for the year ended December 31, 2019, as compared with $27.6 million for the prior year, primarily due to the recognition of product development-related revenue from one of our airline partners offset in part by the deinstallation of Gogo equipment from certain American Airlines aircraft during 2018 and the first half of 2019.

Net annualized ARPA increased to $122 thousand for the year ended December 31, 2019, as compared with $111 thousand for the prior year, primarily due to the one-time impact of a contract renewal with one of our airline customers and the product development-related revenue mentioned above, offset in part by the full impact of American Airlines switching to the airline-directed model. The connectivity take rate, which is the number of sessions expressed as a percentage of passengers, increased to 13.2% for the year ended December 31, 2019, as compared with 11.6% for the prior year, reflecting increased passenger adoption including the impact of third party-paid and airline-paid offerings, primarily under the airline-directed model.

We expect service revenue for CA-NA to decrease in the near-term, primarily due to the decommissioning of certain American Airlines aircraft in 2018 and 2019 and the full impact of American Airlines switching to the airline-directed model as well as the impact of the COVID-19 outbreak. We expect service revenue for CA-NA to increase in the long-term as the connectivity take rate and net annualized ARPA continue to grow.

As the recognition of CA-NA equipment revenue is a function of equipment installation schedules, equipment revenue will be driven by our ability to execute and add additional aircraft to our existing airline partner contracts and enter into new contracts.

Business Aviation:

BA revenue increased to $309.0 million for the year ended December 31, 2019, as compared with $290.2 million for the prior year, due to an increase in service revenue offset in part by a decrease in equipment revenue.

BA service revenue increased to $221.9 million for the year ended December 31, 2019, as compared with $196.4 million for the prior year, primarily due to more customers subscribing to our Gogo Biz (ATG) service. The number of ATG aircraft online increased 8.5% to 5,669 as of December 31, 2019, as compared with 5,224 as of December 31, 2018.

BA equipment revenue decreased to $87.1 million for the year ended December 31, 2019, as compared with $93.8 million for the prior year, primarily due to a decrease in sales of ATG equipment.

We expect service revenue for BA to increase in the future, primarily due to additional ATG aircraft online.

Commercial Aviation Rest of World:

CA-ROW revenue increased to $148.7 million for the year ended December 31, 2019, as compared with $134.4 million for the prior year, due to an increase in service revenue, offset in part by a decrease in equipment revenue.

CA-ROW service revenue increased to $88.1 million for the year ended December 31, 2019, as compared with $66.4 million for the prior year, due to an increase in aircraft equivalents. Net annualized ARPA for CA-ROW decreased to $130 thousand for the year ended December 31, 2019, as compared with $149 thousand for the prior year, due to an increase in aircraft online from new airline partners.

CA-ROW equipment revenue decreased to $60.7 million for the year ended December 31, 2019, as compared with $68.0 million for the prior year, due to fewer installations under the airline-directed model.

We expect service revenue for CA-ROW to decrease in the near term due to the impact of the COVID-19 outbreak. We expect service revenue for CA-ROW to increase in the future, primarily due to an increase in aircraft equivalents.

As the recognition of CA-ROW equipment revenue is a function of equipment installation schedules, equipment revenue will be driven by our ability to execute and add additional aircraft to our existing airline partner contracts and enter into new contracts.

Cost of Service Revenue:

Cost of service revenue by segment and percent change for the years ended December 31, 2019 and 2018 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31,		% Change
	2019	2018	2019 over 2018
CA-NA	$162,221	$174,726	(7.2%)
BA	53,068	42,833	23.9%
CA-ROW	82,559	74,083	11.4%
Total	$297,848	$291,642	2.1%

CA-NA cost of service revenue decreased to $162.2 million for the year ended December 31, 2019, as compared with $174.7 million for the prior year, primarily due to decreases in ATG service revenue, allocated ATG network costs, de-icing-related costs and revenue share, offset in part by increased satellite service fees.

BA cost of service revenue increased to $53.1 million for the year ended December 31, 2019, as compared with $42.8 million for the prior year, primarily due to an increase in ATG service revenue and allocated ATG network costs.

CA-ROW cost of service revenue increased to $82.6 million for the year ended December 31, 2019, as compared with $74.1 million for the prior year, primarily due to an increase in satellite service and network fees.

We expect cost of service revenue for CA-NA to decline as a percentage of service revenue over time, primarily due to reduced satellite bandwidth unit costs and operating costs, partially offset by increased satellite service fees for additional aircraft operating on our satellite network.

We expect cost of service revenue for BA to increase over time, primarily due to increasing ATG network costs associated with Gogo 5G and the change in allocation methodology, as mentioned above.

As we expand our CA-ROW business, we expect to incur additional cost of service revenue reflecting increased satellite usage and network related expenses. However, we expect to see increased utilization of our network as we install additional aircraft.

Cost of Equipment Revenue:

Cost of equipment revenue by segment and percent change for the years ended December 31, 2019 and 2018 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31,		% Change 2019 over
	2019	2018	2018
CA-NA	$ 15,291	$ 90,661	(83.1%)
BA	51,744	55,416	(6.6%)
CA-ROW	67,693	76,167	(11.1%)
Total	$134,728	$222,244	(39.4%)

Cost of equipment revenue decreased to $134.7 million for the year ended December 31, 2019, as compared with $222.2 million for the prior year.

The decrease in CA-NA for the year ended December 31, 2019 as compared with the prior year was due to fewer installations under the airline-directed model during 2019 and the impact of the transition to the airline-directed model by one airline in January 2018, which included cost of equipment revenue of approximately $23.8 million, while we had no such activity in 2019; see Note 2, “Summary of Significant Accounting Policies,” for additional information.

The decrease in BA was due to a decrease in equipment revenue and changes in product mix.

The decrease in CA-ROW was due to a decrease in installations under the airline-directed model.

We expect that our cost of equipment revenue will vary with changes in equipment revenue.

Engineering, Design and Development Expenses:

Engineering, design and development expenses decreased to $108.6 million for the year ended December 31, 2019, as compared with $120.1 million for the prior year, due to decreased program and personnel-related expenses in CA-ROW and CA-NA, offset in part by increased Gogo 5G development costs at BA.

We expect consolidated engineering, design and development expenses to decrease as a percentage of consolidated service revenue over time.

Sales and Marketing Expenses:

Sales and marketing expenses decreased to $49.2 million for the year ended December 31, 2019, as compared with $58.8 million for the prior year, primarily due to decreased personnel-related expenses in all three segments. Consolidated sales and marketing expenses as a percentage of total consolidated service revenue was 7.4% for the year ended December 31, 2019 as compared with 9.3% for the prior year.

We expect consolidated sales and marketing expenses to remain relatively flat as a percentage of consolidated service revenue.

General and Administrative Expenses:

General and administrative expenses decreased to $89.8 million for the year ended December 31, 2019, as compared with $94.3 million for the prior year, primarily due to decreases in legal and personnel-related expenses within unallocated corporate costs and, to a lesser extent, decreases in CA-NA and CA-ROW, offset in part by an increase in BA. Consolidated general and administrative expenses as a percentage of total consolidated service revenue was 13.5% for the year ended December 31, 2019 as compared with 15.0% for the prior year.

We expect consolidated general and administrative expenses to decrease as a percentage of consolidated service revenue over time.

Segment Profit (Loss):

CA-NA's reportable segment profit increased to $97.9 million for the year ended December 31, 2019, as compared with $62.3 million for the prior year, primarily due to the changes discussed above.

BA's reportable segment profit increased to $144.0 million for the year ended December 31, 2019, as compared with $140.2 million for the prior year, primarily due to the changes discussed above.

CA-ROW's reportable segment loss decreased to $62.3 million for the year ended December 31, 2019, as compared with $90.8 million for the prior year, primarily due to the changes discussed above.

Unallocated corporate costs decreased to $39.5 million for the year ended December 31, 2019, as compared with $46.1 million for the prior year, primarily due to legal and personnel-related expenses. Unallocated corporate costs are primarily included within general and administrative expenses.

Depreciation and Amortization:

Depreciation and amortization expense decreased to $118.8 million for the year ended December 31, 2019, as compared with $133.6 million for the prior year, due to decreased amortization of capitalized software and accelerated depreciation expense for certain upgrades and decommission programs that were completed in the first half of 2018.

We expect that our depreciation and amortization expense will vary in the future depending on the number of installations under the turnkey model.

Other (Income) Expense:

Other (income) expense and percent change for the years ended December 31, 2019 and 2018 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31,		% Change 2019 over 2018
	2019	2018	
Interest income	$ (4,210)	$ (4,292)	(1.9%)
Interest expense	130,572	122,809	6.3%
Loss on extinguishment of debt	57,962	19,653	194.9%
Other (income) expense	(2,602)	233	na
Total	$181,722	$138,403	31.3%

Total other expense was $181.7 million for the year ended December 31, 2019, as compared with $138.4 million for the prior year, due to a larger loss on extinguishment of debt and increased interest expense due to higher average debt levels outstanding during the year ended December 31, 2019 as compared with the prior year. In 2019, interest costs charged to expense, excluding items such as amortization of deferred financing costs and debt premiums, was $110.6 million as compared with $100.3 million in 2018. See Note 7, "Long Term Debt and Other Liabilities," in our consolidated financial statements for additional information related to the loss on extinguishment of debt. See Note 8, “Interest Costs,” in our consolidated financial statements for additional information related to our interest expense.

We expect our interest expense to decrease in the near-term due to the reduction in interest expense related to the 2022 Senior Secured Notes, which were redeemed in full in May 2019, and the partial repurchase of the 2020 Convertible Notes, the remaining outstanding amount of which matured on March 1, 2020. These decreases will be partially offset by higher average debt outstanding because of the issuances of the 2024 Senior Secured Notes in April and May 2019 and the 2022 Convertible Notes in November 2018 and the associated accretion expense and amortization of deferred financing costs for such issuances. See Note 7, “Long-Term Debt and Other Liabilities” in our consolidated financial statements for additional information.

Income Taxes:

The effective income tax rate for the year ended December 31, 2019 was (0.7%), as compared with 2.0% for the prior year. Income tax expense for the year ended December 31, 2019 was not significant primarily due to the recording of a valuation allowance against our net deferred tax assets. An income tax benefit was recorded for the year ended December 31, 2018 resulting from a reduction in our valuation allowance of approximately $4.0 million due to the application of provisions of H.R. 1, commonly known as the Tax Cuts and Jobs Act (“U.S. Tax Reform”), to our evaluation of our deferred tax assets. See Note 14, “Income Tax,” for further details.

We expect our income tax provision to increase in future periods to the extent we become profitable.

Years Ended December 31, 2018 and 2017

Revenue:

Revenue by segment and percent change for the years ended December 31, 2018 and 2017 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31, 2018	2017	% Change 2018 over 2017
Service Revenue:			
CA-NA	$367,368	$393,484	(6.6%)
BA	196,377	170,880	14.9%
CA-ROW	66,402	53,542	24.0%
Total Service Revenue	$630,147	$617,906	2.0%
Equipment Revenue:			
CA-NA	$101,849	$ 7,129	1,328.7%
BA	93,776	69,732	34.5%
CA-ROW	67,992	4,323	1,472.8%
Total Equipment Revenue	$263,617	$ 81,184	224.7%
Total Revenue:			
CA-NA	$469,217	$400,613	17.1%
BA	290,153	240,612	20.6%
CA-ROW	134,394	57,865	132.3%
Total Revenue	$893,764	$699,090	27.8%

Commercial Aviation North America:

CA-NA revenue increased to $469.2 million for the year ended December 31, 2018, as compared with $400.6 million for the prior year, primarily due to an increase in equipment revenue offset in part by a decrease in service revenue.

Equipment revenue increased to $101.8 million for the year ended December 31, 2018, as compared with $7.1 million for the prior year, due to the post-adoption impact of ASC 606 for equipment during 2018, which is now fully recognized upon customer acceptance. Additionally, the transition to the airline-directed model by one airline in January 2018 increased equipment revenue by approximately $45.4 million for the year ended December 31, 2018 compared with the prior year; see Note 2, "Summary of Significant Accounting Policies," for additional information.

A summary of the components of CA-NA's service revenue for the years ended December 31, 2018 and 2017 is as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31,		% Change 2018 over 2017
	2018	2017	
Passenger Connectivity revenue *(1)*	$339,791	$368,886	(7.9%)
Passenger Entertainment and CAS revenue	27,577	24,598	12.1%
Total service revenue	$367,368	$393,484	(6.6%)

(1) Includes non-session related revenue of $6.9 million and $6.7 million for the years ended December 31, 2018 and 2017, respectively.

CA-NA service revenue decreased to $367.4 million for the year ended December 31, 2018, as compared with $393.5 million for the prior year, due to a decrease in connectivity revenue offset in part by an increase in Entertainment and CAS revenue.

CA-NA Connectivity revenue decreased to $339.8 million for the year ended December 31, 2018, as compared with $368.9 million for the prior, year due to a decrease in passenger-paid revenue offset in part by an increase in airline-paid revenue, which was primarily due to the transition of one of our airline partners to the airline-directed model from the turnkey model and, to a lesser extent, an increase in third party-paid revenue. Service revenue also decreased due to the economic impact of the same airline partner's transition to the airline-directed model. Additionally, CA-NA Connectivity revenue decreased due to the decommissioning of certain American Airlines aircraft during the year ended December 31, 2018.

Net annualized ARPA decreased to $111 thousand for the year ended December 31, 2018, as compared with $114 thousand for the prior year. The connectivity take rate, which is the number of sessions expressed as a percentage of passengers, increased to 11.6% for the year ended December 31, 2018, as compared with 8.3% for the prior year, reflecting increased passenger adoption including the impact of third party-paid and airline-paid offerings, primarily under the airline-directed model. Average revenue per session decreased to $6.97 for the year ended December 31, 2018, as compared with $10.33 for the prior year, due to shifts in product mix, third party-paid and airline-paid offerings primarily under the airline-directed model, as well as the economic impact of one of our airline partner's transition to the airline-directed model, as discussed above.

The increase in Entertainment and CAS revenue to $27.6 million for the year ended December 31, 2018, as compared with $24.6 million for the prior year, was due to increased usage of Entertainment services under business-to-business arrangements with our airline partners.

Business Aviation:

BA revenue increased to $290.2 million for the year ended December 31, 2018, as compared with $240.6 million for the prior year, due to an increase in service and equipment revenue.

BA service revenue increased to $196.4 million for the year ended December 31, 2018, as compared with $170.9 million for the prior year, primarily due to more customers subscribing to our Gogo Biz (ATG) service. The number of ATG aircraft online increased 11.7% to 5,224 as of December 31, 2018, as compared with 4,678 as of December 31, 2017.

BA equipment revenue increased to $93.8 million for the year ended December 31, 2018, as compared with $69.7 million for the prior year, primarily due to an increase in ATG equipment revenue.

During the year ended December 31, 2018, we shipped 34 AVANCE units and recognized $4.9 million of previously deferred equipment revenue as part of a sales program that started in 2016 and for which we have now fully recognized all related deferred revenue under this program.

Commercial Aviation Rest of World:

CA-ROW revenue increased to $134.4 million for the year ended December 31, 2018, as compared with $57.9 million for the prior year, due to an increase in both service revenue and equipment revenue.

CA-ROW service revenue increased to $66.4 million for the year ended December 31, 2018, as compared with $53.5 million for the prior year, due to an increase in aircraft equivalents. Net annualized ARPA for the CA-ROW segment decreased to $149 thousand for the year ended December 31, 2018 as compared with $192 thousand for the prior year due to new airline partners' aircraft coming online during the year ended December 31, 2018.

CA-ROW equipment revenue increased to $68.0 million for the year ended December 31, 2018, as compared with $4.3 million for the prior year, primarily due to the post-adoption impact of ASC 606 for equipment during the year ended December 31, 2018, which is fully recognized upon customer acceptance.

Cost of Service Revenue:

Cost of service revenue by segment and percent change for the years ended December 31, 2018 and 2017 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31,		% Change 2018 over 2017
	2018	2017	
CA-NA	$174,726	$149,671	16.7%
BA	42,833	40,821	4.9%
CA-ROW	74,083	77,842	(4.8%)
Total	$291,642	$268,334	8.7%

CA-NA cost of service revenue increased to $174.7 million for the year ended December 31, 2018, as compared with $149.7 million for the prior year, due to increases in satellite service fees, aircraft operations expenses, costs to remediate quality issues associated with our 2Ku technology and a decrease in the amortization of deferred airborne lease incentives offset in part by a decrease in revenue share expense. The changes in amortization of deferred airborne lease incentives and revenue share was primarily due to the transition of one of our airline partners from the turnkey model to the airline-directed model. See Note 15, "Leases," to our consolidated financial statements for additional information regarding our deferred airborne lease incentives. Cost of service revenue was also impacted by a portion of our supply chain and production activities now being included as part of cost of equipment revenue due to an increase in airline-directed activity.

BA cost of service revenue increased to $42.8 million for the year ended December 31, 2018, as compared with $40.8 million for the prior year. The increase was primarily due to increased ATG units online and, to a lesser extent, an increase in satellite service fees.

CA-ROW cost of service revenue decreased to $74.1 million for the year ended December 31, 2018, as compared with $77.8 million in the prior year, primarily due to a decrease in airline launch costs and network operations expenses.

Cost of Equipment Revenue:

Cost of equipment revenue by segment and percent change for the years ended December 31, 2018 and 2017 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31,		% Change 2018 over
	2018	2017	2017
CA-NA	$ 90,661	$ 7,071	1,182.2%
BA	55,416	46,632	18.8%
CA-ROW	76,167	4,851	1,470.1%
Total	$222,244	$58,554	279.6%

Cost of equipment revenue increased to $222.2 million for the year ended December 31, 2018, as compared with $58.6 million for the prior year.

The increase in CA-NA for the year ended December 31, 2018, as compared with the prior year, was due to an increase in equipment revenue, supply chain and production activities, which, prior to 2018, were included in cost of service revenue, and an increase in warranty reserves due to additional activity under airline-directed models. Additionally, the transition to the airline-directed model by one airline in January 2018 increased cost of equipment revenue by approximately $23.8 million for the year ended December 31, 2018 compared with the prior year; see Note 2, “Summary of Significant Accounting Policies,” for additional information.

The increase in BA was due to an increase in equipment revenue and changes in product mix.

The increase in CA-ROW was due to the increase in equipment revenue and an increase in warranty reserves due to additional activity under airline-directed models.

Engineering, Design and Development Expenses:

Engineering, design and development expenses decreased to $120.1 million for the year ended December 31, 2018, as compared with $133.3 million for the prior year, due to decreases in all three segments.

Engineering, design and development expenses for the CA-NA segment included the recognition of approximately $17 million of expenses during the year ended December 31, 2017, related to the development of our next generation ATG solution, primarily due to the achievement of a major milestone whereas we recognized approximately $2 million of similar expense during the year ended December 31, 2018. Additionally, upon adoption of ASC 606 on January 1, 2018, certification and other regulatory costs directly attributable to our airline-directed customers are capitalized and amortized as part of engineering, design and development costs over the life of the contract.

Sales and Marketing Expenses:

Sales and marketing expenses decreased to $58.8 million for the year ended December 31, 2018, as compared with $64.0 million for the prior year, primarily due to a decrease in CA-ROW and CA-NA, due to the shift from the turnkey model (business-to-customer) to the airline-directed model (business-to-business) offset in part by an increase in BA. Consolidated sales and marketing expenses as a percentage of total consolidated revenue was 6.6% for the year ended December 31, 2018, as compared with 9.2% for the prior year.

General and Administrative Expenses:

General and administrative expenses increased slightly to $94.3 million for the year ended December 31, 2018, as compared with $93.7 million for the prior year. Consolidated general and administrative expenses as a percentage of total consolidated revenue was 10.5% for the year ended December 31, 2018 as compared with 13.4% for the prior year.

Segment Profit (Loss):

CA-NA's reportable segment profit decreased to $62.3 million for the year ended December 31, 2018, as compared with $100.8 million for the prior year, primarily due to the changes discussed above.

BA's reportable segment profit increased to $140.2 million for the year ended December 31, 2018, as compared with $99.5 million for the prior year, primarily due to the changes discussed above.

CA-ROW's reportable segment loss decreased to $90.8 million for the year ended December 31, 2018, as compared with $102.5 million for the prior year, primarily due to the changes discussed above.

Unallocated corporate costs increased to $46.1 million for the year ended December 31, 2018, as compared with $45.9 million for the prior year. Unallocated corporate costs are primarily included within general and administrative expenses.

Depreciation and Amortization:

Depreciation and amortization expense decreased to $133.6 million for the year ended December 31, 2018, as compared with $145.5 million for the prior year, due to accelerated depreciation expense for certain upgrades and decommission programs that started in the second half of 2017 and were completed in early 2018 and the transition of one of our airline partners from the turnkey model to the airline-directed model.

Other (Income) Expense:

Other (income) expense and percent change for the years ended December 31, 2018 and 2017 were as follows *(in thousands, except for percent change)*:

	For the Years Ended December 31, 2018	2017	% Change 2018 over 2017
Interest income	$ (4,292)	$ (2,964)	44.8%
Interest expense	122,809	111,944	9.7%
Loss on extinguishment of debt	19,653	—	n/a
Other expense	233	750	(68.9%)
Total	$138,403	$109,730	26.1%

Total other expense was $138.4 million for the year ended December 31, 2018, as compared with $109.7 million for the prior year. Interest expense increased due to higher average debt levels outstanding during the year ended December 31, 2018, as compared with the prior year. See Note 8, “Interest Costs,” in our consolidated financial statements for additional information related to our interest expense. The year ended December 31, 2018 also included the loss on extinguishment of debt related to the 2020 Convertible Notes, while the prior year had no such activity.

Income Taxes:

The effective income tax rate for the year ended December 31, 2018 was 2.0%, as compared with 1.1% for the prior year. An income tax benefit was recorded for the year ended December 31, 2018 resulting from a reduction in our valuation allowance of approximately $4.0 million due to the application of provisions of U.S. Tax Reform, to our evaluation of our deferred tax assets. For the year ended December 31, 2017, we incurred an income tax benefit of $2.0 million, primarily due to the change in the U.S. corporate tax rate as a result of U.S. Tax Reform enacted in December 2017. See Note 14, “Income Tax,” for further details.

Non-GAAP Measures

In our discussion below, we discuss certain non-GAAP financial measurements, including Adjusted EBITDA, Free Cash Flow and Unlevered Free Cash Flow as defined below. Management uses Adjusted EBITDA, Free Cash Flow and Unlevered Free Cash Flow for business planning purposes, including managing our business against internally projected results of operations and measuring our performance and liquidity. These supplemental performance measures also provide another basis for comparing period-to-period results by excluding potential differences caused by non-operational and unusual or non-recurring items. These supplemental performance measurements may vary from and may not be comparable to similarly titled measures used by other companies. Adjusted EBITDA, Free Cash Flow and Unlevered Free Cash Flow are not recognized measurements under accounting principles generally accepted in the United States, or GAAP; when analyzing our performance with Adjusted EBITDA or liquidity with Free Cash Flow or Unlevered Free Cash Flow, as applicable, investors should (i) evaluate each adjustment in our reconciliation to the corresponding GAAP measure, and the explanatory footnotes regarding those adjustments, (ii) use Adjusted EBITDA in addition to, and not as an alternative to, net loss attributable to common stock as a measure of operating results, and (iii) use Free Cash Flow or Unlevered Free Cash Flow in addition to, and not as an alternative to, consolidated net cash provided by (used in) operating activities when evaluating our liquidity.

Definition and Reconciliation of Non-GAAP Measures

EBITDA represents net loss attributable to common stock before interest expense, interest income, income taxes and depreciation and amortization expense.

Adjusted EBITDA represents EBITDA adjusted for (i) stock-based compensation expense, (ii) amortization of deferred airborne lease incentives, (iii) amortization of STC costs, (iv) the accounting impact of the transition to the airline-directed model, (v) loss on extinguishment of debt and (vi) proceeds from litigation settlement. Our management believes that the use of Adjusted EBITDA eliminates items that, management believes, have less bearing on our operating performance, thereby highlighting trends in our core business which may not otherwise be apparent. It also provides an assessment of controllable expenses, which are indicators management uses to determine whether current spending decisions need to be adjusted in order to meet financial goals and achieve optimal financial performance.

We believe that the exclusion of stock-based compensation expense from Adjusted EBITDA is appropriate given the significant variation in expense that can result from using the Black-Scholes model to determine the fair value of such compensation. The fair value of our stock options is determined using the Black-Scholes model and varies based on fluctuations in the assumptions used in this model, including inputs that are not necessarily directly related to the performance of our business, such as the expected volatility, the risk-free interest rate and the expected life of the options. Therefore, we believe that the exclusion of this cost provides a clearer view of the operating performance of our business. Further, stock option grants made at a certain price and point in time do not necessarily reflect how our business is performing at any particular time. While we believe that investors should have information about any dilutive effect of outstanding options and the cost of that compensation, we also believe that stockholders should have the ability to consider our performance using a non-GAAP financial measure that excludes these costs and that management uses to evaluate our business.

We believe that the exclusion of the amortization of deferred airborne lease incentives and amortization of STC costs from Adjusted EBITDA is useful as it allows an investor to view operating performance across time periods in a manner consistent with how management measures reportable segment profit and loss (see Note 11, "Business Segments and Major Customers," for a description of reportable segment profit (loss) in our consolidated financial statements). Management evaluates reportable segment profit and loss in this manner, excluding the amortization of deferred airborne lease incentives and amortization of STC costs, because such presentation reflects operating decisions and activities from the current period, without regard to the prior period decisions or the business model applicable to various connectivity agreements.

We believe that it is useful to an understanding of our operating performance to exclude the accounting impact of the transition by one of our airline partners to the airline-directed model and the loss on extinguishment of debt from Adjusted EBITDA because of the non-recurring nature of these activities.

We believe that the exclusion of litigation proceeds from Adjusted EBITDA is appropriate as this is non-recurring in nature and represents an infrequent financial benefit to our operating performance.

We also present Adjusted EBITDA as a supplemental performance measure because we believe that this measure provides investors, securities analysts and other users of our financial statements with important supplemental information with which to evaluate our performance and to enable them to assess our performance on the same basis as management.

Free Cash Flow represents net cash provided by (used in) operating activities, less purchases of property and equipment and the acquisition of intangible assets. We believe that Free Cash Flow provides meaningful information regarding the Company's liquidity.

Unlevered Free Cash Flow represents Free Cash Flow adjusted for cash interest payments and interest income. We believe that Unlevered Free Cash Flow provides an additional view of the Company's liquidity, excluding the impact of our capital structure.

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Gogo Inc. and Subsidiaries
Reconciliation of GAAP to Non-GAAP Measures
(in thousands, except per share amounts)
(unaudited)

	For the Years Ended December 31,		
	2019	2018	2017
Adjusted EBITDA:			
Net loss attributable to common stock (GAAP)	$ (146,004)	$ (162,031)	$ (171,995)
Interest expense	130,572	122,809	111,944
Interest income	(4,210)	(4,292)	(2,964)
Income tax provision (benefit)	1,006	(3,293)	(1,997)
Depreciation and amortization	118,817	133,617	145,490
EBITDA	100,181	86,810	80,478
Stock-based compensation expense	16,511	16,912	19,821
Amortization of deferred airborne lease incentives	(28,551)	(31,650)	(41,816)
Amortization of STC costs	2,706	1,023	—
Transition to airline-directed model	—	(21,551)	—
Loss on extinguishment of debt	57,962	19,653	—
Proceeds from litigation settlement	(3,215)	—	—
Adjusted EBITDA	$ 145,594	$ 71,197	$ 58,483
Unlevered Free Cash Flow:			
Net cash provided by (used in) operating activities (GAAP) *(1)*	$ 64,061	$ (82,311)	$ 60,256
Consolidated capital expenditures *(1)*	(115,478)	(131,663)	(280,230)
Free cash flow	(51,417)	(213,974)	(219,974)
Cash paid for interest *(1)*	140,833	101,489	86,359
Interest income *(2)*	(4,210)	(4,292)	(2,964)
Unlevered free cash flow	$ 85,206	$ (116,777)	$ (136,579)

(1) See consolidated statements of cash flows.
(2) See consolidated statements of operations.

Material limitations of Non-GAAP measures

Although EBITDA, Adjusted EBITDA, Free Cash Flow and Unlevered Free Cash Flow are measurements frequently used by investors and securities analysts in their evaluations of companies, EBITDA, Adjusted EBITDA, Free Cash Flow and Unlevered Free Cash Flow each have limitations as an analytical tool, and you should not consider them in isolation or as a substitute for, or more meaningful than, amounts determined in accordance with GAAP.

Some of these limitations include:

- EBITDA and Adjusted EBITDA do not reflect interest income or expense;
- EBITDA and Adjusted EBITDA do not reflect cash requirements for our income taxes;
- EBITDA and Adjusted EBITDA do not reflect depreciation and amortization, which are significant and unavoidable operating costs given the level of capital expenditures needed to maintain our business;
- Adjusted EBITDA does not reflect non-cash components of employee compensation;
- Free Cash Flow and Unlevered Free Cash Flow do not represent the total increase or decrease in our cash balance for the period; and

- since other companies in our or related industries may calculate these measures differently from the way we do, their usefulness as comparative measures may be limited.

Liquidity and Capital Resources

The following table presents a summary of our cash flow activity for the periods set forth below *(in thousands)*:

	For the Years Ended December 31,		
	2019	2018	2017
Net cash provided by (used in) operating activities	$ 64,061	$ (82,311)	$ 60,256
Net cash provided by (used in) investing activities	(73,709)	41,806	(157,395)
Net cash provided by (used in) financing activities	(3,543)	27,314	174,936
Effect of foreign exchange rate changes on cash	(250)	578	743
Net increase (decrease) in cash, cash equivalents and restricted cash	(13,441)	(12,613)	78,540
Cash, cash equivalents and restricted cash at beginning of period	191,116	203,729	125,189
Cash, cash equivalents and restricted cash at end of period	$177,675	$191,116	$ 203,729
Supplemental information:			
Cash, cash equivalents and restricted cash at end of period	$177,675	$191,116	$ 203,729
Less: current restricted cash	560	1,535	500
Less: non-current restricted cash	7,099	5,426	6,873
Cash and cash equivalents at end of period	$170,016	$184,155	$ 196,356
Short-term investments	$ —	$ 39,323	$ 212,792

We have historically financed our growth and cash needs primarily through the issuance of common stock, non-convertible debt, senior convertible preferred stock, convertible debt, term facilities and cash from operating activities. We continually evaluate our ongoing capital needs in light of increasing demand for our services, capacity requirements, evolving technologies in our industry and related strategic, operational and technological opportunities. We actively consider opportunities to raise additional capital in the public and private markets utilizing one or more of the types of capital raising transactions through which we have historically financed our growth and cash needs, as well as other means of capital raising not previously used by us.

2024 Senior Secured Notes:

On April 25, 2019 (the “Issue Date”), Gogo Intermediate Holdings LLC (“GIH”) (a wholly owned subsidiary of Gogo Inc.) and Gogo Finance Co. Inc. (a wholly owned subsidiary of GIH) (“Gogo Finance” and, together with GIH, the “Issuers”) issued $905 million aggregate principal amount of 9.875% senior secured notes due 2024 (the “Initial Notes”) under an indenture (the “Base Indenture”), dated as of April 25, 2019, among the Issuers, us, as guarantor, certain subsidiaries of GIH, as guarantors (the “Initial 2024 Subsidiary Guarantors” and, together with us, the “Initial 2024 Guarantors”), and U.S. Bank National Association, as trustee (the “Trustee”) and collateral agent (the “Collateral Agent”). On May 3, 2019, the Issuers, the Initial 2024 Guarantors and the Trustee entered into the first supplemental indenture (together with the Base Indenture and the second supplemental indenture, dated as of March 6, 2020, between the Issuers, the Initial 2024 Guarantors, Gogo Air International GmbH (an indirect subsidiary of GIH) (“Gogo International” and, together with the Initial 2024 Guarantors, the “2024 Guarantors”) and the Trustee to add Gogo International as a guarantor, the “2024 Indenture”) to increase the amount of indebtedness that may be incurred under Credit Facilities (as defined in the 2024 Indenture) by GIH or its subsidiaries that are 2024 Guarantors by $20 million in aggregate principal amount. On May 7, 2019, the Issuers issued an additional $20 million aggregate principal amount of 9.875% senior secured notes due 2024 (the "Additional Notes"). We refer to the Initial Notes and the Additional Notes collectively as the "2024 Senior Secured Notes". The Initial Notes were issued at a price equal to 99.512% of their face value, and the Additional Notes were issued at a price equal to 100.5% of their face value, resulting in aggregate gross proceeds of $920.7 million. Additionally, we received approximately $0.1 million for interest that accrued from April 25, 2019 through May 7, 2019 with respect to the Additional Notes that was included in our interest payment on November 1, 2019. The 2024 Senior Secured Notes are guaranteed on a senior secured basis by Gogo Inc. and all of GIH's existing and future restricted subsidiaries (other than Gogo Finance), subject to certain exceptions. The 2024 Senior Secured Notes and the related guarantees are secured by second-priority liens on the ABL Priority Collateral (as defined below) and by first-priority liens on the Cash Flow Priority Collateral (as defined below), including pledged equity interests of the Issuers and all of GIH's existing and future restricted subsidiaries guaranteeing the 2024 Senior Secured Notes, except for certain excluded assets and subject to permitted liens.

As of December 31, 2019, the outstanding principal amount of the 2024 Senior Secured Notes was $925 million, the unaccreted debt discount was $3.9 million and the net carrying amount was $921.1 million.

We used a portion of the net proceeds from the issuance of the 2024 Senior Secured Notes to fund the redemption of all the outstanding 2022 Senior Secured Notes (as defined below) and to repurchase $159 million aggregate principal amount of the 2020 Convertible Notes (as defined below). We intend to use the remaining net proceeds for general corporate purposes.

The 2024 Senior Secured Notes will mature on May 1, 2024. The 2024 Senior Secured Notes bear interest at a rate of 9.875% per year, payable semiannually in arrears on May 1 and November 1 of each year, beginning on November 1, 2019.

We paid approximately $22.0 million of origination fees and financing costs related to the issuance of the 2024 Senior Secured Notes, which have been accounted for as deferred financing costs. The deferred financing costs on our consolidated balance sheet are being amortized over the contractual term of the 2024 Senior Secured Notes using the effective interest method. Total amortization expense was $2.3 million for the year ended December 31, 2019. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2019, the balance of unamortized deferred financing costs related to the 2024 Senior Secured Notes was $19.7 million and is included as a reduction to long-term debt in our consolidated balance sheet. See Note 8, "Interest Costs," for additional information.

The 2024 Senior Secured Notes are the senior secured indebtedness of the Issuers and are:

- effectively senior to (i) all of the Issuers' existing and future senior unsecured indebtedness to the extent of the value of the collateral securing the 2024 Senior Secured Notes and (ii) the Issuers' indebtedness secured on a junior priority basis by the same collateral securing the 2024 Senior Secured Notes to the extent of the value of such collateral, including the obligations under the ABL Credit Facility (as defined below) to the extent of the value of the Cash Flow Priority Collateral;
- effectively equal in right of payment with the Issuers' existing and future (i) unsecured indebtedness that is not subordinated in right of payment to the 2024 Senior Secured Notes and (ii) indebtedness secured on a junior priority basis by the same collateral securing the 2024 Senior Secured Notes, if any, in each case to the extent of any insufficiency in the collateral securing the 2024 Senior Secured Notes;
- structurally senior to all of our existing and future indebtedness, including our 2022 Convertible Notes and 2020 Convertible Notes (each as defined below);
- senior in right of payment to any and all of the Issuers' future indebtedness that is subordinated in right of payment to the 2024 Senior Secured Notes;

- structurally subordinated to all of the indebtedness and other liabilities of any non-2024 Guarantors (other than the Issuers); and
- effectively subordinated to all of our existing and future indebtedness secured on a senior priority basis by the same collateral securing the 2024 Senior Secured Notes to the extent of the value of such collateral, including the obligations under the ABL Credit Facility to the extent of the value of ABL Priority Collateral.

Each guarantee is a senior secured obligation of such 2024 Guarantor and is:

- effectively senior in right of payment to all existing and future (i) senior unsecured indebtedness to the extent of the value of the collateral securing such guarantee owned by such 2024 Guarantor and (ii) indebtedness secured on a junior priority basis by the same collateral securing the guarantee owned by such 2024 Guarantor to the extent of the value of the collateral securing the guarantee, including the obligations under the ABL Credit Facility to the extent of the value of the Cash Flow Priority Collateral;
- effectively equal in right of payment with all existing and future unsubordinated indebtedness and indebtedness secured on a junior priority basis by the same collateral securing the guarantee owned by such 2024 Guarantor, if any, in each case to the extent of any insufficiency in the collateral securing such guarantee;
- effectively subordinated to the obligations under the ABL Credit Facility of each 2024 Guarantor to the extent of the value of the ABL Priority Collateral owned by such 2024 Guarantor;
- effectively senior in right of payment to all existing and future subordinated indebtedness, if any, of such 2024 Guarantor; and
- structurally subordinated to all indebtedness and other liabilities of any non-2024 Guarantor subsidiary of such 2024 Guarantor (excluding, in the case of our guarantee, the Issuers).

The security interests in certain collateral may be released without the consent of holders of the 2024 Senior Secured Notes if such collateral is disposed of in a transaction that complies with the 2024 Indenture and related security agreements, and if any grantor of such security interests is released from its obligations with respect to the 2024 Senior Secured Notes in accordance with the applicable provisions of the 2024 Indenture and related security agreements. Under certain circumstances, GIH and the 2024 Guarantors have the right to transfer certain intellectual property assets that on the Issue Date constitute collateral securing the 2024 Senior Secured Notes or the guarantees to a restricted subsidiary organized under the laws of Switzerland, resulting in the release of such collateral. In addition, the 2024 Indenture permits indebtedness incurred under the ABL Credit Facility to be secured on a first-priority basis by certain of the same collateral that secures the 2024 Senior Secured Notes.

The Issuers may redeem the 2024 Senior Secured Notes, in whole or in part, at any time prior to May 1, 2021, at a redemption price equal to 100% of the principal amount of the 2024 Senior Secured Notes redeemed plus the make-whole premium set forth in the 2024 Indenture as of, and accrued and unpaid interest, if any, to (but not including) the applicable redemption date.

On or after May 1, 2021, the 2024 Senior Secured Notes will be redeemable at the following redemption prices (expressed in percentages of principal amount), plus accrued and unpaid interest, if any, to (but not including) the redemption date (subject to the right of holders of record on the relevant regular record date on or prior to the redemption date to receive interest due on an interest payment date), if redeemed during the twelve-month period commencing on May 1 of the following years:

Year	Redemption Price
2021	104.938%
2022	102.469%
2023 and thereafter	100.000%

In addition, at any time prior to May 1, 2021, the Issuers may redeem up to 40% of the aggregate principal amount of the 2024 Senior Secured Notes with the proceeds of certain equity offerings at a redemption price of 109.875% of the principal amount redeemed, plus accrued and unpaid interest, if any, to (but not including) the date of redemption; provided, however, that 2024 Senior Secured Notes representing at least 50% of the principal amount of the 2024 Senior Secured Notes remain outstanding immediately after each such redemption.

In addition, if GIH receives cash proceeds in connection with the entry into or continuation of a strategic relationship, or equity from us in connection with the sale of stock to a complimentary business (in each case, a “strategic investment”) at any time prior to May 1, 2020, the Issuers may redeem up to $150 million of the aggregate principal amount of the 2024 Senior Secured Notes at 103% of the principal amount of the 2024 Senior Secured Notes to be redeemed, plus accrued and unpaid interest, if any, to (but not including) the redemption date with the proceeds from such strategic investment.

The 2024 Indenture contains covenants that, among other things, limit the ability of the Issuers and the 2024 Subsidiary Guarantors and, in certain circumstances, our ability, to: incur additional indebtedness; pay dividends, redeem stock or make other distributions; make investments; create restrictions on the ability of GIH’s restricted subsidiaries to pay dividends to the Issuers or make other intercompany transfers; create liens; transfer or sell assets; merge or consolidate; and enter into certain transactions with the Issuers’ affiliates. Most of these covenants will cease to apply if, and for as long as, the 2024 Senior Secured Notes have investment grade ratings from both Moody’s Investment Services, Inc. and Standard & Poor’s.

If we or the Issuers undergo specific types of change of control accompanied by a downgrade in the rating of the 2024 Senior Secured Notes prior to May 1, 2024, GIH is required to make an offer to repurchase for cash all of the 2024 Senior Secured Notes at a repurchase price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to (but not including) the payment date.

The 2024 Indenture provides for events of default, which, if any of them occur, would permit or require the principal, premium, if any, and interest on all of the then outstanding 2024 Senior Secured Notes issued under the 2024 Indenture to be due and payable immediately. As of December 31, 2019, no event of default had occurred.

ABL Credit Facility:

On August 26, 2019, Gogo Inc., GIH and Gogo Finance (together GIH and Gogo Finance are referred to as the “Borrowers”) entered into a credit agreement (the “ABL Credit Agreement”) among the Borrowers, the other loan parties party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A., as administrative agent (the “Administrative Agent”), and Morgan Stanley Senior Funding, Inc., as syndication agent, which provides for an asset-based revolving credit facility (the “ABL Credit Facility”) of up to $30 million, subject to borrowing base availability, and includes letter of credit and swingline sub-facilities.

Borrowing availability under the ABL Credit Facility is determined by a monthly borrowing base collateral calculation that is based on specified percentages of the value of eligible accounts receivable (including eligible unbilled accounts receivable) and eligible credit card receivables, less certain reserves and subject to certain other adjustments as set forth in the ABL Credit Agreement. Availability is reduced by issuance of letters of credit as well as any borrowings. As of December 31, 2019, no revolving loans were outstanding under the ABL Credit Facility.

The final maturity of the ABL Credit Facility is August 26, 2022, unless the aggregate outstanding principal amount of our 2022 Convertible Notes (as defined below) has not, on or prior to December 15, 2021, been repaid in full or refinanced with a new maturity date no earlier than February 26, 2023, in which case the final maturity date shall instead be December 16, 2021.

Loans outstanding under the ABL Credit Facility bear interest at a floating rate measured by reference to, at the Borrowers’ option, either (i) an adjusted London inter-bank offered rate plus an applicable margin ranging from 1.50% to 2.00% per annum depending on a fixed charge coverage ratio, or (ii) an alternate base rate plus an applicable margin ranging from 0.50% to 1.00% per annum depending on a fixed charge coverage ratio. Unused commitments under the ABL Credit Facility are subject to a per annum fee ranging from 0.25% to 0.375% depending on the average quarterly usage of the revolving commitments.

The obligations under the ABL Credit Agreement are guaranteed by Gogo Inc. and all of its existing and future subsidiaries, subject to certain exceptions (collectively, the "ABL Guarantors"), and such obligations and the obligations of the ABL Guarantors are secured on a (i) senior basis by a perfected security interest in all present and after-acquired inventory, accounts receivable, deposit accounts, securities accounts, and any cash or other assets in such accounts and other related assets owned by each ABL Guarantor and the proceeds of the foregoing, subject to certain exceptions (the "ABL Priority Collateral") and (ii) junior basis by a perfected security interest in substantially all other tangible and intangible assets owned by each ABL Guarantor (the "Cash Flow Priority Collateral").

The ABL Credit Agreement contains customary representations and warranties and customary affirmative and negative covenants. The negative covenants include restrictions on, among other things: the incurrence of additional indebtedness; the incurrence of additional liens; dividends or other distributions on equity; the purchase, redemption or retirement of capital stock; the payment or redemption of certain indebtedness; loans, guarantees and other investments; entering into other agreements that create restrictions on the ability to pay dividends or make other distributions on equity, make or repay certain loans, create or incur certain liens or guarantee certain indebtedness; asset sales; sale-leaseback transactions; swap agreements; consolidations or mergers; amendment of certain material documents; certain regulatory matters; Canadian pension plans; and affiliate transactions. The negative covenants are subject to customary exceptions and also permit dividends and other distributions on equity, investments, permitted acquisitions and payments or redemptions of indebtedness upon satisfaction of the "payment conditions." The payment conditions are deemed satisfied upon Specified Availability (as defined in the ABL Credit Agreement) on the date of the designated action and Specified Availability for the prior 30-day period exceeding agreed-upon thresholds, the absence of the occurrence and continuance of any default and, in certain cases, pro forma compliance with a fixed charge coverage ratio of no less than 1.10 to 1.00.

The ABL Credit Agreement includes a minimum fixed charge coverage ratio test of no less than 1.00 to 1.00, which is tested only when Specified Availability is less than the greater of (A) $4.5 million and (B) 15.0% of the then effective commitments under the ABL Credit Facility, and continuing until the first day immediately succeeding the last day of the calendar month which includes the thirtieth (30th) consecutive day on which Specified Availability is in excess of such threshold so long as no default has occurred and is continuing and certain other conditions are met. As of December 31, 2019, Specified Availability had not fallen below the amount specified and therefore the minimum fixed charge coverage ratio test was not applicable. Full availability under the ABL Credit Facility may be limited by our ability to comply with the fixed charge coverage ratio in future periods.

The ABL Credit Agreement provides for events of default, which, if any of them occurs, would permit or require the principal, premium, if any, and interest on all of the then outstanding obligations under the ABL Credit Facility to be due and payable immediately and the commitments under the ABL Credit Facility to be terminated.

On August 26, 2019, the Borrowers and the ABL Guarantors entered into an ABL collateral agreement (the "ABL Collateral Agreement"), in favor of the Administrative Agent, whereby the Borrowers and the ABL Guarantors granted a security interest in substantially all tangible and intangible assets of each Borrower and each ABL Guarantor, to secure all obligations of the Borrowers and the ABL Guarantors under the ABL Credit Agreement, and U.S. Bank National Association, as cash flow collateral representative, and JPMorgan Chase Bank, N.A., as ABL agent, entered into a crossing lien intercreditor agreement (the "Intercreditor Agreement") to govern the relative priority of liens on the collateral that secures the ABL Credit Agreement and the 2024 Senior Secured Notes and certain other rights, priorities and interests.

2022 Senior Secured Notes:

On June 14, 2016, the Issuers issued $525 million aggregate principal amount of 12.500% senior secured notes due 2022 (the “Original 2022 Senior Secured Notes”) under an Indenture, dated as of June 14, 2016 (the “Original Indenture”), among the Issuers, us, as guarantor, certain subsidiaries of GIH, as guarantors (the “2022 Subsidiary Guarantors” and, together with us, the “2022 Guarantors”), and U.S. Bank National Association, as Trustee and as Collateral Agent. On January 3, 2017, the Issuers issued $65 million aggregate principal amount of additional 12.500% senior secured notes due 2022 (the “January 2017 Additional Notes”). The January 2017 Additional Notes were issued at a price equal to 108% of their face value resulting in gross proceeds of $70.2 million. On September 20, 2017, the Issuers, the 2022 Guarantors and the Trustee entered into the first supplemental indenture (the “Supplemental Indenture” and, together with the Original Indenture, the “Indenture”) to modify certain covenants, as discussed below. On September 25, 2017, the Issuers issued $100 million aggregate principal amount of additional 12.500% senior secured notes due 2022 (the “September 2017 Additional Notes”). The September 2017 Additional Notes were issued at a price equal to 113% of their face value resulting in gross proceeds of $113.0 million. Additionally, we received approximately $2.9 million for interest that accrued from July 1, 2017 through September 24, 2017, which was paid in our January 2018 interest payment. We refer to the Original 2022 Senior Secured Notes, the January 2017 Additional Notes and the September 2017 Additional Notes collectively as the “2022 Senior Secured Notes.”

On April 15, 2019, the Issuers elected to call for redemption in full all $690 million aggregate principal amount outstanding of the 2022 Senior Secured Notes in accordance with the terms of the Indenture. The redemption was conditioned, among other things, upon the incurrence of indebtedness in connection with the issuance of the 2024 Senior Secured Notes or from one or more other sources, in an amount satisfactory to the Issuers which condition was satisfied by the issuance of the 2024 Senior Secured Notes. On April 25, 2019, the Issuers irrevocably deposited, or caused to be irrevocably deposited, with the Trustee funds solely for the benefit of the holders of the 2022 Senior Secured Notes, cash in an amount sufficient to pay principal, premium, if any, and accrued interest on the 2022 Senior Secured Notes to, but not including, the date of redemption and all other sums payable under the Indenture. The Trustee executed and delivered an acknowledgement of satisfaction, discharge and release, dated as of April 25, 2019, among other documents, with respect to the satisfaction and discharge of the 2022 Senior Secured Notes. On May 15, 2019, the 2022 Senior Secured Notes were fully redeemed in accordance with the terms of the Indenture, and the amount deposited with the Trustee on April 25, 2019 was paid to the holders of the 2022 Senior Secured Notes. The make-whole premium paid in connection with the redemption was $51.4 million and we wrote off the remaining unamortized deferred financing costs of $9.1 million and the remaining debt premium of $11.7 million relating to the 2022 Senior Secured Notes in connection with the redemption thereof, which together are included in the loss on extinguishment of debt in our consolidated statements of operations for the year ended December 31, 2019.

We paid approximately $15.9 million of aggregate origination fees and financing costs related to the issuance of the 2022 Senior Secured Notes which were accounted for as deferred financing costs. Additionally, we paid approximately $1.4 million of consent fees in connection with the Supplemental Indenture, which partially offset the net carrying value of the 2022 Senior Secured Notes. Total amortization expense was $0.9 million, $2.6 million and $2.3 million, respectively, for the years ended December 31, 2019, 2018 and 2017. Amortization expense is included in interest expense in the consolidated statements of operations. As noted above, the remaining unamortized deferred financing costs were written off as of May 15, 2019.

2022 Convertible Notes:

On November 21, 2018, we issued $215.0 million aggregate principal amount of 6.00% Convertible Senior Notes due 2022 (the “2022 Convertible Notes”) in private offerings to qualified institutional buyers, including pursuant to Rule 144A under the Securities Act, and in concurrent private placements. We granted an option to the initial purchasers to purchase up to an additional $32.3 million aggregate principal amount of 2022 Convertible Notes to cover over-allotments, of which $22.8 million was subsequently exercised during December 2018, resulting in a total issuance of $237.8 million aggregate principal amount of 2022 Convertible Notes. The 2022 Convertible Notes mature on May 15, 2022, unless earlier repurchased or converted into shares of our common stock under certain circumstances described below. Upon maturity, we have the option to settle our obligation through cash, shares of common stock, or a combination of cash and shares of common stock. We pay interest on the 2022 Convertible Notes semi-annually in arrears on May 15 and November 15 of each year, beginning on May 15, 2019.

The $237.8 million of proceeds received from the issuance of the 2022 Convertible Notes was initially allocated between long-term debt (the liability component) at $188.7 million and additional paid-in capital (the equity component) at $49.1 million, within the consolidated balance sheet. The fair value of the liability component was measured using rates determined for similar debt instruments without a conversion feature. The carrying amount of the equity component, representing the conversion option, was determined by deducting the fair value of the liability component from the aggregate face value of the 2022 Convertible Notes. If we or the note holders elect not to settle the debt through conversion, we must settle the 2022 Convertible Notes at face value. Therefore, the liability component will be accreted up to the face value of the 2022 Convertible Notes, which will result in additional non-cash interest expense being recognized in the consolidated statements of operations through the 2022 Convertible Notes maturity date (see Note 8, "Interest Costs," for additional information). The effective interest rate on the 2022 Convertible Notes, including accretion of the notes to par and debt issuance cost amortization, was approximately 13.6%. The equity component will not be remeasured as long as it continues to meet the conditions for equity classification.

As of December 31, 2019 and 2018, the outstanding principal on the 2022 Convertible Notes was $237.8 million, the unaccreted debt discount was $35.9 million and $47.7 million, respectively, and the net carrying amount of the liability component was $201.9 million and $190.1 million, respectively.

We incurred approximately $8.1 million of issuance costs related to the issuance of the 2022 Convertible Notes, of which $6.4 million and $1.7 million were recorded to deferred financing costs and additional paid-in capital, respectively, in proportion to the allocation of the proceeds of the 2022 Convertible Notes. The $6.4 million recorded as deferred financing costs on our consolidated balance sheet is being amortized over the term of the 2022 Convertible Notes using the effective interest method. Total amortization expense was $1.7 million and $0.2 million, respectively, for the years ended December 31, 2019 and 2018. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2019 and 2018, the balance of unamortized deferred financing costs related to the 2022 Convertible Notes was $4.5 million and $6.2 million, respectively, and is included as a reduction to long-term debt in our consolidated balance sheets. See Note 8, "Interest Costs," for additional information.

The 2022 Convertible Notes had an initial conversion rate of 166.6667 common shares per $1,000 principal amount of 2022 Convertible Notes, which is equivalent to an initial conversion price of approximately $6.00 per share of our common stock. Upon conversion, we currently expect to deliver cash up to the principal amount of the 2022 Convertible Notes then outstanding. With respect to any conversion value in excess of the principal amount, we currently expect to deliver shares of our common stock. We may elect to deliver cash in lieu of all or a portion of such shares. The shares of common stock subject to conversion are excluded from diluted earnings per share calculations under the if-converted method as their impact is anti-dilutive.

Holders may convert the 2022 Convertible Notes, at their option, in multiples of $1,000 principal amount at any time prior to January 15, 2022, but only in the following circumstances:

- during any fiscal quarter beginning after the fiscal quarter ended December 31, 2018, if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during the last 30 consecutive trading days of the immediately preceding fiscal quarter is greater than or equal to 130% of the conversion price of the 2022 Convertible Notes on each applicable trading day;

- during the five-business day period following any five consecutive trading day period in which the trading price for the 2022 Convertible Notes is less than 98% of the product of the last reported sale price of our common stock and the conversion rate for the 2022 Convertible Notes on each such trading day; or
- upon the occurrence of specified corporate events.

None of the above events allowing for conversion prior to January 15, 2022 occurred during the year ended December 31, 2019. Regardless of whether any of the foregoing circumstances occurs, a holder may convert its 2022 Convertible Notes, in multiples of $1,000 principal amount, at any time on or after January 15, 2022 until the second scheduled trading day immediately preceding May 15, 2022.

In addition, if we undergo a fundamental change (as defined in the indenture governing the 2022 Convertible Notes), holders may, subject to certain conditions, require us to repurchase their 2022 Convertible Notes for cash at a price equal to 100% of the principal amount of the 2022 Convertible Notes to be purchased, plus any accrued and unpaid interest. In addition, following a make-whole fundamental change, we will increase the conversion rate in certain circumstances for a holder who elects to convert its 2022 Convertible Notes in connection with such make-whole fundamental change.

2020 Convertible Notes:

On March 3, 2015, we issued $340.0 million aggregate principal amount of 3.75% Convertible Senior Notes due 2020 (the “2020 Convertible Notes”) in a private offering to qualified institutional buyers, pursuant to Rule 144A under the Securities Act. We granted an option to the initial purchasers to purchase up to an additional $60.0 million aggregate principal amount of 2020 Convertible Notes to cover over-allotments, of which $21.9 million was subsequently exercised during March 2015, resulting in a total issuance of $361.9 million aggregate principal amount of 2020 Convertible Notes. We paid interest on the 2020 Convertible Notes semi-annually in arrears on March 1 and September 1 of each year. Interest payments began on September 1, 2015. In November 2018, in connection with the issuance of the 2022 Convertible Notes, we repurchased $199.9 million outstanding principal amount of the 2020 Convertible Notes at par value. As a result of the repurchase, the carrying value of the 2020 Convertible Notes was adjusted by $17.9 million to face value and included in the loss on extinguishment of debt in our consolidated statements of operations for the year ended December 31, 2018.

On April 18, 2019, we commenced a cash tender offer (the “Tender Offer”) to purchase any and all of the outstanding 2020 Convertible Notes for an amount equal to $1,000 per $1,000 principal amount of 2020 Convertible Notes purchased, plus accrued and unpaid interest from the last interest payment date on the 2020 Convertible Notes to, but not including, the date of payment for the 2020 Convertible Notes accepted in the Tender Offer. The Tender Offer expired on May 15, 2019, resulting in the purchase of $159.0 million of outstanding 2020 Convertible Notes. As a result of the Tender Offer, the carrying value of the 2020 Convertible Notes was adjusted by $8.5 million to face value and unamortized deferred financing costs of $0.6 million were expensed. These two items are included in the loss on extinguishment of debt in our consolidated statements of operations for the year ended December 31, 2019. During September 2019, we purchased an additional $0.5 million of outstanding 2020 Convertible Notes. The 2020 Convertible Notes matured on March 1, 2020.

The $361.9 million of proceeds received from the issuance of the 2020 Convertible Notes was initially allocated between long-term debt (the liability component) at $261.9 million and additional paid-in capital (the equity component) at $100.0 million, within the consolidated balance sheet. The fair value of the liability component was measured using rates determined for similar debt instruments without a conversion feature. The carrying amount of the equity component, representing the conversion option, was determined by deducting the fair value of the liability component from the aggregate face value of the 2020 Convertible Notes. If we or the holders of 2020 Convertible Notes elected not to settle the debt through conversion, we were required to settle the 2020 Convertible Notes at face value. Therefore, the liability component was accreted up to the face value of the 2020 Convertible Notes, which resulted in additional non-cash interest expense being recognized in the consolidated statements of operations (see Note 8, "Interest Costs," for additional information). The effective interest rate on the 2020 Convertible Notes, including accretion of the notes to par and debt issuance cost amortization, was approximately 11.5%.

As of December 31, 2019 and 2018, the outstanding principal on the 2020 Convertible Notes was $2.5 million and $162.0 million, respectively, the unamortized debt discount was zero and $12.8 million, respectively, and the net carrying amount of the liability component was $2.5 million and $149.2 million, respectively.

We incurred approximately $10.4 million of issuance costs related to the issuance of the 2020 Convertible Notes, of which $7.5 million and $2.9 million were recorded to deferred financing costs and additional paid-in capital, respectively, in proportion to the allocation of the proceeds of the 2020 Convertible Notes. The $7.5 million recorded as deferred financing costs on our consolidated balance sheet is being amortized over the term of the 2020 Convertible Notes using the effective interest method. Total amortization expense of the deferred financing costs was $0.2 million, $1.4 million and $1.5 million, respectively, for the years ended December 31, 2019, 2018 and 2017. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2019 and 2018, the balance of unamortized deferred financing costs related to the 2020 Convertible Notes was zero and $0.9 million, respectively, and is included as a reduction to long-term debt in our consolidated balance sheets. See Note 8, "Interest Costs," for additional information.

The 2020 Convertible Notes had an initial conversion rate of 41.9274 common shares per $1,000 principal amount of 2020 Convertible Notes, which was equivalent to an initial conversion price of approximately $23.85 per share of our common stock. Upon conversion and prior to maturity, we expected to deliver cash up to the principal amount of the 2020 Convertible Notes then outstanding. With respect to any conversion value in excess of the principal amount, we expected to deliver shares of our common stock. We had the option to elect to deliver cash in lieu of all or a portion of such shares. The shares of common stock subject to conversion were excluded from diluted earnings per share calculations under the if-converted method as their impact is anti-dilutive.

Forward Transactions:

In connection with the issuance of the 2020 Convertible Notes, we paid approximately $140 million to enter into prepaid forward stock repurchase transactions (the "Forward Transactions") with certain financial institutions (the "Forward Counterparties"), pursuant to which we purchased approximately 7.2 million shares of common stock for settlement on or around the March 1, 2020 maturity date for the 2020 Convertible Notes, subject to the ability of each Forward Counterparty to elect to settle all or a portion of its Forward Transactions early.

On December 11, 2019, we entered into an amendment to one of the Forward Transactions (the "Amended and Restated Forward Transaction") to extend the expected settlement date with respect to approximately 2.1 million shares of common stock held by one of the Forward Counterparties, JPMorgan Chase Bank, National Association (the "2022 Forward Counterparty"), to correspond with the May 15, 2022 maturity date for the 2022 Convertible Notes. In the future, we may request that the 2022 Forward Counterparty modify the settlement terms of the Amended and Restated Forward Transaction to provide that, in lieu of the delivery of the applicable number of shares of our common stock to us to settle a portion of the Amended and Restated Forward Transaction in accordance with its terms, the 2022 Forward Counterparty would pay to us the net proceeds from the sale by the 2022 Forward Counterparty (or its affiliate) of a corresponding number of shares of our common stock in a registered offering (which may include block sales, sales on the NASDAQ Global Select Market, sales in the over-the-counter market, sales pursuant to negotiated transactions or otherwise, at market prices prevailing at the time of sale or at negotiated prices). Any such sales could potentially decrease (or reduce the size of any increase in) the market price of our common stock. The 2022 Forward Counterparty is not required to effect any such settlement in cash in lieu of delivery of shares of our common stock and, if we request that the 2022 Forward Counterparty effect any such settlement, it will be entered into in the discretion of the 2022 Forward Counterparty on such terms as may be mutually agreed upon at the time. As a result of the Forward Transactions, total shareholders' equity within our consolidated balance sheet was reduced by approximately $140 million. Between March 5-6, 2020, approximately 5.1 million shares of common stock were delivered to us in connection with the Forward Transactions. The approximately 2.1 million shares of common stock remaining under the Amended and Restated Forward Transactions are treated as retired shares for basic and diluted EPS purposes although they remain legally outstanding.

Restricted Cash:

Our restricted cash balances were $7.7 million and $7.0 million, respectively, as of December 31, 2019 and 2018 and primarily consist of letters of credit and cash restricted to repurchase or repay the remaining balance of the 2020 Convertible Notes. Certain of the letters of credit require us to maintain restricted cash accounts in a similar amount, and are issued for the benefit of the landlords at our current office locations in Chicago, IL, Bensenville, IL and Broomfield, CO.

Liquidity:

Excluding the impact of our initial public offering, our prior credit facility, the 2022 Convertible Notes, the 2020 Convertible Notes, the 2024 Senior Secured Notes and the 2022 Senior Secured Notes, to date we have not generated positive cash flows on a consolidated basis. However, based on our current plans, we believe that our cash, cash equivalents, cash flows provided by operating activities and access to the ABL Credit Facility will be sufficient to meet our near- and long-term operating obligations, including our capital expenditure requirements. As detailed in Note 7, "Long-Term Debt and Other Liabilities," in April 2019 and May 2019, we entered into financing transactions that extended the maturity of our senior secured indebtedness to 2024 and generated funds sufficient to repay, repurchase or retire our 2020 Convertible Notes (of which we repurchased $159.0 million aggregate principal amount in May 2019 and an additional $0.5 million in September 2019, leaving $2.5 million aggregate principal amount outstanding). In August 2019, we entered into the ABL Credit Facility, which provides for a revolving line of credit of up to $30.0 million, subject to borrowing base availability, and includes letter of credit and swingline sub-facilities. The ABL Credit Agreement provides that the revolving line of credit may be increased by up to an additional $30.0 million under certain circumstances. Our intent is to continue to access the capital markets to refinance our future debt obligations on an as-needed basis.

As disclosed elsewhere in this report, the extent of the impact of COVID-19 on the CA and BA businesses and our financial and operational performance will depend on future developments, including the duration, spread and severity of the outbreak, the duration and geographic scope of related travel advisories and restrictions and the extent of the impact of COVID-19 on overall demand for commercial and business aviation travel, all of which are highly uncertain and cannot be predicted. If our airline partners continue to experience significantly reduced demand for passenger traffic for an extended period, our near term liquidity and financial condition may be materially adversely affected. The extent to which the outbreak affects our liquidity and financial condition will depend in part on our ability to implement various measures intended to reduce expenses and/or conserve cash. See "Risk Factors—*Our business is highly dependent on the airline industry, which is itself affected by factors beyond the airlines' control, including the novel strain of coronavirus first identified in Wuhan, China. The airline industry is highly competitive and sensitive to changing economic conditions*."

The 2024 Indenture and the ABL Credit Agreement contain covenants that limit the ability of GIH and its subsidiaries to incur additional indebtedness. Further, market conditions and/or our financial performance may limit our access to additional sources of equity or debt financing, or our ability to pursue potential strategic alternatives. As a result, we may be unable to finance growth of our business to the extent that our cash, cash equivalents and short-term investments and cash generated through operating activities prove insufficient or we are unable to raise additional financing through the issuance of additional equity, permitted incurrences of debt by us or by GIH and its subsidiaries, or the pursuit of potential strategic alternatives.

For additional information on the 2024 Senior Secured Notes, the ABL Credit Facility, the 2022 Senior Secured Notes, the 2022 Convertible Notes and the 2020 Convertible Notes, see Note 7, "Long-Term Debt and Other Liabilities," to our consolidated financial statements.

Cash flows provided by (used in) Operating Activities:

The following table presents a summary of our cash flows from operating activities for the periods set forth below *(in thousands)*:

	For the Years Ended December 31,		
	2019	2018	2017
Net loss	$(146,004)	$(162,031)	$(171,995)
Non-cash charges and credits	227,290	180,697	194,019
Changes in operating assets and liabilities	(17,225)	(100,977)	38,232
Net cash provided by (used in) operating activities	$ 64,061	$ (82,311)	$ 60,256

For the year ended December 31, 2019, cash provided by operating activities was $64.1 million, as compared with cash used in operating activities of $82.3 million for the prior year. The principal contributors to the change in operating cash flows were:

- A $62.6 million change in net loss and non-cash charges and credits, primarily due to increases in CA-NA and BA reportable segment profit and a decrease in CA-ROW reportable segment loss, as noted above under "—Results of Operations."
- A $83.8 million increase in cash flows related to changes in operating assets and liabilities resulting from:
  - The increase in cash flows from operating assets and liabilities due to the following:
    - Changes in CA-NA's and CA-ROW's accounts receivable, primarily due to the timing of collections;
    - Changes in all three segments' inventories. CA-NA's and CA-ROW's inventories decreased due to a decrease in airborne equipment purchases and a smaller portion of our uninstalled airborne equipment was allocated to inventory due to the transition of two airline partners from the airline-directed model to the turnkey model in 2019. BA's inventory decreased due to decreased equipment purchases and an increase in equipment revenue during the second half of 2019 as compared with 2018.
  - Partial offsets to the above due to decreases in cash flows from operating assets and liabilities due to the following:
    - Changes in accrued interest due to changes in the timing of payments as compared to the prior year;
    - Changes in CA-NA's and CA-ROW's accrued liabilities due to the timing of payments as compared to the prior year; and
    - Changes in CA-NA's and CA-ROW's warranty reserves, due to more activity under our airline-directed model during the year ended December 31, 2019 as compared with the prior-year.

For the year ended December 31, 2018, cash used in operating activities was $82.3 million, as compared with cash provided by operating activities of $60.3 million for the prior year. The principal contributors to the decrease in operating cash flows were:

- A $139.2 million decrease in cash flows related to changes in operating assets and liabilities resulting from:
  - The decrease in cash flows from operating assets and liabilities due to the following:
    - Changes in CA-NA's and CA-ROW's inventories as we now allocate a portion of our uninstalled airborne equipment to inventory and also an increase in BA's inventory due to builds during the year. See Note 5, "Composition of Certain Balance Sheet Accounts," for additional information regarding inventory.
    - Changes in CA-NA's and CA-ROW's contract assets due to activity under airline-directed models during the year ended December 31, 2018 (see Note 4, "Revenue Recognition," for additional information);
    - Changes in all three segments' deferred revenue as deferred revenue decreased during 2018 but increased in 2017;
    - Changes in all three segments' accounts payable, accrued liabilities and prepaid and other expenses, primarily due to the timing of payments;
    - Changes in CA-NA's and CA-ROW's deferred airborne lease incentives due to more installations under the turnkey model in 2017 as compared with 2018, as airlines are transitioning to the airline-directed model and as new airlines are also being signed under the airline-directed model; and
    - Changes in CA-ROW's accounts receivable primarily due to the timing of collections.
  - Partial offsets to the above due to increases in cash flows from operating assets and liabilities due to the following:
    - Changes in CA-NA's and BA's accounts receivable primarily due to the timing of collections; and
    - Changes in CA-NA's and CA-ROW's warranty reserves, due to more activity under our airline-directed model during the year ended December 31, 2018 (see Note 5, "Composition of Certain Balance Sheet Accounts," for additional information).

Cash flows provided by (used in) Investing Activities:

Cash used in investing activities was $73.7 million for the year ended December 31, 2019, cash provided by investing activities was $41.8 million for the year ended December 31, 2018 and cash used in investing activities was $157.4 million for the year ended December 31, 2017. Investing activities are comprised of capital expenditures related to airborne equipment for the turnkey model, software development, data center upgrades, cell site construction and build-out of our office locations. Cash flows from investing activities were impacted by our allocation of a portion of our equipment purchases to inventory. See "—Capital Expenditures" below. Additionally, cash used in investing activities includes net changes in our short-term investments consisting of a cash inflow of $39.3 million, $173.5 million and $125.7 million, respectively, for the years ended December 31, 2019, 2018 and 2017.

Cash flows provided by Financing Activities:

Cash used in financing activities for the year ended December 31, 2019 was $3.5 million, primarily due to the redemption of all of our outstanding 2022 Senior Secured Notes (including the make-whole premium payable under the indenture governing the 2022 Senior Secured Notes) for a redemption price totaling $741.4 million, the repurchase of $159.5 million of outstanding 2020 Convertible Notes and the payment of $23.0 million of deferred financing costs associated with the issuance of the 2024 Senior Secured Notes, offset in part by $920.7 million of gross proceeds from the issuance of the 2024 Senior Secured Notes.

Cash provided by financing activities for the year ended December 31, 2018 was $27.3 million primarily due to the issuance of the 2022 Convertible Notes with gross proceeds of $237.8 million, offset in part by $200.4 million of payments to repurchase 2020 Convertible Notes (comprised of $199.9 million of outstanding principal and $0.5 million of fees), $8.1 million of debt issuance costs and finance lease payments of $2.3 million.

Cash provided by financing activities for the year ended December 31, 2017 was $174.9 million, primarily due to $181.8 million of gross proceeds from the issuances of the 2022 Senior Secured Notes in January and September 2017 (the “2022 Additional Senior Secured Notes”), offset in part by the payment of debt issuance costs for the 2022 Additional Senior Secured Notes of $3.6 million and finance lease payments of $3.0 million.

Capital Expenditures

Our operations continue to require significant capital expenditures, primarily for technology development, equipment and capacity expansion. Capital expenditures for the CA-NA and CA-ROW segments include the purchase of airborne equipment for the turnkey model, which correlates to the roll out and/or upgrade of service to our airline partners’ fleets. Capital spending is also associated with the expansion of our ATG and satellite networks and data centers. We capitalize software development costs related to network technology solutions, the Gogo platform and new product/service offerings. We also capitalized costs related to the build out of our office locations.

Capital expenditures for the years ended December 31, 2019 and 2018 were $115.5 million and $131.7 million, respectively. The decrease in capital expenditures in 2019 as compared with 2018 was primarily due to decreases in airborne equipment purchases as well as a decrease in capitalized software.

We expect that our airborne-related capital expenditures will vary in the future depending upon the number of installations under the turnkey model and that network-related capital expenditures will increase over time as we build out Gogo 5G.

Capital expenditures for the years ended December 31, 2018 and 2017 were $131.7 million and $280.2 million, respectively. The decrease in capital expenditures was primarily due to a decrease in airborne equipment purchases as a portion of our equipment purchases are now allocated to inventory (see Note 5, “Composition of Certain Balance Sheet Accounts”) and, to a lesser extent, a decrease in capitalized software.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations (including those that require us to make future cash payments) as of December 31, 2019. The future contractual requirements include payments required for our operating leases and contractual purchase agreements *(in thousands)*.

	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Contractual Obligations:					
Financing lease obligations	$ 1,789	$ 761	$ 1,028	$ —	$ —
Operating lease obligations	132,566	19,930	35,905	22,817	53,914
Purchase obligations (1)	130,616	130,616	—	—	—
2022 Convertible Notes (2)	237,750	—	237,750	—	—
Interest on 2022 Convertible Notes	33,879	14,265	19,614	—	—
2020 Convertible Notes (2)	2,498	2,498	—	—	—
Interest on 2020 Convertible Notes	16	16	—	—	—
2024 Senior Secured Notes (2)	925,000	—	—	925,000	—
Interest on 2024 Senior Secured Notes	403,436	91,344	182,688	129,404	—
Satellite transponder and teleport services	845,882	141,312	239,585	176,021	288,964
Deferred revenue arrangements (3)	56,678	34,789	6,396	6,347	9,146
Deferred airborne lease incentives (4)	161,981	26,582	52,800	49,498	33,101
Other long-term obligations (5)	68,290	11,218	15,640	1,777	39,655
Total	$ 3,000,381	$ 473,331	$ 791,406	$ 1,310,864	$ 424,780

(1) As of December 31, 2019, our outstanding purchase obligations represented obligations to vendors to meet operational requirements as part of the normal course of business and related primarily to information technology, research and development, sales and marketing and production related activities.

(2) See Note 7, "Long-Term Debt and Other Liabilities," for more information.

(3) Amounts represent obligations to provide services for which we have already received cash from our customers.

(4) Amounts represent the upfront payments made by our airline partners for our airborne equipment and payments for STCs. Upfront payments made pursuant to these agreements are accounted for as deferred airborne lease incentives which are amortized on a straight-line basis as a reduction of cost of service revenue over the term of the agreement.

(5) Other long-term obligations consist of estimated payments (undiscounted) for our asset retirement obligations, network transmission services, obligations to certain airline partners, and Canadian ATG Spectrum License related payments related to the monthly C$0.1 million payment over the estimated 25-year term of the agreement, using the December 31, 2019 exchange rate. Other long-term obligations do not include $2.3 million related to our deferred tax liabilities due to the uncertainty of their timing.

Contractual Commitments: We have agreements with vendors to provide us with transponder and teleport satellite services. These agreements vary in length and amount and, as of December 31, 2019, commit us to purchase transponder and teleport satellite services totaling approximately $141.3 million in 2020, $129.7 million in 2021, $109.8 million in 2022, $90.6 million in 2023, $85.4 million in 2024 and $289.0 million thereafter.

We have agreements with various vendors under which we have remaining commitments to purchase satellite-based systems, certifications and development services. Such commitments will become payable as we receive the equipment or certifications, or as development services are provided.

Leases and Cell Site Contracts: We have lease agreements relating to certain facilities and equipment, which are considered operating leases. See Note 15, "Leases," in our consolidated financial statements for additional information.

The revenue share paid to our airline partners represents operating lease payments and is deemed to be contingent rental payments, as the payments due to each airline are based on a percentage of our CA-NA and CA-ROW service revenue generated from that airline's passengers, which is unknown until realized. As such, we cannot estimate the lease payments due to an airline at the commencement of our contract with such airline. Rental expense related to the arrangements with commercial airlines included in cost of service revenue is primarily comprised of these revenue share payments offset by the amortization of the deferred airborne lease incentive discussed above. See Note 15, "Leases," in our consolidated financial statements for additional information.

Indemnifications and Guarantees: In accordance with Delaware law, we indemnify our officers and directors for certain events or occurrences while the officer or director is, or was, serving at our request in such capacity. The maximum potential amount of future payments we could be required to make under this indemnification is uncertain and may be unlimited, depending upon circumstances. However, our Directors' and Officers' insurance does provide coverage for certain of these losses.

In the ordinary course of business we may occasionally enter into agreements pursuant to which we may be obligated to pay for the failure of performance of others, such as the use of corporate credit cards issued to employees. Based on historical experience, we believe that the risk of sustaining any material loss related to such guarantees is remote.

We have entered into a number of agreements, including our agreements with commercial airlines, pursuant to which we indemnify the other party for losses and expenses suffered or incurred in connection with any patent, copyright, or trademark infringement or misappropriation claim asserted by a third party with respect to our equipment or services. The maximum potential amount of future payments we could be required to make under these indemnification agreements is uncertain and is typically not limited by the terms of the agreements.

Off-Balance Sheet Arrangements

We do not have any obligations that meet the definition of an off-balance sheet arrangement which have or are reasonably likely to have a material effect on our results of operations.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Our exposure to market risk is currently confined to our cash and cash equivalents, short-term investments and our debt. We have not used derivative financial instruments for speculation or trading purposes. The primary objectives of our investment activities are to preserve our capital for the purpose of funding operations while at the same time maximizing the income we receive from our investments without significantly increasing risk. To achieve these objectives, our investment policy allows us to maintain a portfolio of cash equivalents and short-term investments through a variety of securities, including U.S. Treasury securities, U.S. government agency securities, and money market funds. Our cash and cash equivalents as of both December 31, 2019 and December 31, 2018 primarily included amounts in bank deposit accounts and money market funds. We believe that a change in average interest rates would not affect our interest income and results of operations by a material amount.

The risk inherent in our market risk sensitive instruments and positions is the potential loss arising from interest rates as discussed below. The sensitivity analyses presented do not consider the effects that such adverse changes may have on the overall economic activity, nor do they consider additional actions we may take to mitigate our exposure to such changes. Actual results may differ.

Interest: Our earnings are affected by changes in interest rates due to the impact those changes have on interest income generated from our cash, cash equivalents and short-term investments. Our cash and cash equivalents as of both December 31, 2019 and December 31, 2018 included amounts in bank deposit accounts and money market funds; and as of December 31, 2018 our short-term investments consisted of U.S. Treasury bills. We believe we have minimal interest rate risk as a 10% decrease in the average interest rate on our portfolio would have reduced interest income for the years ended December 31, 2019, 2018 and 2017 by immaterial amounts.

Inflation: We do not believe that inflation has had a material effect on our results of operations. However, there can be no assurance that our business will not be affected by inflation in the future.

Seasonality: Our results of operations for any interim period are not necessarily indicative of those for any other interim period for the entire year because the demand for air travel, including business travel, is subject to significant seasonal fluctuations. We generally expect overall passenger opportunity to be greater in the second and third quarters compared to the rest of the year due to an increase in leisure travel offset in part by a decrease in business travel during the summer months and holidays. We expect seasonality of the air transportation business to continue, which may affect our results of operations in any one period.

Item 8. Financial Statements and Supplementary Data

Gogo Inc.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Gogo Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Gogo Inc. and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive loss, stockholders' equity (deficit), and cash flows, for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with the accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 13, 2020 expressed an unqualified opinion on the Company's internal control over financial reporting.

Changes in Accounting Principles

As discussed in Note 2 to the financial statements, effective January 1, 2018, the Company adopted ASC Topic 606, *Revenue from Contracts with Customers*, using the modified retrospective approach, and effective January 1, 2019, the Company adopted ASC Topic 842, *Leases*, using the modified retrospective approach.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Chicago, Illinois
March 13, 2020

We have served as the Company's auditor since 2007.

Gogo Inc. and Subsidiaries
Consolidated Balance Sheets
(in thousands, except share and per share data)

	December 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 170,016	$ 184,155
Short-term investments	—	39,323
Total cash, cash equivalents and short-term investments	170,016	223,478
Accounts receivable, net of allowances of $686 and $500, respectively	101,360	134,308
Inventories	117,144	193,045
Prepaid expenses and other current assets	36,305	34,695
Total current assets	424,825	585,526
Non-current assets:		
Property and equipment, net	560,318	511,867
Goodwill and intangible assets, net	76,499	83,491
Operating lease right-of-use assets	63,386	—
Other non-current assets	89,672	84,212
Total non-current assets	789,875	679,570
Total assets	$ 1,214,700	$ 1,265,096
Liabilities and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 17,160	$ 23,860
Accrued liabilities	174,111	213,111
Deferred revenue	34,789	38,571
Deferred airborne lease incentives	26,582	24,145
Total current liabilities	252,642	299,687
Non-current liabilities:		
Long-term debt	1,101,248	1,024,893
Deferred airborne lease incentives	135,399	129,086
Non-current operating lease liabilities	77,808	—
Other non-current liabilities	46,493	80,191
Total non-current liabilities	1,360,948	1,234,170
Total liabilities	1,613,590	1,533,857
Commitments and contingencies (Note 16)	—	—
Stockholders' deficit		
Common stock, par value $0.0001 per share; 500,000,000 shares authorized at December 31, 2019 and 2018; 88,292,821 and 87,678,812 shares issued at December 31, 2019 and 2018, respectively; and 88,240,877 and 87,560,694 shares outstanding at December 31, 2019 and 2018, respectively	9	9
Additional paid-in capital	979,499	963,458
Accumulated other comprehensive loss	(2,256)	(3,554)
Accumulated deficit	(1,376,142)	(1,228,674)
Total stockholders' deficit	(398,890)	(268,761)
Total liabilities and stockholders' deficit	$ 1,214,700	$ 1,265,096

See the Notes to Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Consolidated Statements of Operations
(in thousands, except per share amounts)

	For the Years Ended December 31, 2019	2018	2017
Revenue:			
Service revenue	$ 664,353	$ 630,147	$ 617,906
Equipment revenue	171,373	263,617	81,184
Total revenue	835,726	893,764	699,090
Operating expenses:			
Cost of service revenue (exclusive of items shown below)	297,848	291,642	268,334
Cost of equipment revenue (exclusive of items shown below)	134,728	222,244	58,554
Engineering, design and development	108,610	120,090	133,286
Sales and marketing	49,156	58,823	64,017
General and administrative	89,843	94,269	93,671
Depreciation and amortization	118,817	133,617	145,490
Total operating expenses	799,002	920,685	763,352
Operating income (loss)	36,724	(26,921)	(64,262)
Other (income) expense:			
Interest income	(4,210)	(4,292)	(2,964)
Interest expense	130,572	122,809	111,944
Loss on extinguishment of debt	57,962	19,653	—
Other (income) expense	(2,602)	233	750
Total other expense	181,722	138,403	109,730
Loss before income taxes	(144,998)	(165,324)	(173,992)
Income tax provision (benefit)	1,006	(3,293)	(1,997)
Net loss	$ (146,004)	$ (162,031)	$ (171,995)
Net loss attributable to common stock per share—basic and diluted	$ (1.81)	$ (2.02)	$ (2.17)
Weighted average number of shares—basic and diluted	80,766	80,038	79,407

See the Notes to Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Consolidated Statements of Comprehensive Loss
(in thousands)

	For the Years Ended December 31,		
	2019	2018	2017
Net loss	$ (146,004)	$ (162,031)	$ (171,995)
Currency translation adjustments, net of tax	1,298	(2,621)	1,230
Comprehensive loss	$ (144,706)	$ (164,652)	$ (170,765)

See the Notes to Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Consolidated Statements of Cash Flows
(in thousands)

	For the Years Ended December 31,		
	2019	2018	2017
Operating activities:			
Net loss	$ (146,004)	$ (162,031)	$ (171,995)
Adjustments to reconcile net loss to cash provided by (used in) operating activities:			
Depreciation and amortization	118,817	133,617	145,490
Loss on asset disposals, abandonments and write-downs	13,851	13,352	8,960
Gain on transition to airline-directed model	—	(21,551)	—
Deferred income taxes	178	(3,821)	(2,281)
Stock-based compensation expense	16,511	16,912	19,821
Amortization of deferred financing costs	5,260	4,280	3,743
Accretion and amortization of debt discount and premium	14,711	18,255	18,286
Loss on extinguishment of debt	57,962	19,653	—
Changes in operating assets and liabilities:			
Accounts receivable	29,898	(17,064)	(43,798)
Inventories	29,092	(50,762)	4,723
Prepaid expenses and other current assets	(630)	(3,106)	4,990
Contract assets	(21,863)	(30,485)	—
Accounts payable	(4,111)	(3,864)	3,402
Accrued liabilities	(11,452)	13,281	24,941
Deferred airborne lease incentives	(3,645)	(7,705)	20,407
Deferred revenue	(4,971)	(1,021)	21,477
Accrued interest	(29,646)	(955)	7,213
Warranty reserves	3,875	8,009	(152)
Other non-current assets and liabilities	(3,772)	(7,305)	(4,971)
Net cash provided by (used in) operating activities	64,061	(82,311)	60,256
Investing activities:			
Purchases of property and equipment	(100,123)	(108,632)	(252,375)
Acquisition of intangible assets—capitalized software	(15,355)	(23,031)	(27,855)
Purchases of short-term investments	—	(39,323)	(317,418)
Redemptions of short-term investments	39,323	212,792	443,103
Other, net	2,446	—	(2,850)
Net cash provided by (used in) investing activities	(73,709)	41,806	(157,395)
Financing activities:			
Proceeds from issuance of senior secured notes	920,683	—	181,754
Redemption of senior secured notes	(741,360)	—	—
Proceeds from issuance of convertible notes	—	237,750	—
Redemption of convertible notes	(159,502)	(200,438)	—
Payment of debt issuance costs	(22,976)	(8,054)	(3,630)
Payments on finance leases	(713)	(2,340)	(2,961)
Stock-based compensation activity	325	396	(227)
Net cash provided by (used in) financing activities	(3,543)	27,314	174,936
Effect of exchange rate changes on cash	(250)	578	743
Increase (decrease) in cash, cash equivalents and restricted cash	(13,441)	(12,613)	78,540
Cash, cash equivalents and restricted cash at beginning of period	191,116	203,729	125,189
Cash, cash equivalents and restricted cash at end of period	$ 177,675	$ 191,116	$ 203,729
Cash, cash equivalents and restricted cash at end of period	$ 177,675	$ 191,116	$ 203,729
Less: current restricted cash	560	1,535	500
Less: non-current restricted cash	7,099	5,426	6,873
Cash and cash equivalents at end of period	$ 170,016	$ 184,155	$ 196,356
Supplemental Cash Flow Information:			
Cash paid for interest	$ 140,833	$ 101,489	$ 86,359
Cash paid for taxes	490	401	103
Non-cash Investing and Financing Activities:			
Purchases of property and equipment in current liabilities	$ 11,176	$ 18,640	$ 53,682
Purchases of property and equipment paid by commercial airlines	19,287	7,474	23,762

See the Notes to Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Consolidated Statements of Stockholders' Equity (Deficit)
(in thousands, except share data)

	Common Stock Shares	Common Stock Par Value	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total
Balance at January 1, 2017	86,295,870	$ 9	$ 879,135	$ (2,163)	$ (917,374)	$ (40,393)
Net loss	—	—	—	—	(171,995)	(171,995)
Currency translation adjustments, net of tax	—	—	—	1,230	—	1,230
Stock-based compensation expense	—	—	19,821	—	—	19,821
Issuance of common stock upon exercise of stock options	50,392	—	449	—	—	449
Issuance of common stock upon vesting of restricted stock units and restricted stock awards	344,038	—	—	—	—	—
Tax withholding related to vesting of restricted stock units	—	—	(2,162)	—	—	(2,162)
Issuance of common stock in connection with employee stock purchase plan	153,628	—	1,486	—	—	1,486
Balance at December 31, 2017	86,843,928	9	898,729	(933)	(1,089,369)	(191,564)
Net loss	—	—	—	—	(162,031)	(162,031)
Currency translation adjustments, net of tax	—	—	—	(2,621)	—	(2,621)
Stock-based compensation expense	—	—	16,912	—	—	16,912
Issuance of common stock upon exercise of stock options	2,500	—	21	—	—	21
Issuance of common stock upon vesting of restricted stock units and restricted stock awards	393,361	—	—	—	—	—
Tax withholding related to vesting of restricted stock units	—	—	(1,181)	—	—	(1,181)
Issuance of common stock in connection with employee stock purchase plan	320,905	—	1,556	—	—	1,556
Issuance of 2022 Convertible Notes (including issuance costs)	—	—	47,421	—	—	47,421
Impact of the adoption of new accounting standards	—	—	—	—	22,726	22,726
Balance at December 31, 2018	87,560,694	9	963,458	(3,554)	(1,228,674)	(268,761)
Net loss	—	—	—	—	(146,004)	(146,004)
Currency translation adjustments, net of tax	—	—	—	1,298	—	1,298
Stock-based compensation expense	—	—	16,511	—	—	16,511
Issuance of common stock upon exercise of stock options	3,338	—	16	—	—	16
Issuance of common stock upon vesting of restricted stock units and restricted stock awards	372,030	—	—	—	—	—
Tax withholding related to vesting of restricted stock units	—	—	(865)	—	—	(865)
Issuance of common stock in connection with employee stock purchase plan	304,815	—	1,174	—	—	1,174
Repurchase of 2020 convertible notes	—	—	(795)	—	—	(795)
Impact of the adoption of new accounting standards	—	—	—	—	(1,464)	(1,464)
Balance at December 31, 2019	88,240,877	$ 9	$ 979,499	$ (2,256)	$ (1,376,142)	$(398,890)

See the Notes to Consolidated Financial Statements

1. Background

Gogo ("we," "us," "our") is the global leader in providing broadband connectivity solutions and wireless in-flight entertainment to the aviation industry. We operate through the following three segments: Commercial Aviation North America, or "CA-NA," Commercial Aviation Rest of World, or "CA-ROW," and Business Aviation, or "BA." Services provided by our CA-NA and CA-ROW businesses include Passenger Connectivity, which allows passengers to connect to the Internet from their personal Wi-Fi-enabled devices; Passenger Entertainment, which offers passengers the opportunity to enjoy a broad selection of in-flight entertainment options on their personal Wi-Fi enabled devices; and Connected Aircraft Services ("CAS"), which offers airlines connectivity for various operations and currently include, among other services, real-time credit card transaction processing, electronic flight bags and real-time weather information. Services are provided by CA-NA on commercial aircraft flying routes that generally begin and end within North America, which for this purpose includes the United States, Canada and Mexico. CA-ROW provides service on commercial aircraft operated by foreign-based commercial airlines and flights outside of North America for North American-based commercial airlines. The routes included in our CA-ROW segment are those that begin and/or end outside of North America (as defined above) on which our international service is provided. BA provides in-flight Internet connectivity and other voice and data communications products and services and sells equipment for in-flight telecommunications to the business aviation market. BA services include Gogo Biz, our in-flight broadband service, Passenger Entertainment, our in-flight entertainment service, and satellite-based voice and data services through our strategic alliances with satellite companies.

2. Summary of Significant Accounting Policies

Principles of Consolidation—The consolidated financial statements include our wholly owned subsidiaries. All intercompany transactions and account balances have been eliminated.

Use of Estimates—The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, management evaluates the significant estimates and bases such estimates on historical experience and on various other assumptions believed to be reasonable under the circumstances. However, actual results could differ materially from those estimates.

Reclassifications—To conform with the current year presentation, $652 thousand of the current portion of capital lease liabilities has been combined with accrued liabilities in our consolidated balance sheet as of December 31, 2018.

Significant Risks and Uncertainties—Our operations are subject to certain risks and uncertainties, including without limitation those associated with continuing losses, fluctuations in operating results, funding of business expansion, strategic alliances, capacity constraints, managing rapid growth and expansion, relationships with customers, suppliers and distributors, financing arrangement terms that may restrict operations, regulatory issues, competition, the economy, technology trends and evolving industry standards.

Cash, Cash Equivalents and Short-Term Investments—We consider cash and cash equivalents to be short-term, highly liquid investments that have the following characteristics: readily convertible to known amounts of cash, so near their maturities that there is insignificant risk of changes in value due to any changes in market interest rates, and having maturities of three months or less when purchased. We continually monitor positions with, and the credit quality of, the financial institutions with which we invest. The carrying amounts reported in the balance sheets for cash and cash equivalents approximate the fair market value of these assets.

We consider short-term investments to be investments with maturities of twelve months or less (but greater than three months).

Certain cash amounts are restricted as to use and are classified outside of cash and cash equivalents. See Note 7, “Long-term Debt and Other Liabilities,” for further details.

Concentrations of Credit Risk—Financial instruments that potentially subject us to a concentration of credit risk consist principally of cash and cash equivalents and accounts receivable. All cash and cash equivalents are invested with creditworthy financial institutions. We perform ongoing credit evaluations and generally do not require collateral to support receivables.

See Note 11, “Business Segments and Major Customers,” for further details.

Income Tax—We use an asset- and liability-based approach in accounting for income taxes. Deferred income tax assets and liabilities are recorded based on the differences between the financial statement and tax bases of assets and liabilities, applying enacted statutory tax rates in effect for the year in which the tax differences are expected to reverse. Valuation allowances are provided against deferred tax assets which are not likely to be realized. On a regular basis, management evaluates the recoverability of deferred tax assets and the need for a valuation allowance. We also consider the existence of any uncertain tax positions and, as necessary, provide a reserve for any uncertain tax positions at each reporting date.

See Note 14, “Income Tax,” for further details.

Inventories—Inventories consist primarily of telecommunications systems and parts, and are recorded at the lower of average cost or market. We evaluate the need for write-downs associated with obsolete, slow-moving and nonsalable inventory by reviewing net realizable inventory values on a periodic basis.

Historically, inventories were solely related to the BA segment. Starting in 2018, the airborne equipment within our CA-NA and CA-ROW segments became increasingly deployed under airline-directed model agreements (see “Revenue Recognition” below for additional details), and we currently allocate uninstalled airborne equipment between property and equipment, net, and inventories, based on our forecasts of estimated future installations by contract type. Prior to this allocation, uninstalled airborne equipment for the CA-NA and CA-ROW segments was classified as property and equipment, net, as the majority of installations were performed under our turnkey model agreements. See “Arrangements with Commercial Airlines,” below for additional information on the turnkey model treatment.

See Note 5, “Composition of Certain Balance Sheet Accounts,” for further details.

Property and Equipment and Depreciation—Property and equipment, including leasehold improvements, are stated at historical cost, less accumulated depreciation. Network asset inventory and construction in progress, which include materials, transmission and related equipment, interest and other costs relating to the construction and development of our network, are not depreciated until they are put into service. Network equipment consists of switching equipment, antennas, base transceiver stations, site preparation costs, and other related equipment used in the operation of our network. Airborne equipment consists of routers, modems, radomes, antennas and related equipment, and accessories installed or to be installed on aircraft under the turnkey model. Depreciation expense totaled $99.2 million, $107.1 million and $120.6 million for the years ended December 31, 2019, 2018 and 2017, respectively. Depreciation of property and equipment is computed using the straight-line method over the estimated useful lives for owned assets, which are as follows:

Office equipment, furniture, fixtures and other	3-7 years
Leasehold improvements	3-13 years
Airborne equipment	7 years
Network equipment	5-25 years

See Note 5, "Composition of Certain Balance Sheet Accounts," for further details.

Improvements to leased property are depreciated over the shorter of the useful life of the improvement or the term of the related lease. We reassess the useful lives of leasehold improvements when there are changes to the terms of the underlying lease. Such reassessment has resulted in the useful life of specific assets being adjusted to a shorter period than originally estimated, resulting in an increase in annual depreciation expense for those assets. Repairs and maintenance costs are expensed as incurred.

Due to advances in technology and changes in agreements with our airline partners, with respect to upgrading equipment, we periodically reassess the useful lives of our property and equipment. Such reassessment has resulted in the useful life of specific assets being adjusted to a shorter period than originally estimated, resulting in an increase in annual depreciation expense for those assets.

Software Development Costs—We capitalize costs for network and non-network software developed or obtained for internal use during the application development stage. These costs include purchased software and direct costs associated with the development and configuration of internal use software that supports the operation of our service offerings. These costs are included in goodwill and intangible assets, net, in our consolidated balance sheets and, when the software is placed in service, are amortized on a straight-line basis over their estimated useful lives. Costs incurred in the preliminary project and post-implementation stages, as well as maintenance and training costs, are expensed as incurred.

With respect to software sold as part of our equipment sales, we capitalize software development costs once technological feasibility has been established. Such capitalized software costs are amortized on a product-by-product basis, based on the greater of the ratio that current gross revenues for a product bear to the total of current and anticipated future gross revenues for that product or the straight-line method over the remaining estimated economic life of the product.

Goodwill and Other Intangible Assets—Goodwill and other intangible assets with indefinite lives are not amortized, but are reviewed for impairment at least annually or whenever events or circumstances indicate the carrying value of the asset may not be recoverable. Our FCC Licenses (as defined in Note 6, "Intangible Assets") are our only indefinite-lived intangible assets. We perform our annual impairment tests of goodwill and our FCC Licenses during the fourth quarter of each fiscal year. We assess qualitative factors to determine the likelihood of impairment. Our qualitative analysis includes, but is not limited to, assessing the changes in macroeconomic conditions, regulatory environment, industry and market conditions, financial performance versus budget and any other events or circumstances specific to goodwill and the FCC Licenses. If it is more likely than not that the fair value of goodwill and the FCC Licenses is greater than the carrying value, no further testing is required. Otherwise, we will apply the quantitative impairment test method.

Our quantitative impairment testing of the FCC Licenses uses the Greenfield method, an income-based approach. When performing this quantitative impairment testing, we estimate the fair value of the goodwill and FCC Licenses asset balances based primarily on projected future operating results, discounted cash flows, and other assumptions. Projected future operating results and cash flows used for valuation purposes may reflect considerable improvements relative to historical periods with respect to, among other things, revenue growth and operating margins. Although we believe our projected future operating results and cash flows and related estimates regarding fair values are based on reasonable assumptions, projected operating results and cash flows may not always be achieved. The failure to achieve one or more of our assumptions regarding projected operating results and cash flows in the near term or long term could reduce the estimated fair value below carrying value and result in the recognition of an impairment charge. The results of our annual goodwill and indefinite-lived intangible asset impairment assessments for 2019, 2018 and 2017 indicated no impairment.

Intangible assets that are deemed to have a finite life are amortized over their useful lives as follows:

Software	3-8 years
OEM and dealer relationships	10 years
Service customer relationships	5-7 years
Other intangible assets	4-10 years

See Note 6, “Intangible Assets,” for further details.

Long-Lived Assets—We review our long-lived assets to determine potential impairment whenever events indicate that the carrying amount of such assets may not be recoverable. We do this by comparing the carrying value of the long-lived assets with the estimated future undiscounted cash flows expected to result from the use of the assets, including cash flows from disposition. If we determine an impairment exists, the asset is written down to estimated fair value. There were no impairments of long-lived assets in 2019, 2018 and 2017.

Arrangements with Commercial Airlines—Pursuant to contractual agreements with our airline partners, we place our equipment on commercial aircraft operated by the airlines for the purpose of delivering our service to passengers on the aircraft. There are currently two types of commercial airline arrangements: turnkey and airline-directed. See “Revenue Recognition,” below for additional information on the airline-directed model.

Under the turnkey model, we account for equipment transactions as operating leases of space for our equipment on the aircraft. We may be responsible for the costs of installing and/or deinstalling the equipment. Under the turnkey model, the equipment transactions involve the transfer of legal title but do not meet sales recognition for accounting purposes because the risks and rewards of ownership are not fully transferred due to our continuing involvement with the equipment, the length of the term of our agreements with the airlines, and restrictions in the agreements regarding the airlines’ use of the equipment. Under this model, we refer to the airline as a “partner.”

Under the turnkey model, the assets are recorded as airborne equipment on our consolidated balance sheets, as noted in Note 5, “Composition of Certain Balance Sheet Accounts.” Any upfront equipment payments are accounted for as lease incentives and recorded as deferred airborne lease incentives on our consolidated balance sheets and are recognized as a reduction of the cost of service revenue on the straight-line basis over the term of the agreement with the airline.

See Note 15, “Leases,” for further details.

Transition Between Commercial Airline Agreements—For CA-NA and CA-ROW, pursuant to contractual agreements with our airline partners, we place our equipment on commercial aircraft operated by the airlines in order to deliver our service to passengers on the aircraft. We currently have two types of commercial airline arrangements: turnkey and airline-directed. Under the airline-directed model, we have transferred control of the equipment to the airline and therefore the airline is our customer in these transactions. Under the turnkey model, while our airline partner generally has legal title to our equipment, we do not transfer control of our equipment to our airline partner and, as a result, the airline passenger is deemed to be our customer. Transactions with our airline partners under the turnkey model are accounted for as an operating lease of space on an aircraft. See “Arrangements with Commercial Airlines,” above for additional information on the turnkey model.

Transition to Turnkey Model:

As of January 1, 2019, one airline transitioned from the airline-directed model to the turnkey model. This transition did not have a material impact on our consolidated statements of operations. However, as a result of such transition, $46.8 million of inventory was reclassified to property and equipment, net, as of January 1, 2019. See “Inventories” above for information regarding the allocation of airborne equipment between Inventories and

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Property and equipment, net. In September 2019, an additional airline transitioned from the airline-directed model to the turnkey model. This transition did not have a material impact on our consolidated statements of operations and resulted in the reclassification of amounts primarily between other non-current assets and operating lease right-of-use assets in our consolidated balance sheet.

Transition to Airline-Directed Model:

The accounting treatment for one of our airline agreements transitioned from our turnkey model to our airline-directed model in January 2018 due to specific provisions elected by the airline that resulted in the transfer of control of the previously installed connectivity equipment. Upon transition to the airline-directed model, the net book value of all previously delivered equipment classified within property and equipment was reclassified to cost of equipment revenue. Additionally, the unamortized proceeds previously received for equipment and classified within current and non-current deferred airborne lease incentives were eliminated and included as part of estimated contract value, which was then allocated amongst the various performance obligations under the agreement. The value allocated to previously delivered equipment was immediately recognized as equipment revenue in our consolidated financial statements; see "Revenue Recognition" below for additional disclosures relating to the allocation of consideration among identified performance obligations. For amounts recognized in equipment revenue that were in excess of the amounts billed, we recorded current and non-current contract assets included within prepaid expenses and other current assets and other non-current assets, respectively; see "Revenue Recognition" below for additional details. In connection with the transition of this airline agreement to the airline-directed model, we also established warranty reserves related to previously sold equipment that are still under a warranty period, which is included within accrued liabilities. See Note 5, "Composition of Certain Balance Sheet Accounts" for additional information. This transition from the turnkey model to the airline-directed model occurred on January 4, 2018 and the total financial statement effect on our consolidated balance sheet and consolidated statement of operations was as follows (*in thousands*):

	Increase (decrease)
Consolidated balance sheet	
Prepaid expense and other current assets	$ 6,603
Property and equipment, net	(32,716)
Other non-current assets	18,783
Accrued liabilities	2,000
Current deferred airborne lease incentive	(13,592)
Non-current deferred airborne lease incentive	(17,289)
Consolidated statement of operations	
Equipment revenue	45,396
Cost of equipment revenue	23,845

Revenue Recognition—Our revenue is primarily earned from providing connectivity and entertainment services and through sales of equipment. Additionally, to a lesser extent, we earn revenue from providing ancillary services, including installation and CAS.

We determine revenue recognition through the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and
- Recognition of revenue as we satisfy the performance obligations.

CA-NA and CA-ROW Service Revenue:

CA-NA and CA-ROW revenue consists of service revenue primarily derived from connectivity services and, to a lesser extent, from Entertainment services and CAS. Connectivity is provided to our customers using both our ATG and satellite technologies.

Airline-directed connectivity revenue:

As noted above, under the airline-directed model, the airline is our customer and we earn service revenue as connectivity services are consumed directly by the airline or indirectly by passengers.

Turnkey connectivity revenue (passenger connectivity):

Under the turnkey model, passenger connectivity revenue is generated by services paid for by passengers, airlines and third parties.

Passenger paid revenue represents point-of-sale sessions (which may be flight-based, time-based, multiple individual session packages ("multi-pack") or subscriptions). Flight-based, time-based and multi-pack revenue is recognized when the sessions are used. Subscription revenue is recognized evenly throughout the subscription period, regardless of the number of times the customer uses the network.

Third party and airline-paid revenue is generated by sales of connectivity services to airlines or third parties in sponsorship, wholesale, enterprise and roaming arrangements. Sponsorship revenue is recognized over the sponsorship term. Revenue from wholesale, enterprise and roaming arrangements is recognized as sessions are used by the passenger.

Entertainment revenue:

Entertainment revenue consists of entertainment services we provide to the airline for use by its passengers. Revenue is recognized as the services are provided to the airline.

CAS revenue:

CAS revenue includes, among other things, real-time credit card transaction processing, electronic flight bags and real-time weather information. Revenue is recognized as the service is provided.

BA Service Revenue:

BA service revenue primarily consists of monthly subscription and usage fees paid by aircraft owners and operators for telecommunication, data, and in-flight entertainment services. Revenue is recognized as the services are provided to the customer.

Equipment Revenue:

Equipment revenue primarily consists of the sale of ATG and satellite connectivity equipment and the sale of entertainment equipment. CA-NA and CA-ROW recognize equipment revenue upon acceptance by our airline customers. BA primarily recognizes equipment revenue when the equipment is shipped to OEMs and dealers.

Equipment revenue also includes revenue generated by the installation of the connectivity or entertainment equipment on commercial aircraft, which is recognized when the installation is complete.

Contract price and allocation considerations:

Our CA-NA and CA-ROW airline-directed contracts contain multiple performance obligations, which primarily include the sale of equipment, installation services, connectivity services and entertainment services. For these contracts, we account for each distinct good or service as a separate performance obligation. We allocate the contract's transaction price to each performance obligation using the relative standalone selling price, which is based on the actual selling price for any good or service sold separately to a similar class of customer, if available. To the extent a good or service is not sold separately, we use our best estimate of the standalone selling price and maximize the use of observable inputs. The primary method we use to estimate the standalone selling price is the expected cost-plus margin approach.

The contractual consideration used for allocation purposes includes connectivity and entertainment services, which may be based on a fixed monthly fee per aircraft or a variable fee based on the volume of connectivity activity, or a combination of both. Examples of variable consideration within our contracts include megabyte overages and pay-per-use sessions. We constrain our estimates to reduce the probability of a significant revenue reversal in future periods, allocate such variable consideration to the identified performance obligations and recognize revenue in the period the services are provided. Our estimates are based on historical experience, anticipated future performance, market conditions and our best judgment at the time.

A significant change in one or more of these estimates could affect our estimated contract value, and we regularly review and update our estimates and recognize adjustments under the cumulative catch-up method. Any adjustment under this method is recorded as a cumulative adjustment in the period identified and revenue for future periods is recognized using the new adjusted estimate.

Research and Development Costs—Expenditures for research and development are charged to expense as incurred and totaled $71.5 million, $72.7 million and $78.1 million for the years ended December 31, 2019, 2018, and 2017, respectively. Research and development costs are reported as a component of engineering, design and development expenses in our consolidated statements of operations.

Warranty—We provide warranties on parts and labor related to our products. Our warranty terms range from two to ten years. Warranty reserves are established for costs that are estimated to be incurred after the sale, delivery and installation of the products under warranty. The warranty reserves are determined based on known product failures, historical experience and other available evidence, and are included in accrued liabilities in our consolidated balance sheets.

See Note 5, "Composition of Certain Balance Sheet Accounts," for the details of the changes in our warranty reserve.

Asset Retirement Obligations—We have certain asset retirement obligations related to contractual commitments to remove our network equipment and other assets from leased cell sites upon termination of the site lease and to remove equipment from aircraft when the service contracts terminate. The asset retirement obligations are classified as a noncurrent liability in our consolidated balance sheets.

See Note 5, "Composition of Certain Balance Sheet Accounts," for the details of the changes in our asset retirement obligations.

Fair Value of Financial Instruments—We group financial assets and financial liabilities measured at fair value into three levels of hierarchy based on the markets in which the assets and liabilities are traded and the reliability of the assumptions used to determine fair value.

See Note 10, "Fair Value of Financial Assets and Liabilities," for further information.

Derivatives—In March 2015, we entered into the Forward Transactions (as defined and described in Note 7, “Long-Term Debt and Other Liabilities”) in which we purchased 7.2 million shares of our common stock for approximately $140 million, with an expected settlement date on or around March 13, 2020, and in December 2019, we amended a portion of the Forward Transactions to extend the expected settlement date for approximately 2.1 million of those shares to on or around May 15, 2022. Because the Forward Transactions are indexed to our own stock and classified within stockholders’ equity, we do not account for the Forward Transactions as derivative instruments in accordance with Accounting Standards Codification (“ASC”) 815, *Derivatives and Hedging*.

See Note 7, “Long-Term Debt and Other Liabilities,” Note 9, “Common Stock and Preferred Stock,” and Note 10, “Fair Value of Financial Assets and Liabilities,” for further information.

Convertible Notes – Proceeds received from the issuance of the 2022 Convertible Notes and the 2020 Convertible Notes (as defined in Note 7, “Long-Term Debt and Other Liabilities”) are initially allocated between a liability component (long-term debt) and an equity component (additional paid-in capital), within the consolidated balance sheet. The fair value of the liability component is measured using rates determined for similar debt instruments without a conversion feature. The carrying amount of the equity component, representing the conversion option, is determined by deducting the fair value of the liability component from the aggregate face value of the 2022 Convertible Notes and the 2020 Convertible Notes.

See Note 7, “Long-Term Debt and Other Liabilities,” for further information.

Net Loss Per Share—We calculate basic and diluted net loss per share using the weighted-average number of common shares outstanding during the period.

See Note 3, “Net Loss Per Share,” for further information.

Stock-Based Compensation Expense—Compensation cost is measured and recognized at fair value for all stock-based payments, including stock options. For time-based vesting stock options, we estimate fair value using the Black-Scholes option-pricing model, which requires assumptions, such as expected volatility, risk-free interest rate, expected life, and dividends. Restricted stock units (“RSUs”) and restricted stock are measured based on the fair market value of the underlying stock on the date of grant. For awards with a market condition (which we have used on a limited basis), we estimated fair value using the Monte Carlo Simulation model, which requires assumptions, such as volatility, risk-free interest rate, expected life and dividends. Our stock-based compensation expense is recognized over the applicable vesting period, and is included in the same operating expense line items in the consolidated statements of operations as the base cash compensation paid to the underlying employees.

See Note 12, “Stock-Based Compensation,” for further information.

Leases—In addition to arrangements with commercial airlines which we account for as operating leases as noted above, we have operating lease agreements for which we have recorded lease liabilities and right-of-use assets for leases primarily related to cell sites, office buildings, warehouses and computer and office equipment. We determine whether a contract contains a lease at contract inception and calculate the lease liability and right-of-use asset using our incremental borrowing rate. Our cell site leases generally range in terms of five to ten years, with renewal options for an additional five to 25 years. For certain cell sites, the renewal options are deemed to be reasonably certain to be exercised. Our building leases generally range from one to ten years, with renewal options for an additional one to five years. We recognize operating lease expense on a straight-line basis over the lease term. We have finance leases for computer and office equipment. Covenants within the 2024 Senior Secured Notes contain certain restrictions on our ability to enter into new finance lease arrangements.

See Note 15, “Leases,” for further information.

Advertising Costs—Costs for advertising are expensed as incurred.

Debt Issuance Costs—We defer loan origination fees and financing costs related to our various debt offerings as deferred financing costs. Additionally, we defer fees paid directly to the lenders related to amendments with our various debt offerings as deferred financing costs. We amortize these costs over the term of the underlying debt obligation using the effective interest method, and include them in interest expense in the consolidated statement of operations. The fees incurred but not paid directly to the lenders in connection with amendments are expensed as incurred to interest expense. Deferred financing costs associated with future debt issuances are written off in the period during which we determine that the debt will no longer be issued.

See Note 7, "Long-Term Debt and Other Liabilities" for further information.

Comprehensive Loss—Comprehensive loss for the years ended December 31, 2019, 2018 and 2017 is net loss plus unrealized gains and losses on foreign currency translation adjustments.

Recently Issued Accounting Pronouncements

Accounting standards adopted:

On January 1, 2019, we adopted Accounting Standards Codification Topic 842, *Leases* ("ASC 842"), using the modified retrospective approach. As a result, we recognized the cumulative effect of initially applying ASC 842 as an adjustment to the opening balance of retained earnings as of January 1, 2019. Our historical financial statements have not been restated and continue to be reported under the lease accounting standard in effect for those periods.

We elected the practical expedients regarding use of hindsight to evaluate lease terms as well as maintaining lease classifications established under the prior lease accounting standard. Through this practical expedient, we did not reevaluate contracts to determine if they contained a lease. We did not elect the practical expedients regarding short-term leases or the separation of lease and non-lease components.

Adoption of ASC 842 had a material impact on our consolidated balance sheet through recognition of right-of-use assets and operating lease liabilities. Adoption did not have a material impact on our consolidated statements of operations or our consolidated statements of cash flows and did not result in the recognition of incremental financing leases, formerly referred to as capital leases.

The discount rate used to calculate the adjustment to the opening balance was our incremental borrowing rate as of the adoption date, January 1, 2019. The cumulative effect of the adoption of ASC 842 to our consolidated balance sheet as of January 1, 2019 was as follows (*in thousands)*:

	Balance at December 31, 2018	Impact of ASC 842	Balances with Adoption of ASC 842
Assets			
Operating lease right-of-use assets	$ —	$ 72,188	$ 72,188
Liabilities			
Accrued liabilities	213,111	9,019	222,130
Non-current operating lease liabilities	—	102,440	102,440
Other non-current liabilities	80,191	(36,178)	44,013
Equity			
Accumulated deficit	(1,228,674)	(3,093)	(1,231,767)

See Note 15, "Leases," for additional information.

On January 1, 2019, we adopted ASU 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income* ("ASU 2018-02"), which permits entities to reclassify tax effects stranded in accumulated other comprehensive income as a result of tax reform to retained earnings. Adoption of this standard did not have a material impact on our consolidated financial statements.

On January 1, 2019, we adopted ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting* ("ASU 2018-07"), which expands the scope of ASC 718, *Compensation – Stock Compensation*, to include share-based payment transactions for acquiring goods or services from nonemployees. Adoption of this standard did not have a material impact on our consolidated financial statements.

On January 1, 2018, we adopted Accounting Standards Codification Topic 606, *Revenue From Contracts With Customers* ("ASC 606"), using the modified retrospective method. As a result, we recognized the cumulative effect of initially applying ASC 606 as an adjustment to the opening balance of retained earnings as of January 1, 2018. Our historical financial statements have not been restated and continue to be reported under the revenue accounting standard in effect for those periods.

Prior to the adoption of ASC 606, equipment revenue (and related cost) under some of our CA-NA and CA-ROW segment contracts was deferred and recognized over the life of the contract as the equipment and connectivity services did not meet the requirements to be treated as separate units of accounting. Under ASC 606, these same equipment transactions qualify as standalone performance obligations and, therefore, equipment revenue (and related cost) is recognized upon acceptance by our airline customers. Adoption of the new standard did not materially affect the amount or timing of equipment revenue recognized from our BA segment. Our service revenue across all segments continues to be recognized as the services are provided to customers.

In conjunction with the adoption of ASC 606, we also adopted Accounting Standard Codification Subtopic 340-40, *Other Assets and Deferred Costs – Contracts with Customers* ("ASC 340-40"), which requires the capitalization of costs incurred to obtain or fulfill a contract with a customer. Prior to the adoption of ASC 340-40, we expensed all fulfillment and other costs associated with airline-directed contracts, which were comprised predominantly of costs incurred to obtain supplemental type certificates ("STCs"); these costs are now required to be capitalized and amortized to expense over the life of the contract (and are included within engineering, design and development in our consolidated financial statements). Costs associated with our turnkey contracts are not eligible for capitalization under ASC 340-40 and will continue to be expensed as incurred.

The cumulative effect of the adoption of ASC 606 and ASC 340-40 to our consolidated balance sheet as of January 1, 2018 was as follows (*in thousands)*:

	Balance at December 31, 2017	Impact of ASC 606	Balances with Adoption of ASC 606
Assets			
Inventories	$ 45,543	$ 974	$ 46,517
Prepaid expenses and other current assets	20,310	603	20,913
Property and equipment, net	656,038	(4,405)	651,633
Other non-current assets	67,107	(30,006)	37,101
Liabilities			
Current deferred revenue	43,448	(7,182)	36,266
Other non-current liabilities	134,655	(48,378)	86,277
Equity			
Accumulated deficit	(1,089,369)	22,726	(1,066,643)

During the fourth quarter 2018, we identified an additional $0.9 million of property and equipment, net, that should have been included in the transition adjustments as of January 1, 2018. The schedule above reflects the additional adjustment.

All other new pronouncements:

In December 2019, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2019-12 – *Income Taxes (Topic 740) Simplifying the Accounting for Income Taxes* ("ASU 2019-12"), as part of its initiative to reduce complexity in the accounting standards. The amendments in ASU 2019-12 eliminate certain exceptions to the incremental approach for intraperiod tax allocation and interim period income tax accounting for year-to-date losses that exceed projected losses. ASU 2019-12 also clarifies and simplifies other aspects of the accounting for income taxes. We will adopt this guidance as of January 1, 2021. We are currently evaluating the impact that this guidance will have upon our consolidated financial statements.

In June 2016, the FASB issued Accounting Standards Update No. 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"), which requires the measurement and recognition of expected credit losses for financial assets held at amortized cost. ASU 2016-13 replaces the existing incurred loss impairment model with an expected loss model which requires the use of forward-looking information to calculate credit loss estimates. It also eliminates the concept of other-than-temporary impairment and requires credit losses related to available-for-sale debt securities to be recorded through an allowance for credit losses rather than as a reduction in the amortized cost basis of the securities. These changes will result in earlier recognition of credit losses. We will adopt this guidance as of January 1, 2020 with the cumulative effect of adoption recorded as an adjustment to retained earnings. We are currently evaluating new credit loss models and assessing our processes and controls in preparation for the adoption of ASU 2016-13. Based on the current composition of our investment portfolio, current market conditions, and historical credit loss activity, the impact on our consolidated financial statements and related disclosures is not expected to be material.

In August 2018, the FASB issued Accounting Standards Update No. 2018-15, *Intangibles – Goodwill and Other – Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* ("ASU 2018-15"), which requires an entity in a hosting arrangement that is a service contract to follow the guidance in Subtopic 350-40 to determine which implementation costs to capitalize as an asset related to the service contract and which costs to expense. We will adopt this guidance prospectively on January 1, 2020. Adoption of this guidance is not expected to have a material impact on our consolidated financial statements.

In August 2018, the FASB issued Accounting Standards Update No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"). ASU 2018-13 modifies the disclosure requirements related to recurring or nonrecurring fair value measurements. We will adopt this guidance prospectively on January 1, 2020. These changes are expected to only impact how fair value measurements are disclosed, without impacting the measurements themselves.

3. Net Loss Per Share

Basic and diluted net loss per share have been calculated using the weighted-average number of common shares outstanding for the period.

The shares of common stock effectively repurchased in connection with the Forward Transactions are considered participating securities requiring the two-class method to calculate basic and diluted earnings per share. Net earnings in future periods will be allocated between common shares and participating securities. In periods of a net loss, the shares associated with the Forward Transactions will not receive an allocation of losses, as the counterparties to the Forward Transactions are not required to fund losses. Additionally, the calculation of weighted average shares outstanding as of December 31, 2019, 2018 and 2017 excludes the approximately 7.2 million shares associated with the Forward Transactions.

As a result of the net loss for each of the years ended December 31, 2019, 2018 and 2017 for the periods where such shares or securities were outstanding, all of the outstanding shares of common stock underlying stock options, deferred stock units and restricted stock units were excluded from the computation of diluted shares outstanding because they were anti-dilutive.

The following table sets forth the computation of basic and diluted earnings per share for the years ended December 31, 2019, 2018 and 2017; however, because of the undistributed losses, the shares associated with the Forward Transactions are excluded from the computation of basic earnings per share as undistributed losses are not allocated to these shares (*in thousands, except per share amounts*):

	For the Years Ended December 31,		
	2019	**2018**	**2017**
Net loss	$ (146,004)	$ (162,031)	$ (171,995)
Less: Participation rights of the Forward Transactions	—	—	—
Undistributed losses	$ (146,004)	$ (162,031)	$ (171,995)
Weighted-average common shares outstanding-basic and diluted	80,766	80,038	79,407
Net loss attributable to common stock per share-basic and diluted	$ (1.81)	$ (2.02)	$ (2.17)

4. Revenue Recognition

Remaining Performance Obligations

As of December 31, 2019, the aggregate amount of the transaction price in our contracts allocated to the remaining unsatisfied performance obligations is approximately $529 million, most of which relates to our commercial aviation contracts. Approximately $98 million represents future equipment revenue that is expected to be recognized within the next one to three years. The remaining $431 million primarily represents connectivity and entertainment service revenues which are recognized as services are provided, which is expected to occur through the remaining term of the contract (approximately 5-10 years). We have excluded from this amount: all variable consideration derived from our connectivity or entertainment services that is allocated entirely to our performance of obligations related to such services; consideration from contracts that have an original duration of one year or less; and revenue from passenger service on airlines operating under the turnkey model.

Disaggregation of revenue

The following table presents our revenue disaggregated by category *(in thousands)*:

	For the Year Ended December 31, 2019			
	CA-NA	CA-ROW	BA	Total
Service revenue				
Connectivity	$ 322,783	$ 84,419	$ 219,450	$ 626,652
Entertainment, CAS and other	31,583	3,646	2,472	37,701
Total service revenue	$ 354,366	$ 88,065	$ 221,922	$ 664,353
Equipment revenue				
ATG	$ 15,973	$ —	$ 62,899	$ 78,872
Satellite	6,340	60,657	21,755	88,752
Other	1,340	—	2,409	3,749
Total equipment revenue	$ 23,653	$ 60,657	$ 87,063	$ 171,373
Customer type				
Airline passenger and aircraft owner/operator	$ 203,376	$ 27,581	$ 221,922	$ 452,879
Airline, OEM and aftermarket dealer	129,844	113,254	87,063	330,161
Third party	44,799	7,887	—	52,686
Total revenue	$ 378,019	$ 148,722	$ 308,985	$ 835,726

	For the Year Ended December 31, 2018			
	CA-NA	CA-ROW	BA	Total
Service revenue				
Connectivity	$ 339,791	$ 63,955	$ 195,022	$ 598,768
Entertainment, CAS and other	27,577	2,447	1,355	31,379
Total service revenue	$ 367,368	$ 66,402	$ 196,377	$ 630,147
Equipment revenue				
ATG *(1)*	$ 53,410	$ —	$ 72,159	$ 125,569
Satellite *(1)*	48,439	67,992	18,165	134,596
Other	—	—	3,452	3,452
Total equipment revenue	$ 101,849	$ 67,992	$ 93,776	$ 263,617
Customer type				
Airline passenger and aircraft owner/operator	$ 216,466	$ 21,738	$ 196,377	$ 434,581
Airline, OEM and aftermarket dealer *(2)*	196,106	105,026	93,776	394,908
Third party	56,645	7,630	—	64,275
Total revenue	$ 469,217	$ 134,394	$ 290,153	$ 893,764

(1) ATG and satellite equipment revenue for the CA-NA segment includes $45.4 million related to the accounting impact of the transition of one of our airline partners to the airline-directed model. Approximately $43.4 million was included in ATG equipment revenue and approximately $2.0 million was included in satellite equipment revenue.

(2) Airline, OEM and aftermarket dealer revenue includes all equipment revenue for our three segments, including the $45.4 million accounting impact of the transition of one of our airline partners to the airline-directed model.

Contract balances

Our current and non-current deferred revenue balances totaled $56.7 million and $60.1 million as of December 31, 2019 and December 31, 2018, respectively. Deferred revenue includes, among other things, equipment, multi-pack and subscription connectivity products, sponsorship activities and airline-directed equipment and connectivity and entertainment service.

Our current and non-current contract asset balances totaled $64.2 million and $59.9 million as of December 31, 2019 and December 31, 2018, respectively. Contract assets represent the aggregate amount of revenue recognized in excess of billings for our airline-directed contracts.

Capitalized STC balances for our airline-directed contracts were $17.5 million and $16.5 million as of December 31, 2019 and December 31, 2018, respectively. The capitalized STC costs are amortized over the life of the associated airline-directed contracts as part of our engineering, design and development costs in our consolidated statements of operations. Total amortization expense was $2.7 million and $1.0 million, respectively, for the years ended December 31, 2019 and 2018.

5. Composition of Certain Balance Sheet Accounts

Inventories as of December 31, 2019 and 2018 were as follows (*in thousands*):

	December 31,	
	2019	2018
Work-in-process component parts	$ 23,141	$ 30,340
Finished goods *(1)*	94,003	162,705
Total inventory	$ 117,144	$ 193,045

(1) The change between December 31, 2019 and December 31, 2018 includes the $46.8 million accounting impact of one of our airline partner agreements transitioning to the turnkey model in January 2019 (see Note 2, "Summary of Significant Accounting Policies," for additional information).

Prepaid expenses and other current assets as of December 31, 2019 and 2018 were as follows (*in thousands*):

	December 31,	
	2019	2018
Contract assets	$ 12,364	$ 10,423
Prepaid satellite services	11,299	7,755
Restricted cash	560	1,535
Other	12,082	14,982
Total prepaid expenses and other current assets	$ 36,305	$ 34,695

Property and equipment as of December 31, 2019 and 2018 were as follows (*in thousands*):

	December 31,	
	2019	2018
Office equipment, furniture, fixtures and other	$ 56,205	$ 52,320
Leasehold improvements	44,389	44,838
Airborne equipment *(1)*	737,593	642,151
Network equipment	229,451	205,463
	1,067,638	944,772
Accumulated depreciation	(507,320)	(432,905)
Property and equipment, net	$ 560,318	$ 511,867

(1) The change between December 31, 2019 and December 31, 2018 includes the $46.8 million accounting impact of one of our airline partner agreements transitioning to the turnkey model in January 2019 (see Note 2, "Summary of Significant Accounting Policies," for additional information).

Other non-current assets as of December 31, 2019 and 2018 consist of the following (*in thousands*):

	December 31,	
	2019	2018
Contract assets	$ 51,829	$ 49,517
Deferred STC costs	17,453	16,453
Restricted cash	7,099	5,426
Other	13,291	12,816
Total other non-current assets	$ 89,672	$ 84,212

Accrued liabilities as of December 31, 2019 and 2018 consist of the following (*in thousands*):

	December 31,	
	2019	2018
Airline-related accrued liabilities, including revenue share	$ 43,592	$ 53,527
Accrued interest	17,048	46,694
Employee compensation and benefits	29,954	19,463
Airborne equipment and installation costs	11,466	25,119
Accrued satellite network costs	13,843	19,557
Warranty reserve	13,165	12,291
Operating leases *(1)*	12,241	—
Other	32,802	36,460
Total accrued liabilities	$ 174,111	$ 213,111

(1) The change between December 31, 2019 and December 31, 2018 is due to the adoption of ASC 842. See Note 2, "Summary of Significant Accounting Policies," for additional information.

Other non-current liabilities as of December 31, 2019 and 2018 consist of the following (*in thousands*):

	December 31, 2019	December 31, 2018
Deferred revenue	$21,889	$ 21,482
Deferred rent *(1)*	—	35,897
Asset retirement obligations	11,560	9,696
Deferred tax liabilities	2,340	2,162
Other	10,704	10,954
Total other non-current liabilities	$46,493	$ 80,191

(1) The change between December 31, 2019 and December 31, 2018 is due to the adoption of ASC 842. See Note 2, "Summary of Significant Accounting Policies," for additional information.

Changes in our warranty reserve, which is included in accrued liabilities, for the years ended December 31, 2019 and 2018 consist of the following (*in thousands*):

	Warranty Reserve
Balance—January 1, 2018	$ 2,424
Accruals for warranties issued	10,172
Settlements of warranties	(305)
Balance—December 31, 2018	12,291
Accruals for warranties issued	8,754
Settlements and adjustments to warranties *(1)*	(7,880)
Balance—December 31, 2019	$13,165

(1) Includes the impact of airline partner agreements transitioning to the turnkey model in 2019 (see Note 2, "Summary of Significant Accounting Policies," for additional information).

Changes in our non-current asset retirement obligations for the years ended December 31, 2019 and 2018 consist of the following (*in thousands*):

	Asset Retirement Obligation
Balance—January 1, 2018	$ 9,668
Liabilities incurred *(1)*	(760)
Liabilities settled	(192)
Accretion expense	1,035
Foreign exchange rate adjustments	(55)
Balance—December 31, 2018	9,696
Liabilities incurred	1,095
Liabilities settled	(39)
Accretion expense	848
Foreign exchange rate adjustments	(40)
Balance—December 31, 2019	$ 11,560

(1) Includes $0.8 million related to a change in estimate in the expected cash flows for our estimated liabilities.

6. Intangible Assets

Our intangible assets are comprised of indefinite- and finite-lived intangible assets. We own the rights to both 3MHz of ATG spectrum in the nationwide 800 MHz Commercial Air-Ground Radiotelephone band (the “3 MHz FCC License”), which is used in the operation of our ATG network, and the license for 1 MHz of ATG spectrum in the nationwide 800MHz Commercial Air-Ground Radiotelephone band (“1 MHz FCC License”) acquired as part of our acquisition of LiveTV Airfone, LLC. Together we refer to the 3 MHz FCC License and the 1 MHz FCC License as the “FCC Licenses.” While the FCC Licenses were issued with 10-year terms, such licenses are subject to renewal by the FCC, and renewals of licenses held by others have occurred routinely and at nominal cost. Moreover, we have determined that there are currently no legal, regulatory, contractual, competitive, economic, or other factors that limit the useful life of the FCC Licenses. As a result, the FCC Licenses are treated as indefinite-lived intangible assets which we do not amortize. We reevaluate the useful life of the FCC Licenses each year to determine whether events and circumstances continue to support an indefinite useful life. Our annual impairment assessment of the FCC Licenses for 2019, 2018, and 2017 indicated no impairment.

Our software relates to the development of internal use software which is used to run our network and support our service offerings. Software also includes software embedded in the equipment that we sell to our customers.

Our goodwill balance, all of which related to our BA segment, was $0.6 million as of December 31, 2019 and 2018.

Our intangible assets, other than goodwill, as of December 31, 2019 and 2018 were as follows (*in thousands, except for weighted average remaining useful life*):

	Weighted Average Remaining Useful Life (in years)	As of December 31, 2019			As of December 31, 2018		
		Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Amortized intangible assets:							
Software	2.6	$177,190	$ (135,154)	$42,036	$164,580	$ (116,873)	$47,707
Other intangible assets	7.8	3,000	(1,440)	1,560	3,000	(1,396)	1,604
Service customer relationships		8,081	(8,081)	—	8,081	(6,804)	1,277
OEM and dealer relationships		6,724	(6,724)	—	6,724	(6,724)	—
Total amortized intangible assets		194,995	(151,399)	43,596	182,385	(131,797)	50,588
Unamortized intangible assets:							
FCC Licenses		32,283	—	32,283	32,283	—	32,283
Total intangible assets		$227,278	$ (151,399)	$75,879	$214,668	$ (131,797)	$82,871

Amortization expense for the years ended December 31, 2019, 2018 and 2017 was $19.6 million, $26.5 million and $24.9 million, respectively.

Amortization expense for each of the next five years and thereafter is estimated to be as follows (*in thousands*):

Years ending December 31,	Amortization Expense
2020	$ 18,092
2021	$ 13,820
2022	$ 9,165
2023	$ 1,411
2024	$ 343
Thereafter	$ 765

Actual future amortization expense could differ from the estimated amount as the result of future investments and other factors.

7. Long-Term Debt and Other Liabilities

Long-term debt as of December 31, 2019 and 2018 was as follows (*in thousands*):

	December 31, 2019	December 31, 2018
2024 Senior Secured Notes	$ 921,137	$ —
2022 Senior Secured Notes	—	702,670
2022 Convertible Notes	201,868	190,083
2020 Convertible Notes	2,498	149,195
Total debt	1,125,503	1,041,948
Less deferred financing costs	(24,255)	(17,055)
Total long-term debt	$ 1,101,248	$ 1,024,893

2024 Senior Secured Notes—On April 25, 2019 (the "Issue Date"), Gogo Intermediate Holdings LLC ("GIH") (a wholly owned subsidiary of Gogo Inc.) and Gogo Finance Co. Inc. (a wholly owned subsidiary of GIH) ("Gogo Finance" and, together with GIH, the "Issuers") issued $905 million aggregate principal amount of 9.875% senior secured notes due 2024 (the "Initial Notes") under an indenture (the "Base Indenture"), dated as of April 25, 2019, among the Issuers, us, as guarantor, certain subsidiaries of GIH, as guarantors (the "Initial 2024 Subsidiary Guarantors" and, together with us, the "Initial 2024 Guarantors"), and U.S. Bank National Association, as trustee (the "Trustee") and collateral agent (the "Collateral Agent"). On May 3, 2019, the Issuers, the Initial 2024 Guarantors and the Trustee entered into the first supplemental indenture (together with the Base Indenture and the second supplemental indenture, dated as of March 6, 2020, between the Issuers, the Initial 2024 Guarantors, Gogo Air International GmbH (an indirect subsidiary of GIH) ("Gogo International" and, together with the Initial 2024 Guarantors, the "2024 Guarantors") and the Trustee to add Gogo International as a guarantor, the "2024 Indenture") to increase the amount of indebtedness that may be incurred under Credit Facilities (as defined in the 2024 Indenture) by GIH or its subsidiaries that are 2024 Guarantors by $20 million in aggregate principal amount. On May 7, 2019, the Issuers issued an additional $20 million aggregate principal amount of 9.875% senior secured notes due 2024 (the "Additional Notes"). We refer to the Initial Notes and the Additional Notes collectively as the "2024 Senior Secured Notes". The Initial Notes were issued at a price equal to 99.512% of their face value, and the Additional Notes were issued at a price equal to 100.5% of their face value, resulting in aggregate gross proceeds of $920.7 million. Additionally, we received approximately $0.1 million for interest that accrued from April 25, 2019 through May 7, 2019 with respect to the Additional Notes that was included in our interest payment on November 1, 2019. The 2024 Senior Secured Notes are guaranteed on a senior secured basis by Gogo Inc. and all of GIH's existing and future restricted subsidiaries (other than Gogo Finance), subject to certain exceptions. The 2024 Senior Secured Notes and the related guarantees are secured by second-priority liens on the ABL Priority Collateral (as defined below) and by first-priority liens on the Cash Flow Priority Collateral (as defined below), including pledged equity interests of the Issuers and all of GIH's existing and future restricted subsidiaries guaranteeing the 2024 Senior Secured Notes, except for certain excluded assets and subject to permitted liens.

As of December 31, 2019, the outstanding principal amount of the 2024 Senior Secured Notes was $925 million, the unaccreted debt discount was $3.9 million and the net carrying amount was $921.1 million.

We used a portion of the net proceeds from the issuance of the 2024 Senior Secured Notes to fund the redemption of all the outstanding 2022 Senior Secured Notes (as defined below) and to repurchase $159 million aggregate principal amount of the 2020 Convertible Notes (as defined below). We intend to use the remaining net proceeds for general corporate purposes.

The 2024 Senior Secured Notes will mature on May 1, 2024. The 2024 Senior Secured Notes bear interest at a rate of 9.875% per year, payable semiannually in arrears on May 1 and November 1 of each year, beginning on November 1, 2019.

We paid approximately $22.0 million of origination fees and financing costs related to the issuance of the 2024 Senior Secured Notes, which have been accounted for as deferred financing costs. The deferred financing costs on our consolidated balance sheet are being amortized over the contractual term of the 2024 Senior Secured Notes using the effective interest method. Total amortization expense was $2.3 million for the year ended December 31, 2019. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2019, the balance of unamortized deferred financing costs related to the 2024 Senior Secured Notes was $19.7 million and is included as a reduction to long-term debt in our consolidated balance sheet. See Note 8, "Interest Costs," for additional information.

The 2024 Senior Secured Notes are the senior secured indebtedness of the Issuers and are:

- effectively senior to (i) all of the Issuers' existing and future senior unsecured indebtedness to the extent of the value of the collateral securing the 2024 Senior Secured Notes and (ii) the Issuers' indebtedness secured on a junior priority basis by the same collateral securing the 2024 Senior Secured Notes to the extent of the value of such collateral, including the obligations under the ABL Credit Facility (as defined below) to the extent of the value of the Cash Flow Priority Collateral;
- effectively equal in right of payment with the Issuers' existing and future (i) unsecured indebtedness that is not subordinated in right of payment to the 2024 Senior Secured Notes and (ii) indebtedness secured on a junior priority basis by the same collateral securing the 2024 Senior Secured Notes, if any, in each case to the extent of any insufficiency in the collateral securing the 2024 Senior Secured Notes;
- structurally senior to all of our existing and future indebtedness, including our 2022 Convertible Notes and 2020 Convertible Notes (each as defined below);
- senior in right of payment to any and all of the Issuers' future indebtedness that is subordinated in right of payment to the 2024 Senior Secured Notes;
- structurally subordinated to all of the indebtedness and other liabilities of any non-2024 Guarantors (other than the Issuers); and
- effectively subordinated to all of our existing and future indebtedness secured on a senior priority basis by the same collateral securing the 2024 Senior Secured Notes to the extent of the value of such collateral, including the obligations under the ABL Credit Facility to the extent of the value of ABL Priority Collateral.

Each guarantee is a senior secured obligation of such 2024 Guarantor and is:

- effectively senior in right of payment to all existing and future (i) senior unsecured indebtedness to the extent of the value of the collateral securing such guarantee owned by such 2024 Guarantor and (ii) indebtedness secured on a junior priority basis by the same collateral securing the guarantee owned by such 2024 Guarantor to the extent of the value of the collateral securing the guarantee, including the obligations under the ABL Credit Facility to the extent of the value of the Cash Flow Priority Collateral;
- effectively equal in right of payment with all existing and future unsubordinated indebtedness and indebtedness secured on a junior priority basis by the same collateral securing the guarantee owned by such 2024 Guarantor, if any, in each case to the extent of any insufficiency in the collateral securing such guarantee;
- effectively subordinated to the obligations under the ABL Credit Facility of each 2024 Guarantor to the extent of the value of the ABL Priority Collateral owned by such 2024 Guarantor;
- effectively senior in right of payment to all existing and future subordinated indebtedness, if any, of such 2024 Guarantor; and
- structurally subordinated to all indebtedness and other liabilities of any non-2024 Guarantor subsidiary of such 2024 Guarantor (excluding, in the case of our guarantee, the Issuers).

The security interests in certain collateral may be released without the consent of holders of the 2024 Senior Secured Notes if such collateral is disposed of in a transaction that complies with the 2024 Indenture and related security agreements, and if any grantor of such security interests is released from its obligations with respect to the 2024 Senior Secured Notes in accordance with the applicable provisions of the 2024 Indenture and related security agreements. Under certain circumstances, GIH and the 2024 Guarantors have the right to transfer certain intellectual property assets that on the Issue Date constitute collateral securing the 2024 Senior Secured Notes or the guarantees to a restricted subsidiary organized under the laws of Switzerland, resulting in the release of such collateral. In addition, the 2024 Indenture permits indebtedness incurred under the ABL Credit Facility to be secured on a first-priority basis by certain of the same collateral that secures the 2024 Senior Secured Notes.

The Issuers may redeem the 2024 Senior Secured Notes, in whole or in part, at any time prior to May 1, 2021, at a redemption price equal to 100% of the principal amount of the 2024 Senior Secured Notes redeemed plus the make-whole premium set forth in the 2024 Indenture as of, and accrued and unpaid interest, if any, to (but not including) the applicable redemption date.

On or after May 1, 2021, the 2024 Senior Secured Notes will be redeemable at the following redemption prices (expressed in percentages of principal amount), plus accrued and unpaid interest, if any, to (but not including) the redemption date (subject to the right of holders of record on the relevant regular record date on or prior to the redemption date to receive interest due on an interest payment date), if redeemed during the twelve-month period commencing on May 1 of the following years:

Year	Redemption Price
2021	104.938%
2022	102.469%
2023 and thereafter	100.000%

In addition, at any time prior to May 1, 2021, the Issuers may redeem up to 40% of the aggregate principal amount of the 2024 Senior Secured Notes with the proceeds of certain equity offerings at a redemption price of 109.875% of the principal amount redeemed, plus accrued and unpaid interest, if any, to (but not including) the date of redemption; provided, however, that 2024 Senior Secured Notes representing at least 50% of the principal amount of the 2024 Senior Secured Notes remain outstanding immediately after each such redemption.

In addition, if GIH receives cash proceeds in connection with the entry into or continuation of a strategic relationship, or equity from us in connection with the sale of stock to a complimentary business (in each case, a "strategic investment") at any time prior to May 1, 2020, the Issuers may redeem up to $150 million of the aggregate principal amount of the 2024 Senior Secured Notes at 103% of the principal amount of the 2024 Senior Secured Notes to be redeemed, plus accrued and unpaid interest, if any, to (but not including) the redemption date with the proceeds from such strategic investment.

The 2024 Indenture contains covenants that, among other things, limit the ability of the Issuers and the 2024 Subsidiary Guarantors and, in certain circumstances, our ability, to: incur additional indebtedness; pay dividends, redeem stock or make other distributions; make investments; create restrictions on the ability of GIH's restricted subsidiaries to pay dividends to the Issuers or make other intercompany transfers; create liens; transfer or sell assets; merge or consolidate; and enter into certain transactions with the Issuers' affiliates. Most of these covenants will cease to apply if, and for as long as, the 2024 Senior Secured Notes have investment grade ratings from both Moody's Investment Services, Inc. and Standard & Poor's.

If we or the Issuers undergo specific types of change of control accompanied by a downgrade in the rating of the 2024 Senior Secured Notes prior to May 1, 2024, GIH is required to make an offer to repurchase for cash all of the 2024 Senior Secured Notes at a repurchase price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to (but not including) the payment date.

The 2024 Indenture provides for events of default, which, if any of them occur, would permit or require the principal, premium, if any, and interest on all of the then outstanding 2024 Senior Secured Notes issued under the 2024 Indenture to be due and payable immediately. As of December 31, 2019, no event of default had occurred.

ABL Credit Facility—On August 26, 2019, Gogo Inc., GIH and Gogo Finance (together GIH and Gogo Finance are referred to as the "Borrowers") entered into a credit agreement (the "ABL Credit Agreement") among the Borrowers, the other loan parties party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A., as administrative agent (the "Administrative Agent"), and Morgan Stanley Senior Funding, Inc., as syndication agent, which provides for an asset-based revolving credit facility (the "ABL Credit Facility") of up to $30 million, subject to borrowing base availability, and includes letter of credit and swingline sub-facilities.

Borrowing availability under the ABL Credit Facility is determined by a monthly borrowing base collateral calculation that is based on specified percentages of the value of eligible accounts receivable (including eligible unbilled accounts receivable) and eligible credit card receivables, less certain reserves and subject to certain other adjustments as set forth in the ABL Credit Agreement. Availability is reduced by issuance of letters of credit as well as any borrowings. As of December 31, 2019, no revolving loans were outstanding under the ABL Credit Facility.

The final maturity of the ABL Credit Facility is August 26, 2022, unless the aggregate outstanding principal amount of our 2022 Convertible Notes (as defined below) has not, on or prior to December 15, 2021, been repaid in full or refinanced with a new maturity date no earlier than February 26, 2023, in which case the final maturity date shall instead be December 16, 2021.

Loans outstanding under the ABL Credit Facility bear interest at a floating rate measured by reference to, at the Borrowers' option, either (i) an adjusted London inter-bank offered rate plus an applicable margin ranging from 1.50% to 2.00% per annum depending on a fixed charge coverage ratio, or (ii) an alternate base rate plus an applicable margin ranging from 0.50% to 1.00% per annum depending on a fixed charge coverage ratio. Unused commitments under the ABL Credit Facility are subject to a per annum fee ranging from 0.25% to 0.375% depending on the average quarterly usage of the revolving commitments.

The obligations under the ABL Credit Agreement are guaranteed by Gogo Inc. and all of its existing and future subsidiaries, subject to certain exceptions (collectively, the "ABL Guarantors"), and such obligations and the obligations of the ABL Guarantors are secured on a (i) senior basis by a perfected security interest in all present and after-acquired inventory, accounts receivable, deposit accounts, securities accounts, and any cash or other assets in such accounts and other related assets owned by each ABL Guarantor and the proceeds of the foregoing, subject to certain exceptions (the “ABL Priority Collateral”) and (ii) junior basis by a perfected security interest in substantially all other tangible and intangible assets owned by each ABL Guarantor (the “Cash Flow Priority Collateral”).

The ABL Credit Agreement contains customary representations and warranties and customary affirmative and negative covenants. The negative covenants include restrictions on, among other things: the incurrence of additional indebtedness; the incurrence of additional liens; dividends or other distributions on equity; the purchase, redemption or retirement of capital stock; the payment or redemption of certain indebtedness; loans, guarantees and other investments; entering into other agreements that create restrictions on the ability to pay dividends or make other distributions on equity, make or repay certain loans, create or incur certain liens or guarantee certain indebtedness; asset sales; sale-leaseback transactions; swap agreements; consolidations or mergers; amendment of certain material documents; certain regulatory matters; Canadian pension plans; and affiliate transactions. The negative covenants are subject to customary exceptions and also permit dividends and other distributions on equity, investments, permitted acquisitions and payments or redemptions of indebtedness upon satisfaction of the “payment conditions.” The payment conditions are deemed satisfied upon Specified Availability (as defined in the ABL Credit Agreement) on the date of the designated action and Specified Availability for the prior 30-day period exceeding agreed-upon thresholds, the absence of the occurrence and continuance of any default and, in certain cases, pro forma compliance with a fixed charge coverage ratio of no less than 1.10 to 1.00.

The ABL Credit Agreement includes a minimum fixed charge coverage ratio test of no less than 1.00 to 1.00, which is tested only when Specified Availability is less than the greater of (A) $4.5 million and (B) 15.0% of the then effective commitments under the ABL Credit Facility, and continuing until the first day immediately succeeding the last day of the calendar month which includes the thirtieth (30th) consecutive day on which Specified Availability is in excess of such threshold so long as no default has occurred and is continuing and certain other conditions are met. As of December 31, 2019, Specified Availability had not fallen below the amount specified and therefore the minimum fixed charge coverage ratio test was not applicable. Full availability under the ABL Credit Facility may be limited by our ability to comply with the fixed charge coverage ratio in future periods.

The ABL Credit Agreement provides for events of default, which, if any of them occurs, would permit or require the principal, premium, if any, and interest on all of the then outstanding obligations under the ABL Credit Facility to be due and payable immediately and the commitments under the ABL Credit Facility to be terminated.

On August 26, 2019, the Borrowers and the ABL Guarantors entered into an ABL collateral agreement (the “ABL Collateral Agreement”), in favor of the Administrative Agent, whereby the Borrowers and the ABL Guarantors granted a security interest in substantially all tangible and intangible assets of each Borrower and each ABL Guarantor, to secure all obligations of the Borrowers and the ABL Guarantors under the ABL Credit Agreement, and U.S. Bank National Association, as cash flow collateral representative, and JPMorgan Chase Bank, N.A., as ABL agent, entered into a crossing lien intercreditor agreement (the “Intercreditor Agreement”) to govern the relative priority of liens on the collateral that secures the ABL Credit Agreement and the 2024 Senior Secured Notes and certain other rights, priorities and interests.

2022 Senior Secured Notes—On June 14, 2016, the Issuers issued $525 million aggregate principal amount of 12.500% senior secured notes due 2022 (the “Original 2022 Senior Secured Notes”) under an Indenture, dated as of June 14, 2016 (the “Original Indenture”), among the Issuers, us, as guarantor, certain subsidiaries of GIH, as guarantors (the “2022 Subsidiary Guarantors” and, together with us, the “2022 Guarantors”), and U.S. Bank National Association, as Trustee and as Collateral Agent. On January 3, 2017, the Issuers issued $65 million aggregate principal amount of additional 12.500% senior secured notes due 2022 (the “January 2017 Additional Notes”). The January 2017 Additional Notes were issued at a price equal to 108% of their face value resulting in gross proceeds of $70.2 million. On September 20, 2017, the Issuers, the 2022 Guarantors and the Trustee entered into the first supplemental indenture (the “Supplemental Indenture” and, together with the Original Indenture, the “Indenture”) to modify certain covenants, as discussed below. On September 25, 2017, the Issuers issued $100 million aggregate principal amount of additional 12.500% senior secured notes due 2022 (the “September 2017 Additional Notes”). The September 2017 Additional Notes were issued at a price equal to 113% of their face value resulting in gross proceeds of $113.0 million. Additionally, we received approximately $2.9 million for interest that accrued from July 1, 2017 through September 24, 2017, which was paid in our January 2018 interest payment. We refer to the Original 2022 Senior Secured Notes, the January 2017 Additional Notes and the September 2017 Additional Notes collectively as the “2022 Senior Secured Notes.”

On April 15, 2019, the Issuers elected to call for redemption in full all $690 million aggregate principal amount outstanding of the 2022 Senior Secured Notes in accordance with the terms of the Indenture. The redemption was conditioned, among other things, upon the incurrence of indebtedness in connection with the issuance of the 2024 Senior Secured Notes or from one or more other sources, in an amount satisfactory to the Issuers which condition was satisfied by the issuance of the 2024 Senior Secured Notes. On April 25, 2019, the Issuers irrevocably deposited, or caused to be irrevocably deposited, with the Trustee funds solely for the benefit of the holders of the 2022 Senior Secured Notes, cash in an amount sufficient to pay principal, premium, if any, and accrued interest on the 2022 Senior Secured Notes to, but not including, the date of redemption and all other sums payable under the Indenture. The Trustee executed and delivered an acknowledgement of satisfaction, discharge and release, dated as of April 25, 2019, among other documents, with respect to the satisfaction and discharge of the 2022 Senior Secured Notes. On May 15, 2019, the 2022 Senior Secured Notes were fully redeemed in accordance with the terms of the Indenture, and the amount deposited with the Trustee on April 25, 2019 was paid to the holders of the 2022 Senior Secured Notes. The make-whole premium paid in connection with the redemption was $51.4 million and we wrote off the remaining unamortized deferred financing costs of $9.1 million and the remaining debt premium of $11.7 million relating to the 2022 Senior Secured Notes in connection with the redemption thereof, which together are included in the loss on extinguishment of debt in our consolidated statements of operations for the year ended December 31, 2019.

We paid approximately $15.9 million of aggregate origination fees and financing costs related to the issuance of the 2022 Senior Secured Notes which were accounted for as deferred financing costs. Additionally, we paid approximately $1.4 million of consent fees in connection with the Supplemental Indenture, which partially offset the net carrying value of the 2022 Senior Secured Notes. Total amortization expense was $0.9 million, $2.6 million and $2.3 million, respectively, for the years ended December 31, 2019, 2018 and 2017. Amortization expense is included in interest expense in the consolidated statements of operations. As noted above, the remaining unamortized deferred financing costs were written off as of May 15, 2019.

Convertible Notes

2022 Convertible Notes

On November 21, 2018, we issued $215.0 million aggregate principal amount of 6.00% Convertible Senior Notes due 2022 (the “2022 Convertible Notes”) in private offerings to qualified institutional buyers, including pursuant to Rule 144A under the Securities Act, and in concurrent private placements. We granted an option to the initial purchasers to purchase up to an additional $32.3 million aggregate principal amount of 2022 Convertible Notes to cover over-allotments, of which $22.8 million was subsequently exercised during December 2018, resulting in a total issuance of $237.8 million aggregate principal amount of 2022 Convertible Notes. The 2022 Convertible Notes mature on May 15, 2022, unless earlier repurchased or converted into shares of our common stock under certain circumstances described below. Upon maturity, we have the option to settle our obligation through cash, shares of common stock, or a combination of cash and shares of common stock. We pay interest on the 2022 Convertible Notes semi-annually in arrears on May 15 and November 15 of each year, beginning on May 15, 2019.

The $237.8 million of proceeds received from the issuance of the 2022 Convertible Notes was initially allocated between long-term debt (the liability component) at $188.7 million and additional paid-in capital (the equity component) at $49.1 million, within the consolidated balance sheet. The fair value of the liability component was measured using rates determined for similar debt instruments without a conversion feature. The carrying amount of the equity component, representing the conversion option, was determined by deducting the fair value of the liability component from the aggregate face value of the 2022 Convertible Notes. If we or the note holders elect not to settle the debt through conversion, we must settle the 2022 Convertible Notes at face value. Therefore, the liability component will be accreted up to the face value of the 2022 Convertible Notes, which will result in additional non-cash interest expense being recognized in the consolidated statements of operations through the 2022 Convertible Notes maturity date (see Note 8, "Interest Costs," for additional information). The effective interest rate on the 2022 Convertible Notes, including accretion of the notes to par and debt issuance cost amortization, was approximately 13.6%. The equity component will not be remeasured as long as it continues to meet the conditions for equity classification.

As of December 31, 2019 and 2018, the outstanding principal on the 2022 Convertible Notes was $237.8 million, the unaccreted debt discount was $35.9 million and $47.7 million, respectively, and the net carrying amount of the liability component was $201.9 million and $190.1 million, respectively.

We incurred approximately $8.1 million of issuance costs related to the issuance of the 2022 Convertible Notes, of which $6.4 million and $1.7 million were recorded to deferred financing costs and additional paid-in capital, respectively, in proportion to the allocation of the proceeds of the 2022 Convertible Notes. The $6.4 million recorded as deferred financing costs on our consolidated balance sheet is being amortized over the term of the 2022 Convertible Notes using the effective interest method. Total amortization expense was $1.7 million and $0.2 million, respectively, for the years ended December 31, 2019 and 2018. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2019 and 2018, the balance of unamortized deferred financing costs related to the 2022 Convertible Notes was $4.5 million and $6.2 million, respectively, and is included as a reduction to long-term debt in our consolidated balance sheets. See Note 8, "Interest Costs," for additional information.

The 2022 Convertible Notes had an initial conversion rate of 166.6667 common shares per $1,000 principal amount of 2022 Convertible Notes, which is equivalent to an initial conversion price of approximately $6.00 per share of our common stock. Upon conversion, we currently expect to deliver cash up to the principal amount of the 2022 Convertible Notes then outstanding. With respect to any conversion value in excess of the principal amount, we currently expect to deliver shares of our common stock. We may elect to deliver cash in lieu of all or a portion of such shares. The shares of common stock subject to conversion are excluded from diluted earnings per share calculations under the if-converted method as their impact is anti-dilutive.

Holders may convert the 2022 Convertible Notes, at their option, in multiples of $1,000 principal amount at any time prior to January 15, 2022, but only in the following circumstances:

- during any fiscal quarter beginning after the fiscal quarter ended December 31, 2018, if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during the last 30 consecutive trading days of the immediately preceding fiscal quarter is greater than or equal to 130% of the conversion price of the 2022 Convertible Notes on each applicable trading day;
- during the five-business day period following any five consecutive trading day period in which the trading price for the 2022 Convertible Notes is less than 98% of the product of the last reported sale price of our common stock and the conversion rate for the 2022 Convertible Notes on each such trading day; or
- upon the occurrence of specified corporate events.

None of the above events allowing for conversion prior to January 15, 2022 occurred during the year ended December 31, 2019. Regardless of whether any of the foregoing circumstances occurs, a holder may convert its

2022 Convertible Notes, in multiples of $1,000 principal amount, at any time on or after January 15, 2022 until the second scheduled trading day immediately preceding May 15, 2022.

In addition, if we undergo a fundamental change (as defined in the indenture governing the 2022 Convertible Notes), holders may, subject to certain conditions, require us to repurchase their 2022 Convertible Notes for cash at a price equal to 100% of the principal amount of the 2022 Convertible Notes to be purchased, plus any accrued and unpaid interest. In addition, following a make-whole fundamental change, we will increase the conversion rate in certain circumstances for a holder who elects to convert its 2022 Convertible Notes in connection with such make-whole fundamental change.

2020 Convertible Notes

On March 3, 2015, we issued $340.0 million aggregate principal amount of 3.75% Convertible Senior Notes due 2020 (the “2020 Convertible Notes”) in a private offering to qualified institutional buyers, pursuant to Rule 144A under the Securities Act. We granted an option to the initial purchasers to purchase up to an additional $60.0 million aggregate principal amount of 2020 Convertible Notes to cover over-allotments, of which $21.9 million was subsequently exercised during March 2015, resulting in a total issuance of $361.9 million aggregate principal amount of 2020 Convertible Notes. We paid interest on the 2020 Convertible Notes semi-annually in arrears on March 1 and September 1 of each year. Interest payments began on September 1, 2015. In November 2018, in connection with the issuance of the 2022 Convertible Notes, we repurchased $199.9 million outstanding principal amount of the 2020 Convertible Notes at par value. As a result of the repurchase, the carrying value of the 2020 Convertible Notes was adjusted by $17.9 million to face value and included in the loss on extinguishment of debt in our consolidated statements of operations for the year ended December 31, 2018.

On April 18, 2019, we commenced a cash tender offer (the “Tender Offer”) to purchase any and all of the outstanding 2020 Convertible Notes for an amount equal to $1,000 per $1,000 principal amount of 2020 Convertible Notes purchased, plus accrued and unpaid interest from the last interest payment date on the 2020 Convertible Notes to, but not including, the date of payment for the 2020 Convertible Notes accepted in the Tender Offer. The Tender Offer expired on May 15, 2019, resulting in the purchase of $159.0 million of outstanding 2020 Convertible Notes. As a result of the Tender Offer, the carrying value of the 2020 Convertible Notes was adjusted by $8.5 million to face value and unamortized deferred financing costs of $0.6 million were expensed. These two items are included in the loss on extinguishment of debt in our consolidated statements of operations for the year ended December 31, 2019. During September 2019, we purchased an additional $0.5 million of outstanding 2020 Convertible Notes. The 2020 Convertible Notes matured on March 1, 2020.

The $361.9 million of proceeds received from the issuance of the 2020 Convertible Notes was initially allocated between long-term debt (the liability component) at $261.9 million and additional paid-in capital (the equity component) at $100.0 million, within the consolidated balance sheet. The fair value of the liability component was measured using rates determined for similar debt instruments without a conversion feature. The carrying amount of the equity component, representing the conversion option, was determined by deducting the fair value of the liability component from the aggregate face value of the 2020 Convertible Notes. If we or the holders of 2020 Convertible Notes elected not to settle the debt through conversion, we were required to settle the 2020 Convertible Notes at face value. Therefore, the liability component was accreted up to the face value of the 2020 Convertible Notes, which resulted in additional non-cash interest expense being recognized in the consolidated statements of operations (see Note 8, “Interest Costs,” for additional information). The effective interest rate on the 2020 Convertible Notes, including accretion of the notes to par and debt issuance cost amortization, was approximately 11.5%.

As of December 31, 2019 and 2018, the outstanding principal on the 2020 Convertible Notes was $2.5 million and $162.0 million, respectively, the unamortized debt discount was zero and $12.8 million, respectively, and the net carrying amount of the liability component was $2.5 million and $149.2 million, respectively.

We incurred approximately $10.4 million of issuance costs related to the issuance of the 2020 Convertible Notes, of which $7.5 million and $2.9 million were recorded to deferred financing costs and additional paid-in capital, respectively, in proportion to the allocation of the proceeds of the 2020 Convertible Notes. The $7.5 million recorded as deferred financing costs on our consolidated balance sheet is being amortized over the term of the 2020 Convertible Notes using the effective interest method. Total amortization expense of the deferred financing costs was $0.2 million, $1.4 million and $1.5 million, respectively, for the years ended December 31, 2019, 2018 and 2017. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2019 and 2018, the balance of unamortized deferred financing costs related to the 2020 Convertible Notes was zero and $0.9 million, respectively, and is included as a reduction to long-term debt in our consolidated balance sheets. See Note 8, “Interest Costs,” for additional information.

The 2020 Convertible Notes had an initial conversion rate of 41.9274 common shares per $1,000 principal amount of 2020 Convertible Notes, which was equivalent to an initial conversion price of approximately $23.85 per share of our common stock. Upon conversion and prior to maturity, we expected to deliver cash up to the principal amount of the 2020 Convertible Notes then outstanding. With respect to any conversion value in excess of the principal amount, we expected to deliver shares of our common stock. We had the option to elect to deliver cash in lieu of all or a portion of such shares. The shares of common stock subject to conversion were excluded from diluted earnings per share calculations under the if-converted method as their impact is anti-dilutive.

Forward Transactions

In connection with the issuance of the 2020 Convertible Notes, we paid approximately $140 million to enter into prepaid forward stock repurchase transactions (the “Forward Transactions”) with certain financial institutions (the “Forward Counterparties”), pursuant to which we purchased approximately 7.2 million shares of common stock for settlement on or around the March 1, 2020 maturity date for the 2020 Convertible Notes, subject to the ability of each Forward Counterparty to elect to settle all or a portion of its Forward Transactions early.

On December 11, 2019, we entered into an amendment to one of the Forward Transactions (the “Amended and Restated Forward Transaction”) to extend the expected settlement date with respect to approximately 2.1 million shares of common stock held by one of the Forward Counterparties, JPMorgan Chase Bank, National Association (the “2022 Forward Counterparty”), to correspond with the May 15, 2022 maturity date for the 2022 Convertible Notes. In the future, we may request that the 2022 Forward Counterparty modify the settlement terms of the Amended and Restated Forward Transaction to provide that, in lieu of the delivery of the applicable number of shares of our common stock to us to settle a portion of the Amended and Restated Forward Transaction in accordance with its terms, the 2022 Forward Counterparty would pay to us the net proceeds from the sale by the 2022 Forward Counterparty (or its affiliate) of a corresponding number of shares of our common stock in a registered offering (which may include block sales, sales on the NASDAQ Global Select Market, sales in the over-the-counter market, sales pursuant to negotiated transactions or otherwise, at market prices prevailing at the time of sale or at negotiated prices). Any such sales could potentially decrease (or reduce the size of any increase in) the market price of our common stock. The 2022 Forward Counterparty is not required to effect any such settlement in cash in lieu of delivery of shares of our common stock and, if we request that the 2022 Forward Counterparty effect any such settlement, it will be entered into in the discretion of the 2022 Forward Counterparty on such terms as may be mutually agreed upon at the time. As a result of the Forward Transactions, total shareholders’ equity within our consolidated balance sheet was reduced by approximately $140 million. Between March 5-6, 2020, approximately 5.1 million shares of common stock were delivered to us in connection with the Forward Transactions. The approximately 2.1 million shares of common stock remaining under the Amended and Restated Forward Transactions are treated as retired shares for basic and diluted EPS purposes although they remain legally outstanding.

Restricted Cash—Our restricted cash balances were $7.7 million and $7.0 million, respectively, as of December 31, 2019 and 2018 and primarily consist of letters of credit and cash restricted to repurchase or repay the remaining balance of the 2020 Convertible Notes. Certain of the letters of credit require us to maintain restricted cash accounts in a similar amount, and are issued for the benefit of the landlords at our current office locations in Chicago, IL, Bensenville, IL and Broomfield, CO.

8. Interest Costs

The following is a summary of our interest costs for the years ended December 31, 2019, 2018 and 2017 *(in thousands)*:

	For the Years Ended December 31,		
	2019	2018	2017
Interest costs charged to expense	$110,601	$100,274	$ 89,915
Amortization of deferred financing costs	5,260	4,280	3,743
Accretion of debt discount	15,729	21,105	19,520
Amortization of debt premium	(1,018)	(2,850)	(1,234)
Interest expense	130,572	122,809	111,944
Interest costs capitalized to property and equipment	11	32	26
Interest costs capitalized to software	608	364	1,075
Total interest costs	$131,191	$123,205	$113,045

We capitalize a portion of our interest on funds borrowed during the active construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets and amortized over the useful lives of the assets.

9. Common Stock and Preferred Stock

Common Stock—We have one class of common stock outstanding as of December 31, 2019 and 2018. Our common stock is junior to our preferred stock, if and when issued.

Our Third Amended and Restated Certificate of Incorporation authorizes a total of 500,000,000 shares of common stock with a par value of $0.0001 per share.

Our Third Amended and Restated Certificate of Incorporation authorizes 100,000,000 shares of new preferred stock with a par value of $0.01 per share. No shares of this new preferred stock have been issued. The preferred stock may be issued, from time to time, in one or more series as authorized by the Board of Directors, which has the authority to designate the terms of any series of preferred stock issued, including, without limitation, the number of shares to be included in such series of preferred stock, any dividend, redemption, conversion rights or voting powers and the designations, preferences and relative participating, optional or other special rights.

10. Fair Value of Financial Assets and Liabilities

A three-tier fair value hierarchy has been established which prioritizes the inputs used in measuring fair value. These tiers include:

- *Level 1*—defined as observable inputs such as quoted prices in active markets;
- *Level 2*—defined as observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

- *Level 3*—defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

Long-Term Debt:

Our financial assets and liabilities that are disclosed but not measured at fair value include the 2024 Senior Secured Notes, 2022 Convertible Notes, 2020 Convertible Notes, and, while outstanding, the 2022 Senior Secured Notes, which are reflected on the consolidated balance sheet at cost. The fair value measurements are classified as Level 2 within the fair value hierarchy since they are based on quoted market prices of our instruments in markets that are not active. We estimated the fair value of the 2024 Senior Secured Notes, the 2022 Convertible Notes, the 2020 Convertible Notes, and, while outstanding, the 2022 Senior Secured Notes by calculating the upfront cash payment a market participant would require to assume these obligations. The upfront cash payments used in the calculations of fair value on our December 31, 2019 consolidated balance sheet, excluding any issuance costs, are the amount that a market participant would be willing to lend at December 31, 2019 to an entity with a credit rating similar to ours and that would allow such an entity to achieve sufficient cash inflows to cover the scheduled cash outflows under the 2024 Senior Secured Notes, the 2022 Convertible Notes and the 2020 Convertible Notes. The calculated fair value of the 2022 Convertible Notes and 2020 Convertible Notes is correlated to our stock price and as a result, significant changes to our stock price could have a significant impact on their calculated fair values.

The fair value and carrying value of long-term debt as of December 31, 2019 and 2018 was as follows *(in thousands)*:

	December 31, 2019		December 31, 2018	
	Fair Value (1)	Carrying Value	Fair Value (1)	Carrying Value
2024 Senior Secured Notes	$982,000	$921,137(2)	$ —	$ —
2022 Senior Secured Notes	—	—	737,000	702,670(3)
2022 Convertible Notes	297,000	201,868(4)	216,000	190,083(4)
2020 Convertible Notes	2,498	2,498	150,000	149,195(5)

(1) Fair value amounts are rounded to the nearest million, except for the 2020 Convertible Notes as of December 31, 2019.
(2) Carrying value of the 2024 Senior Secured Notes reflects the unaccreted debt discount of $3.9 million as of December 31, 2019. See Note 7, “Long-Term Debt and Other Liabilities,” for further information.
(3) Carrying value of the 2022 Senior Secured Notes reflects the unamortized debt premium and consent fees of $12.7 million as of December 31, 2018. See Note 7, “Long-Term Debt and Other Liabilities,” for further information.
(4) Carrying value of the 2022 Convertible Notes reflects the unaccreted debt discount of $35.9 million and $47.7 million, respectively, as of December 31, 2019 and 2018. See Note 7, “Long-Term Debt and Other Liabilities,” for further information.
(5) Carrying value of the 2020 Convertible Notes reflects the unaccreted debt discount of $12.8 million as of December 31, 2018. See Note 7, “Long-Term Debt and Other Liabilities,” for further information.

We have held-to-maturity financial instruments where carrying value approximated fair value. There were no fair value adjustments to these financial instruments during the years ended December 31, 2019, 2018 and 2017.

11. Business Segments and Major Customers

During the fourth quarter of 2019, we revised the presentation of our reportable segments’ operating results in order to exclude the impact of certain corporate costs from the calculation of total reportable segment profit (loss). All amounts from prior years have been reclassified to conform to the current year’s presentation.

We operate our business through three operating segments: Commercial Aviation North America, or "CA-NA," Commercial Aviation Rest of World, or "CA-ROW" and Business Aviation, or "BA."

CA-NA Segment: Our CA-NA segment provides in-flight connectivity and wireless digital entertainment solutions to commercial airline passengers flying routes that generally begin and end within North America, which for this purpose includes the United States, Canada and Mexico.

CA-ROW Segment: Our CA-ROW business provides in-flight connectivity and wireless digital entertainment solutions to passengers flying on foreign-based commercial airlines and flights outside of North America for North American-based commercial airlines. The routes included in our CA-ROW segment are those that begin and/or end outside of North America (as defined above) for which our international service is provided.

BA Segment: Our BA business provides equipment for in-flight connectivity along with voice and data services to the business aviation market. BA services include Gogo Biz, our in-flight broadband service that utilizes both our ATG network and our ATG spectrum, Passenger Entertainment, our in-flight entertainment service, and satellite-based voice and data services through strategic alliances with satellite companies. Customers include business aircraft manufacturers, owners, and operators, as well as government and military entities.

The accounting policies of the operating segments are the same as those described in Note 2, "Summary of Significant Accounting Policies." Intercompany transactions between segments are excluded as they are not included in management's performance review of the segments. Our foreign revenue accounted for less than 15% of our consolidated revenue for the years ended December 31, 2019, 2018 and 2017. We do not segregate assets between segments for internal reporting. Therefore, asset-related information has not been presented. We do not disclose assets outside of the United States as they totaled less than 15% of our consolidated assets as of both December 31, 2019 and December 31, 2018. For our airborne assets, we consider only those assets installed in aircraft associated with international commercial airline partners to be owned outside of the United States.

Management evaluates performance and allocates resources to each segment based on reportable segment profit (loss), which is calculated internally as net income (loss) attributable to common stock before unallocated corporate costs, interest expense, interest income, income taxes, depreciation and amortization, and certain non-cash items (including amortization of deferred airborne lease incentives, stock-based compensation expense, loss on extinguishment of debt, amortization of STC costs and the accounting impact of the transition to the airline-directed model) and other income (expense). Reportable segment profit (loss) is a measure of performance reported to the chief operating decision maker for purposes of making decisions about allocating resources to the segments and evaluating segment performance. In addition, reportable segment profit (loss) is included herein in conformity with ASC 280-10, *Segment Reporting*. Management believes that reportable segment profit (loss) provides useful information for analyzing and evaluating the underlying operating results of each segment. However, reportable segment profit (loss) should not be considered in isolation or as a substitute for net income (loss) attributable to common stock or other measures of financial performance prepared in accordance with GAAP. Additionally, our computation of reportable segment profit (loss) may not be comparable to other similarly titled measures computed by other companies.

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Information regarding our reportable segments is as follows (*in thousands*):

	For the Year Ended December 31, 2019			
	CA-NA	CA-ROW	BA	Total
Service revenue	$ 354,366	$ 88,065	$ 221,922	$ 664,353
Equipment revenue	23,653	60,657	87,063	171,373
Total revenue	$ 378,019	$ 148,722	$ 308,985	$ 835,726
Reportable segment profit (loss)	$ 97,920	$ (62,314)	$ 143,966	$ 179,572

	For the Year Ended December 31, 2018			
	CA-NA	CA-ROW	BA	Total
Service revenue	$ 367,368	$ 66,402	$ 196,377	$ 630,147
Equipment revenue *(1)*	101,849	67,992	93,776	263,617
Total revenue	$ 469,217	$ 134,394	$ 290,153	$ 893,764
Reportable segment profit (loss)	$ 62,286	$ (90,779)	$ 140,198	$ 111,705

	For the Year Ended December 31, 2017			
	CA-NA	CA-ROW	BA	Total
Service revenue	$ 393,484	$ 53,542	$ 170,880	$ 617,906
Equipment revenue	7,129	4,323	69,732	81,184
Total revenue	$ 400,613	$ 57,865	$ 240,612	$ 699,090
Reportable segment profit (loss)	$ 100,754	$ (102,482)	$ 99,513	$ 97,785

(1) CA-NA equipment revenue for the year ended December 31, 2018 includes the accounting impact of the transition of one of our airline partners to the airline-directed model. See Note 2, “Summary of Significant Accounting Policies,” for additional information.

A reconciliation of total reportable segment profit (loss) to the relevant consolidated amounts is as follows (*in thousands*):

	For the Years Ended December 31,		
	2019	2018	2017
CA-NA segment profit	$ 97,920	$ 62,286	$ 100,754
CA-ROW segment loss	(62,314)	(90,779)	(102,482)
BA segment profit	143,966	140,198	99,513
Total reportable segment profit	179,572	111,705	97,785
Unallocated corporate costs *(1)*	(33,365)	(40,275)	(38,552)
Interest income	4,210	4,292	2,964
Interest expense	(130,572)	(122,809)	(111,944)
Depreciation and amortization	(118,817)	(133,617)	(145,490)
Transition to airline-directed model	—	21,551	—
Amortization of deferred airborne lease incentives	28,551	31,650	41,816
Amortization of STC costs	(2,706)	(1,023)	—
Stock-based compensation expense	(16,511)	(16,912)	(19,821)
Loss on extinguishment of debt	(57,962)	(19,653)	—
Other income (expense)	2,602	(233)	(750)
Loss before income taxes	$(144,998)	$(165,324)	$(173,992)

(1) Represents costs that are not directly attributable to the reportable segments, comprised primarily of the costs of corporate functions, including executive, legal, finance and human resources, but excluding stock-based compensation expense for those functions of $6.1 million, $5.9 million and $7.3 million, respectively, for the years ending December 31, 2019, 2018 and 2017.

Major Customers and Airline Partnerships—Revenue earned from Delta and its passengers accounted for approximately 28%, 23% and 26% of consolidated revenue, respectively, for the years ended December 31, 2019, 2018 and 2017. Delta accounted for approximately 11% of consolidated accounts receivable as of both December 31, 2019 and 2018.

Revenue earned from American Airlines accounted for less than 10% and approximately 22% of consolidated revenue, respectively, for the years ended December 31, 2019 and 2018. Revenue earned from American Airlines for the year ended December 31, 2018 included $45.4 million of equipment revenue recognized due to the airline's transition to the airline-directed model in January 2018. See Note 2, "Summary of Significant Accounting Policies," for additional information. Revenue earned from passengers on aircraft operated by American Airlines, which was under the turnkey model during the year ended December 31, 2017, accounted for approximately 21% of consolidated revenue. American Airlines accounted for less than 10% of consolidated accounts receivable as of December 31, 2019 and approximately 11% of consolidated accounts receivable as of December 31, 2018.

12. Stock-Based Compensation

As of December 31, 2019, we maintained three stock-based incentive compensation plans: the Gogo Inc. 2016 Omnibus Incentive Plan (the "2016 Omnibus Plan"), the Gogo Inc. 2013 Omnibus Incentive Plan (the "2013 Omnibus Plan"), and The Aircell Holdings Inc. Stock Option Plan, collectively referred to as the "Stock Plans," as well as an ESPP, as defined and discussed below. Our Stock Plans provide for the grant of both equity and cash awards, including non-qualified stock options, incentive stock options, stock appreciation rights, performance awards (shares and units), restricted stock, restricted stock units ("RSUs"), deferred share units ("DSUs") and other stock-based awards and dividend equivalents to eligible employees, directors and consultants, as determined by the Compensation Committee of our Board of Directors.

Under the Stock Plans, 27,906,570 shares of common stock were reserved for issuance. As of December 31, 2019, 5,097,835 shares remained available for grant under our Stock Plans.

The contractual life of granted options is 10 years. All options that are unvested as of the date on which a recipient's employment terminates, as well as vested options that are not exercised within a prescribed period following termination, are forfeited and become available for future grants. Options granted to date include options that (a) vest 20% upon grant with the remainder vesting in equal annual increments over a four-year period, (b) vest over a four-year period with 25% vesting on the anniversary of each grant date, (c) vest 25% after one year from grant date and in equal monthly increments for the following three years or (d) vest on the date of grant for options granted to non-employee members of our board of directors. Beginning in 2013, we granted RSUs that vest in equal annual increments over a four-year period. Vested RSUs will be settled, at the discretion of the Compensation Committee, in shares of our common stock or in cash equal to the value of the applicable number of shares of our common stock on the vesting date. We also granted directors DSUs that were vested at grant. DSUs will be settled in shares of our common stock 90 days after the director ceases to serve as a director. Beginning in 2014, we granted restricted stock, which vests in equal annual increments over a four-year period. These shares are deemed issued as of the date of grant, but not outstanding until they vest. We intend to settle RSU, DSU and restricted stock awards in stock and we have the shares available to do so. In June 2016, the Compensation Committee approved grants of both non-market based awards and market based awards. The contractual term and time-based vesting provisions for the non-market based awards are consistent with prior grants as noted above. The market based awards vest based on achieving one or more predetermined market conditions and completion of the same time-based vesting requirements applicable to the non-market based awards.

The following is a summary of our stock-based compensation expense included in the consolidated statements of operations for the years December 31, 2019, 2018 and 2017 *(in thousands)*:

	2019	2018	2017
Cost of service revenue	$ 1,615	$ 1,659	$ 1,748
Cost of equipment revenue	275	210	185
Engineering, design and development	2,999	3,347	3,656
Sales and marketing	3,377	4,267	4,751
General and administrative	8,245	7,429	9,481
Total stock-based compensation expense	$16,511	$16,912	$19,821

A summary of stock option activity for the year ended December 31, 2019 is as follows:

	Number of Options	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value *(in thousands)*
Options outstanding—January 1, 2019	10,714,158	$ 12.81	6.25	$ —
Granted	1,525,880	$ 4.69		
Exercised	(3,338)	$ 5.01		
Forfeited	(555,605)	$ 9.45		
Expired	(606,591)	$ 15.78		
Options outstanding—December 31, 2019	11,074,504	$ 11.70	5.25	$ 3,050
Options exercisable—December 31, 2019	7,393,469	$ 13.34	3.82	$ 780

As of December 31, 2019, total unrecognized compensation costs related to unvested stock options were approximately $9 million which is expected to be recognized over a weighted average period of approximately 3.8 years. The total grant date fair value of stock options vested in 2019, 2018 and 2017 was approximately $8 million, $9 million and $10 million, respectively.

We estimate the fair value of stock options using the Black-Scholes option-pricing model. Weighted average assumptions used and weighted average grant date fair value of stock options granted for the years ended December 31, 2019, 2018, and 2017 were as follows:

	2019	2018	2017
Approximate risk-free interest rate	2.3%	2.7%	2.3%
Average expected life (years)	6.02	6.03	6.14
Dividend yield	N/A	N/A	N/A
Volatility	60.5%	49.2%	45.3%
Weighted average grant date fair value of common stock underlying options granted	$4.71	$8.97	$11.97
Weighted average grant date fair value of stock options granted	$2.69	$4.42	$ 5.59

The risk-free interest rate assumptions were based on the U.S. Treasury yield curve for the term that mirrored the expected term in effect at the time of grant. The expected life of our stock options was determined based upon a simplified assumption that the stock options will be exercised evenly from vesting to expiration, as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected life. The dividend yield was based on expected dividends at the time of grant. We have not been a public company long enough to calculate volatility based exclusively on our own common stock. Therefore, the expected volatility is calculated as of each grant date based on a weighting of our own common stock and reported data for a peer group of publicly traded companies for which historical information is available. Beginning in 2020, we will calculate volatility based exclusively on our own common stock.

The following table summarizes the activities for our unvested RSUs and DSUs for the year ended December 31, 2019:

	Number of Underlying Shares	Weighted Average Grant Date Fair Value
Unvested—January 1, 2019	3,223,980	$ 6.51
Granted	2,219,248	$ 4.73
Vested	(692,693)	$ 9.20
Forfeited/canceled	(567,303)	$ 5.94
Unvested—December 31, 2019	4,183,232	$ 5.18

As of December 31, 2019, there was approximately $13 million of unrecognized compensation cost related to unvested employee RSUs. This amount is expected to be recognized over a weighted-average period of approximately 1.9 years. The total grant date fair value of RSUs and DSUs vested in 2019 was approximately $7 million.

The following table summarizes the activity for our restricted stock for the year ended December 31, 2019:

	Number of Underlying Shares	Weighted Average Grant Date Fair Value
Unvested—January 1, 2019	118,053	$ 12.38
Granted	—	$ —
Vested	(66,174)	$ 11.95
Forfeited/canceled	(7,675)	$ 2.99
Unvested—December 31, 2019	44,204	$ 11.63

As of December 31, 2019, there was approximately $0.3 million of unrecognized compensation cost related to unvested employee restricted stock. This amount is expected to be recognized over a weighted-average period of approximately 1.1 years.

ESPP - In June 2013, the Board of Directors and stockholders approved the Employee Stock Purchase Plan (“ESPP”), which became effective on June 26, 2013, and in 2017, the ESPP was amended to increase the number of shares reserved thereunder. The ESPP allows eligible employees to purchase a limited number of shares of common stock during pre-specified offering periods at a discount established by the Compensation Committee not to exceed 15% of the fair market value of the common stock at the beginning or end of the offering period (whichever is lower). Under the ESPP, 1,200,000 shares were reserved for issuance and 304,831 shares of common stock were issued during the year ended December 31, 2019. As of December 31, 2019, 178,349 shares remained available for purchase under the ESPP.

13. Employee Retirement and Postretirement Benefits

401(k) Plan - Under our 401(k) plan, all employees who are eligible to participate are entitled to make tax-deferred contributions, subject to Internal Revenue Service limitations. We match 100% of the employee’s first 4% of contributions made, subject to annual limitations. Our matching contributions were $5.2 million, $5.1 million, and $5.9 million for the years ended December 31, 2019, 2018 and 2017, respectively.

14. Income Tax

For financial reporting purposes, loss before income taxes included the following components for the years ended December 31, 2019, 2018, and 2017 (*in thousands*):

	For the Years Ended December 31,		
	2019	2018	2017
United States	$(131,220)	$(128,361)	$(138,881)
Foreign	(13,778)	(36,963)	(35,111)
Loss before income taxes	$(144,998)	$(165,324)	$(173,992)

Significant components of the (benefit) provision for income taxes for the years ended December 31, 2019, 2018, and 2017 are as follows (*in thousands*):

	For the Years Ended December 31,		
	2019	2018	2017
Current:			
Federal	$ —	$ —	$ —
State	385	467	235
Foreign	444	61	49
	829	528	284
Deferred:			
Federal	91	(3,908)	(2,590)
State	86	87	309
	177	(3,821)	(2,281)
Total	$1,006	$(3,293)	$(1,997)

The (benefit) provision for income taxes differs from income taxes computed at the federal statutory tax rates for the years ended December 31, 2019, 2018, and 2017 as a result of the following items:

	For the Years Ended December 31,		
	2019	2018	2017
Federal statutory rate	21.0%	21.0%	35.0%
Effect of:			
Impact of change in tax rate	(0.1)	0.1	(47.0)
Change in valuation allowance	(22.7)	(24.8)	12.5
State income taxes-net of federal tax benefit	4.2	4.0	2.4
Other	(3.1)	1.7	(1.8)
Effective tax rate	(0.7)%	2.0%	1.1%

Components of the net deferred income tax asset as of December 31, 2019 and 2018 are as follows (*in thousands*):

	December 31, 2019	December 31, 2018
Deferred income tax assets:		
Compensation accruals	$ 5,847	$ 3,407
Stock options	18,192	15,552
Inventory	1,266	1,102
Warranty reserves	913	1,014
Deferred rent	—	9,603
Deferred revenue	43,256	37,501
Federal net operating loss (NOL)	141,803	143,433
State NOL	24,744	24,623
Interest carryforward	48,980	22,029
UNICAP adjustment	2,539	2,311
Finite-lived intangible assets	6,394	7,576
Lease liability	22,355	—
Other	9,243	11,576
Total deferred income tax assets	325,532	279,727
Deferred income tax liabilities:		
Fixed assets	(59,584)	(53,944)
Indefinite-lived intangible assets	(7,074)	(6,528)
Convertible Notes discount	(8,706)	(14,612)
Right-of-use asset	(13,553)	—
Other	(3,768)	(2,272)
Total deferred income tax liabilities	(92,685)	(77,356)
Total deferred income tax	232,847	202,371
Valuation allowance	(235,187)	(204,533)
Net deferred income tax liability	$ (2,340)	$ (2,162)

We assess the realizability of the deferred tax assets by considering whether it is more likely than not that some portion or all of the deferred tax assets would not be realized through the generation of future taxable income. We generated net losses in fiscal years 2019, 2018, and 2017, which means we are in a domestic three-year cumulative loss position. As a result of this and other assessments in fiscal year 2019, we concluded that a full valuation allowance is required for all deferred tax assets and liabilities except for deferred tax liabilities associated with indefinite-lived intangible assets.

As of December 31, 2019, the federal net operating loss (“NOL”) carryforward amount was approximately $579 million and the state NOL carryforward amount was approximately $430 million. The federal NOLs begin to expire in 2031. The state NOLs expire in various tax years and began to expire in 2016.

Utilization of our NOL, interest carryforward and tax credit carryforwards may be subject to substantial annual limitations due to the ownership change limitations provided by the Internal Revenue Code and similar state provisions. Such annual limitations could result in the expiration of the NOL and tax credit carryforwards before their utilization. The interest carryforward arises from U.S. Tax Reform and limits the interest expense deduction to 30% of EBITDA for tax years 2018 to 2021 and 30% of EBIT for 2022 and subsequent years. The interest carryforward will not expire as it may be carried forward indefinitely. The events that may cause ownership changes include, but are not limited to, a cumulative stock ownership change of greater than 50% over a three-year period.

We are subject to taxation in the United States, Canada, Switzerland, Japan, Mexico, Brazil, Singapore, the United Kingdom, Hong Kong, Australia, China, France, Germany, the Netherlands and India. With few exceptions, as of December 31, 2019, we are no longer subject to U.S. federal, state, local or foreign examinations by tax authorities for years before 2016.

As a result of the passage of H.R. 1, originally known as the Tax Cuts and Jobs Act ("U.S. Tax Reform") in December 2017, the tax effected amounts of the deferred tax assets and liabilities decreased. A large portion of this change in the deferred tax balances resulted in an offsetting change to the deferred tax asset valuation allowance and did not affect tax expense. For the deferred tax liabilities that are not offset by changes to the valuation allowance, our net deferred tax liability was reduced by approximately $3 million.

As of December 31, 2019, 2018 and 2017, we did not have any unrecognized tax benefits.

We record penalties and interest relating to uncertain tax positions in the income tax provision line item in the consolidated statement of operations. No penalties or interest related to uncertain tax positions were recorded for the years ended December 31, 2019, 2018 or 2017. As of December 31, 2019 and 2018, we did not have a liability recorded for interest or potential penalties.

We do not expect a change in the unrecognized tax benefits within the next 12 months.

15. Leases

The following is a summary of our lease expense included in the consolidated statement of operations *(in thousands)*:

	For the Year Ended December 31, 2019
Operating lease cost	$ 19,437
Financing lease cost	
Amortization of leased assets	666
Interest on lease liabilities	57
Total lease cost	$ 20,160

Other information regarding our leases is as follows *(in thousands, except lease terms and discount rates)*:

	For the Year Ended December 31, 2019
Supplemental cash flow information	
Cash paid for amounts included in measurement of lease liabilities:	
Operating cash flows used in operating leases	$ 23,202
Operating cash flows used in financing leases	57
Financing cash flows used in financing leases	713
Non-cash items:	
Operating leases obtained	15,588
Modifications to operating leases	(20,027)
Finance leases obtained	1,326
Weighted average remaining lease term	
Operating leases	8 years
Financing leases	3 years
Weighted average discount rate	
Operating leases	9.44%
Financing leases	8.28%

Annual future minimum lease payments as of December 31, 2019 *(in thousands)*:

Years ending December 31,	Operating Leases	Financing Leases
2020	$ 19,930	$ 761
2021	18,760	555
2022	17,145	473
2023	13,246	—
2024	9,571	—
Thereafter	53,913	—
Total future minimum lease payments	132,565	1,789
Less: Amount representing interest	(42,516)	(157)
Present value of net minimum lease payments	$ 90,049	$ 1,632
Reported as of December 31, 2019		
Accrued liabilities	$ 12,241	$ 620
Non-current operating lease liabilities	77,808	—
Other non-current liabilities	—	1,012
Total lease liabilities	$ 90,049	$ 1,632

As of December 31, 2019, we had one operating lease that had not yet commenced with a present value of net minimum lease payments of $6 million. Such lease will commence in 2020.

Arrangements with Commercial Airlines — Pursuant to contractual agreements with our airline partners, we place our equipment on commercial aircraft operated by the airlines for the purpose of delivering our service to passengers on the aircraft. There are currently two types of commercial airline arrangements: turnkey and airline-directed. See Note 2, “Summary of Significant Accounting Policies,” for additional information on airline-directed arrangements.

We recognized $28.6 million, $31.7 million, and $41.8 million, respectively, for the years ended December 31, 2019, 2018 and 2017, as a reduction to cost of service revenue in our consolidated statements of operations from the amortization of deferred airborne lease incentives. As of December 31, 2019, deferred airborne lease incentives of $26.6 million and $135.4 million, respectively, are included in current and non-current liabilities in our consolidated balance sheet. As of December 31, 2018, deferred airborne lease incentives of $24.1 million and $129.1 million, respectively, are included in current and non-current liabilities in our consolidated balance sheet. See Note 2, "Summary of Significant Accounting Policies," for additional information.

Under the turnkey model, the revenue share paid to our airline partners represents operating lease payments. They are deemed to be contingent rental payments, as the payments due to each airline are based on a percentage of our CA-NA and CA-ROW service revenue generated from that airline's passengers, which is unknown until realized. Therefore, we cannot estimate the lease payments due to an airline at the commencement of our contract with such airline. This rental expense is included in cost of service revenue and is partially offset by the amortization of the deferred airborne lease incentives discussed above. Such rental expenses totaled a net charge of $25.1 million, $24.5 million, and $30.5 million, respectively, for the years ended December 31, 2019, 2018 and 2017. See Note 2, "Summary of Significant Accounting Policies," for additional information.

16. Commitments and Contingencies

Contractual Commitments—We have agreements with vendors to provide us with transponder and teleport satellite services. These agreements vary in length and amount and as of December 31, 2019 commit us to purchase transponder and teleport satellite services totaling approximately $141.3 million in 2020, $129.7 million in 2021, $109.8 million in 2022, $90.6 million in 2023, $85.4 million in 2024 and $289.0 million thereafter.

We have agreements with various vendors under which we have remaining commitments to purchase satellite-based systems, certifications and development services. Such commitments will become payable as we receive the equipment or certifications, or as development services are provided.

Damages and Penalties—We have entered into a number of agreements with our airline partners that require us to provide a credit or pay penalties or liquidated damages to our airline partners on a per aircraft, per day or per hour basis if we are delayed in delivering our equipment, unable to install our equipment on aircraft by specified timelines or fail to comply with service level commitments. The maximum amount of future credits or payments we could be required to make under these agreements is uncertain because the amount of future credits or payments is based on certain variable inputs.

Indemnifications and Guarantees—In accordance with Delaware law, we indemnify our officers and directors for certain events or occurrences while the officer or director is, or was, serving at our request in such capacity. The maximum potential amount of future payments we could be required to make under this indemnification is uncertain and may be unlimited, depending upon circumstances. However, our Directors' and Officers' insurance does provide coverage for certain of these losses.

In the ordinary course of business we may occasionally enter into agreements pursuant to which we may be obligated to pay for the failure of the performance of others, such as the use of corporate credit cards issued to employees. Based on historical experience, we believe that the risk of sustaining any material loss related to such guarantees is remote.

We have entered into a number of agreements, including our agreements with commercial airlines, pursuant to which we indemnify the other party for losses and expenses suffered or incurred in connection with any patent, copyright, or trademark infringement or misappropriation claim asserted by a third party with respect to our equipment or services. The maximum potential amount of future payments we could be required to make under these indemnification agreements is uncertain and is typically not limited by the terms of the agreements.

Linksmart Litigation—On April 20, 2018, Linksmart Wireless Technology, LLC filed suit against us and eight of our airline partners in the U.S. District Court for the Central District of California alleging that our redirection server and login portal infringe a patent owned by the plaintiff. The suits seek an unspecified amount of damages. We are required under our contracts with these airlines to indemnify them for defense costs and any liabilities resulting from the suit. The Court has stayed the suits against our airline customers pending resolution of the suit against Gogo. Linksmart has also filed suit against other defendants asserting the same patent. Following the filing by one of those defendants of a petition to commence an *inter partes* review against the asserted patent in the U.S. Patent and Trademark Office, the Court stayed the litigation against such other defendant and Gogo, but such stay was lifted in July 2019 when the U.S. Patent and Trademark Office determined that the petitioner had not met the standard of proof required to commence the *inter partes* review. We believe that the plaintiff's claims are without merit and intend to defend them vigorously. The outcome of this litigation is inherently uncertain. No amounts have been accrued for any potential losses under this matter, as we cannot reasonably predict the outcome of the litigation or any potential losses.

Securities Litigation—On June 27, 2018, a purported stockholder of the Company filed a putative class action lawsuit in the United States District Court for the Northern District of Illinois, Eastern Division styled Pierrelouis v. Gogo Inc., naming the Company, its former Chief Executive Officer and Chief Financial Officer and its current Chief Financial Officer and President, Commercial Aviation as defendants purportedly on behalf of all purchasers of our securities from February 27, 2017 through May 4, 2018. The complaint asserts claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder, alleging misrepresentations or omissions by us purporting to relate to our 2Ku antenna's reliability and installation and remediation costs. The plaintiffs seek to recover from us and the individual defendants an unspecified amount of damages. In December 2018 the plaintiffs filed an amended complaint and in February 2019, we filed a motion to dismiss such amended complaint. In October 2019 the judge granted the motion to dismiss on two independent grounds, finding that plaintiffs failed to plausibly allege that defendants made materially false or misleading statements and that plaintiffs failed to plead with particularity that defendants acted with scienter. The amended complaint was dismissed without prejudice, and in December 2019, defendants filed a second amended complaint. In February 2020 we filed a motion to dismiss such second amended complaint and that motion is pending. We believe that the claims are without merit and intend to continue to defend them vigorously. In accordance with Delaware law, we will indemnify the individual named defendants for their defense costs and any damages they incur in connection with the suit. We have filed a claim with the issuer of our Directors' and Officers' insurance policy with respect to this suit. No amounts have been accrued for any potential losses under this matter, as we cannot reasonably predict the outcome of the litigation or any potential losses.

Derivative Litigation—On September 25, 2018 and September 26, 2018, two purported stockholders of the Company filed substantively identical derivative lawsuits in the United States District Court for the Northern District of Illinois, Eastern Division, styled Nanduri v. Gogo Inc. and Hutsenpiller v. Gogo Inc., respectively. Both lawsuits were purportedly brought derivatively on behalf of us and name us as a nominal defendant and name as defendants each member of the Company's Board of Directors, its former Chief Executive Officer and Chief Financial Officer and its current Chief Executive Officer, Chief Financial Officer and President, Commercial Aviation. The complaints assert claims under Section 14(a) of the Securities Exchange Act of 1934, breach of fiduciary duty, unjust enrichment, and waste of corporate assets, and allege misrepresentations or omissions by us purporting to relate to our 2Ku antenna's reliability and installation and remediation costs, as well as allegedly excessive bonuses, stock options, and other compensation paid to current Officers and Directors and excessive severance paid to former Officers. The two lawsuits were consolidated and are stayed until a final disposition of the motion to dismiss in the class action suit. We believe that the claims are without merit and intend to defend them vigorously if the litigation resumes. The plaintiffs seek to recover, on our behalf, an unspecified amount of damages from the individual defendants. We have filed a claim with the issuer of our Directors' and Officers' insurance policy with respect to these suits. No amounts have been accrued for any potential costs under this matter, as we cannot reasonably predict the outcome of the litigation or any potential costs.

17. Quarterly Data (Unaudited)

Summarized quarterly financial information is as follows for each quarterly period for the years ended December 31, 2019 and 2018 (*in thousands*, *except per share amounts*):

	For the Three Months Ended			
	Mar 31, 2019	June 30, 2019	Sep 30, 2019	Dec 31, 2019
Total revenue	$ 199,549	$ 213,685	$ 201,182	$ 221,310
Operating income	11,448	9,666	7,218	8,392
Net loss	(16,799)	(83,963)	(22,891)	(22,351)
Net loss attributable to common stock	(16,799)	(83,963)	(22,891)	(22,351)
Net loss attributable to common stock per share—basic and diluted	$ (0.21)	$ (1.04)	$ (0.28)	$ (0.28)
Weighted average number of shares—basic and diluted	80,446	80,702	80,908	80,997

	For the Three Months Ended			
	Mar 31, 2018	June 30, 2018	Sep 30, 2018	Dec 31, 2018
Total revenue	$ 231,825	$ 227,458	$ 217,257	$ 217,224
Operating loss	(2,171)	(7,449)	(7,610)	(9,691)
Net loss	(27,419)	(37,207)	(37,717)	(59,688)
Net loss attributable to common stock	(27,419)	(37,207)	(37,717)	(59,688)
Net loss attributable to common stock per share—basic and diluted	$ (0.34)	$ (0.47)	$ (0.47)	$ (0.74)
Weighted average number of shares—basic and diluted	79,696	79,783	80,196	80,303

18. Condensed Financial Information of Registrant

The following presents the condensed financial information of our parent company on a standalone basis.

Gogo Inc.
Condensed Balance Sheets
(in thousands)

	December 31, 2019	December 31, 2018
Assets:		
Cash and cash equivalents	$ 118,323	$ 161,113
Short-term investments	—	39,323
Prepaid expenses and other current assets	164	738
Other non-current assets	2,599	101
Total assets	$ 121,086	$ 201,275
Liabilities and stockholders' deficit:		
Total current liabilities	$ 2,200	$ 3,998
Long-term debt	199,849	332,211
Other non-current liabilities	2,340	2,162
Investments and payables with subsidiaries	315,587	131,665
Total liabilities	519,976	470,036
Total stockholders' deficit	(398,890)	(268,761)
Total liabilities and stockholders' deficit	$ 121,086	$ 201,275

Gogo Inc.
Condensed Statements of Operations and Comprehensive Loss
(in thousands)

	For the Years Ended December 31,		
	2019	2018	2017
Interest income	$ (3,083)	$ (3,123)	$ (1,681)
Interest expense	33,807	36,984	34,577
Loss on extinguishment of debt	9,163	19,653	—
Other	3	—	—
Total other (income) expense	39,890	53,514	32,896
Income (loss) before income taxes	(39,890)	(53,514)	(32,896)
Income tax provision (benefit)	563	(3,354)	(2,045)
Equity losses of subsidiaries	105,551	111,871	141,144
Net loss	$(146,004)	$(162,031)	$(171,995)
Comprehensive loss	$(146,004)	$(162,031)	$(171,995)

Gogo Inc.
Condensed Statements of Cash Flows
(in thousands)

	For the Years Ended December 31,		
	2019	2018	2017
Net loss	$ (146,004)	$ (162,031)	$ (171,995)
Accretion of debt discount	15,276	21,105	19,520
Amortization of deferred financing costs	1,906	1,648	1,484
Loss on extinguishment of debt	9,163	19,653	—
Subsidiary equity losses	105,551	111,871	141,144
Deferred income taxes	178	(3,821)	(2,281)
Other operating activities	(1,224)	(674)	(609)
Net cash used in operating activities	(15,154)	(12,249)	(12,737)
Acquisition of short-term investments	—	(39,323)	(192,893)
Redemption of short-term investments	39,323	192,893	213,905
Investments and advances with subsidiaries	94,716	(19,595)	601
Net cash provided by (used in) investing activities	134,039	133,975	21,613
Financing activities:			
Proceeds from issuance of convertible notes	—	237,750	—
Repurchase of convertible notes	(159,502)	(200,438)	—
Payment of debt issuance costs	—	(8,054)	—
Other financing activities	325	396	(227)
Net cash provided by (used in) financing activities	(159,177)	29,654	(227)
Increase (decrease) in cash, cash equivalents and restricted cash	(40,292)	151,380	8,649
Cash, cash equivalents and restricted cash at beginning of period	161,214	9,834	1,185
Cash, cash equivalents and restricted cash at end of period	$ 120,922	$ 161,214	$ 9,834
Cash, cash equivalents and restricted cash at end of period	$ 120,922	$ 161,214	$ 9,834
Less: current restricted cash	—	—	—
Less: non-current restricted cash	2,599	101	100
Cash and cash equivalents at end of period	$ 118,323	$ 161,113	$ 9,734

19. Subsequent Events

In December 2019, a novel strain of coronavirus, COVID-19, was identified in Wuhan, China which has resulted in global travel restrictions and the suspension of certain commercial flights by some of our airline partners, which has had, and is expected to continue to have, an adverse impact on our CA business. In recent weeks, we have seen significantly reduced demand on aircraft operated in the Asia Pacific region as compared to demand levels in January 2020 before COVID-19 affected travel. More recently, demand for both business and leisure airline travel on a global basis has declined significantly due to COVID-19, and airlines are responding by cancelling additional flights, including domestic U.S. flights. All of our U.S. airline partners have announced international and domestic capacity reductions, and in the week in which this report is being filed, we are seeing for the first time reduced demand on domestic U.S. flights as a result of COVID-19. In addition, on March 11, 2020 the President of the United States announced a 30-day suspension of travel from 26 European countries to the U.S. and similar or other U.S. or foreign governmental actions could further materially impact business and leisure airline travel. We expect COVID-19 to continue to have a significant negative impact on CA revenue and are unable to predict how long that impact will continue. To date, we have not seen any impact of COVID-19 on our BA business. The extent of the impact of COVID-19 on the CA and BA businesses and our financial and operational performance will depend on future developments, including the duration, spread and severity of the outbreak, the duration and geographic scope of related travel advisories and restrictions and the extent of the impact of COVID-19 on overall demand for commercial and business aviation travel, all of which are highly uncertain and cannot be predicted. If our airline partners continue to experience significantly reduced demand for passenger traffic for an extended period, our 2020 consolidated results of operations and our liquidity and financial condition may be materially adversely affected. The extent to which the outbreak affects our earnings and liquidity will depend in part on our ability to implement various measures intended to reduce expenses and/or conserve cash. Earnings in CA-ROW may be particularly affected if reduced demand for travel continues, as we provide service in that segment solely via satellite-based systems and satellite capacity and certain other costs are largely fixed. Further, travel and other restrictions adopted in response to COVID-19 may impact our ability to complete installations on certain aircraft and successfully operate our services on aircraft that operate in regions affected by the coronavirus, particularly where travel is restricted. Additionally, our suppliers or other third parties we rely upon to install and maintain our services may experience delays or shortages, which could have an adverse effect on our business prospects and results of operations.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures

Management, with the participation of our Chief Executive Officer and the Chief Financial Officer, evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended) as of December 31, 2019 that are designed to provide reasonable assurance that information required to be disclosed in this report is recorded, processed, summarized and reported within required time periods. Based upon this evaluation, our Chief Executive Officer and the Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of December 31, 2019.

(b) Management's Annual Report on Internal Control Over Financial Reporting

The management of Gogo Inc. is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a – 15(f) and 15d – 15(f) under the Securities Exchange Act of 1934. Gogo's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation and fair presentation of its published financial statements in accordance with accounting principles generally accepted in the United States of America.

The management of Gogo, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, have assessed the effectiveness of Gogo's internal control over financial reporting as of December 31, 2019, based on the criteria set forth in Internal Control-Integrated Framework (2013 Framework) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our assessment, the Company's management concluded that our internal control over financial reporting was effective as of December 31, 2019.

Deloitte & Touche LLP, the Company's independent registered public accounting firm, has issued an attestation report on our internal control over financial reporting as of December 31, 2019, which report is included on Page 153 of this Form 10-K under the caption entitled "Report of Independent Registered Public Accounting Firm."

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

(c) Changes in Internal Control over Financial Reporting

There have been no material changes to our internal control over financial reporting in connection with the evaluation required by Rules 13a-15(f) and 15d-15(f) under the Exchange Act during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Gogo Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Gogo Inc. and subsidiaries (the "Company") as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2019, of the Company and our report dated March 13, 2020, expressed an unqualified opinion on those financial statements and included an explanatory paragraph related to the Company's adoption of ASC Topic 606, *Revenue from Contracts with Customers*, effective January 1, 2018 and the adoption of ASC Topic 842, *Leases*, effective January 1, 2019.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP

Chicago, Illinois

March 13, 2020

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Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item is incorporated by reference to our Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission (“SEC”) within 120 days of the fiscal year ended December 31, 2019.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to our Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2019.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information appearing under the caption “Security Ownership of Certain Beneficial Owners and Management” in our Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2019 is incorporated herein by reference.

The following table sets forth the number of shares of our common stock reserved for issuance under our equity compensation plans as of the end of 2019:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (#) (a)	Weighted average exercise price of outstanding options, warrants and rights ($) (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))(#) (c)
Equity compensation plans approved by security holders	15,869,459 (1)	11.70 (2)	5,276,184 (3)
Equity compensation plans not approved by security holders	N/A	N/A	N/A
Total	15,869,459	11.70	5,276,184

(1) Represents the number of shares associated with options, Restricted Stock Units and Deferred Share Units outstanding as of December 31, 2019.
(2) Represents the weighted average exercise price of the 11,074,504 options disclosed in column (a).
(3) Represents the number of shares remaining available for future issuance under our 2016 Omnibus Incentive Plan (5,095,820 shares), 2013 Omnibus Incentive Plan (2,015 shares) and ESPP (178,349 shares). Of this number, only 3,515,448 shares are available for issuance with respect to Restricted Stock Units, Deferred Share Units and other awards based on the full value of stock (rather than an increase in value) under our 2016 Omnibus Incentive Plan and 2013 Omnibus Incentive Plan.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is incorporated by reference to our Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2019.

Item 14. Principal Accounting Fees and Services

The information required by this item is incorporated by reference to our Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2019.

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Part IV

Item 15. Exhibits, Financial Statement Schedules

We have filed the following documents as part of this Form 10-K:

1. Consolidated Financial Statements:

	Page No.
Report of Independent Registered Public Accounting Firm	102
Consolidated Balance Sheets	103
Consolidated Statements of Operations	104
Consolidated Statements of Comprehensive Loss	105
Consolidated Statements of Cash Flows	106
Consolidated Statements of Stockholders' Equity (Deficit)	107
Notes to Consolidated Financial Statements	108

2. Financial Statement Schedules:

All schedules have been omitted because they are not required, not applicable, not present in amounts sufficient to require submission of the schedule, or the required information is otherwise included.

3. Exhibits

Exhibit Number	Description of Exhibits
3.1	Third Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to Form 10-Q filed on August 7, 2013 (File No. 001-35975))
3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to Form 10-Q filed on August 7, 2013 (File No. 001-35975))
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
4.2	Registration Rights Agreement, dated as of December 31, 2009, by and between AC Holdco Inc. and the Class A Holders, the Ripplewood Investors, the Thorne Investors and the other investors named therein (incorporated by reference to Exhibit 4.3 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
4.3	Indenture, dated November 21, 2018, between Gogo Inc. and U.S. Bank National Association (incorporated by reference to Exhibit 4.1 to Form 8-K filed on November 21, 2018 (File No. 001-35975))
4.4	Form of 6.00% Convertible Senior Note due 2022, dated November 21, 2018 (incorporated by reference to Exhibit 4.2 to Form 8-K filed on November 21, 2018 (File No. 001-35975))
4.5	Second Supplemental Indenture, dated as of April 25, 2019, between Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc., the Subsidiary Guarantors party thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
4.6	Indenture, dated as of April 25, 2019, between Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc., the Subsidiary Guarantors party thereto and U.S. Bank National Association, as trustee and collateral agent (incorporated by reference to Exhibit 4.3 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).

Exhibit Number	Description of Exhibits
4.7	Form of 9.875% Senior Secured Note due 2024 (incorporated by reference to Exhibit 4.4 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
4.8	Form of Crossing Lien Intercreditor Agreement (incorporated by reference to Exhibit 4.2 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
4.9	First Supplemental Indenture, dated as of May 3, 2019, by and among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., each of the guarantors party thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to Form 8-K filed on May 3, 2019 (File No. 001-35975)).
4.10	Description of Capital Stock
10.1.1	Amended and Restated In-Flight Connectivity Services Agreement, dated as of April 7, 2011, by and between Delta Air Lines, Inc. and Aircell LLC (incorporated by reference to Exhibit 10.1.1 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.1.2	Amendment No. 1 to the Amended and Restated In-Flight Connectivity Services Agreement, dated as of September 27, 2011, by and between Delta Air Lines Inc. and Gogo LLC (f/k/a Aircell LLC) (incorporated by reference to Exhibit 10.1.2 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.1.3	International In-Flight Connectivity Services Agreement, dated as of March 20, 2013, by and between Delta Air Lines Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.3 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.1.4	Master Supply and Services Agreement, dated as of August 17, 2011, by and between ZTE USA, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.12 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.1.5	Amendment No. 1 to the International In-Flight Connectivity Services Agreement, dated as of February 25, 2014, by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.50 to Form 10-Q filed on May 12, 2014 (File No. 001-35975))
10.1.6	Amendment No. 2 to the Amended and Restated In-Flight Connectivity Services Agreement, dated as of February 25, 2014, by and between Delta Air Lines, Inc. and Gogo LLC (f/k/a Aircell LLC) (incorporated by reference to Exhibit 10.1.51 to Form 10-Q filed on May 12, 2014 (File No. 001-35975))
10.1.7	Amended and Restated Manufacturing Services and Product Supply Agreement, dated as of May 19, 2014 between Qualcomm Technologies, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.53 to Form 10-Q filed on August 11, 2014 (File No. 001-35975))
10.1.8	Amendment No. 3, dated as of April 1, 2015, to the Amended and Restated In-Flight Connectivity Services Agreement, by and between Delta Air Lines, Inc. and Gogo LLC (f/k/a Aircell LLC) (incorporated by reference to Exhibit 10.1.45 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))
10.1.9	Amendment No. 2, dated as of April 1, 2015, to the International In-Flight Connectivity Services Agreement, by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.46 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))
10.1.10	2Ku In-Flight Connectivity Services Agreement, dated as of April 1, 2015, by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.47 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))

Exhibit Number	Description of Exhibits
10.1.11	Amendment No. 1 to the Amended and Restated Manufacturing Services and Product Supply Agreement, dated December 10, 2015, by and between Qualcomm Technologies, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.30 to Form 10-K filed on February 25, 2016 (File No. 001-35975))
10.1.12	Amendment No. 2 to the Master Supply and Services Agreement, dated as of December 31, 2015, by and between ZTE USA, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.31 to Form 10-K filed on February 25, 2016 (File No. 001-35975))
10.1.13	Master Services Agreement, dated as of August 17, 2012, by and between New Skies Satellites B.V. and Gogo LLC (incorporated by reference to Exhibit 10.1.35 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.1.14	Service Order, dated as of February 18, 2016, by and between New Skies Satellites B.V. and Gogo LLC (incorporated by reference to Exhibit 10.1.31 to Form 10-Q filed on May 6, 2016 (File No. 001-35975))
10.1.15	Service Order, dated as of February 18, 2016, by and between New Skies Satellites B.V. and Gogo LLC (incorporated by reference to Exhibit 10.1.32 to Form 10-Q filed on May 6, 2016 (File No. 001-35975))
10.1.16	Agreement, dated as of March 6, 2016, by and between IntelSat Corp. and Gogo LLC (incorporated by reference to Exhibit 10.1.33 to Form 10-Q filed on May 6, 2016 (File No. 001-35975))
10.1.17	Amended and Restated Product Development and Manufacturing Agreement, dated as of April 1, 2016, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.36 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))
10.1.18	Amendment No. 1 to the 2Ku In-Flight Connectivity Services Agreement, dated as of April 1, 2016, by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.38 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))
10.1.19	Amendment No. 2 to the 2Ku In-Flight Connectivity Service Agreement, dated as of October 14, 2016 by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.37 to Form 10-K filed on February 27, 2017 (File No. 001-35975))
10.1.20	Letter Agreement, dated September 1, 2016, by and between Gogo LLC and ThinKom Solutions Inc. (incorporated by reference to Exhibit 10.1.39 to Form 10-K filed on February 27, 2017 (File No. 001-35975))
10.1.21	Letter Agreement, dated September 6, 2016, by and between Gogo LLC and ThinKom Solutions Inc. (incorporated by reference to Exhibit 10.1.40 to Form 10-K filed on February 27, 2017 (File No. 001-35975))
10.1.22	Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of February 1, 2017, by and between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.44 to Form 10-Q filed on May 4, 2017 (File No. 001-35975))
10.1.23	Amendment #1 to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of July 28, 2017, between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.51 to Form 10-Q filed on November 2, 2017 (File No. 001-35975))
10.1.24	Amendment No. 3 to the Master Supply and Services Agreement, dated as of July 1, 2017, by and between ZTE USA, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.54 to Form 10-Q filed on November 2, 2017 (File No. 001-35975))

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Exhibit Number	Description of Exhibits
10.1.25	Amendment #4 to the 2Ku In-Flight Connectivity Services Agreement, dated as of June 22, 2017, between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.44 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.1.26	Amendment #5 to the 2Ku In-Flight Connectivity Services Agreement, dated as of July 12, 2017, between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.45 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.1.27	Service Order Amendment, dated as of April 30, 2018, by and between New Skies Satellites B.V. and Gogo LLC (incorporated by reference to Exhibit 10.1.46 to Form 10-Q filed on August 8, 2018 (File No. 001-35975))
10.1.28	Amendment No. 6 to the 2Ku In-Flight Connectivity Services Agreement dated as of June 22, 2018, by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.47 to Form 10-Q filed on November 6, 2018 (File No. 001-35975))
10.1.29	Qualcomm Technologies, Inc. Master Software Agreement dated June 13, 2018, by and between Qualcomm Technologies, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.48 to Form 10-Q filed on November 6, 2018 (File No. 001-35975))
10.1.30	Qualcomm Technologies, Inc. AMSS6695 Software Addendum to Master Software Agreement dated June 13, 2018, by and between Qualcomm Technologies, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.49 to Form 10-Q filed on November 6, 2018 (File No. 001-35975))
10.1.31	Access Point Patent License Agreement dated July 6, 2018, by and between Qualcomm Incorporated and Gogo LLC (incorporated by reference to Exhibit 10.1.50 to Form 10-Q filed on November 6, 2018 (File No. 001-35975))
10.1.32	Amendment #2 to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of August 24, 2017, between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.51 to Form 10-K filed on February 21, 2019 (File No. 001-35975))
10.1.33.	Amendment #3 to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of September 4, 2018, between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.52 to Form 10-K filed on February 21, 2019 (File No. 001-35975))
10.1.34	Amendment #4 to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of November 15, 2018, between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.53 to Form 10-K filed on February 21, 2019 (File No. 001-35975))
10.1.35	Service Order Amendment, dated as of October 11, 2018, by and between New Skies Satellites B.V. and Gogo LLC (incorporated by reference to Exhibit 10.1.54 to Form 10-K filed on February 21, 2019 (File No. 001-35975))
10.1.36	Service Order Amendment, dated as of December 7, 2018, by and between New Skies Satellites B.V. and Gogo LLC (incorporated by reference to Exhibit 10.1.55 to Form 10-K filed on February 21, 2019 (File No. 001-35975))
10.1.37	Letter Agreement for Services, dated as of December 20, 2018, by and between ThinKom Solutions, Inc, and Gogo LLC (incorporated by reference to Exhibit 10.1.59 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))

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Exhibit Number	Description of Exhibits
10.1.38	Product Enhancement and License Agreement, dated as of December 5, 2018, by and between Gogo LLC and ThinKom Solutions, Inc. (incorporated by reference to Exhibit 10.1.60 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))
10.1.39	Letter Agreement, dated as of April 22, 2019, by and between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.62 to Form 10-Q filed on August 8, 2019 (File No. 001-35975))
10.1.40	Amendment No. 2 to the Service Order, between Gogo LLC and New Skies Satellites B.V., effective as of May 1, 2019 (incorporated by reference to Exhibit 10.1.63 to Form 10-Q filed on August 8, 2019 (File No. 00135975))
10.1.41 †	Amendment #5 to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of October 31, 2019, between Gogo LLC and American Airlines, Inc.
10.1.42 †	Amendment #1 to the Amended and Restated Product Development and Manufacturing Agreement, dated as of December 23, 2019, by and between Gogo LLC and ThinKom Solutions, Inc.
10.2.1#	Employment Agreement, by and between Aircell LLC and John Wade, effective as of November 10, 2008 (incorporated by reference to Exhibit 10.2.4 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.2.2#	Amendment No. 1 to the Employment Agreement, by and between Aircell LLC and John Wade, effective as of January 31, 2009 (incorporated by reference to Exhibit 10.2.5 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.2.3#	Amendment No. 2 to the Employment Agreement, between Gogo LLC (f/k/a Aircell LLC) and John Wade, effective as of April 1, 2015 (incorporated by reference to Exhibit 10.2.11 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))
10.2.4#	Employment Agreement, by and between Gogo LLC and Barry Rowan, effective as of April 24, 2017 (incorporated by reference to Exhibit 10.2.14 to Form 10-Q filed on May 4, 2017 (File No. 001-35975))
10.2.5#	Change in Control Severance Agreement, dated as of April 24, 2017, by and between Gogo Inc. and Barry Rowan (incorporated by reference to Exhibit 10.2.15 to Form 10-Q filed on May 4, 2017 (File No. 001-35975))
10.2.6#	Employment Agreement, dated March 4, 2018, between Gogo Inc., Gogo LLC and Oakleigh Thorne (incorporated by reference to Exhibit 10.2.12 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.2.7#	Employment Agreement, dated April 7, 2010, between Aircell LLC and Jonathan Cobin (incorporated by reference to Exhibit 10.2.14 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.2.8#	Amendment No. 1 to the Employment Agreement, by and between Gogo LLC and Jonathan Cobin, effective as of November 30, 2017 (incorporated by reference to Exhibit 10.2.15 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.2.9#	Amendment No. 3 to the Employment Agreement, by and between Gogo LLC and John Wade, effective as of November 30, 2017 (incorporated by reference to Exhibit 10.2.17 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.2.10#	Form of Change in Control Severance Agreement, for named executive officers other than Oakleigh Thorne and Barry Rowan

Exhibit Number	Description of Exhibits
10.2.11#	Amendment No. 1 to the Form of Change in Control Severance Agreement for named executive officers other than Oakleigh Thorne and Barry Rowan (incorporated by reference to Exhibit 10.2.18 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))
10.2.12#	Employment Agreement, dated as of January 1, 2008, between Aircell LLC and Marguerite Elias. (incorporated by reference to Exhibit 10.2.20 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))
10.2.13#	Amendment No. 1 to the Employment Agreement, between Aircell LLC and Marguerite Elias, effective as of December 31, 2008. (incorporated by reference to Exhibit 10.2.21 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))
10.2.14#	Amendment No. 2 to the Employment Agreement, between Gogo LLC (f/k/s Aircell LLC) and Marguerite Elias, effective as of November 30, 2017. (incorporated by reference to Exhibit 10.2.22 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))
10.3.1#	Aircell Holdings Inc. Stock Option Plan (incorporated by reference to Exhibit 10.3.1 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.3.2#	Amendment No. 1 to the Aircell Holdings Inc. Stock Option Plan, effective as of June 2, 2010 (incorporated by reference to Exhibit 10.3.2 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.3.3#	Amendment No. 2 to the Aircell Holdings Inc. Stock Option Plan, dated as of December 14, 2011(incorporated by reference to Exhibit 10.3.3 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.3.4#	Amendment No. 3 to the Aircell Holdings Inc. Stock Option Plan, effective as of May 31, 2013 (incorporated by reference to Exhibit 10.3.4 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.3.5#	Form of Stock Option Agreement for Aircell Holdings Inc. Stock Option Plan (incorporated by reference to Exhibit 10.3.4 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.3.6#	Form of Stock Option Agreement for Aircell Holdings Inc. Stock Option Plan (for June 2013 grants) (incorporated by reference to Exhibit 10.3.6 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.4.1#	Gogo Inc. Omnibus Incentive Plan (incorporated by reference to Exhibit 10.5 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.4.2#	Form of Stock Option Agreement for Gogo Inc. Omnibus Incentive Plan (incorporated by reference to Exhibit 10.5.2 to Form 10-K filed on March 14, 2014 (File No. 001-35975))
10.4.3#	Form of Restricted Stock Unit Agreement for Gogo Inc. Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.3 to Form 10-K filed on February 27, 2015 (File No. 001-35975))
10.4.4#	Form of Restricted Stock Agreement for Gogo Inc. Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.4 to Form 10-K filed on February 27, 2015 (File No. 001-35975))
10.4.5#	Form of Stock Option Agreement for Gogo Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.6 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))
10.4.6#	Form of Performance Stock Option Agreement for Gogo Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.7 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))
10.4.7#	Form of Restricted Stock Unit Agreement for Gogo Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.8 to Form 10-Q filed on August 4, 2016 (File No.001-35975))

Exhibit Number	Description of Exhibits
10.4.8#	Form of Performance Restricted Stock Unit Agreement for Gogo Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.9 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))
10.4.9#	Amended and Restated Gogo Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Annex A to the definitive proxy statement on Schedule 14A filed on April 27, 2018 (File No. 001-35975).
10.5.1#	Gogo Inc. Annual Incentive Plan (as amended as of April 14, 2016) (incorporated by reference to Exhibit 10.4.10 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))
10.6#	Gogo Inc. Section 409A Specified Employee Policy (incorporated by reference to Exhibit 10.7 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.7.1#	Form of Indemnification Agreement entered into between Gogo Inc. and each of its Directors (incorporated by reference to Exhibit 10.7.1 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.7.2#	Form of Indemnification Agreement entered into between Gogo Inc. and each of its Officers (incorporated by reference to Exhibit 10.7.2 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))
10.8.1	Collateral Agreement, dated as of June 14, 2016, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc., the Subsidiary Guarantors and U.S. National Bank Association, as trustee and collateral agent (incorporated by reference to Exhibit 10.1 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
10.8.2	Collateral Agency Agreement, dated as of June 14, 2016, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc., the Subsidiary Guarantors and U.S. National Bank Association, as trustee and collateral agent (incorporated by reference to Exhibit 10.2 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
10.8.3	Patent Security Agreement, dated as of June 14, 2016, by Gogo LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.3 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
10.8.4	Trademark Security Agreement, dated as of June 14, 2016, by Gogo LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.4 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
10.8.5	Copyright Security Agreement, dated as of June 14, 2016, by Gogo LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.5 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
10.8.6	Trademark Security Agreement, dated as of June 14, 2016, by Gogo Business Aviation LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.6 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
10.8.7	Reaffirmation Agreement, dated as of January 3, 2017, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc. and the Subsidiary Guarantors party thereto (incorporated by reference to Exhibit 10.1 to Form 8-K filed on January 3, 2017 (File No. 001-35975))
10.8.8	Additional Secured Debt Designation, dated as of January 3, 2017, by and between Gogo Intermediate Holdings LLC and Gogo Finance Co. Inc. (incorporated by reference to Exhibit 10.2 to Form 8-K filed on January 3, 2017 (File No. 001-35975))
10.8.9	Amendment Number 1 to Collateral Agreement, dated as of September 20, 2017, made by Gogo Inc., Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc. and certain of their Subsidiaries in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 4.2 to Form 8-K filed on September 20, 2017 (File No. 001-35975))

Exhibit Number	Description of Exhibits
10.8.10	Reaffirmation Agreement, dated as of September 25, 2017, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc. and the Subsidiary Guarantors party thereto (incorporated by reference to Exhibit 10.1 to Form 8-K filed on September 25, 2017 (File No. 001-35975))
10.8.11	Additional Secured Debt Designation, dated as of September 25, 2017, by and between Gogo Intermediate Holdings LLC and Gogo Finance Co. Inc. (incorporated by reference to Exhibit 10.2 to Form 8-K filed on September 25, 2017 (File No. 001-35975))
10.8.12	Collateral Agreement, dated as of April 25, 2019, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc. and the Subsidiary Guarantors party thereto, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.1 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
10.8.13	Collateral Agency Agreement, dated as of April 25, 2019, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc., the Subsidiary Guarantors party thereto, and U.S. Bank National Association, as trustee and collateral agent (incorporated by reference to Exhibit 10.2 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
10.8.14	Patent Security Agreement, dated as of April 25, 2019, by Gogo LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.3 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
10.8.15	Trademark Security Agreement, dated as of April 25, 2019, among Gogo LLC and Gogo Business Aviation LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.4 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
10.8.16	Copyright Security Agreement, dated as of April 25, 2019, by Gogo LLC, in favor of U.S. Bank National Association, as collateral agent (incorporated by reference to Exhibit 10.5 to Form 8-K filed on April 25, 2019 (File No. 001-35975)).
10.8.17	Reaffirmation Agreement, dated as of May 7, 2019, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc. and the Subsidiary Guarantors party thereto (incorporated by reference to Exhibit 10.8.17 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))
10.8.18	Additional Secured Debt Designation, dated as of May 7, 2019, between Gogo Intermediate Holdings LLC and Gogo Finance Co. Inc. as acknowledged by U.S. Bank National Association (incorporated by reference to Exhibit 10.8.18 to Form 10-Q filed on May 9, 2019 (File No. 001-35975))
10.8.19	Purchase Agreement, dated as of April 17, 2019, by and among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Morgan Stanley & Co. LLC and J.P. Morgan Securities LLC (incorporated by reference to Exhibit 10.8.19 to Form 10-Q filed on August 8, 2019 (File No. 001-35975))
10.8.20	Credit Agreement, dated as of August 26, 2019, among Gogo Intermediate Holdings LLC and Gogo Finance Co. Inc., as the Borrowers, Gogo Inc., the other loan parties party thereto, the lenders party thereto, JPMorgan Chase Bank, N.A., as Administrative Agent, and Morgan Stanley Senior Funding, Inc., as Syndication Agent (incorporated by reference to Exhibit 10.1 to Form 8-K filed on August 28, 2019 (File No. 001-35975))
10.8.21	ABL Collateral Agreement, dated as of August 26, 2019, among Gogo Inc., Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc. and certain of their subsidiaries in favor of JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.2 to Form 8-K filed on August 28, 2019 (File No. 001-35975))

Exhibit Number	Description of Exhibits
10.8.22	Patent Security Agreement, dated August 26, 2019, by Gogo LLC in favor of JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.3 to Form 8-K filed on August 28, 2019 (File No. 001-35975))
10.8.23	Trademark Security Agreement, dated August 26, 2019, by Gogo LLC and Gogo Business Aviation LLC in favor of JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.4 to Form 8-K filed on August 28, 2019 (File No. 001-35975))
10.8.24	Copyright Security Agreement, dated August 26, 2019, by Gogo LLC in favor of JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.5 to Form 8-K filed on August 28, 2019 (File No. 001-35975))
10.8.25	Crossing Lien Intercreditor Agreement, dated as of August 26, 2019, between U.S. Bank National Association, as Cash Flow Collateral Representative, and JPMorgan Chase Bank, N.A., as ABL Agent (incorporated by reference to Exhibit 10.6 to Form 8-K filed on August 28, 2019 (File No. 001-35975))
10.9.1 #	Director Compensation Policy, adopted June 16, 2015 (incorporated by reference to Exhibit 10.9.1 to Form 10-Q/A filed on February 25, 2016 (File No. 001-35975))
10.9.2 #	Form of Director Deferred Share Unit Agreement for Gogo Inc. Omnibus Incentive Plan (incorporated by reference to Exhibit 10.10.2 to Form 10-K filed on March 14, 2014 (File No. 001-35975))
10.9.3 #	Form of Director Stock Option Agreement for Gogo Inc. Omnibus Incentive Plan (incorporated by reference to Exhibit 10.10.3 to Form 10-K filed on March 14, 2014 (File No. 001-35975))
10.9.4#	Director Compensation Policy, effective July 1, 2019.
10.10.1	Forward Stock Purchase Confirmation, dated as of March 3, 2015, by and between Gogo Inc. and JPMorgan Chase Bank, National Association, London Branch (incorporated by reference to Exhibit 10.1 to Form 8-K filed on March 9, 2015 (File No. 001-35975))
10.10.2	Forward Stock Purchase Confirmation, dated as of March 3, 2015, by and between Gogo Inc. and Merrill Lynch International, acting through its agent, Merrill Lynch, Pierce, Fenner & Smith Incorporated (incorporated by reference to Exhibit 10.2 to Form 8-K filed on March 9, 2015 (File No. 001-35975))
10.10.3	Amended and Restated Forward Stock Purchase Confirmation, dated as of December 11, 2019, by and between Gogo Inc. and JPMorgan Chase Bank, National Association (incorporated by reference to Exhibit 10.1 to Form 8-K filed on December 12, 2019 (File No. 001-35975))
21.1	List of Subsidiaries
23.1	Consent of Independent Registered Public Accounting Firm—Deloitte & Touche LLP
24.1	Power of Attorney (included on signature page)
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Exhibit Number	Description of Exhibits
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
*	This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.
#	Indicates management contract or compensatory plan or arrangement.
†	Certain provisions of this exhibit have been omitted pursuant to Item 601 (b)(10)(iv) of Regulation S-K.

Item 16. Form 10-K Summary

None.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Gogo Inc. (the registrant) has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on March 13, 2020.

Gogo Inc.

By:	/s/ Oakleigh Thorne
Name:	Oakleigh Thorne
Title:	President and Chief Executive Officer (Principal Executive Officer)

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Barry Rowan and Marguerite M. Elias, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power to act separately and full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-facts and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as they or he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or either of them or his or their substitute or substitutes may lawfully do or cause to be done by virtue hereof.

This Power of Attorney shall not revoke any powers of attorney previously executed by the undersigned. This Power of Attorney shall not be revoked by any subsequent power of attorney that the undersigned may execute, unless such subsequent power of attorney specifically provides that it revokes this Power of Attorney by referring to the date of the undersigned's execution of this Power of Attorney. For the avoidance of doubt, whenever two or more powers of attorney granting the powers specified herein are valid, the agents appointed on each shall act separately unless otherwise specified.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of Gogo Inc. and in the capacities indicated, on March 13, 2020.

Signature	Title
/s/ Oakleigh Thorne Oakleigh Thorne	President and Chief Executive Officer and Director (Principal Executive Officer)
/s/ Barry Rowan Barry Rowan	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Michael P. Bayer Michael P. Bayer	Senior Vice President, Controller and Chief Accounting Officer (Principal Accounting Officer)
/s/ Ronald T. LeMay Ronald T. LeMay	Chairman of the Board
/s/ Robert L. Crandall Robert L. Crandall	Director
/s/ Hugh W. Jones Hugh W. Jones	Director
/s/ Michele Coleman Mayes Michele Coleman Mayes	Director
/s/ Robert H. Mundheim Robert H. Mundheim	Director
/s/ Christopher D. Payne Christopher D. Payne	Director
/s/ Charles C. Townsend Charles C. Townsend	Director
/s/ Harris N. Williams Harris N. Williams	Director

Exhibit 4.10

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of 500,000,000 shares of common stock, par value $0.0001 per share, and 100,000,000 shares of preferred stock, par value $0.01 per share. As of March 9, 2020, 83,318,003 shares of common stock were outstanding and no shares of preferred stock were outstanding.

The following descriptions of our capital stock and provisions of our third amended and restated certificate of incorporation, which we refer to as our amended and restated certificate of incorporation, and amended and restated bylaws, which we refer to as our amended and restated bylaws, are summaries of their material terms and provisions. This description is summarized from, and qualified in its entirety by reference to, our amended and restated certificate of incorporation and amended and restated bylaws, which have been publicly filed with the SEC.

Common Stock

Holders of common stock are entitled to: cast one vote for each share held of record on all matters submitted to a vote of the stockholders; receive, on a pro rata basis, dividends and distributions, if any, that the board of directors may declare out of legally available funds, subject to preferences that may be applicable to preferred stock, if any, then outstanding; and upon our liquidation, dissolution or winding up, share equally and ratably in any assets remaining after the payment of all debt and other liabilities, subject to the prior rights, if any, of holders of any outstanding shares of preferred stock. Any dividends declared on our common stock will not be cumulative.

The holders of our common stock do not have any preemptive, cumulative voting, subscription, conversion, redemption or sinking fund rights. Our common stock is not subject to future calls or assessments by us. Except as otherwise required by law, holders of common stock are not entitled to vote on any amendment or certificate of designation relating to the terms of any series of preferred stock if the holders of the affected series are entitled to vote on such amendment or certificate of designation under the certificate of incorporation.

Preferred Stock

Our board of directors has the authority to issue preferred stock in one or more series and to fix the number of shares constituting any such series and the voting rights, designations, preferences and qualifications, limitations and restrictions of the shares constituting any series, without any further vote or action by our stockholders. The issuance of preferred stock by our board of directors could adversely affect the rights of holders of common stock.

We will fix or designate the rights, preferences, privileges and restrictions, including dividend rights, voting rights, terms of redemption, retirement and sinking fund provisions and liquidation preferences, if any, of a series of preferred stock through a certificate of designation adopted by our board of directors.

Certain Certificate of Incorporation, Bylaw and Statutory Provisions

The provisions of our amended and restated certificate of incorporation and amended and restated bylaws and of the Delaware General Corporation Law summarized below may have an anti-takeover effect and may delay, defer or prevent a tender offer or takeover attempt that you might consider in your best interest, including an attempt that might result in your receipt of a premium over the market price for your shares. These provisions are also designed, in part, to encourage persons seeking to acquire control of us to first negotiate with our board of directors, which could result in an improvement of their terms. As a result, stockholders who might desire to participate in such a transaction may not have an opportunity to do so.

Classified Board of Directors. Our board of directors is divided into three classes, class I, class II and class III, with members of each class serving staggered three-year terms. Our amended and restated certificate of incorporation provides that the authorized number of directors may be changed only by resolution of the board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. Our amended and restated certificate of incorporation and our amended and restated bylaws also provide that our directors may be removed only for cause by the affirmative vote of the holders of at least a majority of our voting stock, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office. Our classified board of directors could have the effect of delaying or discouraging an acquisition of us or a change in our management.

Special Meetings of Stockholders. Our amended and restated bylaws provide that a special meeting of stockholders may be called only by the chairman of our board of directors or by a resolution adopted by a majority of our board of directors. Stockholders are not permitted to call a special meeting of stockholders, to require that the chairman call such a special meeting, or to require that our board of directors request the calling of a special meeting of stockholders, which may delay the ability of our stockholders to force consideration of a proposal or for holders controlling a majority of our capital stock to take any action, including the removal of directors.

No Stockholder Action by Written Consent. Our amended and restated certificate of incorporation provides that stockholder action may be taken only at an annual meeting or special meeting of stockholders and may not be taken by written consent in lieu of a meeting, unless the action to be taken by written consent of stockholders and the taking of this action by written consent has been expressly approved in advance by the board of directors. Failure to satisfy any of the requirements for a stockholder meeting could delay, prevent or invalidate stockholder action.

Stockholder Advance Notice Procedure. Our amended and restated bylaws establish an advance notice procedure for stockholders to make nominations of candidates for election as directors or to bring other business before an annual meeting of our stockholders. The amended and restated bylaws provide that any stockholder wishing to nominate persons for election as directors at, or bring other business before, an annual meeting must deliver to our secretary a written notice of the stockholder's intention to do so. These provisions may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed. These provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company. To be timely, the stockholder's notice must be delivered to or mailed and received by us not less than 90 days nor more than 120 days before the anniversary date of the preceding annual meeting, except that if the annual meeting is set for a date that is not within 30 days before or 60 days after such anniversary date, we must receive the notice not later than the close of business on the fifth day following the day on which we provide the notice or public disclosure of the date of the meeting. The notice must include the following information:

- the name and address of the stockholder who intends to make the nomination and the name and address of the person or persons to be nominated or the nature of the business to be proposed;
- a representation that the stockholder is a holder of record of our capital stock entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons or to introduce the business specified in the notice;
- if applicable, a description of all arrangements or understandings between the stockholder and each nominee and any other person or persons, naming such person or persons, pursuant to which the nomination is to be made by the stockholder;
- such other information regarding each nominee or each matter of business to be proposed by such stockholder as would be required to be included in a proxy statement filed under the SEC's proxy rules if the nominee had been nominated, or intended to be nominated, or the matter had been proposed, or intended to be proposed, by the board of directors;
- if applicable, the consent of each nominee to serve as a director if elected; and
- such other information that the board of directors may request in its discretion.

Limited Ownership by Foreign Entities

The Communications Act of 1934 (the "Communications Act") and Federal Communications Commission ("FCC") regulations impose restrictions on foreign ownership of FCC licensees. These requirements generally forbid more than 20% ownership or control of an FCC licensee by non-U.S. citizens directly and more than 25% ownership of a licensee indirectly (e.g., through a parent company) by non-U.S. citizens. Since we serve as a holding company for our FCC licensee subsidiary, AC BidCo LLC, we are effectively restricted from having more than 25% of our stock owned or voted directly or indirectly by foreign individuals or entities, including corporations, partnerships or limited liability companies. The FCC may, in certain circumstances and upon application for prior approval by the FCC, authorize foreign ownership in the licensee's parent in excess of these percentages if the FCC finds it to be in the public interest. Our amended and restated certificate of incorporation and amended and restated bylaws include provisions that permit our board of directors to take certain actions in order to comply with FCC regulations regarding foreign ownership, including but not limited to, a right to redeem shares of common stock from non-U.S. citizens.

To the extent necessary to comply with the Communications Act and FCC rules and policies, our board of directors may: (i) redeem shares of our common stock sufficient to eliminate any violation of FCC rules and regulations on the terms and conditions set forth in our amended and restated certificate of incorporation; (ii) take any action it believes necessary to prohibit the ownership or voting of more than 25% of our outstanding capital stock in the aggregate by or for the account of non-United States citizens or their representatives or by a foreign government or representative thereof or by any entity organized under the laws of a foreign country (collectively, "Aliens"), or by any other entity (a) that is subject to or deemed to be subject to control by Aliens on a de jure or de facto basis or (b) owned by, or held for the benefit of Aliens in a manner that would cause Gogo Inc. or AC BidCo LLC to be in violation of the Communications Act or FCC regulations; (iii) prohibit any transfer of our stock which we believe could cause more than 25% of our outstanding capital stock in the aggregate to be owned or voted by or for persons or entities identified in the foregoing clause (i); and (iv) prohibit the ownership, voting or transfer of any portion of our outstanding capital stock to the extent the ownership, voting or transfer of such portion would cause Gogo Inc. or AC BidCo LLC to violate or would otherwise result in violation of any provision of the Communications Act or FCC regulations.

Limitations on Liability and Indemnification

Our amended and restated certificate of incorporation contains provisions permitted under Delaware General Corporation Law relating to the liability of directors. These provisions eliminate a director's personal liability for monetary damages resulting from a breach of fiduciary duty, except in circumstances involving:

- any breach of the director's duty of loyalty;
- acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of the law
- under Section 174 of the Delaware General Corporation Law (unlawful dividends); or
- any transaction from which the director derives an improper personal benefit.

The principal effect of the limitation on liability provision is that a stockholder will be unable to prosecute an action for monetary damages against a director unless the stockholder can demonstrate a basis for liability for which indemnification is not available under the Delaware General Corporation Law. These provisions, however, should not limit or eliminate our rights or any stockholder’s rights to seek non-monetary relief, such as an injunction or rescission, in the event of a breach of director’s fiduciary duty. These provisions will not alter a director’s liability under federal securities laws. The inclusion of this provision in our amended and restated certificate of incorporation may discourage or deter stockholders or management from bringing a lawsuit against directors for a breach of their fiduciary duties, even though such an action, if successful, might otherwise have benefited us and our stockholders.

Our amended and restated bylaws require us to indemnify and advance expenses to our directors and officers to the fullest extent not prohibited by the Delaware General Corporation Law and other applicable law, except in the case of a proceeding instituted by the director without the approval of our board of directors. Our amended and restated bylaws provide that we are required to indemnify our directors and executive officers, to the fullest extent permitted by law, for all judgments, fines, settlements, legal fees and other expenses incurred in connection with pending or threatened legal proceedings because of the director’s or officer’s positions with us or another entity that the director or officer serves at our request, subject to various conditions, and to advance funds to our directors and officers to enable them to defend against such proceedings. To receive indemnification, the director or officer must have been successful in the legal proceeding or have acted in good faith and in what was reasonably believed to be a lawful manner in our best interest and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful.

We have also entered into an indemnification agreement with each of our directors and executive officers. The indemnification agreement provides our directors and executive officers with contractual rights to the indemnification and expense advancement rights provided under our amended and restated bylaws, as well as contractual rights to additional indemnification as provided in the indemnification agreement.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Limited.

Listing

Our common stock is traded on The NASDAQ Global Select Market under the trading symbol “GOGO.”

Amendment Five (to Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement)

THE USE OF THE FOLLOWING NOTATION IN THIS EXHIBIT INDICATES THAT THE CONFIDENTIAL PORTION HAS BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT AND THE OMITTED MATERIAL HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION: [***]

AMENDMENT FIVE (TO UNIFIED IN-FLIGHT CONNECTIVITY HARDWARE, SERVICES AND MAINTENANCE AGREEMENT)

This Amendment Five (this "Amendment") to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of February 1, 2017, as previously amended (as so amended, the "Original Agreement"), by and between American Airlines, Inc. ("American") and Gogo LLC ("Gogo") (collectively the "Parties" and individually a "Party"), is executed on the respective dates specified in the signature blocks below.

WHEREAS, American and Gogo desire to amend the terms of the Original Agreement to add certain additional regional jet aircraft and add ATG4 Solution to the scope of coverage thereunder.

NOW, THEREFORE, in consideration of the foregoing premises and the covenants contained herein, American and Gogo acknowledge and agree as follows:

1 **Exhibit A**. As of June 15, 2018, the Parties agreed to amend Exhibit A to Amendment 1 to the Original Agreement by deleting Section A-2-thereof and replacing it with the contents of Attachment 1 hereto.

2 **Exhibit B**. As of June 15, 2018, the Parties agreed to amend Exhibit B to the Original Agreement by adding the contents of Attachment 2 hereto, after Table B-4, as Table B-5.

3 **Exhibit D**. As of June 15, 2018, the Parties agreed to amend Section 1.3 of Exhibit D to the Original Agreement by adding the the contents of Attachment 3 hereto, after the existing table.in 1.3, as 1.3.1.

4 **Entire Agreement/Amendment**. This Amendment constitutes the full and complete understanding of the Parties with respect to the subject matter of this Amendment and supersedes all prior agreements and understandings between the Parties with respect to such subject matter. This Amendment may be modified only by written agreement signed by an authorized representative of each Party.

5 **<u>Effectiveness of Agreement</u>**. The Original Agreement remains in full force and effect, except as specifically amended by this Amendment.

GOGO:	AMERICAN:
GOGO LLC	**AMERICAN AIRLINES, INC.**
By: /s/ Ben Murphy	By: /s/ Craig Barton
Printed Name: Ben Murphy	Printed Name: Craig Barton
Title: Vice President, Accounts	Title: Vice President, Technical Services
Date: 10/31/2019	Date: 10/24/2019

Attachment 1 to Amendment Five

[***]

Attachment 2 to Amendment Five

[***]

Attachment 3 to Amendment Five

1.3.1. Shipset Pricing by LRU – ATG4 Solution for Regional Jet Fleet

[***]

THE USE OF THE FOLLOWING NOTATION IN THIS EXHIBIT INDICATES THAT THE CONFIDENTIAL PORTION HAS BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT AND THE OMITTED MATERIAL HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION: [***]

AMENDMENT NO. 1
TO THE AMENDED AND RESTATED PRODUCT DEVELOPMENT
AND MANUFACTURING AGREEMENT BY AND BETWEEN
GOGO LLC AND THINKOM SOLUTIONS, INC.

This is Amendment No. 1 (the “Amendment”), dated as of the Effective Date in the signature block, to the Amended and Restated Product Development and Manufacturing Agreement dated April 1, 2016 (the “Agreement”), and is by and between Gogo LLC (“Gogo”) and ThinKom Solutions, Inc. (ThinKom”). Gogo and ThinKom are each referred to hereinafter as a “Party” or collectively as the “Parties”.

WHEREAS, the Parties entered into the Agreement on or about April 1, 2016;

WHEREAS, the Parties now wish to amend the Agreement to modify Exhibit B by adding a quality assurance provision.

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants and agreements contained herein, the receipt and sufficiency of which are acknowledged, the Parties hereby agree as follows.

1. Capitalized terms used herein and not otherwise defined herein shall have such meaning as set forth in the Agreement.

2. The Agreement at Exhibit B, Section 6 is added to the Agreement as follows:

   Quality Assurance. ThinKom shall comply with the latest issue of Gogo’s Supplier Quality Requirements Document Number D14521 (Rev. N), with the exceptions noted in Attachment 1 of this Amendment. Gogo’s Supplier Quality Requirements Document No. D14521 (Rev. N) is located at http://www.gogoair.com/policies, and is hereby incorporated into this Agreement by reference and which ThinKom acknowledges having received and understood.

3. The terms of the Agreement are amended and modified by the terms and conditions of this Amendment No. 1, which shall supersede and prevail over any conflicting terms and conditions, set forth in the Agreement. Except as specifically set forth herein (or as set forth in any other written amendments which may be entered into between the parties), all of the terms and conditions of the Agreement remain unmodified and in full force and effect. This Amendment may be executed in two or more identical counterparts, each of which shall be deemed to be an original and all of which taken together shall be deemed to constitute the Amendment when a duly authorized representative of each party has signed a counterpart. No waiver, modification, or addition to this Amendment No. 1 or the Agreement shall be valid unless in writing and signed by the parties hereto.

IN WITNESS WHEREOF, the Parties have caused this Amendment No.1 to be executed by their respective, duly authorized representative.

GOGO LLC		ThinKom Solutions, Inc.	
By:	/s/ Donovan Scammell	By:	/s/ Mark J. Silk
Name:	Donovan Scammell	Name:	Mark J. Silk
Title:	Manager, Procurement	Title:	President

ATTACHMENT 1

SUPPLIER QUALITY REQUIRMENTS DOCUMENT
NUMBER D14521 (REV. N) MODIFICATIONS

Effective Date: 12/23/2019 Date: 12/09/2019

ThinKom Solutions ("ThinKom" or "Supplier") shall comply with all the requirements in D14521 (Rev. N), Supplier Quality Requirements, except as noted in this Attachment 1. Requirements [***] are amended in this attachment. The following items shall replace the equivalent requirements of D14521 (Rev. N).

Section/Clause	Exception
B001 – QMS Certification The Supplier shall have an ICOP QMS certification by an accredited registrar, either ISO 9001 or AS9100 series. The scope of the Supplier's certificate of registration shall adequately cover the product(s) or service(s) being provided by the Supplier. All suppliers to Gogo who hold third-party certification under the AS9100 series of aerospace quality management system standards (AS9100, AS9110, AS9115 and/or AS9120) must maintain an active profile within the International Aerospace Quality Group – Online Aerospace Suppliers Information System (IAQG-OASIS). These suppliers must grant Assessment Detail access to Gogo within their respective OASIS profile upon request. Additionally, Supplier shall promptly notify Gogo Aviation Quality (AviationQuality@gogoair.com) of the following: • Changes in its quality leadership or senior management • Renewal, surrender or revocation of certifications • Adverse changes to product accreditations/approvals (e.g., expired, withdrawn, suspended, downgraded) • Certification body or regulatory agency findings/nonconformances classified as "Major"	ThinKom [***] but Gogo will have access to this information on OASIS
B004 – Certificate of Conformity (C of C) The Supplier shall provide a Certificate of Conformity (C of C) for material delivered against a Gogo PO that states that the supplies or services are of the quality specified and are in conformance in all respects with the Gogo Purchase Order (contract) requirements, including specifications, engineering drawings, preservation, packaging, packing, marking requirements and physical item identification (part number), and are in the quantity shown on the PO. The C of C must include, at a minimum, the name of the supplier, the address of the supplier, the part number, the part revision, part serial number (if applicable), lot/batch number (if applicable), the Gogo PO number, shipment quantity, all applicable specifications, the signature and printed name and title of the supplier's authorized quality representative and the date of execution. Note: A traceable quality stamp may be used in lieu of a printed name and title; however, a signature is still required.	[***] The quantity on the C of C shall be the shipment quantity as noted in paragraph 2.

ATTACHMENT 1

SUPPLIER QUALITY REQUIRMENTS DOCUMENT
NUMBER D14521 (REV. N) MODIFICATIONS

A manufacturer's C of C or their authorized distributor's C of C shall be provided for orders of standard parts and COTS parts in which the standard part or COTS part is an individual line item on a PO. The manufacturer's C of C is *preferred*, however, if it cannot be provided, then the authorized distributor's C of C must identify the manufacturer's name, address and Cage Code (if available).

C of C's with any disclaimer statements such as "disclaims any responsibility for manufacturing or functional defects" or "to the best of my knowledge" will not be accepted.

Engineering test or Prototype articles must be provided with a C of C that states that the articles are of the quality specified and are in conformance in all respects with the Gogo Purchase Order (contract) requirements.

If a Deviation/Waiver or Nonconformance Report (NCR) is granted for articles being provided with the order, the Deviation or NCR Number must be noted on the C of C.

B010 – Key Characteristics

[***] Retrofit compliance plan to be discussed after completion of key characteristics incorporation for Linefit.

The Supplier shall identify key attributes or features whose variation have significant influence on product reproducibility, life or performance that would require specific actions to control the variation. The Key Characteristic could be for the product or process that makes the product. A report/Control Plan (e.g. reference AS9103) shall specify the Key Characteristics and how they will be controlled along with current process capability measurements (Cp, Cpk) for those characteristics. This shall be completed prior to production with process capability measurements analyzed during product ramp and thereafter.

B032 – Notification of Change

[***]

The Supplier shall make Commercially Reasonable Efforts to notify Gogo in writing when any of the following occur:

- Merger/acquisition, relocation or closure of the Supplier's facility, including manufacturing facilities
- A change in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling or materials that can potentially affect fit, form or function
- Temporary or permanent transfer of work (e.g. change in machinery, location of manufacture, from the Supplier to an external provider or from one external provider to another external provider)
- Manufacturing facility layout modifications
- Major changes in Enterprise Resource Planning (ERP) system

Upon receipt of written notification from Supplier, Gogo may request, and Supplier shall provide, adequate assurances, including a comprehensive plan, detailing how Supplier intends to meet its performance obligations and delivery of conforming product, and at a minimum, shall include the following

- Purpose of relocation, work transfer or other change
- Address of new location (as applicable)
- Risk identification and mitigation plan specific to Gogo's contracted products

SUPPLIER QUALITY REQUIRMENTS DOCUMENT
NUMBER D14521 (REV. N) MODIFICATIONS

- Schedule of move, minimizing impact to Gogo
- Coordinator / Point of Contact for the relocation or work transfer

All notifications shall be provided to: AviationQuality@gogoair.com

Note: Technical Data changes and revisions to be IAW clause B021.

FORM OF CHANGE IN CONTROL SEVERANCE AGREEMENT[1]

This Change in Control Severance Agreement is entered into on this day of , (this ***"Agreement"***) by and between Gogo Inc., a Delaware corporation ("the ***Company"***), and (***"Executive"***). Certain capitalized terms used herein have the meanings given to them in Section 16 hereof.

RECITALS:

WHEREAS, the Board of Directors of the Company (the "***Board***") considers the maintenance of a sound management to be essential to protecting and enhancing the best interests of the Company and its stockholders and, in this connection, recognizes that the possibility of a Change in Control may exist from time to time, and that this possibility, and the uncertainty and questions it may raise among management, may result in the departure or distraction of management personnel to the detriment of Gogo and its stockholders; and

WHEREAS, the Board has determined that appropriate steps should be taken to encourage the continued attention and dedication of members of management of the Company and its Subsidiaries to their assigned duties without the distraction which may arise from the possibility of a Change in Control.

AGREEMENT:

In consideration of the mutual covenants contained herein, the parties agree as follows:

1. At-Will Employment. The Company and Executive acknowledge that the Executive's employment is and shall continue to be at-will, as defined under applicable law. If the Executive's employment terminates for any reason, the Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement or the Employment Agreement, or as may otherwise be established under the then-existing employee benefit plans or policies of the Company and its Subsidiaries at the time of termination.

2. Change in Control and Severance Benefits.

(a) Severance Payments. If Executive's employment is terminated as a result of a Qualifying Termination, the Company shall pay Executive an amount equal to the sum of (i) twelve (<u>12</u>) months of Executive's Base Salary, pursuant to Section 9(a) of the Employment Agreement (the "***Basic Separation Payment***"), and (ii) six (<u>6</u>) months of Executive's Base Salary plus an amount equal to the product of (x) 1/12 of Executive's Target Bonus and (y) the number of months in the Severance Period (the, ***"Additional Payment")***. Notwithstanding anything to the contrary in the Employment Agreement, the Company shall pay the Additional Payment together with the Basic Separation Payment (collectively, the "***Severance Payment***"), in cash in a single lump sum payment, within ten (10) days following the Date of Termination. In addition, during the eighteen (<u>18</u>) months following the Date of Termination or, if a shorter period, the maximum period permitted by law, should Executive timely elect to continue coverage pursuant to COBRA, the Company agrees to reimburse Executive for the COBRA premiums due to maintain health insurance coverage that is substantially equivalent to that which he or she received immediately prior to Executive's termination (the "***COBRA Payments***"). The Company shall also pay Executive (A) any salary earned but unpaid prior to termination and all accrued but unused paid time off or vacation, (B) any business or reimbursable relocation expenses incurred but not reimbursed as of the Date of Termination in accordance with the applicable business expense reimbursement policy of the Company, effective on the Date of Termination, and (C) any award under the Annual Bonus Program that has been approved by the Company's Chief Executive Officer and the Board but not paid prior to termination.

(b) Option Acceleration. If Executive's employment is terminated as a result of a Qualifying Termination, then the vesting and exercisability of each Award shall be automatically accelerated in full as of the Date of Termination.

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1 The Company has entered into this form of change in control severance agreement with each of Mr. Wade, Mr. Cobin and Ms. Elias.

The Award shall continue to be exercisable in accordance with the Executive's Award Agreement, including without any limitation any provisions that provide that in connection with a Change in Control, an Award may be surrendered and cancelled in exchange for a cash payment.

(c) Other Termination. If the Executive's employment terminates other than as a result of a Qualifying Termination, the Executive shall not be entitled to receive severance or other benefits hereunder, but may be eligible for such severance and benefits (if any) as may then be available under the Employment Agreement and the then-existing severance and benefit plans and policies of the Company and its Subsidiaries.

(d) No Mitigation Requirement. The Executive shall not be required to mitigate the amount provided for in this section by seeking other employment or otherwise, nor shall the amount of any payment or benefit provided for in this section be reduced by the amount of any compensation earned by the Executive as the result of employment by another employer, or by any set-off, counterclaim, recoupment, or other claim, right or action the Company may have against the Executive.

3. Notices. All notices, reports, records or other communications which are required or permitted to be given to the parties under this Agreement shall be sufficient in all respects if given in writing and delivered in person, by telecopy, by overnight courier, or by registered or certified mail, postage prepaid, return receipt requested, to the Company at its corporate headquarters to the attention of the Corporate Secretary and to the Executive at the home address most recently provided by Executive to the Company, or, in the case of either party, to such other address as such party may have given to the other by notice pursuant to this Section 3. Notice shall be deemed given on the date of delivery, in the case of personal delivery or telecopy, or on the delivery or refusal date, as specified on the return receipt, in the case of overnight courier or registered or certified mail. Any termination by the Company or any of its Subsidiaries for Cause or by Executive for Good Reason shall be communicated by a notice of termination ("***Notice of Termination***") to the other party given in accordance with this Agreement. Such notice shall indicate the specific termination provision in this Agreement relied upon and shall set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination under the provision so indicated. The failure by the Company or Executive to include in the notice any fact or circumstance which contributes to a showing of Cause or Good Reason, respectively, shall not waive any right of the Company or the Executive, as the case may be, hereunder, or preclude the Company or the Executive, as the case may be, from asserting such fact or circumstance in enforcing its or his or her rights hereunder.

4. Limitation of Benefits.

(a) Change in Control Prior to an IPO. Notwithstanding anything to the contrary contained in this Agreement, to the extent that, upon a Change in Control prior to an IPO of the Company, any of the payments and benefits provided for under this Agreement or any other agreement or arrangement between the Company or their respective affiliates and the Executive (collectively, the "***Payments***") would constitute a "parachute payment" within the meaning of section 280G of the Code (a "***Parachute Payment***"), the amount of such Payments shall be reduced to the amount (the "***Safe Harbor Amount***") that would result in no portion of the Payments being subject to the excise tax imposed pursuant to section 4999 of the Code (the "***Excise Tax***"). If, upon a Change in Control prior to an IPO of the Company, the Parachute Payments that would otherwise be reduced or eliminated, as the case may be, pursuant to this Section 4 could be paid without the loss of a deduction under Section 280G of the Code if the shareholder approval exception to treatment as a Parachute Payment can be and is satisfied, then the Company shall use its reasonable best efforts to cause such Parachute Payments to be submitted for and to seek such approval in accordance with Section 280G(b)(5)(B) prior to the Change in Control giving rise to such Parachute Payments.

(b) Change in Control Following an IPO. If upon a Change in Control following an IPO, any Payments would constitute Parachute Payments, then, if and solely to the extent that reducing the benefits payable hereunder, would result in the Executive receiving a greater amount, on an after-tax basis, taking into account any Excise Tax and all applicable income, employment and other taxes payable on such amounts, the amounts payable hereunder shall be reduced or eliminated, as the case may be, so that the total amount of Parachute Payments received by the Executive do not exceed the Safe Harbor Amount.

(c) Any such reduction in the amount of compensation or benefits effected pursuant to this Section 4 shall first come from the Additional Payment and then, in order and in each case, solely to the extent necessary, from the Basic Separation Payment, the COBRA Payments and the benefit of the option acceleration provided in Section 2(b).

5. Restrictive Covenants. Notwithstanding anything to the contrary in this Agreement, Sections 4, 5, 6 and 7 of the Executive's Employment Agreement shall remain in full force and effect.

6. Further Assurances. The parties shall cooperate fully with each other and execute such further instruments, documents and agreements, and shall give such further written assurances, as may be reasonably requested by one another to better evidence and reflect the transactions described herein and contemplated hereby and to carry into effect the intent and purposes of this Agreement.

7. Applicable Law. This Agreement shall be governed by and construed in accordance with internal laws, but not the conflicts of law rules, of the State of Illinois.

8. Arbitration.

(a) Any dispute arising in connection with this Agreement shall be submitted to final and binding arbitration. Judgment upon any award rendered by arbitration may be entered in any court having jurisdiction thereof.

(b) The arbitrator shall be selected by the mutual agreement of the parties. Any arbitrator selected shall be a professional having at least ten years of experience in labor or employment related practice areas. If the amount in dispute exceeds $250,000, the parties shall select, by mutual agreement, a panel of three arbitrators, rather than one arbitrator, to resolve the dispute.

(c) The arbitration shall be conducted in Chicago, Illinois (unless the corporate headquarters of the Company shall have been moved to another location, in which case the arbitration shall be conducted in such location). Reasonable discovery shall be permitted as determined by the arbitrator or arbitrators. Both parties to an arbitration shall have the right to be represented by counsel. The Company shall be responsible for paying all administrative fees, costs and expenses associated with the arbitration, including filing fees, the arbitrator's fees, and the expense of the arbitration proceedings, with all other costs and attorneys' fees to be paid by the party incurring such costs and fees (subject to any reimbursement pursuant to Section 9).

(d) Except as otherwise provided herein, this arbitration procedure is the exclusive remedy for any contractual, non-contractual or statutory claim of any kind, including claims arising under federal, state and local statutory law, including, but not limited to, the Age Discrimination in Employment Act of 1967, 29 U.S.C. § 621 *et seq.*; Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e *et seq.*; the Americans with Disabilities Act, 42 U.S.C. § 12101 *et seq.*; the Employee Retirement Income Security Act, 29 U.S.C. § 1001 *et seq.*; the Illinois Human Rights Act, 75 ILCS § 5/1-101 *et seq.*; and common law or equitable claims alleging breach of contract, defamation, fraud, outrageous conduct, promissory estoppel, violation of public policy, wrongful discharge or any other tort, contract or equitable theory. Executive agrees to exhaust any and all internal dispute resolution procedures established by the Company prior to pursuing arbitration under this Agreement.

9. Reimbursement of Legal Expenses. If any contest or dispute shall arise between the Company and the Executive regarding any provision of this Agreement, the Company shall reimburse the Executive for all legal fees and expenses reasonably incurred by the Executive in connection with such contest or dispute, but only if the Executive prevails to a substantial extent with respect to at least one of Executive's material claims brought and pursued in connection with such contest or dispute. Such reimbursement shall be made as soon as practicable following the resolution of such contest or dispute (whether or not appealed) to the extent the Company receives written evidence of such fees and expenses. Any such reimbursements or expenses shall be paid not later than as soon as practicable following the resolution of the dispute but in no event later than the end of the first taxable year of the Executive in which the Company and the Executive enter into a legally binding settlement of such dispute, the Company concedes that the amount is payable, or the Company is required to make such payment pursuant to a final and nonappealable judgment or other binding decision.

10. Severability. If any provision of this Agreement shall be held by any Court of competent jurisdiction to be illegal, void or unenforceable, such provision shall be of no force and effect, but the enforceability of all other provisions of this Agreement shall be unimpaired.

11. Binding Agreement. Executive shall not delegate or assign any of Executive's rights or obligations under this Agreement; provided, however, that the terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees. The Company shall cause any successor to the Company (whether direct or indirect and whether by purchase, lease, merger, consolidation, liquidation or otherwise) or to all or substantially all of the Company's business and/or assets to assume the Company's obligations under this Agreement and agree expressly to perform the Company's obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term "Company" shall include any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this section or which becomes bound by the terms of the Agreement by operation of law or otherwise. This Agreement may be amended only by a written amendment executed by both parties.

12. Effect on other Agreements and Benefits. Except to the extent expressly set forth herein, any benefit or compensation to which Executive is entitled under the Employment Agreement, any other agreement between Executive and the Company or any of its Subsidiaries or any plan maintained by the Company or any of its Subsidiaries in which the Executive participates or participated shall not be modified or lessened in any way, but shall be payable according to the terms of the applicable plan or agreement. Notwithstanding the foregoing, any severance benefit received by Executive under this Agreement shall be in lieu of any severance benefits to which the Executive would otherwise be entitled under the Employment Agreement or any other severance policy or plan maintained by the Company or any of its Subsidiaries.

13. Employment Taxes. All payments made pursuant to this Agreement shall be subject to withholding of applicable income and employment taxes.

14. Section 409A. This Agreement is intended to comply with the requirements of Section 409A of the Code, and shall be interpreted and construed consistently with such intent. The payments to Executive pursuant to this Agreement are also intended to be exempt from Section 409A of the Code to the maximum extent possible. The amount referred to herein as the "Basic Separation Payment" is intended to be exempt from being treated as deferred compensation under the separation pay exemption pursuant to Treasury regulation §1.409A-1(b)(9). The change in the time and form of payment of the Separation Payment from installments as provided in the Employment Agreement to a lump sum payment as provided herein is intended to comply with Section 409A in reliance on such subsection of the regulations and, as applicable, Treasury regulation §1.409A-3(c). The amount referred to herein as the "Additional Payment" is a new legally binding right created pursuant to this Agreement and is intended to be exempt from Section 409A of the Code as short-term deferral pursuant to Treasury regulation §1.409A-1(b)(4). In the event the terms of this Agreement would subject Executive to taxes or penalties under Section 409A of the Code ("***409A Penalties***"), the Company and Executive shall cooperate diligently to amend the terms of the Agreement to avoid such 409A Penalties, to the extent possible. To the extent any amounts under this Agreement are payable by reference to Executive's "termination of employment," such term shall be deemed to refer to Executive's "separation from service," within the meaning of Section 409A of the Code. Notwithstanding any other provision in this Agreement, if Executive is a "specified employee," as defined in Section 409A of the Code, as of the date of Executive's separation from service, then to the extent any amount payable under this Agreement (i) constitutes the payment of nonqualified deferred compensation, within the meaning of Section 409A of the Code, (ii) is payable upon Executive's separation from service and (iii) under the terms of this Agreement would be payable prior to the six-month anniversary of Executive's separation from service, such payment shall be delayed until the earlier to occur of (a) the six-month anniversary of the separation from service or (b) the date of Executive's death. Any amount of expenses eligible for reimbursement, or in-kind benefit provided, during a calendar year shall not affect the amount of expenses eligible for reimbursement, or in-kind benefit to be provided, during any other calendar year. The right to any reimbursement or in-kind benefit pursuant to this Agreement shall not be subject to liquidation or exchange for any other benefit.

15. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

16. Definitions. In addition to terms defined above and elsewhere in this Agreement, the following terms shall have the meanings set forth below:

"Affiliate" means with respect to any Person, any other Person who directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such Person. The term "control" means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise, and the terms "controlled" and "controlling" have meanings correlative thereto.

"Annual Bonus Plan" means the annual bonus plan established by the Board in which members of management participate.

"***Award***" means any options or other equity incentives awarded to the Executive under the Aircell Holdings Inc. Stock Option Plan or any other plan implemented by the Company.

"Award Agreement" means the written agreement evidencing an option grant to an optioneee under the Aircell Holdings Inc. Stock Option Plan between the Company and the Executive.

"Base Salary" means the Executive's annual base salary paid or payable by the Company or any of its Subsidiaries at the rate in effect (or required to be in effect before any diminution that is a basis of the Executive's termination for Good Reason) on the Date of Termination.

"Cause" shall have the meaning ascribed to it in the Employment Agreement.

"Change in Control" means:

(i) the acquisition by any person, entity or "group" (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act), of beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of 50% or more of either the then outstanding equity interests in the Company or the combined voting power of the Company's then outstanding voting securities, excluding acquisitions by (A) any members of the Ripplewood Investment Group, as defined in the Stockholders' Agreement, (B) any of the Thorne Affiliates, as defined in the Stockholders' Agreement or (C) any other person or entity that was a stockholder of the Company as of the date on which this Plan was initially approved by the Board (the "***Excluded Parties***"); or

(ii) the consummation of a reorganization, merger or consolidation of the Company or the sale of all or substantially all of the assets of the Company, in each case with respect to which the Excluded Parties or any other persons who held equity interests in the Company immediately prior to such reorganization, merger, consolidation or sale do not immediately thereafter own, directly or indirectly, 50% or more of the combined voting power of the then outstanding securities of the surviving or resulting corporation or other entity; provided, however, that any such transaction consummated in connection with, or for the purpose of facilitating, an IPO shall not constitute a Change in Control hereunder.

"Code" means the Internal Revenue Code of 1986, as amended from time to time.

"Date of Termination" means (i) if the Executive's employment is terminated by the Company for Cause, or by the Executive for Good Reason, the date of receipt of the Notice of Termination or such later date specified in the Notice of Termination, as the case may be, (ii) if the Executive's employment is terminated by the Company other than for Cause or Disability, the date on which the Company notifies the Executive of such termination, (iii) if the Executive resigns without Good Reason, the date on which the Executive notifies the Company of such termination, and (iv) if the Executive's employment is terminated by reason of death or Disability, the date of death of Executive or the 30th day after receipt of notice of Disability from Executive, as the case may be.
Notwithstanding the foregoing, in no event shall the Date of Termination occur until the Executive experiences a "separation from service" within the meaning of Section 409A of the Code, and the date on which such separation from service occurs shall be the "Date of Termination."

"Disability" means a condition such that the Executive by reason of physical or mental disability becomes unable to perform his or her normal duties for more than one hundred eighty (180) days in the aggregate (excluding infrequent or temporary absence due to ordinary transitory illness) during any twelve-month period.

"Employment Agreement" means the Employment Agreement, dated between the Gogo LLC (f/k/a Aircell LLC) and Executive, as amended, and any other written agreement between Executive and the Company or any of its Subsidiaries.

"Good Reason" means (i) a reduction by the Company or any of its Subsidiaries in Executive's Base Salary beyond what is permitted by Section 3(a) of the Employment Agreement or in his or her Target Bonus; (ii) a material diminution in the Executive's position with the Company, such that the Executive is required to perform duties and responsibilities following the Change in Control which would have been assigned to a position that would have been below the level of Vice President under the title structure in effect at the Company immediately prior to the Change in Control; (iii) the relocation of Executive's principal place of employment to a geographic location greater than fifty (50) miles from the Company's headquarters immediately prior to the Change in Control, (iv) the occurrence of a Change in Control in which the acquiror does not assume the obligations of the Company or its Subsidiaries under the Employment Agreement; and (v) any material failure by the Company or any Subsidiary to pay the Executive any compensation when otherwise due under the terms of the Employment Agreement; provided, however, that Executive may resign for Good Reason only if (i) he or she has given the Company written notice of its breach within 90 days of the date that the Executive discovers such breach and (ii) the Company has not remedied such breach on or before the 30th day following the Company's receipt of such notice.

"***IPO***" means an initial public offering of the common stock of the Company.

"Person" means an individual, partnership, corporation, limited liability company, joint stock company, unincorporated organization or association, trust, joint venture, association or other similar entity, whether or not a legal entity.

"***Qualifying Termination***" means:

(i) at any time within the period commencing on the date of the consummation of a Change in Control and ending twenty-four (24) months thereafter, the Executive's employment is terminated (A) involuntarily for any reason other than Cause, death or Disability or (B) by the Executive for Good Reason; or

(ii) at any time following the date the Company or any of its Affiliates enters into an agreement with a third party and the consummation of the transactions contemplated by such agreement would result in a Change in Control of the Company and prior to the date of the consummation of the Change in Control pursuant to such agreement, the Executive's employment is terminated (A) involuntarily for any reason other than Cause, death, or Disability or (B) by the Executive for Good Reason; provided, however, that in the case of each of clauses (A) and (B) the affected Executive demonstrates that such termination or circumstance leading to such termination (1) was at the request of a third party or any of their Affiliates with which the Company had entered into such agreement contemplating a Change in Control; or (2) otherwise occurred in connection with a Change in Control.

"***Severance Period***" shall mean eighteen months**.**

"***Stockholders' Agreement***" means the Stockholders' Agreement, dated December 31, 2009, between the Company and the stockholders who are parties thereto, as amended.

"Subsidiary" means any corporation or limited liability company in which the Company, directly or indirectly, holds a majority of the voting power of such entity's outstanding shares of capital stock or membership interests.

"***Target Bonus***" means the target bonus, determined by multiplying an agreed-upon percentage times Base Salary, for which Executive is eligible under the Annual Bonus Plan at the percentage in effect (or required to be in effect before any diminution that is a basis of the Executive's termination for Good Reason) on the Date of Termination . The parties have executed this Agreement on the date first above written, effective as of the Effective Date.

COMPANY:	**EXECUTIVE:**
GOGO INC.	
Date: ______________________	Date: ______________________
Title:	Print Name:

Exhibit 10.9.4

Compensation of Non-Employee Directors (currently consisting of all members of the Board of Directors other than Oakleigh Thorne)

Effective July 1, 2019, the Board of Directors approved changes to the non-employee directors' compensation as noted below:

- Each non-employee director other than the Chairman of the Board will be paid annual compensation of $240,000 (formerly $190,000), consisting of $50,000 in cash (unchanged), $95,000 in stock options (formerly $70,000) and $95,000 in deferred share units (formerly $70,000).
- The non-employee Chairman of the Board will be paid annual compensation of $315,000 (formerly $265,000), consisting of $75,000 in cash (unchanged), $120,000 in stock options (formerly $95,000) and $120,000 in deferred stock units (formerly $95,000).
- The chair of the Audit Committee will receive additional annual compensation of $20,000 in cash (unchanged).
- The chair of the Compensation Committee will receive additional annual compensation of $15,000 in cash (unchanged).
- The chair of the Nominating and Governance Committee will receive additional annual compensation of $10,000 in cash (unchanged).
- All of these amounts will be paid quarterly beginning with the quarter ending September 30, 2019, with cash payments payable on or before the end of the quarter and deferred stock and option grants dated the last business day of the quarter.
- Directors will continue to have the ability to elect to receive all or a portion of the cash portion of their annual retainer and any additional payments for service as a chair in the form of deferred share units granted under our 2016 Gogo Inc. Omnibus Incentive Plan ("2016 Plan").

No changes were made to the stock retention requirement. Directors will continue to be required to retain shares received upon exercise of stock options or settlement of deferred stock units (on an after-tax net basis) until the earlier of one year following termination of Board service or a Change in Control (as defined in the Company's 2013 Gogo Inc. Omnibus Incentive Plan or 2016 Plan. This retention policy applies only to options and deferred stock units granted on and after September 30, 2015.

Exhibit 21.1

List of Subsidiaries of Gogo Inc.

Name of Subsidiary	Jurisdiction of Organization	Ownership Percentage
AC BidCo LLC	Delaware	100%
Gogo Air International GmbH	Switzerland	100%
Gogo Air Mexico, S. de R.L. de C.V.	Mexico	100%
Gogo Air Pty. Ltd.	Australia	100%
Gogo Brasil Participações Ltda.	Brazil	100%
Gogo Brasil Telecomunicações Ltda.	Brazil	100%
Gogo Business Aviation LLC	Delaware	100%
Gogo Connectivity Ltd.	Canada	100%
Gogo Finance Co. Inc.	Delaware	100%
Gogo France SaS	France	100%
Gogo Germany GmbH	Germany	100%
Gogo Godo-Kaisha	Japan	100%
Gogo India LLP	India	100%
Gogo Intermediate Holdings LLC	Delaware	100%
Gogo International Holdings LLC	Delaware	100%
Gogo International Limited	United Kingdom	100%
Gogo LLC	Delaware	100%
Gogo Netherlands BV	Netherlands	100%
Gogo Pvt. Ltd.	Hong Kong	100%
Gogo Singapore Pte. Ltd.	Singapore	100%
Gogo Shanghai Ltd.	China	100%

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-226662 on Form S-3 and Registration Statement Nos. 333-189594, 333-212072, 333-219777 and 333-225716 on Form S-8 of our reports dated March 13, 2020, relating to the financial statements of Gogo Inc. and the effectiveness of Gogo Inc.'s internal control over financial reporting appearing in this Annual Report on Form 10-K for the year ended December 31, 2019.

/s/ Deloitte & Touche LLP

Chicago, Illinois
March 13, 2020

Exhibit 31.1

Gogo Inc.

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) OF THE EXCHANGE ACT, AS AMENDED,
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Oakleigh Thorne, certify that:

1. I have reviewed this Annual Report on Form 10-K of Gogo Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 13, 2020

/s/ Oakleigh Thorne
Oakleigh Thorne
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

Gogo Inc.

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) OF THE EXCHANGE ACT, AS AMENDED,
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Barry Rowan, certify that:

1. I have reviewed this Annual Report on Form 10-K of Gogo Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 13, 2020

/s/ Barry Rowan
Barry Rowan
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

Gogo Inc.

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002**

I, Oakleigh Thorne, President and Chief Executive Officer of Gogo Inc. (the “Company”), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

(1) the Annual Report on Form 10-K of the Company for the year ended December 31, 2019 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods presented therein.

Date: March 13, 2020

/s/ Oakleigh Thorne
Oakleigh Thorne
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

Gogo Inc.

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002**

I, Barry Rowan, Executive Vice President and Chief Financial Officer of Gogo Inc. (the “Company”), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

(1) the Annual Report on Form 10-K of the Company for the year ended December 31, 2019 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods presented therein.

Date: March 13, 2020

/s/ Barry Rowan
Barry Rowan
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)