
**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, 2018

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
(State or other jurisdiction of
Incorporation or Organization)

27-1650905
(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)

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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, was \$275,249,580 based upon the closing price reported for such date on the NASDAQ Global Select Market.

As of February 19, 2019, 87,560,694 shares of \$0.0001 par value common stock were outstanding.

Documents Incorporated By Reference

Portions of the registrant's definitive Proxy Statement for its Annual Meeting of Stockholders scheduled to be held June 11, 2019 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, 2018.

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, 2018 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, 2018. 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 3,100 commercial aircraft and approximately 5,200 business aircraft as of December 31, 2018. 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, fourteen domestic and international airlines have selected 2Ku for installation, and as of December 31, 2018, our 2Ku system had been installed on more than 1,000 aircraft with approximately 1,000 additional 2Ku aircraft in backlog (as defined below under the heading “Contracts with Airline Partners”). Of the aircraft installed with 2Ku as of December 31, 2018, approximately 520 were upgrades from currently-installed Gogo systems. The 2Ku system is currently capable of delivering peak speeds of 100 Mbps to the aircraft. We also continue to innovate and improve our North American terrestrial networks. We have been working for several years on development and testing of an upgraded ATG network that employs 2.4

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GHz of unlicensed spectrum, and this network has achieved a ten-fold increase from the speed of our current ATG-4 system (“ATG-4”). We have not made a decision to proceed with implementation of the 2.4 GHz solution, and due to uncertainty regarding the possible effect of U.S. government security concerns on our development partner’s ability to continue to serve us, we are exploring other solutions for upgrading and increasing the capacity of the current ATG network. All of the solutions we are considering would enable us to leverage our existing ATG network as well as our data centers, core system software, network operating center and network staff.

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 more than 25 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/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, 2018, CA-NA had 2,551 aircraft online, 1,091 of which were equipped with ATG-4, 790 with ATG, 670 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 France, KLM, Cathay Pacific Group, British Airways, Delta Air Lines, GOL, Iberia, Japan Air Lines, JTA, J-Air, LATAM Airlines, Virgin Atlantic Airways and Virgin Australia pursuant to long-term agreements. As of December 31, 2018, our CA-ROW segment had 589 aircraft online, 252 of which were installed with Ku, our first-generation satellite-based system, 337 with 2Ku and more than 370 were equipped with Gogo Vision.

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 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, 2018, BA had a total of 5,224 aircraft online with Gogo Biz, our ATG network in North America, of which 442 were equipped with AVANCE L5™, a unified Gogo Biz technology platform, 136 were equipped with AVANCE L3™ (“AVANCE L3”), a compact version of AVANCE L5 modified for small business aircraft, and 664 were equipped with Gogo Vision. As of such date, BA also had 4,869 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 1,700 commercial regional jets and approximately 23,000 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 28 satellites operated by SES, Intelsat and other providers and 17 teleports operated by Gogo. The capacity, speed, coverage and reliability of this network are continually improved by incorporating new satellites, including high throughput satellites ("HTS"), five of which we are already using. We also anticipate incorporating new satellite technologies that have yet to come online, such as low earth orbit ("LEO") satellites. Our 2Ku and Ku in-flight systems operate on this network.
- **North American Terrestrial Network:** We operate a terrestrial network using 3MHz of licensed spectrum in the 850 MHz band and approximately 260 terrestrial cell sites in the lower 48 states and parts of Alaska and Canada. As of December 31, 2018, this network supported 3.1 Mbps ATG service and 9.8 Mbps ATG-4 service to CA and BA aircraft. We are currently considering a number of technological solutions that would enable us to upgrade the existing network.
- **Ground Network:** We lease an extensive, predominantly fiber-optic network to connect our approximately 260 cell sites and 17 teleports to our three 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

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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, 2018, Gogo Vision was available on 2,200 aircraft and Gogo TV was available on more than 700 aircraft. In addition, we and Delta Air Lines collaborated in developing Gogo Vision Touch our new wireless seatback product that enables passengers to stream entertainment and other content to a tablet mounted on the seatback. We expect that Gogo Vision Touch will begin commercial service in the first quarter of 2019.
- 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 October 2018, we partnered with GOL to launch our Aircraft Data Service, Wireless Quick Access Recorder and Automated Turbulence Reporting, which analyzes and integrates aircraft and EFB data to provide GOL with real-time access to turbulence and other information. Similarly, in October 2018, our BA segment introduced Gogo DASH, a mobile application that gives airborne personnel real-time visibility into their Gogo systems during flight and provides them with key information to help diagnose and resolve an issue by working with their ground operations teams and Gogo customer support.

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.

With the addition of our next-generation modem and the addition of more HTSs to our network, 2Ku is capable of delivering peak speeds to the aircraft of 100 Mbps. 2Ku 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 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 access 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. The 2Ku architecture is designed to enable adoption of new technologies in the future while minimizing the impact of hardware changes on aircraft.

Our strategy does not include owning or operating satellites. 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 continue to innovate and have a strong track record. We pioneered and have led innovation in our industry for more than 25 years, as evidenced by the nine network technologies, six of which are proprietary to Gogo, that we have deployed during this time. In addition, we hold more than 200 U.S. and international patents, most of which relate to network technology. In addition to exploring possible technologies that would enable us to upgrade our ATG network, we are currently researching and developing a fully electronic phased array antenna as well as activities that relate to the use of LEO satellite capacity.
- **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.

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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, 2018, we were operating 28 installation lines and 16 installation locations around the globe. After installation, our support continues and in 2018, we provided maintenance services for customer aircraft that flew more than 4.8 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, increasing average revenue per aircraft, reducing investment per aircraft and improving margins.

Increase Number of Gogo-Connected Aircraft

Less than half of the global fleet of approximately 22,500 commercial aircraft and 30,700 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, 2018, we provided our connectivity services on 3,140 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. During 2018, the following aircraft were delivered through the OEM channel with our 2Ku system: Airbus A350; Boeing 787-9 and Bombardier A220.
- **Business Aviation.** As of December 31, 2018, the business aviation market was comprised of approximately 23,000 business aircraft in North America and approximately 7,700 business aircraft in the rest of the world, and we had approximately 5,200 business aircraft online with broadband connectivity, principally in North America. We increased our number of broadband business aircraft online by more than 500 in 2018. A significant number of BA aircraft are new aircraft on which our systems are installed and sold by OEMs, including 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 a new global Ku-based satellite solution for larger, long range business jets, which is expected to be commercially available in 2020. 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.

Increase Average Revenue per Aircraft

We expect to continue to grow net annualized average monthly service revenue per aircraft equivalent (“ARPA”) by increasing the take rates for passenger connectivity and the adoption of additional services, including entertainment and CAS.

Our strategies for growing net annualized ARPA 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 and grow net annualized ARPA through a combination of multiple tiers of service and multiple payers. 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. Airlines provide amenities to passengers using segmentation based on cabin seating, ticket prices and other factors, and we expect our service revenue from airlines to grow as they increasingly purchase bandwidth to provide complimentary service for some or all of their passengers. 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, and we expect other terrestrial mobile carriers and other companies, such as credit card providers, to enter into similar arrangements.
- Increase Adoption of Wireless Entertainment. Gogo Vision was available on nearly all Gogo-connected aircraft in CA and approximately 660 BA aircraft as of December 31, 2018. Through our Gogo Vision platform, airlines offer passengers a library of movies and TV shows for wireless streaming to personal devices. By December 31, 2018, all of our airline customers had transitioned from the Gogo Vision passenger-paid model to a free-to-passenger model under which the airlines pay Gogo on a monthly basis and/or per view basis. Due in part to this transition, Gogo Vision views doubled from 2016 to 2017 and increased by 25% in 2018 to more than 50 million views. 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.
- Increase Adoption of CAS. 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. We are interfacing our equipment with the data buses on aircraft and are developing the hardware and software platforms that facilitate the development and deployment of applications. CAS currently supports aircraft crew devices and enables pilots and crew to utilize the following services: location tracking, aircraft data analytics, route optimization, turbulence avoidance, EFB applications, real-time credit card processing and weather data.

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, 2018, we had STCs to support 90% of the installations we plan to complete in 2019. In addition, as 2Ku's performance and consumer appeal have been demonstrated, the price paid by airline partners for our airborne equipment has increased compared to 2Ku's launch pricing. As our investment per aircraft declines and net annualized ARPA increases, our return on invested capital increases and the payback period is shortened.

Improve 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 CA-ROW, we expect to achieve benefits of scale as we have in CA-NA. In addition, by executing our Integrated Business Plan ("IBP"), 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 expect our margins to improve. We also anticipate continued decreases in satellite costs which, together with our bandwidth management capabilities, are expected to contribute to margin improvement.

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 with 18 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 2018. 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 2019 and the last in 2029 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

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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, 2018, inflight entertainment (“IFE”), which includes Gogo Vision, Gogo TV or Gogo Vision Touch, was included in the scope of services under agreements with ten 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 accounted for approximately 23% of our consolidated revenue for the year ended December 31, 2018 (equipment revenue from Delta Air Lines was immaterial due to the fact that equipment transactions under the turnkey model are not considered a sale for accounting purposes). We have three principal contracts with Delta Air Lines. The contract for ATG service on Delta Air Lines’ mainline and regional jet fleets expires on the 13-year anniversary of specified installation milestones, which will occur in 2022 and 2027, respectively. Our contracts with Delta Air Lines for Ku-band satellite service on its international fleet and for 2Ku service will expire in 2027.

Revenue from service and equipment provided on aircraft operated by American Airlines accounted for approximately 22% of our consolidated revenue for the year ended December 31, 2018 (such revenue included equipment revenue recognized in January 2018 when American Airlines transitioned from the turnkey model to the airline-directed model). On February 24, 2017, we replaced our multiple contracts with American Airlines (including the contract originally entered into with US Airways) with one unified agreement (the “Unified Agreement”) covering aircraft installed or to be installed with our ATG and ATG-4 technologies and to be installed with our 2Ku technology. The Unified Agreement has different expiration dates for different fleet types. Generally, the term for each fleet type, other than those on which 2Ku will be installed, expires on the 10-year anniversary of the date on which 90% of such fleet type has been installed with our ATG equipment, or when the fleet types are retired or deinstalled. The termination dates for such fleet types (excluding retirements) range from 2022 to 2025. The Unified Agreement will terminate with respect to the 2Ku fleet on October 1, 2019.

Each of our contracts with Delta Air Lines and American Airlines provides for early termination by the airline in specified circumstances and allows 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. In addition, under the Unified Agreement, American Airlines has the option to terminate Gogo service, and as expected, it exercised such option on approximately 550 mainline aircraft on which our ATG/ATG-4 service has been provided. Of such aircraft, 374 were deinstalled in 2018 (primarily in the second half of the year) with the balance expected to be deinstalled in the first half of 2019. Our contracts with Delta Air Lines and American Airlines also permit these airlines to terminate their contracts 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. Our contracts with Delta Air Lines and American Airlines also permit the airline to terminate the agreement for convenience with respect to certain fleets on or after specified dates, subject to payment of a specified termination fee.

No other contract accounted for more than 10% of our consolidated revenue for the year ended December 31, 2018.

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As of December 31, 2018, and we had approximately 1,000 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 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 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.

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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.

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.

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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 that operates 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."

In 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 imposes 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.

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 service.

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 Ku-band satellite transceivers on up to 2,000 aircraft, 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 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 still 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 and renewal of the primary spectrum license, issued by Industry Canada to SkySurf on June 30, 2009, which was to expire on June 29, 2019. Following a consultation regarding renewal of the ATG license, ISED renewed SkySurf’s ATG license for an eight-year term commencing June 29, 2019.

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

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 clearly delineated, FTC officials have publicly stated that they view the FTC as having jurisdiction over Internet service providers’ non-common carrier services, and 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 collect personally identifiable 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 is intended to comply with our privacy policy, which is posted on our website, applicable law and our contractual obligations to airlines, BA customers and other third parties, as well as industry standards such as the Payment Card Industry Data Security Standard. We are also subject to state “mini-FTC Acts,” which also 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. Congress has also been considering similar federal legislation relating to data breaches. 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, on September 23, 2018, the governor of California signed into law an amended version of the California Consumer Privacy Act of 2018 (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, among others, notice, consent, and data retention requirements. It will take effect on January 1, 2020.

While we believe that we have implemented reasonable administrative, physical and electronic security measures to protect against the loss, misuse and alteration of personally identifiable information, cyber-attacks on companies have increased in frequency and potential impact in recent years and may be successful despite reasonable precautions and result in substantial potential liabilities.

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 United States, 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. There is a risk that these standard contractual clauses may be invalidated by the Court of Justice for the European Union as a lawful data transfer mechanism on the grounds that they do not provide adequate protection of European data subjects' personally identifiable information. There is also a risk that EU data protection authorities may investigate or bring enforcement actions with criminal and administrative sanctions. Such actions could also damage our business and harm our reputation.

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. 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 over the airspace of 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 over the airspace of 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, 2018, we held U.S. patents expiring on dates ranging from February 2019 to December 2037, 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, 2018, we had 1,153 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, 2018, we had our equipment installed and provided our Gogo service to passengers on aircraft operated by 14 airlines and we had definitive contracts with four additional airlines. For the years ended December 31, 2018, 2017, and 2016, the Gogo service we provide on commercial aircraft generated approximately 49%, 64% 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 2018 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 majority of our 2018 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 American Airlines, Delta Air Lines, and certain other airline partners, from which in the aggregate we derived a majority of our 2018 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. Under the Unified Agreement with American Airlines, the airline has the option to terminate our service, and, as expected, it exercised such option on approximately 550 mainline aircraft on which our ATG/ATG-4 service has been provided. Of such aircraft, 374 were deinstalled in 2018 (primarily in the second half of the year) with the balance expected to be deinstalled in the first half of 2019. 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, 2018, 2017 and 2016, use of the Gogo service on Delta Air Lines aircraft accounted for approximately 23%, 26% and 27%, respectively, of consolidated revenue. For the years ended December 31, 2018, 2017 and 2016, use of the Gogo service on American Airlines aircraft accounted for approximately 11%, 21% and 23%, 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 are experiencing network capacity constraints in the United States and expect capacity demands to increase, and we may in the future experience capacity constraints internationally. If we are unable to successfully implement planned or future technology enhancements to increase our network capacity, or our airline partners do not agree to such enhancements, 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 we are currently experiencing capacity constraints in the United States, particularly on certain flights where demand for our service is high and certain routes on which multiple aircraft are within range of the same cell site at one time. We may also experience capacity constraints internationally. We expect demand to continue to increase in CA-NA and CA-ROW as passenger adoption increases (including as a result of airline partners offering free service to passengers), bandwidth requirements per user grow and our service becomes available on more aircraft.

Our plan to alleviate such constraints consists of: (i) continued installation of 2Ku on aircraft flying routes in the United States, including aircraft on which our existing ATG systems will be upgraded; (ii) successful development and deployment of an upgrade to our existing ATG network; (iii) purchasing and employing capacity from a variety of satellites; and (iv) continued use of bandwidth management tools. The successful execution of this plan is subject to numerous risks and uncertainties as described in this Risk Factors section under the headings “—We may be unsuccessful or delayed in widely deploying and operating our 2Ku technology,” “—We may be unsuccessful or delayed in developing and deploying our next-generation ATG technology,” and “—We face risks related to satellites and satellite capacity.”

With respect to our use of bandwidth management tools, 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 January 2018, the FCC voted to partially repeal the February 2015 order effective in June 2018, and in doing so eliminated virtually all of the then-existing net neutrality obligations applicable to us. Members of Congress have proposed legislation to overturn the FCC’s recent decision and the outcome of such proposal or other attempts to undo the decision 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. In addition, our ability to meet capacity demands depends in part on the willingness of airline customers to agree to install or upgrade to 2Ku and, if and when we deploy a solution that upgrades the ATG network, to install or upgrade to that solution. If we fail to meet capacity demands, it 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, 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. 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 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. 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 could also limit airlines' ability to counteract increased fuel, labor or other costs though 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 are experiencing network capacity constraints in the United States and expect capacity demands to increase, and we may in the future experience capacity constraints internationally. If we are unable to successfully implement planned or future technology enhancements to increase our network capacity, or our airline partners do not agree to such enhancements, 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.

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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 effect of 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. While 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 could adversely affect our results. 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 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, 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 as early as 2019 using unlicensed spectrum, and other competitors could enter this business using the same or other spectrum. Internationally, one of our competitors is building a hybrid satellite and air-to-ground network to provide broadband service over Europe that may become available 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, and 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 our senior secured notes 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;

- 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, 2018, we had more than 1,000 2Ku systems installed and approximately 1,000 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; 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, which we are in the process of remediating, 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. Fifteen 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 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 are experiencing network capacity constraints in the United States and expect capacity demands to increase, and we may in the future experience capacity constraints internationally. If we are unable to successfully implement planned or future technology enhancements to increase our network capacity, or our airline partners do not agree to such enhancements, our business and results of operations may be materially and adversely affected.*”

If we are unable to timely remediate 2Ku quality and performance issues related to deicing fluid or other moisture entering our antennas, our business, financial condition and results of operations may be materially adversely affected.

As we have deployed 2Ku, we have encountered delays and quality problems arising from the entry into our antennas of moisture or liquids that may be caused by deicing procedures or other operational tasks (such as cleaning) that our airline partners may undertake or by humidity or condensation. In particular, the ingress of deicing fluid resulted in significant antenna performance issues in the winter of 2017 to 2018. As of

December 31, 2018, we had installed deicing modifications on approximately 95% of our North American fleet and had not experienced any instances of deicing-related system degradation on aircraft on which such modifications were installed. We have not experienced all potential weather and deicing conditions and there can be no assurance that further deicing issues will not arise. If additional deicing incidents or system degradation resulting from other moisture issues occur, we could incur significant remediation costs and, if we fail to remediate such problems when and as required to meet airline contract requirements, we will be in breach of the affected contracts, which could result in liquidated damages, or termination rights and associated claims or damages on the part of airlines, in airlines deciding not to market our services, and in harm to our reputation with passengers and other airlines, all of which would have a material adverse effect on our business, financial condition and results of operations.

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

We are currently exploring a number of solutions intended to offer additional bandwidth and improved speeds for our connectivity service as compared to existing ATG technologies. There can be no assurance that we will launch a next generation ATG 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 required 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) reliance on single-source and 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 our next generation ATG solution 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 our next generation ATG solution could have a material adverse effect on our ability to alleviate capacity constraints in our network. See also “—*We are experiencing network capacity constraints in the United States and expect capacity demands to increase, and we may in the future experience capacity constraints internationally. If we are unable to successfully implement planned or future technology enhancements to increase our network capacity, or our airline partners do not agree to such enhancements, 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 32%, 28% and 30%, respectively, of the revenue generated by our BA segment for the fiscal years ended December 31, 2018, 2017 and 2016. 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;

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- 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 2019 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, 2018, 2017 and 2016, 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 a next generation ATG solution, 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

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 Airfone, 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, revises 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 3MHz 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 3MHz spectrum.

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 unlicensed spectrum.

While competition in CA-ROW currently consists of satellite-based connectivity services, discussions are occurring in the European Union and elsewhere regarding the use of spectrum for ATG service and one such competitor is building a European hybrid satellite and air-to-ground network to provide aviation customers connectivity service in Europe and has announced its intention to launch such service in 2019. As a result, we may face competition from such 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, 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 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 will include low earth orbit satellites, the first of which is expected to launch in 2020. 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.

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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 our Senior Secured Notes, 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 of such jurisdictions impose assistance to law enforcement obligations 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, 2018, 2017, and 2016, the Gogo service we provide on commercial aircraft generated approximately 49%, 64% 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 2018 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.

We have incurred operating losses in every quarter since we launched the Gogo service and may continue to incur quarterly operating losses, which could negatively affect our stock price.

We have incurred operating losses in every quarter since we launched our CA service in August 2008, and we may not be able to generate sufficient revenue in the future to generate operating income. Since our initial public offering ("IPO"), we have obtained debt financing through our entry into our previous credit facility, issuance of Convertible Notes and issuance of Senior Secured Notes (each as defined below). 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 costs may increase in future periods, which may have a material adverse effect on our financial condition and results of operations. 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. 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.*" Such variables include, for our technology roadmap, the availability of and costs associated with development and deployment of 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, which we may not be able to secure on acceptable terms, or at all, to execute our business plan or new initiatives and refinance or repay our indebtedness at maturity.

As of December 31, 2018, our total cash, cash equivalents and short-term investments totaled \$223.5 million. However, 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 \$162.0 million of 2020 Convertible Notes (as defined below) that mature on March 1, 2020. 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 Senior Secured Notes, as amended. As of December 31, 2018, Gogo Intermediate Holdings LLC and its subsidiaries would have been able to incur approximately \$9 million of additional indebtedness. 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 may 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.

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 our next generation ATG solution 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. The pace of our 2Ku installation schedule has placed significant strain on our organization and we have encountered supply chain issues that include delays in delivering and installing our equipment and failure of such equipment to meet specifications upon delivery. These issues have been exacerbated due to issues encountered in our recent implementation of a new enterprise resource planning system. 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.

U.S. federal tax reform could materially adversely affect the Company's business and financial condition.

On December 22, 2017, Congress enacted H.R. 1, originally known as the Tax Cuts and Jobs Act ("U.S. Tax Reform"). U.S. Tax Reform includes a number of provisions, including the lowering of the U. S. corporate income tax rate from 35% to 21%, effective January 1, 2018. There are also provisions that may partially offset the benefit of such rate reduction, such as a limitation on the deductibility of U.S. interest expense. U.S. Tax Reform also includes international provisions, which generally establish a territorial-style system for taxing foreign source income of domestic multinational corporations. The Company's financial statement impacts include adjustments for the remeasurement of deferred tax assets and liabilities. The intended and unintended consequences of U.S. Tax Reform on our business are uncertain and could be adverse. We will continue to assess the effect of U.S. Tax Reform on our business as it relates to the disallowance of interest expense deductions, taxes on low taxed intangible foreign income as well as deductions for foreign derived intangible income and deductions for executive compensation.

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.

There can be no assurance that the implementation of our new business plan will be successful.

On July 12, 2018, we announced the IBP, which is intended to significantly reduce our cost structure, improve quality, drive revenue, streamline business processes, improve the terms of our airline contracts by reducing equipment subsidies and strengthen our balance sheet. In connection with the development of the IBP,

our Board asked management to assess whether shareholder value would be increased by engaging in any of the strategic and/or financial relationships and transactions that have been suggested to us by third parties. There can be no assurance that changes under the IBP will result in improvements to our operational or financial performance, that negotiations with airline partners will be successful or that we will pursue any strategic or financial relationship or transaction, and the outcome of any change is uncertain. Further, the process of implementing initiatives under the IBP 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 caused by our implementation of the IBP, 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 Federal Trade Commission ("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 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, 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.

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 California Consumer Privacy Act of 2018 ("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. It will take effect on January 1, 2020.

Our failure to comply with GDPR 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 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

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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 manufacture, install and maintain equipment and provide services for our existing ATG network, and ZTE has developed and agreed to supply equipment for the 2.4 GHz upgrade to the 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. In addition, ZTE USA is developing and has agreed to supply the base stations, associated core network elements and modems for the 2.4GHz upgrade to our existing system. 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 obtaining development services, support services, equipment and software from ZTE. In July 2018, BIS lifted the denial order. Media sources have recently reported that President Trump may sign an Executive Order that could preclude Chinese telecommunications providers from providing equipment for use in U.S. networks. We are unable to predict whether or when the Executive Order will be signed, whether it would apply to ZTE, and whether it would relate solely to future networks or also require operators of existing networks to replace equipment provided by Chinese telecommunications providers. In addition, in January 2018, a bipartisan group of U.S. lawmakers introduced bills that would ban the sale of U.S. chips and other components to ZTE and another Chinese telecommunications provider.

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 contracts, we

may be required to contract with a new supplier or suppliers for the equipment and/or services previously provided by ZTE for our existing ATG network and, should we decide to proceed with the 2.4 GHz technology, for the development, supply, support and other services to complete the development and launch of that system. 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. In addition, we have incurred material operating and capital expenditures for ZTE's development work for the 2.4 GHz upgrade. If ZTE is unable to complete the development of that system and we are not able to repurpose such development work with a new supplier or recover all or a significant portion of such expenditures from ZTE, our financial condition 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;

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- 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 2018, a significant majority 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 two patent infringement lawsuits. 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.

Our implementation of a new lease accounting standard in 2019 (“ASC 842”) will require substantial preparation, and our failure to properly implement this standard in a timely manner could result in inaccurate reporting of lease-related expenses and our right-of-use asset and lease obligation and cause us to fail to meet our financial reporting obligations.

In March 2016, the Financial Accounting Standards Board (“FASB”) issued new lease accounting guidance under ASC 842, which is effective for our interim and annual fiscal periods beginning after December 31, 2018. The new guidance introduces a lessee model that results in the recording of most leases on the balance sheet. Prior to adoption of the new standard, many of our leases were classified as operating leases and were not presented on our consolidated balance sheet. Implementation of ASC 842 has required additional investments and may require incremental resources and system configurations that could increase our operating costs in future periods. If we are not able to properly implement ASC 842 in a timely manner, the operating costs that we recognize and the related balance sheet and footnote disclosures that we provide under ASC 842 may not be accurately reported.

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, 2018, we had total consolidated indebtedness of approximately \$1.1 billion, including \$690.0 million outstanding of our 12.500% senior secured notes due 2022 (the “Senior Secured Notes”) and \$162.0 million outstanding of our 3.75% convertible senior notes due 2020 (the “2020 Convertible Notes”) and \$237.8 million outstanding of our 6.00% convertible senior notes due 2022 (the “2022 Convertible Notes,” and together with the 2020 Convertible Notes, the “Convertible Notes”). Subject to certain limitations set forth in the indenture governing the Senior Secured Notes, as amended, we and our subsidiaries may incur additional debt in the future, 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 outstanding notes 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;

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- 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, issuance of Convertible Notes and issuance 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 Senior Secured Notes, the indentures governing the Convertible Notes 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 Senior Secured Notes. As of December 31, 2018, the remaining permitted indebtedness for Gogo Intermediate Holdings LLC (a wholly owned subsidiary of Gogo Inc.) and its subsidiaries was approximately \$9 million. In the future, if our subsidiaries are in compliance with certain incurrence ratios set forth in the indenture governing the Senior Secured Notes, our subsidiaries may be able to incur additional indebtedness, which may increase the risks created by our current substantial indebtedness. The indenture governing the Senior Secured Notes does not prohibit Gogo Inc. from incurring additional indebtedness under any circumstances, but it does 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 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 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 Senior Secured Notes restricts 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, including amounts under the Senior Secured Notes or the Convertible Notes, 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 Senior Secured Notes contains 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 Senior Secured Notes 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.

The Senior Secured Notes 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 Senior Secured Notes 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 Senior Secured Notes, the holders of the Senior Secured Notes 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 Senior Secured Notes, 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 Convertible Notes, to repay the Convertible Notes at maturity or to purchase the Convertible Notes upon a fundamental change, and the indenture governing the Senior Secured Notes may limit our ability to pay interest, or dividends, on indebtedness, or preferred stock, issued to refinance the Convertible Notes.

Holders of the Convertible Notes will have the right to require us to purchase their Convertible Notes upon the occurrence of a fundamental change at a purchase price equal to 100% of the principal amount of the 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 Convertible Notes is triggered, holders of the Convertible Notes will be entitled to convert the Convertible Notes at any time during specified periods at their option. Upon conversion of the Convertible Notes, we will be required to make cash payments in respect of the 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 2020 Convertible Notes in cash on March 1, 2020, 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 Convertible Notes surrendered therefor or repay the Convertible Notes at maturity or upon Convertible Notes being converted. The indenture governing the Senior Secured Notes also does not allow our subsidiaries to distribute cash to us for the payment of the principal of the Convertible Notes. In addition, the indenture governing the Senior Secured Notes limits the amount of cash our subsidiaries may dividend, transfer or otherwise distribute to us, including cash distributed to pay interest on the 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 Convertible Notes, which may limit our ability to issue debt or other

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securities in an amount necessary to refinance the outstanding 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 Convertible Notes required by the indentures governing the Convertible Notes or to pay cash payable upon future conversions of the Convertible Notes as required by the indentures governing the Convertible Notes would constitute a default under the indentures governing the Convertible Notes. A default under the indentures governing the 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 Senior Secured Notes. 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 Convertible Notes or make cash payments upon conversions thereof. A default under the indentures governing the 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 Senior Secured Notes and the Convertible Notes may delay or prevent an otherwise beneficial attempt to take over our company.

The terms of the Senior Secured Notes and the Convertible Notes require our subsidiaries or us, respectively, to repurchase the Senior Secured Notes or the 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 Senior Secured Notes and the Convertible Notes to require our subsidiaries or us, respectively, to repurchase the Senior Secured Notes or the Convertible Notes, respectively. This 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 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 February 8, 2019, 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;
- domestic and international economic factors unrelated to our performance;

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- changes in technology or customer usage of Wi-Fi and Internet broadband services;
- any inability to timely and efficiently roll out 2Ku, 2.4 GHz or other components of our technology roadmap;
- any inability to sufficiently execute our international growth strategy;
- 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;
- 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, 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 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 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 Convertible Notes may also encourage short selling by market participants because any conversions of the Convertible Notes could depress our common stock price. The price of our common stock

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could be affected by possible sales of our common stock by investors who view the 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.

In March 2015, in connection with the issuance of the 2020 Convertible Notes, we entered into privately negotiated prepaid forward stock purchase transactions (the “Forward Transactions”) with certain financial institutions (the “Forward Counterparties”). The Forward Transactions are generally expected to facilitate privately negotiated derivative transactions, including swaps, between the Forward Counterparties and investors in the 2020 Convertible Notes relating to shares of our common stock by which investors in the 2020 Convertible Notes will establish short positions relating to shares of our common stock and otherwise hedge their investments in the 2020 Convertible Notes. The maturity date of such Forward Transactions is on or around March 1, 2020, the maturity date for the 2020 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 Forward Transactions, 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 Forward Transactions than there otherwise would have been had we not entered into the Forward Transactions. Such purchases or sales, including sales made in connection with any refinancing or repurchase of our 2020 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 2020 Convertible Notes, any Forward Counterparty may elect to settle a portion of its Forward Transaction early in accordance with its terms, which would result in a delivery of the applicable number of shares of our common stock to us earlier than the applicable maturity date described above.

In addition, we may request that any Forward Counterparty modify the settlement terms of its 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 its Forward Transaction in accordance with its terms, such Forward Counterparty would pay to us the net proceeds from the sale by such 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 Forward Counterparties are not required to effect any such settlement in cash in lieu of delivery of shares of our common stock and, if we request for any Forward Counterparty to effect any such settlement, it will be entered into in the discretion of the applicable Forward Counterparty on such terms as we may agree with such Forward Counterparty at the time.

Additionally, the Forward Counterparties (or their respective affiliates) are likely to modify their hedge positions in respect of the Forward Transactions 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 Forward Transactions (and are likely to do so during the final valuation period under the Forward Transactions and on or around any election by a Forward Counterparty to settle all of a portion of its 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 Counterparties are financial institutions, and we will be subject to the risk that any or all of them might default under the Forward Transactions. Our exposure to the credit risk of the Forward Counterparties 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 a 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 that 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 a Forward Counterparty, we may suffer more dilution than we currently anticipate with respect to our common stock.

Conversion of the 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 Convertible Notes may dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of any of the 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 Convertible Notes may encourage short selling by market participants because the conversion of the Convertible Notes could be used to satisfy short positions. In addition, the anticipated conversion of the 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 in connection with a financing, acquisition, litigation settlement, employee arrangement 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 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, 2018, 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 approximately 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.

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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;

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- 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 259,205 square feet for our CA business and corporate headquarters in Chicago, Illinois, under a lease agreement that expires in 2028. We also lease approximately 25,888 square feet for our CA manufacturing facility in Bensenville, Illinois under a lease agreement that expires on August 31, 2019. Additionally, our lease for our BA business in Broomfield, Colorado is for 122,127 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. 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. One of these defendants has filed an inter parties review against the asserted patent and must meet a certain threshold to continue. Linksmart sought to stay the suit against Gogo until the earlier of (i) a decision by the U.S. Patent and Trade Office that the threshold for review has not been met and that the review may not continue or (ii) if the review continues, its resolution. We agreed and the court has granted our request to stay our case until the first to occur of such events. Cases against the other defendants have also been stayed pending the inter parties review. The outcome of the inter parties review and this matter overall 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 December 10, 2018, two purported stockholders of the Company filed an amended 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 February 2019, we filed a motion to dismiss the amended complaint. That motion remains pending. We believe that the claims are without merit and intend 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

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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 pending resolution of the motion to dismiss in the Securities Litigation. We believe that the claims are without merit and intend to defend them vigorously. 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.

Holdings of Record

As of February 1, 2019, there were 49 stockholders of record of our common stock, and the closing price of our common stock was \$4.16 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

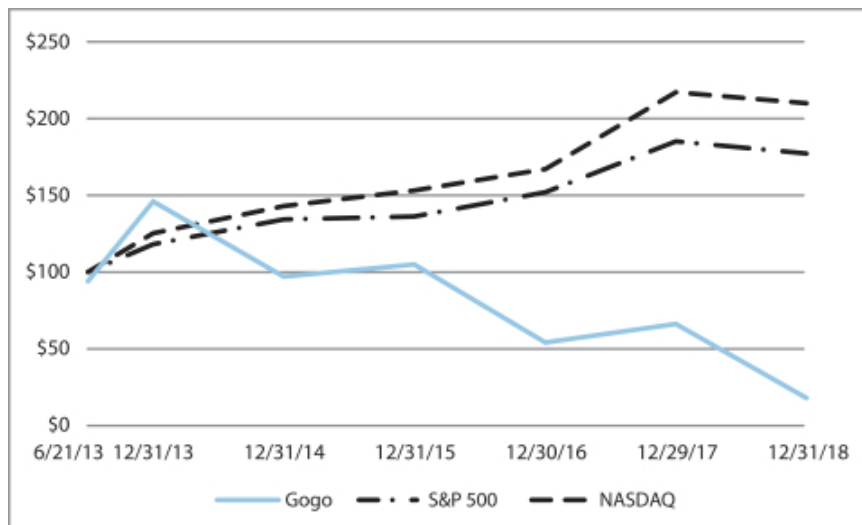
See Item 12, “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” for information regarding securities authorized for issuance.

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.

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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 June 21, 2013 (the date our common stock commenced trading on the NASDAQ) through December 31, 2018, the last trading day of 2018. The graph assumes that \$100 was invested at the market close on June 21, 2013 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, 2018, 2017 and 2016 and the consolidated balance sheet data as of December 31, 2018 and 2017 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, 2015 and 2014 and the consolidated balance sheet data as of December 31, 2016, 2015 and 2014 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,				
	2018	2017	2016	2015	2014
	(in thousands, except per share amounts)				
Consolidated Statement of Operations Data:					
Revenue:					
Service revenue	\$ 630,147	\$ 617,906	\$ 514,293	\$ 419,975	\$ 322,747
Equipment revenue (1)	263,617	81,184	82,257	80,913	85,744
Total revenue	<u>893,764</u>	<u>699,090</u>	<u>596,550</u>	<u>500,888</u>	<u>408,491</u>
Total operating expenses (1) (2)	<u>920,685</u>	<u>763,352</u>	<u>623,187</u>	<u>545,730</u>	<u>459,160</u>
Operating loss (2)	<u>(26,921)</u>	<u>(64,262)</u>	<u>(26,637)</u>	<u>(44,842)</u>	<u>(50,669)</u>
Other (income) expense:					
Interest expense	122,809	111,944	83,647	58,889	32,738
Extinguishment of debt	19,653	—	15,406	—	—
Adjustment of deferred financing costs	—	—	(792)	2,251	—
Interest income and other	<u>(4,059)</u>	<u>(2,214)</u>	<u>(1,707)</u>	<u>393</u>	<u>(52)</u>
Total other expense	<u>138,403</u>	<u>109,730</u>	<u>96,554</u>	<u>61,533</u>	<u>32,686</u>
Loss before income taxes	<u>(165,324)</u>	<u>(173,992)</u>	<u>(123,191)</u>	<u>(106,375)</u>	<u>(83,355)</u>
Income tax provision (benefit)	<u>(3,293)</u>	<u>(1,997)</u>	<u>1,314</u>	<u>1,238</u>	<u>1,183</u>
Net loss attributable to common stock	<u><u>\$ (162,031)</u></u>	<u><u>\$ (171,995)</u></u>	<u><u>\$ (124,505)</u></u>	<u><u>\$ (107,613)</u></u>	<u><u>\$ (84,538)</u></u>
Net loss per share attributable to common stock— basic and diluted (3)	<u>\$ (2.02)</u>	<u>\$ (2.17)</u>	<u>\$ (1.58)</u>	<u>\$ (1.35)</u>	<u>\$ (0.99)</u>
Weighted average shares used in computing net loss attributable to common stock—basic and diluted (3)	80,038	79,407	78,915	79,701	85,147

	As of December 31,				
	2018	2017	2016	2015	2014
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash and cash equivalents	\$ 184,155	\$ 196,356	\$ 117,302	\$ 147,342	\$ 131,295
Short-term investments	39,323	212,792	338,477	219,491	79,941
Total cash, cash equivalents and short-term investments	223,478	409,148	455,779	366,833	211,236
Working capital (4)	285,839	276,619	353,667	270,429	143,408
Total assets	1,265,096	1,403,175	1,246,196	1,004,353	756,344
Indebtedness and long-term capital leases, net of current portion (5)	1,025,094	1,001,993	802,709	545,359	294,439
Total liabilities	1,533,857	1,594,739	1,286,589	938,158	558,586
Total stockholders' equity (deficit)	(268,761)	(191,564)	(40,393)	66,195	197,758

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, and the accounting impact of one of our airline partners transitioning to the airline-directed model.
- (2) Includes depreciation and amortization expense of \$133.6 million, \$145.5 million, \$105.6 million, \$87.0 million and \$64.5 million, respectively, for each of the years ended December 31, 2018, 2017, 2016, 2015 and 2014.
- (3) The calculation of weighted average shares outstanding as of December 31, 2018, 2017, 2016 and 2015 excludes approximately 7.2 million shares that will be repurchased as a result of the Forward Transactions. See Note 7, "Long-Term Debt and Other Liabilities."
- (4) 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.
- (5) Includes deferred financing costs of \$17.1 million, \$16.2 million, \$16.3 million, \$14.6 million and \$11.3 million for each of the years ended December 31, 2018, 2017, 2016, 2015 and 2014, 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, the technology to which our ATG network evolves 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 roll-out of our satellite services, the potential licensing of additional spectrum, and the implementation of improvements to our network and operations as technology changes and we experience increased network capacity constraints;

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- costs associated with, and our ability to execute, our international expansion, including modifications of our network to accommodate satellite technology, development and implementation of new satellite-based technologies, the availability of satellite capacity, costs of satellite capacity to which we may have to commit well in advance, and our ability to obtain and comply with foreign telecommunications, aviation and other licenses and approvals necessary for our international operations;
- costs associated with managing a rapidly growing company;
- costs associated with, and our ability to obtain, sufficient capacity for heavily-trafficked areas in the United States and internationally, the costs of which we may have to commit to 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 fractional ownership customers;
- the economic environment and other trends that affect both business and leisure aviation travel;
- 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;
- our ability to engage suppliers of equipment components and network services on a timely basis and on commercially reasonable terms;
- costs and possible delays that we could incur if our supplier, ZTE, fails to comply with the settlement agreement between ZTE and the U.S. government or if continued security or other concerns result in a prohibition of or limitations on our doing business with ZTE;
- costs relating to the implementation of our ongoing integrated business planning process, including restructuring charges;
- 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.

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 segments, to evaluate the performance of our business and our

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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,		
	2018	2017	2016
Aircraft online (at period end)	2,551	2,840	2,676
Satellite	670	416	59
ATG	1,881	2,424	2,617
Total aircraft equivalents (average during the period)	2,818	2,835	2,629
Net annualized average monthly service revenue per aircraft equivalent (net annualized ARPA) (in thousands)	\$ 111	\$ 114	\$ 108

	Commercial Aviation Rest of World		
	For the Years Ended December 31,		
	2018	2017	2016
Aircraft online (at period end)	589	391	267
Total aircraft equivalents (average during the period)	418	268	196
Net annualized ARPA (in thousands)	\$ 149	\$ 192	\$ 137

- *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.
- *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.

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- 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. Beginning with the three month period ended March 31, 2018, we changed the calculation of ARPA to be net of revenue share expense and other transactional expenses in order to better reflect the financial statement impact of revenues generated under both the turnkey model and airline-directed model. The amounts reported above for the years ended December 31, 2017 and 2016 reflect this change in methodology. ARPA for the CA-NA segment for the years ended December 31, 2017 and 2016 was originally reported as \$140 thousand and \$137 thousand, respectively. ARPA for the CA-ROW segment for the years ended December 31, 2017 and 2016 was originally reported as \$214 thousand and \$159 thousand, respectively.

Business Aviation			
	For the Years Ended December 31,		
	2018	2017	2016
Aircraft online (at period end)			
Satellite	5,124	5,443	5,500
ATG	5,224	4,678	4,172
Average monthly service revenue per aircraft online			
Satellite	\$ 243	\$ 237	\$ 221
ATG	3,027	2,876	2,548
Units sold			
Satellite	460	412	477
ATG	1,062	831	737
Average equipment revenue per unit sold (in thousands)			
Satellite	\$ 39	\$ 43	\$ 43
ATG	66	57	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. For the year ended December 31, 2018, we recognized revenue on 34 AVANCE units that were previously deferred.
- 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.

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- *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.

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CAS:

CAS 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 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 (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.

Additionally, CA-NA network costs include the costs of operating and maintaining our ATG network, including backhaul, site leases and cell site operations. A significant portion of our ATG network costs are relatively fixed in nature and do not fluctuate directly with revenue. Network costs for the CA-NA segment include licensing expense for the Canadian ATG spectrum.

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. We charge a portion of the CA-NA segment's ATG network costs to the BA segment. This charge to the BA segment is based on the number of megabytes used by BA.

Beginning in January 2019, the BA segment is now responsible for operating and maintaining our ATG network.

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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 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), 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. We allocate to our CA-ROW and BA segments certain corporate operating expenses incurred by the CA-NA segment that are shared by all segments.

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 3-25 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 3-10 years, depending on the assets being amortized.

Segment Profit (Loss)

We measure our segments' performance on the basis of segment profit (loss), which is calculated as net income (loss) attributable to common stock before 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, the accounting impact of the transition to the airline-directed model, loss on extinguishment of debt and adjustment of deferred financing costs) and other income (expense).

Critical Accounting 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 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 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.

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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. Estimated revenue under these contracts anticipates increases in take rates over time consistent with our historical experience. Our estimated contract revenue may differ significantly from our initial estimates to the extent actual take rates differ from our historical experience.

As such, 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 of our turnkey airline contracts are in the early stages and subject to completion of certification and installation programs. 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. We intend to increase the weighting of our company-specific volatility over time, relying less on our peer group, as additional historical data becomes available.

- **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,		
	2018	2017	2016
Revenue:			
Service revenue	\$ 630,147	\$ 617,906	\$ 514,293
Equipment revenue	263,617	81,184	82,257
Total revenue	<u>893,764</u>	<u>699,090</u>	<u>596,550</u>
Operating expenses:			
Cost of service revenue (exclusive of items shown below)	291,642	268,334	226,078
Cost of equipment revenue (exclusive of items shown below)	222,244	58,554	48,650
Engineering, design and development	120,090	133,286	96,713
Sales and marketing	58,823	64,017	61,177
General and administrative	94,269	93,671	84,927
Depreciation and amortization	133,617	145,490	105,642
Total operating expenses	<u>920,685</u>	<u>763,352</u>	<u>623,187</u>
Operating loss	<u>(26,921)</u>	<u>(64,262)</u>	<u>(26,637)</u>
Other (income) expense:			
Interest income	(4,292)	(2,964)	(1,635)
Interest expense	122,809	111,944	83,647
Extinguishment of debt	19,653	—	15,406
Adjustment of deferred financing costs	—	—	(792)
Other (income) expense	233	750	(72)
Total other expense	<u>138,403</u>	<u>109,730</u>	<u>96,554</u>
Loss before incomes taxes	<u>(165,324)</u>	<u>(173,992)</u>	<u>(123,191)</u>
Income tax provision (benefit)	(3,293)	(1,997)	1,314
Net loss	<u>\$ (162,031)</u>	<u>\$ (171,995)</u>	<u>\$ (124,505)</u>

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,		% Change 2018 over 2017
	2018	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	<u>\$630,147</u>	<u>\$617,906</u>	<u>2.0%</u>
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	<u>\$263,617</u>	<u>\$ 81,184</u>	<u>224.7%</u>
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	<u>\$893,764</u>	<u>\$699,090</u>	<u>27.8%</u>

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	27,577	24,598	12.1%
Total service revenue	<u>\$367,368</u>	<u>\$393,484</u>	<u>(6.6%)</u>

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

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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 due primarily 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. Under the turnkey model, we are required to pay each airline a percentage of the service revenue we generate from transactions with the airline's passengers. The revenue share expense is included within cost of service revenue. However, under the airline-directed model, we generate revenue directly from the airline and do not incur revenue share expense. Therefore, the decrease in service revenue under the airline-directed model is offset by a reduction to our revenue share expense within cost of service 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.

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.

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 our existing airline partner contracts, as well as entering into new contracts.

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 14.9% 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 34.5% 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.

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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.

We expect CA-ROW equipment revenue to decrease in the near-term due to an upgrade program that occurred in 2018, which will be completed in 2019, and a change in mix of airlines with equipment installations.

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	2017	2018 over 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	<u>\$291,642</u>	<u>\$268,334</u>	<u>8.7%</u>

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 due primarily 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.

We expect cost of service revenue for CA-NA to plateau over time mainly due to increased satellite service fees for additional aircraft operating on our satellite network, offset by a reduction in operational costs.

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As we expand our CA-ROW business, we expect to incur additional cost of service revenue in CA-ROW, reflecting increased satellite usage, operations 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, 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	\$ 90,661	\$ 7,071	1,182.2%
BA	55,416	46,632	18.8%
CA-ROW	76,167	4,851	1,470.1%
Total	<u>\$222,244</u>	<u>\$58,554</u>	<u>279.6%</u>

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.

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 9.9% 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.

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

Sales and Marketing Expenses:

Sales and marketing expenses decreased 8.1% to \$58.8 million for the year ended December 31, 2018 as compared with \$64.0 million for the prior year due primarily to a decrease in CA-ROW and CA-NA, due to the

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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.

We expect consolidated sales and marketing expenses to decrease as a percentage of consolidated revenue over time.

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.

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

Segment Profit (Loss):

CA-NA's segment profit decreased 60.7% to \$26.2 million for the year ended December 31, 2018 as compared with \$66.8 million for the prior year primarily due to the changes discussed above.

BA's segment profit increased 40.6% to \$139.7 million for the year ended December 31, 2018 as compared with \$99.4 million for the prior year primarily due to the changes discussed above.

CA-ROW's segment loss decreased 11.6% to \$94.5 million for the year ended December 31, 2018 as compared with \$107.0 million for the prior year primarily due to the changes discussed above.

Depreciation and Amortization:

Depreciation and amortization expense decreased 8.2% 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.

We expect our depreciation and amortization expense to decrease in the future as a greater percentage of installations will be under 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		% Change 2018 over 2017
	Ended December 31,		
	2018	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	<u>\$138,403</u>	<u>\$109,730</u>	<u>26.1%</u>

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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.

We expect our interest expense to increase due to higher average debt outstanding and higher interest rates due to the issuance of the 2022 Convertible Notes in November 2018 and the associated accretion expense and amortization of deferred financing fees. 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, 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 H.R. 1, commonly known as the Tax Cuts and Jobs Act ("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.

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

Years Ended December 31, 2017 and 2016

Revenue:

Revenue by segment and percent change for the years ended December 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Years Ended December 31,		% Change 2017 over 2016
	2017	2016	
Service Revenue:			
CA-NA	\$393,484	\$357,250	10.1%
BA	170,880	132,845	28.6%
CA-ROW	53,542	24,198	121.3%
Total Service Revenue	<u>\$617,906</u>	<u>\$514,293</u>	<u>20.1%</u>
Equipment Revenue:			
CA-NA	\$ 7,129	\$ 14,273	(50.1%)
BA	69,732	66,804	4.4%
CA-ROW	4,323	1,180	266.4%
Total Equipment Revenue	<u>\$ 81,184</u>	<u>\$ 82,257</u>	<u>(1.3%)</u>
Total Revenue:			
CA-NA	\$400,613	\$371,523	7.8%
BA	240,612	199,649	20.5%
CA-ROW	57,865	25,378	128.0%
Total Revenue	<u>\$699,090</u>	<u>\$596,550</u>	<u>17.2%</u>

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Commercial Aviation North America:

CA-NA revenue increased to \$400.6 million for the year ended December 31, 2017 as compared with \$371.5 million for the prior year, primarily due to an increase in service revenue driven by Passenger Connectivity revenue offset in part by a decrease in equipment revenue. The increase in CA-NA Passenger Connectivity revenue was primarily due to an increase in connectivity take rate, which is the number of sessions expressed as a percentage of passengers, and an increase in the number of aircraft equivalents, offset in part by a decrease in average revenue per session. The connectivity take rate increased to 8.3% for the year ended December 31, 2017 as compared with 6.6% for the prior year, reflecting increased passenger adoption including the impact of third party-paid and airline-paid offerings. Average revenue per session decreased to \$10.33 for the year ended December 31, 2017 as compared with \$12.31 for the prior year, due to shifts in product mix, third party-paid and airline-paid offerings. Net annualized ARPA increased to \$114 thousand for the year ended December 31, 2017 as compared with \$108 thousand for the prior year.

A summary of the components of CA-NA's service revenue for the years ended December 31, 2017 and 2016 is as follows (*in thousands, except for percent change*):

	For the Years Ended December 31,		% Change 2017 over 2016
	2017	2016	
Passenger Connectivity revenue <i>(1)</i>	\$368,886	\$341,104	8.1%
Passenger Entertainment and CAS	24,598	16,146	52.3%
Total service revenue	<u>\$393,484</u>	<u>\$357,250</u>	<u>10.1%</u>

(1) Includes non-session related revenue of \$6.7 million and \$15.7 million for the years ended December 31, 2017 and 2016, respectively, primarily included within third party-paid revenue.

CA-NA Passenger Connectivity revenue increased to \$368.9 million for the year ended December 31, 2017 as compared with \$341.1 million for the prior year due to increases in third party-paid, airline-paid and passenger-paid revenue. Third party-paid revenue increased primarily due to increases in sponsorship, roaming, enterprise and wholesale revenue. Our airline-paid revenue increased due to new agreements with certain airline partners under which the airlines pay us for specified data usage, including data used by passengers and by airline crew members using connectivity services while in-flight. Passenger-paid revenue also increased due to higher demand but was somewhat limited by growth in third party-paid and airline-paid revenue, in line with our multiple payer strategy.

The increase in Passenger Entertainment and CAS revenue to \$24.6 million for the year ended December 31, 2017 as compared with \$16.1 million for the prior year was due to increased usage of Passenger Entertainment services under business-to-business arrangements with our airline partners, as all Passenger Entertainment arrangements transitioned to business-to-business arrangements during the year, and increased use of CAS operational applications during 2017.

CA-NA revenue was partially offset by a decrease in equipment revenue to \$7.1 million for the year ended December 31, 2017, as compared with \$14.3 million in the prior year period, due primarily to more equipment transactions under the airline-directed model (instead of the turnkey model) in the prior year period as compared with 2017.

Business Aviation:

BA revenue increased to \$240.6 million for the year ended December 31, 2017 as compared with \$199.6 million for the prior year primarily due to an increase in service revenue.

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BA service revenue increased 28.6% to \$170.9 million for the year ended December 31, 2017 as compared with \$132.8 million for the prior year primarily due to more customers subscribing to our Gogo Biz (ATG) service. The number of ATG aircraft online increased 12.1% to 4,678 as of December 31, 2017, as compared with 4,172 as of December 31, 2016.

BA equipment revenue increased 4.4% to \$69.7 million for the year ended December 31, 2017 as compared with \$66.8 million for the prior year due to an increase in ATG equipment revenue partially offset by a decrease in satellite equipment revenue.

Under a sales program for AVANCE equipment that started in 2016, we had a remaining deferred equipment revenue balance of approximately \$4.9 million as of December 31, 2017. This was in connection with a free upgrade program under which we shipped ATG and UCS equipment to customers who have a right to exchange that equipment for AVANCE equipment. During the year ended December 31, 2017, we shipped 12 AVANCE units under this program and recognized \$0.8 million of previously deferred equipment revenue.

Commercial Aviation Rest of World:

CA-ROW revenue increased to \$57.9 million for the year ended December 31, 2017 as compared with \$25.4 million for the prior year, due to an increase in service revenue and to a lesser extent an increase in equipment revenue.

CA-ROW service revenue increased to \$53.5 million for the year ended December 31, 2017 as compared with \$24.2 million for the prior year, due to an increase in net annualized ARPA and to a lesser extent an increase in aircraft equivalents. Net annualized ARPA for the CA-ROW segment increased to \$192 thousand for the year ended December 31, 2017 as compared with \$137 thousand for the prior year due to increased airline-paid passenger usage and the transition of one of our airline partners from the turnkey model in the prior year to the airline-directed model in 2017 due to specific provisions elected by the airline.

CA-ROW generated equipment revenue of \$4.3 million for the year ended December 31, 2017 as compared with \$1.2 million for the prior year due to the transition of one of our airline partners from the turnkey model to the airline-directed model in the first quarter of 2017 due to specific provisions elected by the airline.

Cost of Service Revenue:

Cost of service revenue by segment and percent change for the years ended December 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Years Ended December 31,		% Change
	2017	2016	2017 over 2016
CA-NA	\$149,671	\$145,545	2.8%
BA	40,821	35,027	16.5%
CA-ROW	77,842	45,506	71.1%
Total	<u>\$268,334</u>	<u>\$226,078</u>	<u>18.7%</u>

CA-NA cost of service revenue increased to \$149.7 million for the year ended December 31, 2017 as compared with \$145.5 million for the prior year due to increases in network operations expenses (including satellite service fees) and aircraft operations expenses. These increases were partially offset by increases in the amortization of our deferred airborne lease incentives, monthly service fees and maintenance fees paid to us by certain of our airline partners, all of which reduce our cost of services. See Note 15, "Leases," to our consolidated financial statements for additional information regarding our deferred airborne lease incentives.

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BA cost of service revenue increased to \$40.8 million for the year ended December 31, 2017 as compared with \$35.0 million for the prior year. The increase was primarily due to increased ATG units online and an increase in the average network consumption per ATG unit online which resulted in higher ATG network service costs and, to a lesser extent, an increase in satellite service fees.

CA-ROW cost of service revenue increased to \$77.8 million for the year ended December 31, 2017 as compared with \$45.5 million in the prior year primarily due to increases in network operations expenses (including satellite service fees) and aircraft operations expenses as the business continues to grow. Cost of service revenue was further impacted by decreases in the amortization of our deferred airborne lease incentives and monthly service fees paid to us by certain of our airline partners, both of which reduce our cost of services. See Note 15, "Leases," to our consolidated financial statements for additional information regarding our deferred airborne lease incentives.

Cost of Equipment Revenue:

Cost of equipment revenue by segment and percent change for the years ended December 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Years Ended December 31,		% Change 2017 over 2016
	2017	2016	
CA-NA	\$ 7,071	\$ 11,366	(37.8%)
BA	46,632	36,619	27.3%
CA-ROW	4,851	665	629.5%
Total	<u>\$58,554</u>	<u>\$48,650</u>	<u>20.4%</u>

Cost of equipment revenue increased to \$58.6 million for the year ended December 31, 2017 as compared with \$48.7 million for the prior year. The increase occurred within the BA and CA-ROW segments offset in part by a decrease in the CA-NA segment. The increase in BA was due to an increase in equipment revenue, inventory reserves on certain products, the write-off of capitalized software and changes in product mix. The increase in CA-ROW was due to additional equipment transactions that qualify for sale treatment. The decrease in CA-NA was due to fewer equipment transactions that qualify for sale treatment.

Engineering, Design and Development Expenses:

Engineering, design and development expenses increased 37.8% to \$133.3 million for the year ended December 31, 2017 as compared with \$96.7 million for the prior year due to increases in all three segments.

Engineering, design and development expenses for the CA-NA and CA-ROW segments increased due to higher personnel expense and outside services in connection with the development of new products and technologies and obtaining STCs. Additionally, the increase in the CA-NA segment for the year was due to the recognition of approximately \$17 million of expenses related to the development of our next generation ATG solution, primarily due to the achievement of major development milestones at different points during the year.

Sales and Marketing Expenses:

Sales and marketing expenses increased 4.6% to \$64.0 million for the year ended December 31, 2017 as compared with \$61.2 million for the prior year due to increases in the BA and CA-ROW segments, offset in part by a decrease in the CA-NA segment. Consolidated sales and marketing expenses as a percentage of total consolidated revenue was 9.2% for the year ended December 31, 2017 as compared with 10.3% for the prior year.

General and Administrative Expenses:

General and administrative expenses increased 10.6% to \$93.7 million for the year ended December 31, 2017 as compared with \$84.9 million for the prior year due to increases in all three segments, due primarily to increases in personnel related expenses. Consolidated general and administrative expenses as a percentage of total consolidated revenue was 13.4% for the year ended December 31, 2017 as compared with 14.2% for the prior year.

Segment Profit (Loss):

CA-NA's segment profit decreased 7.1% to \$66.8 million for the year ended December 31, 2017 as compared with \$71.9 million for the prior year primarily due to the changes as discussed above.

BA's segment profit increased 20.0% to \$99.4 million for the year ended December 31, 2017 as compared with \$82.9 million for the prior year primarily due to the changes as discussed above.

CA-ROW's segment loss increased 22.1% to \$107.0 million for the year ended December 31, 2017 as compared with \$87.6 million for the prior year primarily due the changes as discussed above.

Depreciation and Amortization:

Depreciation and amortization expense increased 37.7% to \$145.5 million for the year ended December 31, 2017 as compared with \$105.6 million for the prior year due to the increase in the number of aircraft outfitted with our airborne equipment by our CA-ROW and CA-NA segments and accelerated depreciation expense for certain upgrade and decommission programs. See Note 2, "Summary of Significant Accounting Policies," in our consolidated financial statements for additional information on the accelerated depreciation expense.

Other (Income) Expense:

Other (income) expense and percent change for the years ended December 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Years Ended December 31,		% Change
	2017	2016	2017 over 2016
Interest income	\$ (2,964)	\$ (1,635)	81.3%
Interest expense	111,944	83,647	33.8%
Loss on extinguishment of debt	—	15,406	n/a
Adjustment of deferred financing costs	—	(792)	n/a
Other (income) expense	750	(72)	n/a
Total	<u>\$109,730</u>	<u>\$96,554</u>	<u>13.6%</u>

Total other expense was \$109.7 million for the year ended December 31, 2017 as compared with \$96.6 million for the prior year. Interest expense increased during the year ended December 31, 2017 as compared with the prior year periods due to higher average debt levels outstanding during the current year as compared with the prior year. The increase in interest expense for the year ended December 31, 2017 as compared to the prior year was due to the issuance of the Original Senior Secured Notes in June 2016, the January 2017 Additional Notes in January 2017 and the September 2017 Additional Notes in September 2017 (all as defined below in "—Liquidity and Capital Resources"). The increase in interest expense associated with the Senior Secured Notes was partially offset by lower interest expense associated with the Amended and Restated Senior Term Facility, which was repaid in full in June 2016. See Note 7, "Long-Term Debt and Other Liabilities," in our consolidated financial statements for additional information. See Note 8, "Interest Costs," in

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our consolidated financial statements for additional information related to our interest expense. The year ended December 31, 2016 included a loss on extinguishment of debt related to the repayment of the Amended and Restated Senior Term Facility and adjustment of deferred financing costs, while the current year did not include such activities.

Income Taxes:

We incurred an income tax benefit of \$2.0 million with an effective tax rate of 1.1% for the year ended December 31, 2017 as compared with an income tax provision of \$1.3 million with an effective tax rate of (1.1%) for the prior year. The change to income tax benefit for the year ended December 31, 2017 as compared with income tax expense in the prior year is due primarily to the impact of the change in U.S. corporate tax rate as a result of U.S. Tax Reform enacted in December 2017. The difference between our effective tax rates and the U.S. federal statutory rate of 35% for the years ended December 31, 2017 and 2016 was primarily due to the recording of a valuation allowance against our net deferred tax assets which is excluded from taxable income (loss). 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 and Cash CAPEX as defined below. Management uses Adjusted EBITDA and Cash CAPEX 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 and Cash CAPEX 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 Cash CAPEX, 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 Cash CAPEX in addition to, and not as an alternative to, consolidated capital expenditures when evaluating our liquidity.

Definition and Reconciliation of Non-GAAP Measures

EBITDA represents net income (loss) attributable to common stock before income taxes, interest income, interest expense, depreciation expense and amortization of other intangible assets.

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) adjustment of deferred financing costs. 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 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 the exclusion of this cost provides a clearer view of the

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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 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 segment profit and loss (see Note 11, “Business Segments and Major Customers,” for a description of segment profit (loss) in our consolidated financial statements). Management evaluates 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 decision or the form of connectivity agreements. See “—Key Components of Consolidated Statements of Operations—Cost of Service Revenue—Commercial Aviation North America and Rest of World” for a discussion of the accounting treatment of deferred airborne lease incentives.

We believe it is useful for 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, the loss on extinguishment of debt and the adjustment of deferred financing costs from Adjusted EBITDA because of the non-recurring nature of these activities.

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.

Cash CAPEX represents capital expenditures net of airborne equipment proceeds received from the airlines. We believe Cash CAPEX provides a more representative indication of our liquidity requirements with respect to capital expenditures, as under certain agreements with our airline partners we are reimbursed for all or a substantial portion of the cost of our airborne equipment, thereby reducing our cash capital requirements.

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

	For the Years Ended December 31,		
	2018	2017	2016
Adjusted EBITDA:			
Net loss attributable to common stock (GAAP)	\$ (162,031)	\$ (171,995)	\$ (124,505)
Interest expense	122,809	111,944	83,647
Interest income	(4,292)	(2,964)	(1,635)
Income tax provision (benefit)	(3,293)	(1,997)	1,314
Depreciation and amortization	133,617	145,490	105,642
EBITDA	<u>86,810</u>	<u>80,478</u>	<u>64,463</u>
Stock-based compensation expense	16,912	19,821	17,621
Amortization of deferred airborne lease incentives	(31,650)	(41,816)	(29,519)
Amortization of STC costs	1,023	—	—
Transition to airline-directed model	(21,551)	—	—
Loss on extinguishment of debt	19,653	—	15,406
Adjustment of deferred financing costs	—	—	(792)
Adjusted EBITDA	<u>\$ 71,197</u>	<u>\$ 58,483</u>	<u>\$ 67,179</u>
Cash CAPEX:			
Consolidated capital expenditures (GAAP) ⁽¹⁾	\$ (131,663)	\$ (280,230)	\$ (176,881)
Change in deferred airborne lease incentives ⁽²⁾	(7,227)	18,120	14,550
Amortization of deferred airborne lease incentives ⁽²⁾	31,252	41,595	29,241
Cash CAPEX	<u>\$ (107,638)</u>	<u>\$ (220,515)</u>	<u>\$ (133,090)</u>

(1) See consolidated statements of cash flows.

(2) Excludes deferred airborne lease incentives associated with STCs for the years ended December 31, 2018, 2017 and 2016, as STC costs are expensed as incurred as part of Engineering, Design and Development for turnkey model airline contracts.

Material limitations of Non-GAAP measures

Although EBITDA, Adjusted EBITDA and Cash CAPEX are measurements frequently used by investors and securities analysts in their evaluations of companies, EBITDA, Adjusted EBITDA and Cash CAPEX 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 are:

- 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 related to employee compensation;
- Cash CAPEX does not reflect the full extent of capital investments we have made in our operations; and

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- Other companies in our or related industries may calculate these measures differently from the way we do, limiting their usefulness as comparative measures.

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,		
	2018	2017	2016
Net cash provided by (used in) operating activities	\$ (82,311)	\$ 60,256	\$ 64,988
Net cash provided by (used in) investing activities	41,806	(157,395)	(295,783)
Net cash provided by financing activities	27,314	174,936	201,053
Effect of foreign exchange rate changes on cash	578	743	(522)
Increase (decrease) in cash, cash equivalents and restricted cash	(12,613)	78,540	(30,264)
Cash, cash equivalents and restricted cash at the beginning of period	203,729	125,189	155,453
Cash, cash equivalents and restricted cash at the end of period	<u>\$ 191,116</u>	<u>\$ 203,729</u>	<u>\$ 125,189</u>
Supplemental information:			
Cash, cash equivalents and restricted cash at the end of period	\$ 191,116	\$ 203,729	\$ 125,189
Less: current restricted cash	1,535	500	114
Less: non-current restricted cash	5,426	6,873	7,773
Cash and cash equivalents at the end of the period	<u>\$ 184,155</u>	<u>\$ 196,356</u>	<u>\$ 117,302</u>
Short-term investments	\$ 39,323	\$ 212,792	\$ 338,477

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.

Senior Secured Notes

On June 14, 2016 (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) (the "Co-Issuer" and, together with GIH, the "Issuers"), issued \$525 million aggregate principal amount of 12.500% senior secured notes due 2022 (the "Original 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 "Subsidiary Guarantors" and, together with us, the "Guarantors"), and U.S. Bank National Association, as trustee (in such capacity, the "Trustee") and as collateral agent (in such capacity, the "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 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,

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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 when we paid in full our January 2018 interest payment in January 2018. We refer to the Original Senior Secured Notes, the January 2017 Additional Notes and the September 2017 Additional Notes collectively as the “Senior Secured Notes.”

As noted above, on September 20, 2017, the Issuers, the Guarantors and the Trustee entered into the Supplemental Indenture to (i) increase the amount of additional secured indebtedness under the Credit Facilities (as defined in the Indenture) that may be incurred by the Issuer and its Restricted Subsidiaries (as defined in the Indenture) under the Indenture by \$100 million (from \$75 million to \$175 million in aggregate principal amount), (ii) permit the Issuer and its Restricted Subsidiaries to incur additional secured indebtedness in connection with vendor financing arrangements not to exceed \$50 million in aggregate principal amount at any time outstanding and (iii) permit the Issuer and its Restricted Subsidiaries to make additional dividends or distributions to Gogo in an aggregate amount of up to \$15 million during any twelve-month period to pay interest on any indebtedness or preferred stock with a maturity later than July 1, 2022. The Supplemental Indenture became effective immediately upon execution, following our receipt of consents from holders of a majority of the outstanding principal amount of the Existing Notes (excluding Existing Notes held by the Issuers or any affiliates of the Issuers) to the Supplemental Indenture and amendments to the collateral agency agreement governing the Senior Secured Notes (the “Consent Solicitation”). In connection with the Consent Solicitation, GIH paid \$1.4 million in fees (“Consent Fees”) to holders of Existing Notes who validly tendered (and did not revoke) their consents prior to the expiration of the Consent Solicitation.

As of December 31, 2018 and 2017, the outstanding principal amount of the Senior Secured Notes was \$690.0 million and \$690.0 million, respectively, the unamortized debt premium and Consent Fees were \$12.7 million and \$15.5 million, respectively, and the net carrying amount was \$702.7 million and \$705.5 million, respectively.

Interest on the Senior Secured Notes accrues at the rate of 12.500% per annum and is payable semi-annually in arrears on January 1 and July 1, which commenced on January 1, 2017 (other than the January 2017 Additional Notes, for which interest payments commenced on July 1, 2017, and the September 2017 Additional Notes, for which interest payments commenced on January 1, 2018). The Senior Secured Notes mature on July 1, 2022. The January 2017 Additional Notes and September 2017 Additional Notes have the same terms as the Original Senior Secured Notes, except with respect to the issue date and issue price, and are treated as a single series for all purposes under the Indenture and the security documents that govern the Senior Secured Notes.

We paid approximately \$11.4 million, \$2.0 million and \$2.5 million, respectively, of aggregate origination fees and financing costs related to the issuance of the Original Senior Secured Notes, the January 2017 Additional Notes and the September 2017 Additional Notes, which have been accounted for as deferred financing costs. Additionally, as noted above, we paid approximately \$1.4 million of Consent Fees, which partially offset the net carrying value of the Senior Secured Notes. The deferred financing costs on our consolidated balance sheet are being amortized over the contractual term of the Senior Secured Notes using the effective interest method. Total amortization expense was \$2.6 million, \$2.3 million and \$1.0 million, respectively, for the years ended December 31, 2018, 2017 and 2016. As of December 31, 2018 and 2017, the balance of unamortized deferred financing costs related to the Senior Secured Notes was \$10.0 million and \$12.6 million, respectively, and is included as a reduction to long-term debt in our consolidated balance sheet. See Note 8, “Interest Costs,” for additional information.

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

- effectively senior to all of the Issuers’ existing and future senior unsecured indebtedness and the Issuers’ indebtedness secured on a junior priority basis by the same collateral securing the Senior

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Secured Notes, if any, in each case to the extent of the value of the collateral securing the Senior Secured Notes;

- effectively senior in right of payment to all of the Issuers' future indebtedness that is subordinated in right of payment to the Senior Secured Notes;
- 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 Senior Secured Notes and (ii) indebtedness secured on a junior priority basis by the same collateral securing the Senior Secured Notes, if any, in each case to the extent of any insufficiency in the collateral securing the Senior Secured Notes;
- structurally senior to all of our existing and future indebtedness, including our Convertible Notes (as defined below); and
- structurally subordinated to all of the indebtedness and other liabilities of any non-Guarantors (other than the Issuers).

The Senior Secured Notes are guaranteed, on a senior secured basis, by us and all of GIH's existing and future domestic restricted subsidiaries (other than the Co-Issuer), subject to certain exceptions. The Issuers' obligations under the Senior Secured Notes are not guaranteed by Gogo International Holdings LLC, a subsidiary of ours that holds no material assets other than equity interests in our foreign subsidiaries. Each guarantee is a senior secured obligation of such Guarantor and is:

- effectively senior to all of such Guarantor's existing and future senior unsecured indebtedness and such Guarantor's indebtedness secured on a junior priority basis by the same collateral, if any, securing the guarantee of such Guarantor, in each case to the extent of the value of the collateral securing such guarantee;
- effectively senior in right of payment to all of such Guarantor's future indebtedness that is subordinated in right of payment to such Guarantor's guarantee;
- effectively equal in right of payment with all of such Guarantor's existing and future (i) unsecured indebtedness that is not subordinated in right of payment to such Guarantor's guarantee, and (ii) indebtedness secured on a junior priority basis by the same collateral, if any, securing the guarantee of such Guarantor, in each case to the extent of any insufficiency in the collateral securing such guarantee; and
- structurally subordinated to all indebtedness and other liabilities of any non-Guarantor subsidiary of such Guarantor (excluding, in the case of our guarantee, the Issuers).

The Senior Secured Notes and the related guarantees are secured by first-priority liens, subject to permitted liens, on substantially all of the Issuers' and the Guarantors' assets, except for certain excluded assets, including pledged equity interests of the Issuers and all of our existing and future domestic restricted subsidiaries guaranteeing the Senior Secured Notes.

The security interests in certain collateral may be released without the consent of holders of the Senior Secured Notes if such collateral is disposed of in a transaction that complies with the Indenture and related security agreements. In addition, under certain circumstances, we and the Guarantors have the right to transfer certain intellectual property assets that on the Issue Date constitute collateral securing the Senior Secured Notes or the guarantees to a restricted subsidiary organized under the laws of Switzerland, resulting in the release of such collateral without consent of the holders of the Senior Secured Notes.

On or after July 1, 2019, the Issuers may, at their option, at any time or from time to time, redeem any of the Senior Secured Notes in whole or in part. The 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

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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 July 1 of the following years:

Year	Redemption Price
2019	106.250%
2020	103.125%
2021 and thereafter	100.000%

In addition, at any time prior to July 1, 2019, the Issuers may redeem up to 35% of the aggregate principal amount of the Senior Secured Notes with the proceeds of certain equity offerings at a redemption price of 112.500% of the principal amount redeemed, plus accrued and unpaid interest, if any, to (but not including) the date of redemption; provided, however, that Senior Secured Notes representing at least 65% of the principal amount of the Senior Secured Notes remain outstanding immediately after each such redemption.

The Issuers may redeem the Senior Secured Notes, in whole or in part, at any time prior to July 1, 2019, at a redemption price equal to 100% of the principal amount of the Senior Secured Notes redeemed plus the make-whole premium set forth in the Indenture as of, and accrued and unpaid interest, if any, to (but not including) the applicable redemption date.

The Indenture contains covenants that, among other things, limit the ability of the Issuers and the 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 our 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, including us. Most of these covenants will cease to apply if, and for as long as, the 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 prior to July 1, 2022, GIH is required to make an offer to repurchase for cash all of the 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 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 Senior Secured Notes issued under the Indenture to be due and payable immediately. As of December 31, 2018, no event of default had occurred.

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. Interest payments begin 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

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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, 2018, the outstanding principal on the 2022 Convertible Notes was \$237.8 million, the unamortized debt discount was \$47.7 million and the net carrying amount of the liability component was \$190.1 million.

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 of the deferred financing costs was \$0.2 million for the year ended December 31, 2018. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2018, the balance of unamortized deferred financing costs related to the 2022 Convertible Notes was \$6.2 million 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, 2018. 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 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. The 2020 Convertible Notes mature on March 1, 2020, 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 2020 Convertible Notes semi-annually in arrears on March 1 and September 1 of each year. Interest payments began on September 1, 2015.

During November 2018, we repurchased \$199.9 million of outstanding principal amount of the 2020 Convertible Notes. As a result of the repurchase, the carrying value of the 2020 Convertible Notes were accreted up \$17.9 million to face value. Additionally, we expensed \$1.3 million of unamortized deferred financing costs and paid \$0.5 million of fees in connection with the repurchase. These three items comprise the loss on extinguishment of debt of \$19.7 million in our consolidated statement of operations.

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 note holders elect not to settle the debt through conversion, we must settle the 2020 Convertible Notes at face value. Therefore, the liability component will be accreted up to the face value of the 2020 Convertible Notes, which will result in additional non-cash interest expense being recognized in the consolidated statements of operations through the 2020 Convertible Notes maturity date (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%. The equity component will not be remeasured as long as it continues to meet the conditions for equity classification.

As of December 31, 2018 and 2017, the outstanding principal on the 2020 Convertible Notes was \$162.0 million and \$361.9 million, respectively, the unamortized debt discount was \$12.8 million and \$50.4 million, respectively, and the net carrying amount of the liability component was \$149.2 million and \$311.5 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 \$1.4 million, \$1.5 million and \$1.4 million, respectively, for the years ended December 31, 2018, 2017 and 2016. Additionally, as noted above, we expensed \$1.3 million of unamortized

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deferred financing fees as a result of the repurchase. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2018 and 2017, the balance of unamortized deferred financing costs related to the 2020 Convertible Notes was \$0.9 million and \$3.6 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 is equivalent to an initial conversion price of approximately \$23.85 per share of our common stock. Upon conversion, we currently expect 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 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 2020 Convertible Notes, at their option, in multiples of \$1,000 principal amount at any time prior to December 1, 2019, but only in the following circumstances:

- during any fiscal quarter beginning after the fiscal quarter ended June 30, 2015, 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 2020 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 2020 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 2020 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 December 1, 2019 occurred during the year ended December 31, 2018. Regardless of whether any of the foregoing circumstances occurs, a holder may convert its 2020 Convertible Notes, in multiples of \$1,000 principal amount, at any time on or after December 1, 2019 until maturity.

In addition, if we undergo a fundamental change (as defined in the indenture governing the 2020 Convertible Notes), holders may, subject to certain conditions, require us to repurchase their 2020 Convertible Notes for cash at a price equal to 100% of the principal amount of the 2020 Convertible Notes to be purchased, plus any accrued and unpaid interest. In addition, if specific corporate events occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its 2020 Convertible Notes in connection with such a corporate event in certain circumstances.

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. In the future, we may request that any Forward Counterparty modify the settlement terms of its 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 its Forward Transaction in accordance with its terms, such Forward Counterparty would pay to us the net proceeds from the sale by such 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

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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 Forward Counterparties are not required to effect any such settlement in cash in lieu of delivery of shares of our common stock and, if we request for any Forward Counterparty to effect any such settlement, it will be entered into in the discretion of the applicable Forward Counterparty on such terms as we may agree with such Forward Counterparty at the time. As a result of the Forward Transactions, total shareholders' equity within our consolidated balance sheet was reduced by approximately \$140 million. Approximately 7.2 million shares of common stock that will be effectively repurchased through the Forward Transactions are treated as retired shares for basic and diluted EPS purposes although they remain legally outstanding.

Amended and Restated Senior Term Facility

On July 30, 2014, GIH, Gogo Business Aviation LLC, f/k/a Aircell Business Aviation Services LLC ("GBA"), and Gogo LLC, as borrowers (collectively, the "Borrowers"), entered into an Amendment and Restatement Agreement (the "Amendment") to the Credit Agreement dated as of June 21, 2012 and amended on April 4, 2013 (the "Amended Senior Term Facility") among the Borrowers, the lenders named therein, and Morgan Stanley Senior Funding, Inc., as Administrative Agent and Collateral Agent. We refer to the Amendment and the Amended Senior Term Facility collectively as the "Amended and Restated Senior Term Facility."

On June 14, 2016, the outstanding principal balance of \$287.7 million, together with accrued and unpaid interest, was paid in full, and the Amended and Restated Senior Term Facility was terminated in accordance with its terms on such date (subject to the survival of provisions expressly stated therein to survive the termination thereof). Additionally, we paid the voluntary prepayment premium of 3.0%, or \$8.6 million, and wrote off all of the remaining unamortized deferred financing costs of \$6.8 million. Both of these items are included in loss on extinguishment of debt in our consolidated financial statements.

We paid \$22.2 million of loan origination fees and financing costs related to the Amended and Restated Senior Term Facility, all but \$4.1 million of which were accounted for as deferred financing costs. Total amortization expense of the deferred financing costs was \$1.4 million for the year ended December 31, 2016. Amortization expense is included in interest expense in the consolidated statements of operations. As noted above, deferred financing costs related to the Amended and Restated Senior Term Facility were written off as of June 14, 2016.

Restricted Cash:

Our restricted cash balances were \$7.0 million and \$7.4 million, respectively, as of December 31, 2018 and 2017 and primarily consist of letters of credit. 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, the Amended and Restated Senior Term Facility, the 2022 Convertible Notes, the 2020 Convertible Notes and the Senior Secured Notes, to date we have not generated positive cash flows on a consolidated basis. However, although we can provide no assurances, we believe that our cash, cash equivalents and short-term investments on hand as of December 31, 2018, will be sufficient to meet our obligations as they become due, and satisfy our working capital and capital expenditure requirements for at least one year from the date the 2018 financial statements are issued.

We also believe that our cash, cash equivalents, short-term investments and cash flows provided by operating activities will be sufficient to meet our operating obligations, and satisfy future working capital and

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capital expenditure requirements beyond one year from the date the 2018 financial statements are issued; however, payment of our long-term debt, including our 2020 Convertible Notes due March 1, 2020 at maturity, depends on our ability to obtain additional equity financing, incur additional indebtedness or consummate other potential strategic transactions.

The Indenture governing our Senior Secured Notes contains covenants that limit the ability of GIH and its subsidiaries to incur additional indebtedness. Additionally, the Indenture governing the Senior Secured Notes limits the amount of cash GIH and its subsidiaries may distribute to us, including cash distributed to us to pay interest on the 2022 and 2020 Convertible Notes and pay any interest on other indebtedness incurred by us, including indebtedness or preferred stock to refinance, replace, renew or refund the 2022 and 2020 Convertible Notes. 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.

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,		
	2018	2017	2016
Net loss	\$(162,031)	\$(171,995)	\$(124,505)
Non-cash charges and credits	180,697	194,019	164,598
Changes in operating assets and liabilities	(100,977)	38,232	24,895
Net cash provided by (used in) operating activities	<u>\$ (82,311)</u>	<u>\$ 60,256</u>	<u>\$ 64,988</u>

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 due primarily 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).

For the year ended December 31, 2017, cash provided by operating activities was \$60.3 million as compared with \$65.0 million for the prior year. The principal contributors to the decrease in operating cash flows were:

- A \$18.1 million change in net loss adjusted for non-cash charges and credits that was due primarily to increases in the CA-NA, BA and CA-ROW segments' service revenues more than offset by increased spending in all three segments, as noted above under "—Results of Operations."
- Offset in part by a \$13.3 million increase in cash flows related to changes in operating assets and liabilities resulting from:
 - An increase in cash flows for operating assets and liabilities is due to the following:
 - Changes in BA's inventory due to inventory builds throughout 2016 while inventory decreased during 2017;
 - Changes in all three segments' prepaid expenses and other current assets. The change in CA-NA was due to the recognition of development services during 2017 that were paid for in 2016. The change in BA was due to deposits made on certain inventory items during the first quarter of 2016, while no such payments were made during 2017. The change in CA-ROW was due to the timing of payments on satellite services;
 - Changes in all three segments accrued liabilities and CA-NA and CA-ROW's accounts payable due primarily to the timing of payments;
 - Changes in CA-ROW's deferred revenue as deferred revenue balances increased more during 2017 than in 2016; and
 - Changes in CA-NA's deferred airborne lease incentives due to more installations at higher amounts during 2017 as compared with 2016.
 - Partial offsets to the above due to decreases in cash flows for operating assets and liabilities due to the following:
 - Changes in accrued interest due to accrued interest balances increasing more in 2016 than in 2017, due to the issuance of the Original Senior Secured Notes in 2016 (which pay interest in January and July each year);
 - Changes in CA-NA's and BA's deferred revenue as deferred revenue balances increased more during 2016 than in 2017;
 - Changes in all three segments accounts receivable due to accounts receivable balances increasing more in 2017 than 2016 due to increased activity and the timing of collections; and
 - Changes in CA-ROW's deferred airborne lease incentives due to more installations at higher amounts during 2016 as compared with 2017.

Cash flows provided by (used in) Investing Activities:

Cash provided by investing activities was \$41.8 million for the year ended December 31, 2018. Cash used in investing activities was \$157.4 million and \$295.8 million for the years ended December 31, 2017 and 2016, respectively. Investing activities is 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 new 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, investing activities includes net changes in our short-term investments of \$173.5 million, \$125.7 million and (\$119.0) million, respectively, for the years ended December 31, 2018, 2017 and 2016.

Cash flows provided by Financing Activities:

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 capital 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 the issuance of the January 2017 Additional Notes and the September 2017 Additional Notes with gross proceeds of \$181.8 million, offset in part by the payment of debt issuance costs for the January 2017 Additional Notes and September 2017 Additional Notes of \$3.6 million and capital lease payments of \$3.0 million.

Cash provided by financing activities for the year ended December 31, 2016 was \$201.1 million primarily due to the issuance of \$525.0 million of the Original Senior Secured Notes, partially offset by the \$310.1 million repayment in full of the Amended and Restated Credit Agreement (including the early prepayment penalty of approximately \$8.6 million), the payment of debt issuance costs for the Original Senior Secured Notes of \$11.5 million (\$10.6 million related to the issuance of the Original Senior Secured Notes in June 2016 and \$0.9 million related to the issuance of the January 2017 Additional Notes) and capital lease payments of \$2.6 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 new office locations.

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.

We expect capital expenditures to decrease in 2019 compared to 2018 due to a lower number of installations under the turnkey model.

Capital expenditures for the years ended December 31, 2017 and 2016 were \$280.2 million and \$176.9 million, respectively. The increase in capital expenditures was primarily due to an increase in airborne equipment purchases (as airborne equipment represented approximately 70% of our capital expense for the year ended December 31, 2017), primarily for the rollout of 2Ku.

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, 2018. 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:					
Capital lease obligations	\$ 925	\$ 707	\$ 218	\$ —	\$ —
Operating lease obligations	172,857	21,902	39,609	33,246	78,100
Purchase obligations (1)	298,221	298,221	—	—	—
2022 Convertible Notes (2)	237,750	—	—	237,750	—
Interest on 2022 Convertible Notes	48,144	14,265	28,530	5,349	—
2020 Convertible Notes (3)	162,000	—	162,000	—	—
Interest on 2020 Convertible Notes	7,088	6,075	1,013	—	—
Senior Secured Notes	690,000	—	—	690,000	—
Interest on Senior Secured Notes	345,000	86,250	172,500	86,250	—
Satellite transponder and teleport services	548,855	98,889	166,284	124,696	158,986
Deferred revenue arrangements (4)	60,053	38,571	4,677	4,229	12,576
Deferred airborne lease incentives (5)	153,231	24,145	42,665	41,785	44,636
Other long-term obligations (6)	61,572	11,521	11,213	1,478	37,360
Total	\$ 2,785,696	\$ 600,546	\$ 628,709	\$ 1,224,783	\$ 331,658

- (1) As of December 31, 2018, 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) The 2022 Convertible Notes mature on May 15, 2022. See Note 7, “Long-Term Debt and Other Liabilities,” for more information.
- (3) The 2020 Convertible Notes mature on March 1, 2020. See Note 7, “Long-Term Debt and Other Liabilities,” for more information.
- (4) Amounts represent obligations to provide services for which we have already received cash from our customers.
- (5) 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.
- (6) 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, 2018 exchange rate. Other long-term obligations do not include \$2.1 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, 2018, commit us to purchase transponder and teleport satellite services totaling approximately \$98.9 million in 2019, \$89.4 million in 2020, \$76.9 million in 2021, \$66.1 million in 2022, \$58.6 million in 2023 and \$159.0 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.

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Leases and Cell Site Contracts: We have lease agreements relating to certain facilities and equipment, which are considered operating leases. Additionally, we have operating leases with wireless service providers for tower space and base station capacity on a volume usage basis (“cell site leases”), some of which provide for minimum annual payments. 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 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. 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.

A contract with one of our airline customers required us to provide the airline customer with a cash rebate of \$1.8 million in June 2018, which has not yet been paid.

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, other than operating leases, which have or are reasonably likely to have a material effect on our results of operations. See Note 15, “Leases,” in our consolidated financial statements.

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. Treasuries, U.S. Government Agency Securities, and Money Market Funds. Our cash and cash equivalents as of December 31, 2018 and 2017 primarily included amounts in bank deposit accounts and Money Market Funds. We believe that a change in average interest rates would not adversely affect our interest income and results of operations by a material amount.

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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. However, 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 December 31, 2018 and December 31, 2017, included amounts in bank deposit accounts and money market funds, and our short-term investments are made up of U.S. Treasury bills. We believe we have minimal interest rate risk; a 10% change in the average interest rate on our portfolio would have reduced interest income for the years ended December 31, 2018, 2017 and 2016 by an immaterial amount.

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 of the entire year because 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. We expect seasonality of the air transportation business to continue, which may affect our results of operations in any one period.

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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, 2018 and 2017, 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, 2018, 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, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, 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, 2018, 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 February 21, 2019, expressed an unqualified opinion on the Company’s internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the financial statements, effective January 1, 2018, the Company adopted FASB ASC 606, *Revenue from Contracts with Customers*, 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
February 21, 2019

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, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	\$ 184,155	\$ 196,356
Short-term investments	39,323	212,792
Total cash, cash equivalents and short-term investments	223,478	409,148
Accounts receivable, net of allowances of \$500 and \$587, respectively	134,308	117,896
Inventories	193,045	45,543
Prepaid expenses and other current assets	34,695	20,310
Total current assets	<u>585,526</u>	<u>592,897</u>
Non-current assets:		
Property and equipment, net	511,867	656,038
Goodwill and intangible assets, net	83,491	87,133
Other non-current assets	84,212	67,107
Total non-current assets	<u>679,570</u>	<u>810,278</u>
Total assets	<u>\$ 1,265,096</u>	<u>\$ 1,403,175</u>
Liabilities and stockholders' deficit		
Current liabilities:		
Accounts payable	\$ 23,860	\$ 27,130
Accrued liabilities	212,459	201,815
Deferred revenue	38,571	43,448
Deferred airborne lease incentives	24,145	42,096
Current portion capital leases	652	1,789
Total current liabilities	<u>299,687</u>	<u>316,278</u>
Non-current liabilities:		
Long-term debt	1,024,893	1,000,868
Deferred airborne lease incentives	129,086	142,938
Other non-current liabilities	80,191	134,655
Total non-current liabilities	<u>1,234,170</u>	<u>1,278,461</u>
Total liabilities	<u>1,533,857</u>	<u>1,594,739</u>
Commitments and contingencies (Note 15)	—	—
Stockholders' deficit		
Common stock, par value \$0.0001 per share; 500,000,000 shares authorized at December 31, 2018 and 2017; 87,678,812 and 87,062,578 shares issued at December 31, 2018 and 2017, respectively; and 87,560,694 and 86,843,928 shares outstanding at December 31, 2018 and 2017, respectively	9	9
Additional paid-in capital	963,458	898,729
Accumulated other comprehensive loss	(3,554)	(933)
Accumulated deficit	(1,228,674)	(1,089,369)
Total stockholders' deficit	<u>(268,761)</u>	<u>(191,564)</u>
Total liabilities and stockholders' deficit	<u>\$ 1,265,096</u>	<u>\$ 1,403,175</u>

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,		
	2018	2017	2016
Revenue:			
Service revenue	\$ 630,147	\$ 617,906	\$ 514,293
Equipment revenue	263,617	81,184	82,257
Total revenue	<u>893,764</u>	<u>699,090</u>	<u>596,550</u>
Operating expenses:			
Cost of service revenue (exclusive of items shown below)	291,642	268,334	226,078
Cost of equipment revenue (exclusive of items shown below)	222,244	58,554	48,650
Engineering, design and development	120,090	133,286	96,713
Sales and marketing	58,823	64,017	61,177
General and administrative	94,269	93,671	84,927
Depreciation and amortization	133,617	145,490	105,642
Total operating expenses	<u>920,685</u>	<u>763,352</u>	<u>623,187</u>
Operating loss	<u>(26,921)</u>	<u>(64,262)</u>	<u>(26,637)</u>
Other (income) expense:			
Interest income	(4,292)	(2,964)	(1,635)
Interest expense	122,809	111,944	83,647
Loss on extinguishment of debt	19,653	—	15,406
Adjustment of deferred financing costs	—	—	(792)
Other (income) expense	233	750	(72)
Total other expense	<u>138,403</u>	<u>109,730</u>	<u>96,554</u>
Loss before income taxes	<u>(165,324)</u>	<u>(173,992)</u>	<u>(123,191)</u>
Income tax provision (benefit)	(3,293)	(1,997)	1,314
Net loss	<u>\$ (162,031)</u>	<u>\$ (171,995)</u>	<u>\$ (124,505)</u>
Net loss attributable to common stock per share—basic and diluted	<u>\$ (2.02)</u>	<u>\$ (2.17)</u>	<u>\$ (1.58)</u>
Weighted average number of shares—basic and diluted	<u>80,038</u>	<u>79,407</u>	<u>78,915</u>

See the Notes to Consolidated Financial Statements

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

	For the Years Ended December 31,		
	2018	2017	2016
Net loss	\$ (162,031)	\$ (171,995)	\$ (124,505)
Currency translation adjustments, net of tax	(2,621)	1,230	25
Comprehensive loss	<u>\$ (164,652)</u>	<u>\$ (170,765)</u>	<u>\$ (124,480)</u>

See the Notes to Consolidated Financial Statements

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

	For the Years Ended December 31,		
	2018	2017	2016
Operating activities:			
Net loss	\$(162,031)	\$(171,995)	\$(124,505)
Adjustments to reconcile net loss to cash provided by (used in) operating activities:			
Depreciation and amortization	133,617	145,490	105,642
Loss on asset disposals, abandonments and write-downs	13,352	8,960	4,583
Gain on transition to airline-directed model	(21,551)	—	—
Deferred income taxes	(3,821)	(2,281)	839
Stock-based compensation expense	16,912	19,821	17,621
Amortization of deferred financing costs	4,280	3,743	3,803
Accretion and amortization of debt discount and premium	18,255	18,286	17,496
Loss on extinguishment of debt	19,653	—	15,406
Adjustment of deferred financing costs	—	—	(792)
Changes in operating assets and liabilities:			
Accounts receivable	(17,064)	(43,798)	(4,265)
Inventories	(50,762)	4,723	(29,329)
Prepaid expenses and other current assets	(3,106)	4,990	(14,473)
Contract assets	(30,485)	—	—
Accounts payable	(3,864)	3,402	(3,118)
Accrued liabilities	13,281	24,941	4,982
Deferred airborne lease incentives	(7,705)	20,407	14,652
Deferred revenue	(1,021)	21,477	26,981
Accrued interest	(955)	7,213	35,825
Warranty reserves	8,009	(152)	742
Other non-current assets and liabilities	(7,305)	(4,971)	(7,102)
Net cash provided by (used in) operating activities	(82,311)	60,256	64,988
Investing activities:			
Purchases of property and equipment	(108,632)	(252,375)	(148,294)
Acquisition of intangible assets—capitalized software	(23,031)	(27,855)	(28,587)
Purchases of short-term investments	(39,323)	(317,418)	(363,436)
Redemptions of short-term investments	212,792	443,103	244,450
Other, net	—	(2,850)	84
Net cash provided by (used in) investing activities	41,806	(157,395)	(295,783)
Financing activities:			
Proceeds from issuance of convertible notes	237,750	—	—
Redemption of convertible notes	(200,438)	—	—
Proceeds from issuance of senior secured notes	—	181,754	525,000
Payments on amended and restated credit agreement	—	—	(310,132)
Payment of debt issuance costs	(8,054)	(3,630)	(11,474)
Payments on capital leases	(2,340)	(2,961)	(2,612)
Stock-based compensation activity	396	(227)	271
Net cash provided by financing activities	27,314	174,936	201,053
Effect of exchange rate changes on cash	578	743	(522)
Increase (decrease) in cash, cash equivalents and restricted cash	(12,613)	78,540	(30,264)
Cash, cash equivalents and restricted cash at beginning of period	203,729	125,189	155,453
Cash, cash equivalents and restricted cash at end of period	\$ 191,116	\$ 203,729	\$ 125,189
Cash, cash equivalents and restricted cash at end of period	\$ 191,116	\$ 203,729	\$ 125,189
Less: current restricted cash	1,535	500	114
Less: non-current restricted cash	5,426	6,873	7,773
Cash and cash equivalents at end of period	\$ 184,155	\$ 196,356	\$ 117,302
Supplemental Cash Flow Information:			
Cash paid for interest	\$ 101,489	\$ 86,359	\$ 27,535
Cash paid for taxes	401	103	305
Non-cash Investing and Financing Activities:			
Purchases of property and equipment in current liabilities	\$ 18,640	\$ 53,682	\$ 39,492
Purchases of property and equipment paid by commercial airlines	7,474	23,762	13,804
Purchases of property and equipment under capital leases	279	1,082	2,177
Acquisition of intangible assets in current liabilities	312	1,483	1,623
Acquisition of intangible assets in non-current liabilities	1,375	—	—
Asset retirement obligation	760	370	11

See the Notes to Consolidated Financial Statements

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

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total
	Shares	Par Value				
Balance at January 1, 2016	85,913,206	\$ 9	\$ 861,243	\$ (2,188)	\$ (792,869)	\$ 66,195
Net loss	—	—	—	—	(124,505)	(124,505)
Currency translation adjustments, net of tax	—	—	—	25	—	25
Stock-based compensation expense	—	—	17,621	—	—	17,621
Issuance of common stock upon exercise of stock options	12,150	—	110	—	—	110
Issuance of common stock upon vesting of restricted stock units and restricted stock awards	227,429	—	—	—	—	—
Tax withholding related to vesting of restricted stock units	—	—	(1,199)	—	—	(1,199)
Issuance of common stock in connection with employee stock purchase plan	143,085	—	1,360	—	—	1,360
Balance at December 31, 2016	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 ASC 606	—	—	—	—	22,726	22,726
Balance at December 31, 2018	<u>87,560,694</u>	<u>\$ 9</u>	<u>\$ 963,458</u>	<u>\$ (3,554)</u>	<u>\$ (1,228,674)</u>	<u>\$(268,761)</u>

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 to the current year presentation, certain amounts in our 2017 and 2016 consolidated statements of cash flows have been reclassified. Specifically, for the years ended December 31, 2017 and 2016, current deferred rent of \$174 thousand and \$73 thousand, respectively, has been combined with accrued liabilities, and non-current deferred rent of \$798 thousand and \$120 thousand, respectively, has been combined with other non-current assets and liabilities. Additionally, warranty reserves is now separately stated in its own line, which was included in accrued liabilities previously.

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.

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We consider short-term investments to be investments with maturities of twelve months or less (but greater than three months). Currently all our short-term investments are comprised of U.S. Treasury bills, which we intend to hold to maturity.

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, short-term investments 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. Our short-term investments are all comprised of U.S. Treasury bills.

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 cost (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 now 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, and 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 \$107.1 million, \$120.6 million and \$84.1 million for the years ended December 31, 2018, 2017 and 2016, 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 amortized over the shorter of the useful life of the improvement or the term of the related lease. 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.

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 2018, 2017 and 2016 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 2018, 2017 and 2016.

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 the 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 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

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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.

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.

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.

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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:

CAS 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 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.

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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 \$72.7 million, \$78.1 million and \$45.9 million for the years ended December 31, 2018, 2017, and 2016, respectively. Research and development costs are reported as a component of engineering, design and development expenses in our consolidated statements of operations.

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. 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.

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 a prepaid forward transaction 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 1, 2020. Because the transaction is indexed to our own stock and classified within stockholders’ equity, we do not account for the prepaid forwards as a derivative instrument in accordance with Accounting Standards Codification (“ASC”) 815, *Derivatives and Hedging*.

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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 2022 Convertible Notes and 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 2022 Convertible Notes and 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 our arrangements with commercial airlines which we account for as leases as noted above, we also lease certain facilities, equipment, cell tower space and base station capacity. We review each lease agreement to determine if it qualifies as an operating or capital lease.

For leases that contain predetermined fixed escalations of the minimum rent, we recognize the related rent expense on a straight-line basis over the term of the lease. We record any difference between the straight-line rent amounts and amounts payable under the lease as deferred rent, in either accrued liabilities or as a separate line within noncurrent liabilities, as appropriate, in our consolidated balance sheets.

For leases that qualify as a capital lease, we record a capital lease asset and a capital lease obligation at the beginning of the lease term at an amount equal to the present value of minimum lease payments during the term of the lease, excluding that portion of the payments that represent executory costs. The capital lease asset is depreciated on a straight-line method over the shorter of its estimated useful life or lease term.

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

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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, 2018, 2017 and 2016 is net loss plus unrealized gains and losses on foreign currency translation adjustments.

Recently Issued Accounting Pronouncements

Revenue recognition related new pronouncements:

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)

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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.

See Note 4, “Revenue Recognition,” for additional information.

On January 1, 2018, we adopted ASU 2016-04, *Recognition of Breakage for Certain Prepaid Stored-Value Products* (“ASU 2016-04”), which amends the guidance on extinguishing financial liabilities for certain prepaid stored-value products by requiring that entities that sell prepaid stored-value products recognize breakage proportionally as the prepaid stored-value product is being redeemed rather than immediately upon sale of the product. Adoption of this standard did not have a material impact on our consolidated financial statements.

All other new pronouncements:

In March 2016, the Financial Accounting Standards Board (“FASB”) issued ASU 2016-02, *Leases* (“ASU 2016-02”), which introduces a lessee model that records most leases on the balance sheet. ASU 2016-02 also aligns certain underlying principles of the new lessor model with those in ASC 606, the FASB’s new revenue recognition standard. Furthermore, ASU 2016-02 eliminates the required use of bright-line tests used in current GAAP for determining lease classification. It also requires lessors to provide additional transparency into their exposure to the changes in value of their residual assets and how they manage that exposure. ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2018, including interim periods within those annual reporting periods. ASU 2016-02 required entities to adopt the new leases standard using a modified retrospective method and initially apply the related guidance at the beginning of the earliest period presented in the financial statements. During July 2018, the FASB issued ASU 2018-11, which allows for an additional and optional transition method under which an entity would record a cumulative-effect adjustment at the beginning of the period of adoption (“cumulative-effect method”). We will adopt this guidance as of January 1, 2019 using the cumulative-effect method. We have finalized implementation of a new lease accounting information system and continue to evaluate the impact of the adoption of this guidance on our consolidated financial statements. We anticipate an increase in our assets and liabilities due to the recognition of the required right-of-use asset and corresponding lease obligations for leases that are currently classified as operating leases. The primary impact of ASU 2016-02 relates to our tower leases and base stations, and our leases of facilities and equipment. See Note 15, “Leases,” for further information on our lease arrangements.

On January 1, 2018, we adopted ASU 2016-15, *Classification of Certain Cash Receipts and Cash Payments* (“ASU 2016-15”), which amends ASC 230, *Statement of Cash Flows*, the FASB’s standard for reporting cash flows in general-purpose financial statements. The amendment addresses the diversity in practice related to the classification of certain cash receipts and payments including debt prepayment or debt extinguishment costs. We adopted this guidance using the full retrospective method. Adoption of this guidance did not have a material impact on our consolidated financial statements as we have historically reported debt prepayment and debt extinguishment costs in a manner consistent with ASU 2016-15.

On January 1, 2018, we adopted ASU 2016-16, *Intra-Entity Transfers of Assets Other Than Inventory* (“ASU 2016-16”), which removes the prohibition in ASC 740, *Income Taxes*, against the immediate recognition of the current and deferred income tax effects of intra-entity transfers of assets other than inventory. This is intended to reduce the complexity of GAAP and diversity in practice related to the tax consequences of certain types of intra-entity asset transfers, particularly those involving intellectual property. Adoption of this standard did not have a material impact on our consolidated financial statements.

On January 1, 2018, we adopted ASU 2016-18, *Restricted Cash – A Consensus of the FASB Emerging Issues Task Force* (“ASU 2016-18”), which amends ASC 230, *Statement of Cash Flows*, to clarify guidance on the classification and presentation of restricted cash in the statement of cash flows using the full retrospective method. Adoption of this standard did not have a material impact on our consolidated financial statements. See

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our consolidated statements of cash flows for the reconciliation of cash presented in the statements of cash flows to the cash presented on the balance sheet.

On January 1, 2018, we adopted ASU 2017-09, *Scope of Modification Accounting* (“ASU 2017-09”), which amends the scope of modification accounting for share-based payment arrangements. The ASU provides guidance on the types of changes to the terms or conditions of share-based payment awards to which an entity would be required to apply modification accounting under ASC 718, *Compensation – Stock Compensation*. Specifically, an entity would not apply modification accounting if the fair value, vesting conditions, and classification of the awards are the same immediately before and after the modification. Adoption of this standard did not have a material impact on our consolidated financial statements.

In February 2018, the FASB issued 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. Companies that elect to reclassify these amounts must reclassify stranded tax effects for all items accounted for in accumulated other comprehensive income. ASU 2018-02 is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted. We are currently assessing the impact of ASU 2018-02 on our consolidated financial statements and related disclosures.

In June 2018, the FASB issued 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. ASU 2018-07 is effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years. Early adoption is permitted. We are currently assessing the impact of ASU 2018-07 on our consolidated financial statements and related disclosures.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement* (“ASU 2018-13”), which changes the disclosure requirements for fair value measurements by removing, adding and modifying certain disclosures. ASU 2018-13 is effective for fiscal years beginning after December 15, 2019. Early adoption is permitted. We are currently assessing the impact of ASU 2018-13 on our disclosures.

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 (as defined and described in Note 7, “Long-Term Debt and Other Liabilities”) 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, 2018, 2017 and 2016 excludes approximately 7.2 million shares that will be repurchased as a result of the Forward Transactions.

As a result of the net loss for each of the years ended December 31, 2018, 2017 and 2016 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, 2018, 2017 and 2016; however, because of the undistributed losses, the shares associated with the

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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,		
	2018	2017	2016
Net loss	\$ (162,031)	\$ (171,995)	\$ (124,505)
Less: Participation rights of the Forward Transactions	—	—	—
Undistributed losses	\$ (162,031)	\$ (171,995)	\$ (124,505)
Weighted-average common shares outstanding-basic and diluted	80,038	79,407	78,915
Net loss attributable to common stock per share-basic and diluted	\$ (2.02)	\$ (2.17)	\$ (1.58)

4. Revenue Recognition

Remaining Performance Obligations

As of December 31, 2018, the aggregate amount of the transaction price in our contracts allocated to the remaining unsatisfied performance obligations is approximately \$972 million, most of which relates to our commercial aviation contracts. Approximately \$195 million represents future equipment revenue that is expected to be recognized within the next one to three years. The remaining \$777 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; revenue from passenger services on airlines operating under the turnkey model; and revenue from contracts that have been executed but have not yet met the accounting definition of a contract since the airline has not yet determined which products in our portfolio it wishes to select, and, as a result, we are unable to determine which products and services will be transferred to the customer.

Disaggregation of revenue

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

	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

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- (1) ATG and satellite equipment revenue for the CA-NA segment includes the \$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 \$60.1 million and \$61.1 million as of December 31, 2018 and January 1, 2018, respectively. Deferred revenue includes, among other things, equipment, multi-packs, subscriptions, sponsorship activities and airline-directed connectivity and entertainment services.

Our current and non-current contract asset balances totaled \$59.9 million and \$5.1 million as of December 31, 2018 and January 1, 2018, respectively. Contract assets represents the aggregate amount of revenue recognized in excess of billings for our airline-directed contracts.

Our STC balances were \$16.5 million and \$7.6 million as of December 31, 2018 and January 1, 2018, respectively. We recognized \$1.0 million of deferred STC costs as part of our engineering, design and development costs in our consolidated statement of operations for the year ended December 31, 2018. As noted above, STC costs for our airline-directed contracts are capitalized and expensed on a straight-line basis over the life of the contract.

Impact of adoption of ASC 606

The following table presents the post adoption impact of ASC 606 on our consolidated balance sheet and the statement of operations (*in thousands*):

	As of December 31, 2018		
	As Reported	Impact of ASC 606	Balances Without Adoption of ASC 606
Assets			
Prepaid expenses and other current assets	\$ 34,695	\$(12,054)	\$ 22,641
Other non-current assets	84,212	79,123	163,335
Liabilities			
Current deferred revenue	38,571	28,209	66,780
Other non-current liabilities	80,191	71,247	151,438
Equity			
Accumulated deficit	(1,228,674)	(24,165)	(1,252,839)

	For the Year Ended December 31, 2018		
	As Reported	Impact of ASC 606	Balances Without Adoption of ASC 606
Revenue:			
Service revenue	\$ 630,147	\$ 14,918	\$ 645,065
Equipment revenue	263,617	(115,241)	148,376
Operating expenses:			
Cost of equipment revenue	222,244	(94,440)	127,804
Engineering, design and development	120,090	2,340	122,430
Net loss	(162,031)	(8,223)	(170,254)

5. Composition of Certain Balance Sheet Accounts

Inventories as of December 31, 2018 and 2017 were as follows (*in thousands*):

	December 31,	
	2018	2017
Work-in-process component parts	\$ 30,340	\$35,009
Finished goods ⁽¹⁾	162,705	10,534
Total inventory	<u>\$193,045</u>	<u>\$45,543</u>

(1) The increase in our inventories is primarily due to the allocation of a portion of our uninstalled airborne equipment (*i.e.*, shipsets forecasted for installation under an airline-directed contract) within our CA-NA and CA-ROW segments from property and equipment, net, to inventories. Historically, all uninstalled airborne equipment for the CA-NA and CA-ROW segments was classified as property and equipment, net, as the majority of our installations were performed under our turnkey model agreements. See Note 2, "Summary of Significant Accounting Policies," for additional information on the turnkey model treatment. As our uninstalled airborne equipment is increasingly being deployed under airline-directed model agreements, we now allocate our uninstalled airborne equipment between property and equipment, net, and inventories, based on our forecasts of estimated future installations by contract type.

Prepaid expenses and other current assets as of December 31, 2018 and 2017 were as follows (*in thousands*):

	December 31,	
	2018	2017
Contract assets ⁽¹⁾	\$10,423	\$ —
Prepaid satellite services	7,755	3,360
Restricted cash	1,535	500
Other	14,982	16,450
Total prepaid expenses and other current assets	<u>\$34,695</u>	<u>\$20,310</u>

(1) Changes between December 31, 2018 and 2017 are due to the adoption of ASC 606 and additional activity during the year ended December 31, 2018. See Note 4, "Revenue Recognition," for additional information.

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Property and equipment as of December 31, 2018 and 2017 were as follows (*in thousands*):

	December 31,	
	2018	2017
Office equipment, furniture, fixtures and other	\$ 52,320	\$ 46,445
Leasehold improvements	44,838	42,522
Airborne equipment (1) (2)	642,151	765,652
Network equipment	205,463	199,304
	<u>944,772</u>	<u>1,053,923</u>
Accumulated depreciation	(432,905)	(397,885)
Property and equipment, net	<u>\$ 511,867</u>	<u>\$ 656,038</u>

- (1) Changes between December 31, 2018 and 2017 relate to the accounting impact of the transition of one of our airline partner agreements to the airline-directed model and the adoption of ASC 606 (see Note 2, "Summary of Significant Accounting Policies," for additional information).
- (2) Changes between December 31, 2018 and 2017 also relate to the allocation of uninstalled airborne equipment to inventory (see inventories above for additional information).

Other non-current assets as of December 31, 2018 and 2017 consist of the following (*in thousands*):

	December 31,	
	2018	2017
Contract assets (1)	\$49,517	\$ —
Deferred STC costs (1)	16,453	—
Deferred cost of equipment revenue (2)	—	40,986
Restricted cash	5,426	6,873
Other	12,816	19,248
Total other non-current assets	<u>\$84,212</u>	<u>\$67,107</u>

- (1) Changes between December 31, 2018 and 2017 are primarily due to the adoption of ASC 606 and additional activity during the year. See Note 4, "Revenue Recognition," for more information.
- (2) Changes between December 31, 2018 and 2017 are primarily due to the adoption of ASC 606. See Note 2, "Summary of Significant Accounting Policies," for additional information.

Accrued liabilities as of December 31, 2018 and 2017 consist of the following (*in thousands*):

	December 31,	
	2018	2017
Employee compensation and benefits	\$ 19,463	\$ 25,621
Airborne equipment and installation costs	25,119	44,059
Airline-related accrued liabilities, including revenue share	45,077	30,905
Accrued interest	46,694	47,649
Accrued satellite network costs	19,557	12,667
Warranty reserve	12,291	2,424
Other	44,258	38,490
Total accrued liabilities	<u>\$212,459</u>	<u>\$201,815</u>

Other non-current liabilities as of December 31, 2018 and 2017 consist of the following (*in thousands*):

	December 31,	
	2018	2017
Deferred rent	\$35,897	\$ 37,354
Deferred revenue ⁽¹⁾	21,482	73,192
Asset retirement obligations	9,696	9,668
Deferred tax liabilities	2,162	5,983
Other	10,954	8,458
Total other non-current liabilities	<u>\$80,191</u>	<u>\$134,655</u>

(1) Changes between December 31, 2018 and 2017 are primarily due to the adoption of ASC 606. See Note 2, “Summary of Significant Accounting Policies,” for more information.

Changes in our warranty reserve, which is included in accrued liabilities, for the years ended December 31, 2018, 2017 and 2016 consist of the following (*in thousands*):

	Warranty Reserve
Balance—January 1, 2017	\$ 2,576
Accruals for warranties issued	348
Settlements of warranties	(500)
Balance—December 31, 2017	2,424
Accruals for warranties issued	10,172
Settlements of warranties	(305)
Balance—December 31, 2018	<u>\$12,291</u>

Changes between December 31, 2018 and 2017 relate to the accounting impact of the transition of one of our airline agreements to the airline-directed model, additional activity under airline-directed models are associated with remediation of quality issues associated with our 2Ku technology. 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, 2018 and 2017 consist of the following (*in thousands*):

	Asset Retirement Obligation
Balance—January 1, 2017	\$ 8,527
Liabilities incurred ⁽¹⁾	370
Liabilities settled	(252)
Accretion expense	981
Foreign exchange rate adjustments	42
Balance—December 31, 2017	9,668
Liabilities incurred ⁽²⁾	(760)
Liabilities settled	(192)
Accretion expense	1,035
Foreign exchange rate adjustments	(55)
Balance—December 31, 2018	<u>\$ 9,696</u>

- (1) Includes \$0.2 million related to a change in estimate in the expected cash flows for our estimated liabilities.
 (2) 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 in the Airfone Acquisition. 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 2018, 2017, and 2016 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, 2018 and 2017.

Our intangible assets, other than goodwill, as of December 31, 2018 and 2017 were as follows (*in thousands, except for weighted average remaining useful life*):

	Weighted Average Remaining Useful Life (in years)	As of December 31, 2018			As of December 31, 2017		
		Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Amortized intangible assets:							
Software	2.3	\$ 164,580	\$ (116,873)	\$47,707	\$ 145,063	\$ (93,523)	\$51,540
Service customer relationships	1.3	8,081	(6,804)	1,277	8,081	(5,788)	2,293
Other intangible assets	5.7	3,000	(1,396)	1,604	1,500	(1,103)	397
OEM and dealer relationships		6,724	(6,724)	—	6,724	(6,724)	—
Total amortized intangible assets		<u>182,385</u>	<u>(131,797)</u>	<u>50,588</u>	<u>161,368</u>	<u>(107,138)</u>	<u>54,230</u>
Unamortized intangible assets:							
FCC Licenses		32,283	—	32,283	32,283	—	32,283
Total intangible assets		<u>\$214,668</u>	<u>\$ (131,797)</u>	<u>\$82,871</u>	<u>\$193,651</u>	<u>\$ (107,138)</u>	<u>\$86,513</u>

Amortization expense for the years ended December 31, 2018, 2017 and 2016 was \$26.5 million, \$24.9 million and \$21.6 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
2019	\$ 22,037
2020	\$ 14,421
2021	\$ 9,598
2022	\$ 2,674
2023	\$ 999
Thereafter	\$ 859

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, 2018 and December 31, 2017 was as follows (*in thousands*):

	December 31, 2018	December 31, 2017
Senior Secured Notes	\$ 702,670	\$ 705,520
2022 Convertible Notes	190,083	—
2020 Convertible Notes	149,195	311,544
Total debt	1,041,948	1,017,064
Less deferred financing costs	(17,055)	(16,196)
Total long-term debt	<u>\$ 1,024,893</u>	<u>\$ 1,000,868</u>

Senior Secured Notes

On June 14, 2016 (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) (the “Co-Issuer” and, together with GIH, the “Issuers”), issued \$525 million aggregate principal amount of 12.500% senior secured notes due 2022 (the “Original 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 “Subsidiary Guarantors” and, together with us, the “Guarantors”), and U.S. Bank National Association, as trustee (in such capacity, the “Trustee”) and as collateral agent (in such capacity, the “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 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 when we paid in full our January 2018 interest payment in January 2018. We refer to the Original Senior Secured Notes, the January 2017 Additional Notes and the September 2017 Additional Notes collectively as the “Senior Secured Notes.”

As noted above, on September 20, 2017, the Issuers, the Guarantors and the Trustee entered into the Supplemental Indenture to (i) increase the amount of additional secured indebtedness under the Credit Facilities

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(as defined in the Indenture) that may be incurred by the Issuer and its Restricted Subsidiaries (as defined in the Indenture) under the Indenture by \$100 million (from \$75 million to \$175 million in aggregate principal amount), (ii) permit the Issuer and its Restricted Subsidiaries to incur additional secured indebtedness in connection with vendor financing arrangements not to exceed \$50 million in aggregate principal amount at any time outstanding and (iii) permit the Issuer and its Restricted Subsidiaries to make additional dividends or distributions to Gogo in an aggregate amount of up to \$15 million during any twelve-month period to pay interest on any indebtedness or preferred stock with a maturity later than July 1, 2022. The Supplemental Indenture became effective immediately upon execution, following our receipt of consents from holders of a majority of the outstanding principal amount of the Existing Notes (excluding Existing Notes held by the Issuers or any affiliates of the Issuers) to the Supplemental Indenture and amendments to the collateral agency agreement governing the Senior Secured Notes (the "Consent Solicitation"). In connection with the Consent Solicitation, GIH paid \$1.4 million in fees ("Consent Fees") to holders of Existing Notes who validly tendered (and did not revoke) their consents prior to the expiration of the Consent Solicitation.

As of December 31, 2018 and 2017, the outstanding principal amount of the Senior Secured Notes was \$690.0 million and \$690.0 million, respectively, the unamortized debt premium and Consent Fees were \$12.7 million and \$15.5 million, respectively, and the net carrying amount was \$702.7 million and \$705.5 million, respectively.

Interest on the Senior Secured Notes accrues at the rate of 12.500% per annum and is payable semi-annually in arrears on January 1 and July 1, which commenced on January 1, 2017 (other than the January 2017 Additional Notes, for which interest payments commenced on July 1, 2017, and the September 2017 Additional Notes, for which interest payments commenced on January 1, 2018). The Senior Secured Notes mature on July 1, 2022. The January 2017 Additional Notes and September 2017 Additional Notes have the same terms as the Original Senior Secured Notes, except with respect to the issue date and issue price, and are treated as a single series for all purposes under the Indenture and the security documents that govern the Senior Secured Notes.

We paid approximately \$11.4 million, \$2.0 million and \$2.5 million, respectively, of aggregate origination fees and financing costs related to the issuance of the Original Senior Secured Notes, the January 2017 Additional Notes and the September 2017 Additional Notes, which have been accounted for as deferred financing costs. Additionally, as noted above, we paid approximately \$1.4 million of Consent Fees, which partially offset the net carrying value of the Senior Secured Notes. The deferred financing costs on our consolidated balance sheet are being amortized over the contractual term of the Senior Secured Notes using the effective interest method. Total amortization expense was \$2.6 million, \$2.3 million and \$1.0 million, respectively, for the years ended December 31, 2018, 2017 and 2016. As of December 31, 2018 and 2017, the balance of unamortized deferred financing costs related to the Senior Secured Notes was \$10.0 million and \$12.6 million, respectively, and is included as a reduction to long-term debt in our consolidated balance sheet. See Note 8, "Interest Costs," for additional information.

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

- effectively senior to all of the Issuers' existing and future senior unsecured indebtedness and the Issuers' indebtedness secured on a junior priority basis by the same collateral securing the Senior Secured Notes, if any, in each case to the extent of the value of the collateral securing the Senior Secured Notes;
- effectively senior in right of payment to all of the Issuers' future indebtedness that is subordinated in right of payment to the Senior Secured Notes;
- 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 Senior Secured Notes and (ii) indebtedness secured on a junior priority basis by the same collateral securing the Senior Secured Notes, if any, in each case to the extent of any insufficiency in the collateral securing the Senior Secured Notes;

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- structurally senior to all of our existing and future indebtedness, including our Convertible Notes (as defined below); and
- structurally subordinated to all of the indebtedness and other liabilities of any non-Guarantors (other than the Issuers).

The Senior Secured Notes are guaranteed, on a senior secured basis, by us and all of GIH's existing and future domestic restricted subsidiaries (other than the Co-Issuer), subject to certain exceptions. The Issuers' obligations under the Senior Secured Notes are not guaranteed by Gogo International Holdings LLC, a subsidiary of ours that holds no material assets other than equity interests in our foreign subsidiaries. Each guarantee is a senior secured obligation of such Guarantor and is:

- effectively senior to all of such Guarantor's existing and future senior unsecured indebtedness and such Guarantor's indebtedness secured on a junior priority basis by the same collateral, if any, securing the guarantee of such Guarantor, in each case to the extent of the value of the collateral securing such guarantee;
- effectively senior in right of payment to all of such Guarantor's future indebtedness that is subordinated in right of payment to such Guarantor's guarantee;
- effectively equal in right of payment with all of such Guarantor's existing and future (i) unsecured indebtedness that is not subordinated in right of payment to such Guarantor's guarantee, and (ii) indebtedness secured on a junior priority basis by the same collateral, if any, securing the guarantee of such Guarantor, in each case to the extent of any insufficiency in the collateral securing such guarantee; and
- structurally subordinated to all indebtedness and other liabilities of any non-Guarantor subsidiary of such Guarantor (excluding, in the case of our guarantee, the Issuers).

The Senior Secured Notes and the related guarantees are secured by first-priority liens, subject to permitted liens, on substantially all of the Issuers' and the Guarantors' assets, except for certain excluded assets, including pledged equity interests of the Issuers and all of our existing and future domestic restricted subsidiaries guaranteeing the Senior Secured Notes.

The security interests in certain collateral may be released without the consent of holders of the Senior Secured Notes if such collateral is disposed of in a transaction that complies with the Indenture and related security agreements. In addition, under certain circumstances, we and the Guarantors have the right to transfer certain intellectual property assets that on the Issue Date constitute collateral securing the Senior Secured Notes or the guarantees to a restricted subsidiary organized under the laws of Switzerland, resulting in the release of such collateral without consent of the holders of the Senior Secured Notes.

On or after July 1, 2019, the Issuers may, at their option, at any time or from time to time, redeem any of the Senior Secured Notes in whole or in part. The 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 July 1 of the following years:

Year	Redemption Price
2019	106.250%
2020	103.125%
2021 and thereafter	100.000%

In addition, at any time prior to July 1, 2019, the Issuers may redeem up to 35% of the aggregate principal amount of the Senior Secured Notes with the proceeds of certain equity offerings at a redemption price of

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112.500% of the principal amount redeemed, plus accrued and unpaid interest, if any, to (but not including) the date of redemption; provided, however, that Senior Secured Notes representing at least 65% of the principal amount of the Senior Secured Notes remain outstanding immediately after each such redemption.

The Issuers may redeem the Senior Secured Notes, in whole or in part, at any time prior to July 1, 2019, at a redemption price equal to 100% of the principal amount of the Senior Secured Notes redeemed plus the make-whole premium set forth in the Indenture as of, and accrued and unpaid interest, if any, to (but not including) the applicable redemption date.

The Indenture contains covenants that, among other things, limit the ability of the Issuers and the 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 our 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, including us. Most of these covenants will cease to apply if, and for as long as, the 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 prior to July 1, 2022, GIH is required to make an offer to repurchase for cash all of the 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 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 Senior Secured Notes issued under the Indenture to be due and payable immediately. As of December 31, 2018, no event of default had occurred.

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. Interest payments begin 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.

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

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 of the deferred financing costs was \$0.2 million for the year ended December 31, 2018. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2018, the balance of unamortized deferred financing costs related to the 2022 Convertible Notes was \$6.2 million 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, 2018. 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 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

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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. The 2020 Convertible Notes mature on March 1, 2020, 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 2020 Convertible Notes semi-annually in arrears on March 1 and September 1 of each year. Interest payments began on September 1, 2015.

During November 2018, we repurchased \$199.9 million of outstanding principal amount of the 2020 Convertible Notes. As a result of the repurchase, the carrying value of the 2020 Convertible Notes were accreted up \$17.9 million to face value. Additionally, we expensed \$1.3 million of unamortized deferred financing costs and paid \$0.5 million of fees in connection with the repurchase. These three items comprise the loss on extinguishment of debt of \$19.7 million in our consolidated statement of operations.

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 note holders elect not to settle the debt through conversion, we must settle the 2020 Convertible Notes at face value. Therefore, the liability component will be accreted up to the face value of the 2020 Convertible Notes, which will result in additional non-cash interest expense being recognized in the consolidated statements of operations through the 2020 Convertible Notes maturity date (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%. The equity component will not be remeasured as long as it continues to meet the conditions for equity classification.

As of December 31, 2018 and 2017, the outstanding principal on the 2020 Convertible Notes was \$162.0 million and \$361.9 million, respectively, the unamortized debt discount was \$12.8 million and \$50.4 million, respectively, and the net carrying amount of the liability component was \$149.2 million and \$311.5 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 \$1.4 million, \$1.5 million and \$1.4 million, respectively, for the years ended December 31, 2018, 2017 and 2016. Additionally, as noted above, we expensed \$1.3 million of unamortized deferred financing fees as a result of the repurchase. Amortization expense is included in interest expense in the consolidated statements of operations. As of December 31, 2018 and 2017, the balance of unamortized deferred financing costs related to the 2020 Convertible Notes was \$0.9 million and \$3.6 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 is equivalent to an initial conversion price of approximately \$23.85 per share of our common stock. Upon conversion, we currently expect 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 currently expect to deliver shares of our common stock. We may elect to deliver cash in lieu of all or

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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 2020 Convertible Notes, at their option, in multiples of \$1,000 principal amount at any time prior to December 1, 2019, but only in the following circumstances:

- during any fiscal quarter beginning after the fiscal quarter ended June 30, 2015, 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 2020 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 2020 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 2020 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 December 1, 2019 occurred during the year ended December 31, 2018. Regardless of whether any of the foregoing circumstances occurs, a holder may convert its 2020 Convertible Notes, in multiples of \$1,000 principal amount, at any time on or after December 1, 2019 until maturity.

In addition, if we undergo a fundamental change (as defined in the indenture governing the 2020 Convertible Notes), holders may, subject to certain conditions, require us to repurchase their 2020 Convertible Notes for cash at a price equal to 100% of the principal amount of the 2020 Convertible Notes to be purchased, plus any accrued and unpaid interest. In addition, if specific corporate events occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its 2020 Convertible Notes in connection with such a corporate event in certain circumstances.

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. In the future, we may request that any Forward Counterparty modify the settlement terms of its 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 its Forward Transaction in accordance with its terms, such Forward Counterparty would pay to us the net proceeds from the sale by such 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 Forward Counterparties are not required to effect any such settlement in cash in lieu of delivery of shares of our common stock and, if we request for any Forward Counterparty to effect any such settlement, it will be entered into in the discretion of the applicable Forward Counterparty on such terms as we may agree with such Forward Counterparty at the time. As a result of the Forward Transactions, total shareholders' equity within our consolidated balance sheet was reduced by approximately \$140 million. Approximately 7.2 million shares of common stock that will be effectively repurchased through the Forward Transactions are treated as retired shares for basic and diluted EPS purposes although they remain legally outstanding.

Amended and Restated Senior Term Facility

On July 30, 2014, GIH, Gogo Business Aviation LLC, f/k/a Aircell Business Aviation Services LLC (“GBA”), and Gogo LLC, as borrowers (collectively, the “Borrowers”), entered into an Amendment and Restatement Agreement (the “Amendment”) to the Credit Agreement dated as of June 21, 2012 and amended on April 4, 2013 (the “Amended Senior Term Facility”) among the Borrowers, the lenders named therein, and Morgan Stanley Senior Funding, Inc., as Administrative Agent and Collateral Agent. We refer to the Amendment and the Amended Senior Term Facility collectively as the “Amended and Restated Senior Term Facility.”

On June 14, 2016, the outstanding principal balance of \$287.7 million, together with accrued and unpaid interest, was paid in full, and the Amended and Restated Senior Term Facility was terminated in accordance with its terms on such date (subject to the survival of provisions expressly stated therein to survive the termination thereof). Additionally, we paid the voluntary prepayment premium of 3.0%, or \$8.6 million, and wrote off all of the remaining unamortized deferred financing costs of \$6.8 million. Both of these items are included in loss on extinguishment of debt in our consolidated financial statements.

We paid \$22.2 million of loan origination fees and financing costs related to the Amended and Restated Senior Term Facility, all but \$4.1 million of which were accounted for as deferred financing costs. Total amortization expense of the deferred financing costs was \$1.4 million for the year ended December 31, 2016. Amortization expense is included in interest expense in the consolidated statements of operations. As noted above, deferred financing costs related to the Amended and Restated Senior Term Facility were written off as of June 14, 2016.

Restricted Cash

Our restricted cash balances were \$7.0 million and \$7.4 million, respectively, as of December 31, 2018 and 2017 and primarily consist of letters of credit. 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, 2018, 2017 and 2016 (*in thousands*):

	For the Years Ended December 31,		
	2018	2017	2016
Interest costs charged to expense	\$100,274	\$ 89,915	\$62,348
Amortization of deferred financing costs	4,280	3,743	3,803
Accretion of Convertible Notes	21,105	19,520	17,496
Amortization of debt premium of Senior Secured Notes	(2,850)	(1,234)	—
Interest expense	122,809	111,944	83,647
Interest costs capitalized to property and equipment	32	26	205
Interest costs capitalized to software	364	1,075	1,300
Total interest costs	<u>\$123,205</u>	<u>\$113,045</u>	<u>\$85,152</u>

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, 2018 and 2017. 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 Senior Secured Notes, the 2022 Convertible Notes and the 2020 Convertible 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 Senior Secured Notes, 2022 Convertible Notes and 2020 Convertible 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, 2018 consolidated balance sheet, excluding any issuance costs, is the amount that a market participant would be able to lend at December 31, 2018 to an entity with a credit rating similar to ours and achieve sufficient cash inflows to cover the scheduled cash outflows under the Senior Secured Notes, the 2022 Convertible Notes and the 2020 Convertible Notes. The calculated fair value of our 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, 2018 and 2017 was as follows (*in thousands*):

	December 31, 2018		December 31, 2017	
	Fair Value (1)	Carrying Value	Fair Value (1)	Carrying Value
Senior Secured Notes	\$ 737,000	\$702,670(2)	\$ 782,000	\$705,520(2)
2022 Convertible Notes	216,000	190,083(3)	—	—
2020 Convertible Notes	150,000	149,195(4)	330,000	311,544(4)

- (1) Fair value amounts are rounded to the nearest million.
- (2) Carrying value of the Senior Secured Notes includes unamortized debt premium and Consent Fees of \$12.7 million and \$15.5 million, respectively, as of December 31, 2018 and 2017. See Note 7, “Long-Term Debt and Other Liabilities,” for further information.
- (3) Carrying value of the 2022 Convertible Notes excludes unamortized debt discount of \$47.7 million as of December 31, 2018. See Note 7, “Long-Term Debt and Other Liabilities,” for further information.
- (4) Carrying value of the 2020 Convertible Notes excludes unamortized debt discount of \$12.8 million and \$50.4 million, respectively, as of December 31, 2018 and 2017. 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, 2018, 2017 and 2016.

11. Business Segments and Major Customers

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 year ended December 31, 2018 and less than 10% for the years ended December 31, 2017 and 2016. 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 December 31, 2018 and less than 10% of our consolidated assets as of December 31, 2017. 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 segment profit (loss), which is calculated internally as net income (loss) attributable to common stock before 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, adjustment to deferred financing costs, loss on extinguishment of debt, amortization of STC costs and the accounting impact of the transition to the

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airline-directed model). 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, segment profit (loss) is included herein in conformity with ASC 280-10, *Segment Reporting*. Management believes that segment profit (loss) provides useful information for analyzing and evaluating the underlying operating results of each segment. However, 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 segment profit (loss) may not be comparable to other similarly titled measures computed by other companies.

Information regarding our reportable segments is as follows (*in thousands*):

	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	<u>\$469,217</u>	<u>\$134,394</u>	<u>\$290,153</u>	<u>\$893,764</u>
Segment profit (loss)	<u>\$ 26,228</u>	<u>\$ (94,537)</u>	<u>\$139,739</u>	<u>\$ 71,430</u>

	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	<u>\$400,613</u>	<u>\$ 57,865</u>	<u>\$240,612</u>	<u>\$699,090</u>
Segment profit (loss)	<u>\$ 66,802</u>	<u>\$(106,978)</u>	<u>\$ 99,409</u>	<u>\$ 59,233</u>

	For the Year Ended December 31, 2016			
	CA-NA	CA-ROW	BA	Total
Service revenue	\$357,250	\$ 24,198	\$132,845	\$514,293
Equipment revenue	14,273	1,180	66,804	82,257
Total revenue	<u>\$371,523</u>	<u>\$ 25,378</u>	<u>\$199,649</u>	<u>\$596,550</u>
Segment profit (loss)	<u>\$ 71,870</u>	<u>\$(87,637)</u>	<u>\$ 82,874</u>	<u>\$ 67,107</u>

(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.

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A reconciliation of segment profit (loss) to the relevant consolidated amounts is as follows (*in thousands*):

	For the Years Ended December 31,		
	2018	2017	2016
CA-NA segment profit	\$ 26,228	\$ 66,802	\$ 71,870
CA-ROW segment loss	(94,537)	(106,978)	(87,637)
BA segment profit	139,739	99,409	82,874
Total segment profit	71,430	59,233	67,107
Interest income	4,292	2,964	1,635
Interest expense	(122,809)	(111,944)	(83,647)
Depreciation and amortization	(133,617)	(145,490)	(105,642)
Transition to airline-directed model	21,551	—	—
Amortization of deferred airborne lease incentives ⁽¹⁾	31,650	41,816	29,519
Amortization of STC costs	(1,023)	—	—
Stock compensation expense	(16,912)	(19,821)	(17,621)
Loss on extinguishment of debt	(19,653)	—	(15,406)
Adjustment of deferred financing fees	—	—	792
Other income (expense)	(233)	(750)	72
Loss before income taxes	<u>\$ (165,324)</u>	<u>\$ (173,992)</u>	<u>\$ (123,191)</u>

(1) Amortization of deferred airborne lease incentive only relates to our CA-NA and CA-ROW segments. See Note 15, “Leases,” for further information.

Major Customers and Airline Partnerships—Under the turnkey model, we refer to the airline as a “partner,” and under the airline-directed model, we refer to the airline as a “customer.”

During the year ended December 31, 2018, American Airlines accounted for approximately 22% of consolidated revenue, while no other customer accounted for more than 10% of consolidated revenue during the prior year periods. 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 years ended December 31, 2017 and 2016, accounted for approximately 21% and 23% of consolidated revenue, respectively.

Revenue earned from passengers on aircraft operated by Delta Air Lines, which is under the turnkey model, accounted for approximately 23%, 26% and 27% of consolidated revenue, respectively, for the years ended December 31, 2018, 2017 and 2016.

American Airlines accounted for approximately 11% of consolidated accounts receivable as of December 31, 2018 and one customer accounted for approximately 15% of consolidated accounts receivable as of December 31, 2017. Delta Air Lines, one of our airline partners, accounted for approximately 11% and 21%, respectively, of consolidated accounts receivable as of December 31, 2018 and 2017.

12. Stock-Based Compensation

As of December 31, 2018, we maintained three stock-based employee 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 (the “2010 Plan”), collectively referred

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to as the “Stock Plans.” 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, 2018, 7,841,256 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, 2018, 2017 and 2016 (*in thousands*):

	2018	2017	2016
Cost of service revenue	\$ 1,659	\$ 1,748	\$ 1,499
Cost of equipment revenue	210	185	117
Engineering, design and development	3,347	3,656	3,046
Sales and marketing	4,267	4,751	4,962
General and administrative	7,429	9,481	7,997
Total stock-based compensation expense	<u>\$16,912</u>	<u>\$19,821</u>	<u>\$17,621</u>

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A summary of stock option activity for the year ended December 31, 2018 is as follows:

	Number of Options	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value <i>(in thousands)</i>
Options outstanding—January 1, 2018	10,387,376	\$ 13.96	6.22	\$ 8,924
Granted	2,537,353	\$ 9.20		
Exercised	(2,500)	\$ 8.37		
Forfeited	(776,246)	\$ 11.19		
Expired	(1,431,825)	\$ 15.61		
Options outstanding—December 31, 2018	<u>10,714,158</u>	\$ 12.81	6.25	\$ —
Options exercisable—December 31, 2018	<u>6,363,744</u>	\$ 14.24	4.76	\$ —

As of December 31, 2018, total unrecognized compensation costs related to unvested stock options were approximately \$12 million which is expected to be recognized over a weighted average period of approximately 2.4 years. The total grant date fair value of stock options vested in 2018, 2017 and 2016 was approximately \$9 million, \$10 million and \$9 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, 2018, 2017, and 2016 were as follows:

	2018	2017	2016
Approximate risk-free interest rate	2.7%	2.3%	1.3%
Average expected life (years)	6.03	6.14	6.12
Dividend yield	N/A	N/A	N/A
Volatility	49.2%	45.3%	45.3%
Weighted average grant date fair value of common stock underlying options granted	\$8.97	\$11.97	\$8.72
Weighted average grant date fair value of stock options granted	\$4.42	\$ 5.59	\$3.88

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.

The following table summarizes the activities for our unvested RSUs and DSUs for the year ended December 31, 2018:

	Number of Underlying Shares	Weighted Average Grant Date Fair Value
Unvested—January 1, 2018	1,717,857	\$ 11.27
Granted	2,747,836	\$ 5.11
Vested	(653,447)	\$ 11.53
Forfeited/canceled	(588,266)	\$ 8.24
Unvested—December 31, 2018	<u>3,223,980</u>	\$ 6.51

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As of December 31, 2018, there was approximately \$15 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 2018 was approximately \$8 million.

The following table summarizes the activity for our restricted stock for the year ended December 31, 2018:

	Number of Underlying Shares	Weighted Average Grant Date Fair Value
Unvested—January 1, 2018	214,144	\$ 13.62
Granted	—	\$ —
Vested	(93,266)	\$ 15.23
Forfeited/canceled	(2,825)	\$ 12.42
Unvested—December 31, 2018	<u>118,053</u>	<u>\$ 12.38</u>

As of December 31, 2018, there was approximately \$1 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 1.9 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 during 2017, increased the number of shares reserved under the ESPP. 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 320,905 shares of common stock were issued during the year ended December 31, 2018.

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 \$5.1 million, \$5.9 million, and \$4.1 million for the years ended December 31, 2018, 2017 and 2016, respectively.

14. Income Tax

For financial reporting purposes, loss before income taxes included the following components for the years ended December 31, 2018, 2017, and 2016 (*in thousands*):

	For the Years Ended December 31,		
	2018	2017	2016
United States	\$(128,361)	\$(138,881)	\$(108,363)
Foreign	(36,963)	(35,111)	(14,828)
Loss before income taxes	<u>\$(165,324)</u>	<u>\$(173,992)</u>	<u>\$(123,191)</u>

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Significant components of the (benefit) provision for income taxes for the years ended December 31, 2018, 2017, and 2016 are as follows (*in thousands*):

	For the Years Ended December 31,		
	2018	2017	2016
Current:			
Federal	\$ —	\$ —	\$ —
State	467	235	451
Foreign	61	49	24
	<u>528</u>	<u>284</u>	<u>475</u>
Deferred:			
Federal	(3,908)	(2,590)	764
State	87	309	75
	<u>(3,821)</u>	<u>(2,281)</u>	<u>839</u>
Total	<u><u>\$ (3,293)</u></u>	<u><u>\$ (1,997)</u></u>	<u><u>\$ 1,314</u></u>

The benefit (provision) for income taxes differs from income taxes computed at the federal statutory tax rates for the years ended December 31, 2018, 2017, and 2016 as a result of the following items:

	For the Years Ended December 31,		
	2018	2017	2016
Federal statutory rate	21.0%	35.0%	35.0%
Effect of:			
Impact of change in tax rate	0.1	(47.0)	—
Change in valuation allowance	(24.8)	12.5	(38.5)
State income taxes-net of federal tax benefit	4.0	2.4	3.8
Other	1.7	(1.8)	(1.4)
Effective tax rate	<u><u>2.0%</u></u>	<u><u>1.1%</u></u>	<u><u>(1.1)%</u></u>

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Components of the net deferred income tax asset as of December 31, 2018 and 2017 are as follows (*in thousands*):

	December 31, 2018	December 31, 2017
Deferred income tax assets:		
Compensation accruals	\$ 3,407	\$ 4,854
Stock options	15,552	13,256
Inventory	1,102	702
Warranty reserves	1,014	605
Deferred rent	9,603	9,868
Deferred revenue	37,501	51,295
Federal net operating loss (NOL)	143,433	129,064
State NOL	24,623	21,122
Interest carryforward	22,029	—
UNICAP adjustment	2,311	3,241
Finite-lived intangible assets	7,576	8,756
Other	11,576	7,500
Total deferred income tax assets	<u>279,727</u>	<u>250,263</u>
Deferred income tax liabilities:		
Fixed assets	(53,944)	(59,885)
Indefinite-lived intangible assets	(6,528)	(5,983)
Convertible Notes discount	(14,612)	(12,243)
Other	(2,272)	(170)
Total deferred income tax liabilities	<u>(77,356)</u>	<u>(78,281)</u>
Total deferred income tax	202,371	171,982
Valuation allowance	(204,533)	(177,965)
Net deferred income tax liability	<u>\$ (2,162)</u>	<u>\$ (5,983)</u>

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 2018, 2017, and 2016, which means we are in a domestic three-year cumulative loss position. As a result of this and other assessments in fiscal year 2018, 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, 2018, the federal net operating loss (“NOL”) carryforward amount was approximately \$574 million and the state NOL carryforward amount was approximately \$419 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 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 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, 2018, we are no longer subject to U.S. federal, state, local or foreign examinations by tax authorities for years before 2015.

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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, 2018, 2017 and 2016, 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, 2018, 2017 or 2016. As of December 31, 2018 and 2017, we did not have a liability recorded for interest or potential penalties.

We do not expect there will be a change in the unrecognized tax benefits within the next 12 months.

15. Leases

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 \$31.7 million, \$41.8 million, and \$29.5 million, respectively, for the years ended December 31, 2018, 2017 and 2016, as a reduction to our cost of service revenue in our consolidated statements of operations. 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. As of December 31, 2017, deferred airborne lease incentives of \$42.1 million and \$142.9 million, respectively, are included in current and non-current liabilities in our consolidated balance sheet. The decrease in our deferred airborne lease incentives and the amortization of the deferred airborne lease incentives relate to the accounting impact of the transition of one of our airline agreements to the airline-directed model. 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 \$24.5 million, \$30.5 million, and \$41.6 million, respectively, for the years ended December 31, 2018, 2017 and 2016. The decrease in rental expense was due to the transition of one of our airline agreements to the airline-directed model. See Note 2, “Summary of Significant Accounting Policies,” for additional information.

Leases and Cell Site Contracts — We have lease agreements relating to certain facilities and equipment, which are considered operating leases. Rent expense for such operating leases was \$12.6 million, \$12.0 million and \$11.8 million, respectively, for the years ended December 31, 2018, 2017 and 2016. Additionally, we have operating leases with wireless service providers for tower space and base station capacity on a volume usage basis (“cell site leases”), some of which provide for minimum annual payments. Our cell site leases generally provide for an initial noncancelable term with various renewal options. Total cell site rental expense was \$10.5 million, \$9.5 million and \$9.4 million, respectively, for the years ended December 31, 2018, 2017 and 2016.

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Annual future minimum obligations for operating leases for each of the next five years and thereafter, other than the arrangements we have with our commercial airline partners, as of December 31, 2018, are as follows (*in thousands*):

Years ending December 31,	Operating Leases
2019	\$ 21,902
2020	\$ 19,867
2021	\$ 19,742
2022	\$ 18,420
2023	\$ 14,826
Thereafter	\$ 78,100

Equipment Leases – We lease certain computer and network equipment under capital leases, for which interest has been imputed with annual interest rates ranging from approximately 8% to 14%. As of December 31, 2018, the computer equipment leases were classified as part of office equipment, furniture, and fixtures and other in our consolidated balance sheet at a gross cost of \$6.3 million. As of December 31, 2018, the network equipment leases were classified as part of network equipment in our consolidated balance sheet at a gross cost of \$7.5 million. Annual future minimum obligations under capital leases for each of the next five years and thereafter, as of December 31, 2018, are as follows (*in thousands*):

Years ending December 31,	Capital Leases
2019	\$ 707
2020	218
Thereafter	—
Total minimum lease payments	925
Less: Amount representing interest	(72)
Present value of net minimum lease payments	<u>\$ 853</u>

The \$0.9 million present value of net minimum lease payments as of December 31, 2018 has a current portion of \$0.7 million included in current portion of long-term debt and capital leases and a non-current portion of \$0.2 million included in other non-current liabilities.

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, 2018 commit us to purchase transponder and teleport satellite services totaling approximately \$98.9 million in 2019, \$89.4 million in 2020, \$76.9 million in 2021, \$66.1 million in 2022, \$58.6 million in 2023 and \$159.0 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.

A contract with one of our airline customers required us to provide the airline customer with a cash rebate of \$1.8 million in June 2018, which has not yet been paid.

Damages and Penalties—We have entered into a number of agreements with our airline partners that require us to provide a credit or pay liquidated damages to our airline partners on a per aircraft, per day or per

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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. 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. One of these defendants has filed an inter parties review against the asserted patent and must meet a certain threshold to continue. Linksmart sought to stay the suit against Gogo until the earlier of (i) a decision by the U.S. Patent and Trade Office that the threshold for review has not been met and that the review may not continue or (ii) if the review continues, its resolution. We agreed and the court has granted our request to stay our case until the first to occur of such events. Cases against the other defendants have also been stayed pending the inter parties review. The outcome of the inter parties review and this matter overall 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 December 10, 2018, two purported stockholders of the Company filed an amended 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 February 2019, we filed a motion to dismiss the amended complaint. That motion remains pending. We believe that the claims are without merit and intend 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 pending resolution of the motion to dismiss in the Securities Litigation. We believe that the claims are without merit and intend to defend them vigorously. 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, 2018 and 2017 (*in thousands, except per share amounts*):

	For the Three Month Periods 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

	For the Three Month Periods Ended			
	Mar 31, 2017	June 30, 2017	Sep 30, 2017	Dec 31, 2017
Total revenue	\$165,406	\$172,800	\$172,874	\$188,010
Operating loss	(14,698)	(17,336)	(17,801)	(14,427)
Net loss	(41,367)	(44,209)	(45,281)	(41,138)
Net loss attributable to common stock	(41,367)	(44,209)	(45,281)	(41,138)
Net loss attributable to common stock per share—basic and diluted	\$ (0.52)	\$ (0.56)	\$ (0.57)	\$ (0.52)
Weighted average number of shares—basic and diluted	79,139	79,334	79,543	79,603

Note: The quarterly periods during 2018 reflect 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.

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, 2018	December 31, 2017
Assets:		
Cash and cash equivalents	\$ 161,113	\$ 9,734
Short-term investments	39,323	192,893
Prepaid expenses and other current assets	738	913
Other non-current assets	101	100
Total assets	\$ 201,275	\$ 203,640
Liabilities and stockholders' deficit:		
Total current liabilities	\$ 3,998	\$ 4,847
Long-term debt	332,211	307,968
Other non-current liabilities	2,162	5,983
Investments and payables with subsidiaries	131,665	76,406
Total liabilities	470,036	395,204
Total stockholders' deficit	(268,761)	(191,564)
Total liabilities and stockholders' deficit	\$ 201,275	\$ 203,640

Gogo Inc.
Condensed Statements of Operations and Comprehensive Loss
(in thousands)

	For the Years Ended December 31,		
	2018	2017	2016
Interest income	\$ (3,123)	\$ (1,681)	\$ (978)
Interest expense	36,984	34,577	32,461
Loss on extinguishment of debt	19,653	—	—
Total other (income) expense	53,514	32,896	31,483
Income (loss) before income taxes	(53,514)	(32,896)	(31,483)
Income tax provision (benefit)	(3,354)	(2,045)	1,276
Equity losses of subsidiaries	111,871	141,144	91,746
Net loss	(162,031)	(171,995)	(124,505)
Comprehensive loss	\$(162,031)	\$(171,995)	\$(124,480)

Gogo Inc.
Condensed Statements of Cash Flows
(in thousands)

	For the Years Ended December 31,		
	2018	2017	2016
Net loss	\$ (162,031)	\$ (171,995)	\$ (124,505)
Accretion of debt discount	21,105	19,520	17,496
Amortization of deferred financing costs	1,648	1,484	1,392
Loss on extinguishment of debt	19,653	—	—
Subsidiary equity losses	111,871	141,144	91,746
Deferred income taxes	(3,821)	(2,281)	839
Other operating activities	(674)	(609)	(319)
Net cash used in operating activities	<u>(12,249)</u>	<u>(12,737)</u>	<u>(13,351)</u>
Acquisition of short-term investments	(39,323)	(192,893)	(213,905)
Redemption of short-term investments	192,893	213,905	179,593
Investments and advances with subsidiaries	(19,595)	601	(23,312)
Net cash provided by (used in) investing activities	<u>133,975</u>	<u>21,613</u>	<u>(57,624)</u>
Financing activities:			
Proceeds from issuance of convertible notes	237,750	—	—
Repurchase of convertible notes	(200,438)	—	—
Payment of debt issuance costs	(8,054)	—	—
Other financing activities	396	(227)	271
Net cash provided by (used in) financing activities	<u>29,654</u>	<u>(227)</u>	<u>271</u>
Increase (decrease) in cash, cash equivalents and restricted cash	151,380	8,649	(70,704)
Cash, cash equivalents and restricted cash at beginning of period	9,834	1,185	71,889
Cash, cash equivalents and restricted cash at end of period	<u>\$ 161,214</u>	<u>\$ 9,834</u>	<u>\$ 1,185</u>
Cash, cash equivalents and restricted cash at end of period	161,214	9,834	1,185
Less: current restricted cash	—	—	114
Less: non-current restricted cash	101	100	—
Cash and cash equivalents at end of period	<u>\$ 161,113</u>	<u>\$ 9,734</u>	<u>\$ 1,071</u>

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, 2018 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, 2018.

(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, 2018, 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, 2018.

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, 2018, which report is included on Page 145 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, 2018, 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, 2018, 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, 2018, of the Company and our report dated February 21, 2019, expressed an unqualified opinion on those financial statements and included an explanatory paragraph related to the Company’s adoption of FASB ASC 606, *Revenue from Contracts with Customers*, effective January 1, 2018.

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

February 21, 2019

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 2019 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission (“SEC”) within 120 days of the fiscal year ended December 31, 2018.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2018.

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 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2018 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 2018:

<u>Plan Category</u>	<u>Number of securities to be issued upon exercise of outstanding options, warrants and rights (#)</u> (a)	<u>Weighted average exercise price of outstanding options, warrants and rights (\$)</u> (b)	<u>Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))(#)</u> (c)
Equity compensation plans approved by security holders	14,342,717 (1)	12.81 (2)	8,324,436 (3)
Equity compensation plans not approved by security holders	N/A	N/A	N/A
Total	14,342,717	12.81	8,324,436

(1) Represents the number of shares associated with options, Restricted Stock Units and Deferred Share Units outstanding as of December 31, 2018.

(2) Represents the weighted average exercise price of the 10,714,158 options disclosed in column (a).

(3) Represents the number of shares remaining available for future issuance under our Stock Option Plan, 2016 Omnibus Incentive Plan, 2013 Omnibus Incentive Plan and Employee Stock Purchase Plan. Of this number, only 5,402,448 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 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2018.

Item 14. Principal Accounting Fees and Services

The information required by this item is incorporated by reference to our Proxy Statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2018.

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:

	<u>Page No.</u>
Report of Independent Registered Public Accounting Firm	98
Consolidated Balance Sheets	99
Consolidated Statements of Operations	100
Consolidated Statements of Comprehensive Loss	101
Consolidated Statements of Cash Flows	102
Consolidated Statements of Stockholders' Equity (Deficit)	103
Notes to Consolidated Financial Statements	104

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

<u>Exhibit Number</u>	<u>Description of Exhibits</u>
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 as of March 9, 2015, by and between Gogo Inc. and U.S. Bank National Association (incorporated by reference to Exhibit 4.1 to Form 8-K filed on March 9, 2015 (File No. 001-35975))
4.4	Global 3.75% Convertible Senior Note due 2020, dated March 9, 2015 (incorporated by reference to Exhibit 4.2 to Form 8-K filed on March 9, 2015 (File No. 001-35975))
4.5	Indenture, dated as of June 14, 2016, 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 4.1 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
4.6	Form of 12.500% Senior Secured Note due 2022 (incorporated by reference to Exhibit 4.2 to Form 8-K filed on June 14, 2016 (File No. 001-35975))
4.7	First Supplemental Indenture, dated as of September 20, 2017, 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 September 20, 2017 (File No. 001-35975))

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
4.8	<u>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))</u>
4.9	<u>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))</u>
10.1.1	<u>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))</u>
10.1.2	<u>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))</u>
10.1.3	<u>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))</u>
10.1.4	<u>Development, Test, and Deployment Products Standard Terms and Conditions, dated as of September 26, 2007, by and between Qualcomm Incorporated and Aircell LLC (incorporated by reference to Exhibit 10.1.8 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.1.5	<u>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))</u>
10.1.6	<u>Product Development and Manufacturing Agreement, dated as of October 3, 2011, by and between XipLink, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.41 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.1.7	<u>Single Licensee Software Escrow Agreement, dated as of February 2, 2013, by and between XipLink, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.43 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.1.8	<u>Amendment No. 1 to the Product Development and Manufacturing Agreement, dated as of October 3, 2011, by and between XipLink, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.44 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.1.9	<u>Amendment No. 2 to the Product Development and Manufacturing Agreement, dated as of October 3, 2011, by and between XipLink, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.45 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.1.10	<u>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))</u>
10.1.11	<u>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))</u>
10.1.12	<u>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))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.1.13	<u>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))</u>
10.1.14	<u>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))</u>
10.1.15	<u>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))</u>
10.1.16	<u>Product Development and Manufacturing Agreement, dated as of November 13, 2012, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.48 to Form 10-Q/A filed on November 9, 2015 (File No. 001-35975))</u>
10.1.17	<u>Product Development and Manufacturing Agreement Exhibit A, Revision 1, dated as of March 27, 2012, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.49 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))</u>
10.1.18	<u>Product Development and Manufacturing Agreement Exhibit A-2, dated as of September 12, 2013, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.50 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))</u>
10.1.19	<u>Product Development and Manufacturing Agreement Exhibit A-2, Revision 1, dated as of June 10, 2014, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.51 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))</u>
10.1.20	<u>Amendment No. 1 to the Product Development and Manufacturing Agreement, dated as of June 10, 2014, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.52 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))</u>
10.1.21	<u>Amendment No. 2 to the Product Development and Manufacturing Agreement, dated as of January 31, 2015, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.53 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))</u>
10.1.22	<u>Amendment No. 3 to the Product Development and Manufacturing Agreement, dated as of May 12, 2015, by and between ThinKom Solutions, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.54 to Form 10-Q filed on August 6, 2015 (File No. 001-35975))</u>
10.1.23	<u>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))</u>
10.1.24	<u>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))</u>
10.1.25	<u>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))</u>
10.1.26	<u>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))</u>
10.1.27	<u>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))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.1.28	<u>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))</u>
10.1.29	<u>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))</u>
10.1.30	<u>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))</u>
10.1.31	<u>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))</u>
10.1.32	<u>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))</u>
10.1.33	<u>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))</u>
10.1.34	<u>Statement of Work #1, dated November 4, 2016, to the 2Ku In-Flight Services Agreement by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.41 to Form 10-K filed on February 27, 2017 (File No. 001-35975))</u>
10.1.35	<u>Statement of Work #2, dated December 16, 2016, to the 2Ku In-Flight Services Agreement by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.42 to Form 10-K filed on February 27, 2017 (File No. 001-35975))</u>
10.1.36	<u>Letter Agreement, dated February 1, 2017, by and between Gogo LLC and American Airlines, Inc. (incorporated by reference to Exhibit 10.1.43 to Form 10-Q filed on May 4, 2017 (File No. 001-35975))</u>
10.1.37	<u>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))</u>
10.1.38	<u>Amendment #1, dated April 3, 2017, to the Statement of Work #1 to the 2Ku In-Flight Connectivity Services Agreement 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 7, 2017 (File No. 001-35975))</u>
10.1.39	<u>Amendment #1, dated April 3, 2017, to Statement of Work #2 to the 2Ku In-Flight Connectivity Services Agreement by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.48 to Form 10-Q filed on August 7, 2017 (File No. 001-35975))</u>
10.1.40	<u>Amendment #3 to the 2Ku In-Flight Connectivity Services Agreement dated April 13, 2017 by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.49 to Form 10-Q filed on August 7, 2017 (File No. 001-35975))</u>
10.1.41	<u>Statement of Work #4, dated May 4, 2017, to the 2Ku In-Flight Connectivity Services Agreement by and between Delta Air Lines, Inc. and Gogo LLC (incorporated by reference to Exhibit 10.1.50 to Form 10-Q filed on August 7, 2017 (File No. 001-35975))</u>
10.1.42	<u>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))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.1.43	<u>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))</u>
10.1.44	<u>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))</u>
10.1.45	<u>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))</u>
10.1.46	<u>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))</u>
10.1.47	<u>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))</u>
10.1.48	<u>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))</u>
10.1.49	<u>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))</u>
10.1.50	<u>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))</u>
10.1.51 †	<u>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.</u>
10.1.52 †	<u>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.</u>
10.1.53 †	<u>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.</u>
10.1.54 †	<u>Service Order Amendment, dated as of October 11, 2018, by and between New Skies Satellites B.V. and Gogo LLC</u>
10.1.55 †	<u>Service Order Amendment, dated as of December 7, 2018, by and between New Skies Satellites B.V. and Gogo LLC</u>
10.1.56 †	<u>Statement of Work #3, dated November 28, 2018, to the 2Ku In-Flight Connectivity Services Agreement by and between Delta Air Lines, Inc. and Gogo LLC</u>
10.2.1 #	<u>Employment Agreement, by and between Aircell Holdings Inc., Aircell LLC and Michael J. Small, effective as of July 29, 2010 (incorporated by reference to Exhibit 10.2.1 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.2.2 #	<u>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))</u>
10.2.3 #	<u>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))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.2.4 #	<u>Employment Agreement, by and between Aircell Inc. and Anand Chari, effective as of July 12, 2006 (incorporated by reference to Exhibit 10.2.6 to Amendment No. 2 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.2.5 #	<u>Amendment No. 1 to the Employment Agreement, by and between Aircell Inc. and Anand Chari, effective as of January 1, 2009 (incorporated by reference to Exhibit 10.2.7 to Amendment No. 2 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.2.6 #	<u>Change in Control Severance Agreement, dated as of March 6, 2013, by and between Gogo Inc. and Michael J. Small (incorporated by reference to Exhibit 10.2.9 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.2.7 #	<u>Form of Change in Control Severance Agreement, for officers other than Michael J. Small (incorporated by reference to Exhibit 10.2.10 to Gogo Inc. Registration Statement on Form S-1 (File No. 333-178727))</u>
10.2.8#	<u>Amendment No. 2 to the Employment Agreement, between Gogo LLC (f/k/a Aircell LLC) and Anand Chari, 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))</u>
10.2.9#	<u>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))</u>
10.2.10#	<u>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))</u>
10.2.11#	<u>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))</u>
10.2.12#	<u>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))</u>
10.2.13#	<u>Separation Agreement and General Release, dated March 5, 2018, between Gogo LLC, Gogo Inc. and Michael Small (incorporated by reference to Exhibit 10.2.13 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))</u>
10.2.14#	<u>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))</u>
10.2.15#	<u>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))</u>
10.2.16#	<u>Amendment No. 3 to the Employment Agreement, by and between Gogo LLC and Anand Chari, effective as of November 30, 2017 (incorporated by reference to Exhibit 10.2.16 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))</u>
10.2.17#	<u>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))</u>
10.2.18#	<u>Amendment No. 1 to the Form of Change in Control Severance Agreement for officers (incorporated by reference to Exhibit 10.2.18 to Form 10-Q filed on May 4, 2018 (File No. 001-35975))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.2.19#	<u>Transition Agreement and General Release, dated May 1, 2018, between Gogo LLC and Anand Chari (incorporated by reference to Exhibit 10.2.19 to Form 10-Q filed on August 8, 2018 (File No. 001-35975))</u>
10.3.1 #	<u>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))</u>
10.3.2 #	<u>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))</u>
10.3.3 #	<u>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))</u>
10.3.4 #	<u>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))</u>
10.3.5 #	<u>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))</u>
10.3.6 #	<u>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))</u>
10.4.1 #	<u>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))</u>
10.4.2 #	<u>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))</u>
10.4.3 #	<u>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))</u>
10.4.4 #	<u>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))</u>
10.4.5 #	<u>Gogo Inc. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.4.5 to Form 10-Q filed on August 4, 2016 (File No. 001-35975))</u>
10.4.6 #	<u>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))</u>
10.4.7 #	<u>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))</u>
10.4.8 #	<u>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))</u>
10.4.9 #	<u>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))</u>
10.5.1 #	<u>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))</u>
10.6 #	<u>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))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.7.1 #	<u>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))</u>
10.7.2 #	<u>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))</u>
10.8.1	<u>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))</u>
10.8.2	<u>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))</u>
10.8.3	<u>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))</u>
10.8.4	<u>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))</u>
10.8.5	<u>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))</u>
10.8.6	<u>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))</u>
10.8.7	<u>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))</u>
10.8.8	<u>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))</u>
10.8.9	<u>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))</u>
10.8.10	<u>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))</u>
10.8.11	<u>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))</u>
10.9.1 #	<u>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))</u>

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<u>Exhibit Number</u>	<u>Description of Exhibits</u>
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))
10.10.1	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))
10.11.1	Purchase Agreement, dated November 16, 2018, by and among Gogo Inc., J.P. Morgan Securities LLC and Morgan Stanley & Co. LLC (incorporated by reference to Exhibit 10.1 to Form 8-K filed on November 21, 2018 (File No. 001-35975))
10.11.2	Affiliate Purchase Agreement, dated November 16, 2018, by and between Thorndale Farm Private Equity Fund 2, LLC and Gogo Inc. (incorporated by reference to Exhibit 10.2 to Form 8-K filed on November 21, 2018 (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
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.

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Indicates management contract or compensatory plan or arrangement.

† Certain provisions of this exhibit have been omitted and separately filed with the Securities and Exchange Commission pursuant to a request for confidential treatment.

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 February 21, 2019.

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 February 21, 2019.

<u>Signature</u>	<u>Title</u>
<u>/s/ Oakleigh Thorne</u> Oakleigh Thorne	President and Chief Executive Officer and Director (Principal Executive Officer)
<u>/s/ Barry Rowan</u> Barry Rowan	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
<u>/s/ Michael P. Bayer</u> Michael P. Bayer	Senior Vice President, Controller and Chief Accounting Officer (Principal Accounting Officer)
<u>/s/ Ronald T. LeMay</u> Ronald T. LeMay	Chairman of the Board
<u>/s/ Robert L. Crandall</u> Robert L. Crandall	Director
<u>/s/ Hugh W. Jones</u> Hugh W. Jones	Director
<u>/s/ Michele Coleman Mayes</u> Michele Coleman Mayes	Director
<u>/s/ Robert H. Mundheim</u> Robert H. Mundheim	Director
<u>/s/ Christopher D. Payne</u> Christopher D. Payne	Director
<u>/s/ Charles C. Townsend</u> Charles C. Townsend	Director
<u>/s/ Harris N. Williams</u> Harris N. Williams	Director

Amendment Two (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 TWO (TO UNIFIED IN-FLIGHT CONNECTIVITY HARDWARE,
SERVICES AND MAINTENANCE AGREEMENT)**

This Amendment Two (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 made and entered into as of the 24th day of August, 2017 (the “**Effective Date**”).

WHEREAS, American and Gogo desire to extend the scope of the Original Agreement to include the installation of the 2Ku Solution and provision of certain Gogo Services on [***], as well as make certain other amendments to the Original Agreement (including the addition of a certain term inadvertently omitted from the Original Agreement), all on the terms detailed in this Amendment.

NOW, THEREFORE, in consideration of the foregoing premises and the covenants contained herein, American and Gogo agree as follows:

- 1 **Scope Extension**. American hereby elects the option set forth in Section 2.1(x) of the Original Agreement for the aircraft set forth in Exhibit A attached hereto (the “**Additional 757s**”). Accordingly, the term “2Ku Fleet” as used in the Original Agreement shall include the Additional 757s, and the chart included as Exhibit A attached hereto shall be incorporated into the Unified Agreement as Exhibit A-1-A thereto.
- 2 **Return of Unused Shipsets**. Gogo originally shipped and American purchased [***] Shipsets. American acknowledges that it previously was deemed to accept such Shipsets pursuant to Section 7.5 of the Original Agreement. [***], the Parties agree that American will install and activate [***] of the Shipsets and shall ship the Shipsets in their original packaging back to Gogo at American’s expense following receipt of a RMA from Gogo. For each shipset Gogo receives on or before [***], Gogo shall inspect such shipsets by [***]. For each shipset received after [***], Gogo will have [***]. Upon inspection, Gogo shall notify American of any missing or damaged parts, failing which Gogo shall be deemed to have accepted the Shipsets [***]. In the event Gogo timely provides notice of any missing parts, American will attempt to locate the missing parts and if it does so will ship such parts back to Gogo at

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

American's expense. American will be liable to Gogo for reasonable, documented costs incurred by Gogo in replacing any missing parts not located and returned by American and in replacing or repairing any damaged parts, in each case provided that Gogo has provided timely notice as provided above, and any such costs will be subtracted from the credit otherwise owed to American. Gogo will provide email notice of the issuance of the credit, and such notice will include acknowledgement by Gogo that Gogo has accepted the Shipsets "as is" and "without any warranty or representation of any kind or nature. Gogo will give American's on-site representative access to the warehouse during inspection of shipsets.

3 **Supplemental Terms.** Notwithstanding Section 2.1(x) of the Original Agreement, the Parties have mutually agreed to certain supplemental terms that shall apply solely to the Additional 757s, which terms are set forth in Exhibit B attached hereto. In the event and to the extent of any inconsistency between the terms set forth in of Exhibit B and the terms of the Original Agreement, the terms of Exhibit B shall govern and control with respect to the Additional 757s. Except for those terms expressly set forth in Exhibit B, the Additional 757s shall be governed and controlled by the terms of the Original Agreement.

4 **Amendments to Original Agreement.**

- a. Section 1.1 – 2Ku Fleet. The following phrase is hereby added between the words "Exhibit A-1" and "to" in Section 1.1 of the Original Agreement:
" , and the Additional 757s listed on Exhibit A-1-A,"
- b. Section 1.14.1 - Additional 757s. The following is hereby added as a new Section 1.14.1 of the Original Agreement.
"1.14.1 "**Additional 757s**" means the Boeing 757A/C listed in Exhibit A-1-A
- c. Section 9.4.4 – IPTV Services. The first sentence is hereby amended to add the parenthetical "(except for the Additional 757s)" between the words "on the 2Ku Fleet" and "as described in Exhibit R."
- d. Section 18.4.1.1 – Implementation Schedule for Airbus A320 Family A/C. The final bullet of Section 18.4.1.1 of the Original Agreement, reading "All Airbus A320 family A/C kits delivered by [***]" is hereby deleted.

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

- e. Exhibit A-3. Exhibit A-3 of the Original Agreement is hereby deleted in its entirety and replaced with the new “Exhibit A-3” attached hereto as Exhibit C to this Amendment.
- f. Exhibit D.
- i. Section 1.1 (Shipset Pricing – 2Ku Solution). The first paragraph under the header “Credit” in Section 1.1 of Exhibit D to the Original Agreement is hereby amended by adding the following sentence at the end of the paragraph:
[***]
 - ii. Section 1.6 (Warranty, Maintenance and Spares). In Section 1.6 of Exhibit D to the Original Agreement, (a) the column header “**Extended Warranty Annual Price**” is hereby changed to “**Extended Warranty Annual Price (per A/C)**”, and the column header “**Touch Labor Credit**” is hereby changed to “**Annual Touch Labor Credit (per A/C)**”, and (b) the following row is hereby added immediately under the A320 row in the 2Ku Solution section of the chart: [***]
 - iii. Section 2.1.1 (Revenue Share Model). Section 2.1.1 of Exhibit D to the Original Agreement, is hereby amended by adding the following sentence after the table:
[***]
 - iv. Section 2.1.3.3 (Connectivity Services – ATG Solution/ATG4 Solution). Section 2.1.3.3 of Exhibit D to the Original Agreement is hereby amended by adding the following paragraph and table after the existing table in 2.1.3.3:

[***]

Pricing for partial coverage routes:

[***]

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

v. Section 2.3.2 The heading of the Section 2.3.2 of Exhibit D is hereby amended to include the parenthetical “(except for the Additional 757s)” after the words “2Ku Fleet Only”.

g. Exhibit J – 2Ku Service Level Agreement. [***].

- 5 **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 the subject matter. This Amendment may be modified only by written agreement signed by an authorized representative of each Party. Following the execution of this Amendment, the Parties shall negotiate in good faith another amendment to the Original Agreement, to be effective on, as of or no later than May 25, 2018, to among other things replace the Proprietary Rights and Data Security Exhibit attached to the Original Agreement as Exhibit V with a GDPR-compliant version thereof.
- 6 **Effectiveness of Agreement/Definitions**. Except as specifically amended by this Amendment, the Original Agreement remains in full force and effect. All capitalized terms used but not defined herein shall have the respective meanings applied to them in the Original Agreement.
- 7 **Counterparts**. This Amendment may be executed in counterparts, each of which shall constitute an original but all of which together shall constitute one and the same instrument, and if so executed in counterparts will be enforceable and effective upon the exchange of executed counterparts or the exchange of facsimile transmissions of executed counterparts.

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

IN WITNESS WHEREOF, the parties have executed and delivered this Amendment as of the Effective Date.

GOGO LLC

By: /s/ Dave Bijur
Name: Dave Bijur
Title: SVP Global Account Management
Date: 10/30/2018

AMERICAN AIRLINES, INC.

By: /s/ Jimmy James
Name: Jimmy James
Title: MD, Tech Ops Procurement
Date: 11/1/2018

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

Exhibit A

Additional 757s
[see attached]

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

A-1-A: 2Ku Fleet—Additional 757s

[***]

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
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**Exhibit B
Supplemental Terms for Additional 757s**

1 Additional 757 2Ku Equipment and Pricing

Notwithstanding Section 1 of Exhibit D of the Original Agreement to the contrary, the [***].

2 2Ku MRO pricing :

[***]

3 Implementation Schedule for Additional 757s

- ITCM – [***]
- PDR — [***]
- CDR Gate: [***]
- CDR — [***]
- Data Release – [***]
- Prototype kits on dock – [***]
- Prototype Induction – [***]
- STC package submission – [***]
- PMA- [***]

Above schedules are subject to change at American's option provided that such changes are accompanied by reasonable notice and that significant schedule accelerations can be implemented by Gogo on a commercially reasonable basis.

4 Additional 757 Installation Site Support (EIS and Post-Prototype) Gogo shall provide [***] to American [***] on-site support technician at each of the [***] retrofit lines for each of the [***] installs of 2Ku Solution on the Additional 757s. For the avoidance of doubt, if American has [***] retrofit lines, which may or may not be in [***] different cities and may be taking place simultaneously, Gogo shall provide [***] on-site support technicians, [***] at each site, until each location completes the [***] Additional 757s.

American and Gogo may mutually agree to cease such Gogo on-site support if American installation teams are trained ahead of the [[***] Retrofit A/C on any given line] and the American production team agrees that on-site support is no longer required. If additional support is requested beyond the limits set forth in Section 6.4.1 of Exhibit F of the Original Agreement, American shall pay the support fees set forth in Section 1.5.3 of Exhibit D of the Original Agreement.

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

5 Additional 757 Session-Based Pricing

- Solely with respect to the Additional 757s, the chart set forth immediately below shall apply in place of the chart set forth in Section 2.1.3.1 of Exhibit D of the Original Agreement:

[***]

6 Overall 2Ku Remedies

Solely with respect to the Additional 757s, the charts set forth immediately below shall apply in place of the charts set forth in Sections 2(d)(i) of Exhibit J-1 of the Original Agreement:

[***]

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

Exhibit C

Correction to Exhibit A-3: ATG4 Mainline Fleet and Mainline New Deliveries
[see attached]

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**Amendment Two (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

***]

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Amendment Three (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 THREE (TO UNIFIED IN-FLIGHT CONNECTIVITY HARDWARE,
SERVICES AND MAINTENANCE AGREEMENT)**

This Amendment Three (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 made and entered into this September 4, 2018 (the “**Amendment Effective Date**”).

WHEREAS, American desires to launch IPTV Services on Retrofit A/C in the 2Ku Fleet to provide live television programming] to passengers on such aircraft;

WHEREAS, American and DISH Network L.L.C. (“**Dish**”) have entered into an agreement under which American has been granted rights by Dish to receive, distribute, transmit, exhibit and display certain live television programming on the Retrofit A/C in the 2Ku Fleet (the “**AA-Dish Agreement**”);

WHEREAS, Gogo, American, and Dish have entered into an agreement under which Dish granted all licenses to Gogo that are required for Gogo to provide the IPTV Services to American (the “**Gogo-American-Dish Agreement**”);

WHEREAS, Gogo and American have been involved in negotiations to amend the Original Agreement to reflect the addition of IPTV Services on the Retrofit A/C in the 2Ku Fleet and intend to continue such negotiations in good faith; and

WHEREAS, the Parties desire to amend the Original Agreement to reflect the launch of the IPTV Services on the Retrofit A/C in the 2Ku Fleet.

NOW, THEREFORE, in consideration of the foregoing premises and the covenants contained herein, American and Gogo agree as follows:

1 **Amendments to Original Agreement**

- a. Section 9.4.4 of the Original Agreement is deleted in its entirety and replaced with the following:

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**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

- 9.4.4 **IPTV Services**. Gogo shall provision IPTV Services to the Retrofit A/C in the 2Ku Fleet as described in **Exhibit R**, at pricing set forth in **Exhibit D**.
- b. The following shall be added to **Section 17** of the Original Agreement:
- 17.2.9 Gogo shall provide notice to American in the event of any (i) actual or alleged breach of the Gogo-American-Dish Agreement, or (ii) actual, or threat of, early termination of the Gogo-American-Dish Agreement, in each case (i) and (ii), by either Gogo or Dish. In the event of any occurrence of subpart (i) or (ii), Gogo shall work with American in good faith in an attempt to resolve the issues between Gogo and Dish leading to such occurrence (including by allowing American to cure any default). In the event that the breach cannot be cured, Gogo retains its right to terminate the Gogo-American-Dish Agreement as set forth therein. In no event will Gogo disrupt or suspend the IPTV Services due to an actual or alleged breach of the Gogo-American-Dish Agreement by Dish without first giving Dish and American a [***] to cure such breach, provided that the breach is curable within such period.
- 17.2.10 Gogo will use best efforts to maintain the Gogo-American-Dish Agreement.
- c. The following is added as **Section 21.1(g)** of the Original Agreement:
- (g) in addition to the indemnification obligations under the Gogo-American-Dish Agreement, a breach of Section 1(a) of the Gogo-American-Dish Agreement; provided that for purposes of this Section 21.1(g), Dish will not be considered a third party.
- d. **Section 2.3** of **Exhibit D** is deleted in its entirety and replaced with:
- 2.3 Fees for the IPTV Services for Retrofit A/C in the 2Ku Fleet (other than the Additional 757s on the Phoenix to Hawaii route)
- 2.3.1 Fees for the IPTV Services:
- [***]
- e. Item 9 of the table in **Section 1.2** of **Exhibit I** is deleted in its entirety and replaced with: [***]
- f. The following shall be added to the end of the table in **Section 1.2** of **Exhibit I**: [***]

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**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

- g. The first paragraph of Section 5 of **Exhibit J-1** is deleted in its entirety and replaced with the following:
- Gogo and American will negotiate in good faith the SLA terms and metrics similar to the concepts and targets shown in the tables in this Section 5 of **Exhibit J-1**, and will work to agree on actual terms and metrics no later than [***] following the Amendment Effective Date. Gogo shall use its best efforts to provide the IPTV Services in industry standard video and audio quality. The Parties agree that the tables in this Section 5 of **Exhibit J-1** are illustrative of expected service measurements.
- h. A new Section 6 is added to **Exhibit K** as follows:
6. **IPTV Services Dashboard**
- General.** IPTV Services Dashboard: Gogo shall provide American a Dashboard that shall include analytics for the IPTV Services (the “**IPTV Services Dashboard**”) substantially in the form set forth in Figure K-1.
- 6.1. At a minimum, the IPTV Services Dashboard shall include the following information updated at least once daily. The Parties shall discuss in good faith the addition of additional metrics to the IPTV Services Dashboard.
- 6.1.1. Number of IPTV Users and views.
- 6.1.2. The click through rate and IPTV take rate for the channels presented in the IPTV UI, where “take rate” refers to the ratio, expressed as a percentage, of Users viewing a particular channel to the number of passengers on a particular flight.
- 6.1.3. Availability and media quality of the IPTV multicast stream as measured on each Retrofit A/C in the 2Ku Fleet.
- 6.1.4. The number of active Retrofit A/C in the 2Ku Fleet on which the IPTV Services are deployed.
- 6.2. Within [***] of the end of each calendar month, Gogo shall provide to American a report in Microsoft Excel format that includes (a) the Output IPTV Availability, and (b) Output eMOS information for the preceding calendar month. Gogo shall use its best efforts to make the Output IPTV Availability and Output eMOS available on a minute-by-minute basis and within the IPTV Services Dashboard.

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**Amendment Three (to Unified In-Flight Connectivity Hardware,
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- 6.2.1. “eMOS” means the model used to compute the estimated user-perceived video quality by combining multiple objective video quality analyzer (VQA) metrics whose continuous values are mapped to discrete scores on the 0—5 mean opinion score (MOS) scale, with 5 being the best on both standard definition and high definition programs.
- 6.2.2. “Output IPTV Availability” means the availability of each of the IPTV Channels on a time interval determined by the Parties, as reported by a Tektronix Sentry box measuring the output of the SmartBox(es) supplying the IPTV Services.
- 6.2.3. “Output eMOS” means the eMOS scores of each of the IPTV Channels on a time interval determined by the Parties, as reported by a Tektronix Sentry box measuring the output of the SmartBox(es) supplying the IPTV Services.

i. **Exhibit R** is deleted in its entirety and replaced with **Exhibit R** attached to this Amendment.

- 2 **Further Negotiations.** The Parties acknowledge that ongoing negotiations are occurring with respect to the IPTV Services and agree to continue such negotiations in good faith in order to further amend the Original Agreement with respect to the IPTV Services. The Parties shall use their best efforts to conclude such negotiations and amend and restate this Amendment within [***] after the Amendment Effective Date.
- 3 **Entire Agreement/Amendment.** This Amendment constitutes the full and complete understanding of the Parties, as of the Amendment Effective Date, with respect to the subject matter of this Amendment and supersedes all prior agreements and understandings between the Parties with respect to the subject matter. This Amendment may be modified only by written agreement signed by an authorized representative of each Party.
- 4 **Effectiveness of Agreement/Definitions.** Except as specifically amended by this Amendment, the Original Agreement remains in full force and effect. All capitalized terms used but not defined herein shall have the respective meanings applied to them in the Original Agreement.
- 5 **Counterparts.** This Amendment may be executed in counterparts, each of which shall constitute an original but all of which together shall constitute one and the same instrument, and if so executed in counterparts will be enforceable and effective upon the exchange of executed counterparts or the exchange of facsimile transmissions of executed counterparts. Each Party agrees that any electronic signatures of the Parties, in any form or format, included in this Amendment are intended to authenticate this writing and to have the same force and effect as manual signatures. For the purposes of this provision, ‘electronic signature’ means any electronic sound, symbol or process attached to or logically associated with a record and executed and adopted by a Party with the intent to sign such record, including e-mail signatures and processes developed by electronic signature services (e.g., DocuSign).

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**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

[Signatures appear on the next page]

American Airlines Confidential and Proprietary

**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

IN WITNESS WHEREOF, the parties have executed and delivered this Amendment as of the Amendment Effective Date.

GOGO LLC

AMERICAN AIRLINES, INC.

By: /s/ David Bijur

By: /s/ Jimmy James

Name: David Bijur

Name: Jimmy James

Title: SVP

Title: MD, Tech Ops Procurement

Date: 10/17/2018

Date: 10/23/2018

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*Signature Page to Amendment Three (to Unified In-Flight Connectivity Hardware, Services and
Maintenance Agreement)*

**Figure K-1
IPTV Dashboard**

[***]

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**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

[***]

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Figure K-1 Page 2

**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

[***]

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Figure K-1 Page 3

Exhibit R:

IPTV Services

This **Exhibit R** is intended to set forth the Parties' respective rights and obligations with respect to IPTV Services. For the avoidance of doubt, except where the context of the Original Agreement otherwise requires, the equipment, software and services described herein shall constitute Equipment, Software and IPTV Services, respectively, as such terms are defined in the Original Agreement.

1. Provision of IPTV Services

- 1.1 Gogo shall make the IPTV Services available to User's PEDs on all Retrofit A/C equipped with the 2Ku Solution other than the Additional 757s on the Phoenix to Hawaii route. Upon satisfaction of the IPTV Services tests in accordance with the acceptance testing protocols agreed by the Parties (the "**IPTV Launch Date**"), Gogo shall provide to American [***].
- 1.2 In consideration of the fees set forth in Section 2.3 of **Exhibit D**, as between the Parties, Gogo is responsible for the acquisition or development, installation and maintenance of all Gogo provided hardware and software specifically required for the provision of the IPTV Services, and monitoring equipment (e.g., a Tektronix box). As between the Parties, Gogo shall house all SmartBox(es) within its facilities and shall be responsible for assisting with the maintenance and upkeep of the SmartBox(es), including notifying American and Dish of issues related to the SmartBox(es) of which it has become aware.
- 1.3 As between the Parties, American is responsible for obtaining the rights to provide audiovisual content to Users in connection with the IPTV Services. As of the Amendment Effective Date, American has been granted the rights to receive, distribute, transmit, exhibit and display the following television channels to Retrofit A/C by way of the 2Ku Solution ("**IPTV Channels**"):
 1. WNBC
 2. WNYW
 3. CNBC
 4. USA
 5. Disney Channel
 6. Telemundo (National)
 7. ESPN
 8. TNT
 9. CNN
 10. Bravo
 11. NFL Network
 12. WCBS

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**Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)**

1.4 American may provision the IPTV Services to its passengers for [***]. American's sole payment obligations to Gogo for IPTV Services are set forth in **Exhibit D**, **Exhibit R**, related SOWs (if any) and amendments to any of the foregoing, regardless of any fee American may charge its passengers for the IPTV Services.

2. IPTV Services Term and Termination

- 2.1 The term during which Gogo shall provide the IPTV Services (the "**IPTV Term**") will begin on the Amendment Effective Date and continue until [***] for Retrofit A/C equipped with the 2Ku Solution, unless earlier terminated in accordance with the provisions of Section 18 of the Original Agreement or this Section 2 of **Exhibit R**.
- 2.2 American may terminate the IPTV Services at any time for any reason or no reason whatsoever on written notice to Gogo, to be effective no earlier than [***] following the delivery of such written notice to Gogo.
- 2.3 American may terminate the IPTV Services at any time on notice to Gogo if (a) Gogo fails to use its best efforts to provide the IPTV Service in industry standard video and audio quality in accordance with Section 5 of **Exhibit J-1** or (b) the Parties fail to agree to service level metrics for the IPTV Services within three (3) months of the Amendment Effective Date. [***].
- 2.4 Upon any termination of the IPTV Services under this Section 2 of **Exhibit R**, the Parties will use commercially reasonable efforts and work together in good faith to develop a reasonable plan for the wind-down of the IPTV Services. For the avoidance of doubt, any termination of the IPTV Services under this Section 2 of **Exhibit R** will have no impact on any obligations either Party may have with respect to other portions of the Gogo Services.

3. Geofencing and Blackouts

- 3.1 As between the Parties, Gogo is responsible for ensuring that the IPTV Channels are not received, distributed, exhibited or displayed on any A/C located outside of United States airspace for A/C departing from or arriving at destinations outside the continental United States (including the District of Columbia) (the "**Unauthorized Airspace**"). The operation of the IPTV Services in order to receive, distribute, exhibit or display the IPTV Channels on A/C while such A/C is within the Unauthorized Airspace ("**Unauthorized Exhibition**") is not authorized under this Amendment or the Original Agreement. Notwithstanding the foregoing, for the purposes of this section, the reception, distribution, exhibition and/or display of the IPTV Channels on flights departing from and arriving at destinations within the continental United States (including the District of Columbia) shall be deemed within United States airspace (regardless of whether such aircraft exit United States airspace during the applicable flight).

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4. IPTV UI Implementation

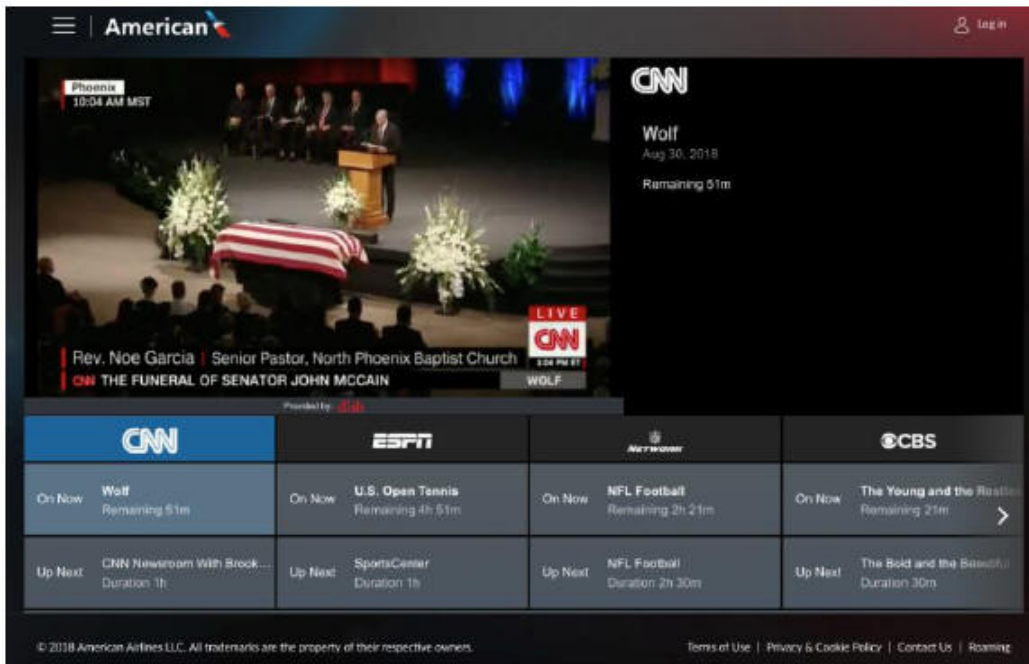
- 4.1 Gogo shall ensure that, as of the Amendment Effective Date, the Portal includes a channel guide user interface that allows Users to select and view all of the IPTV Channels, substantially similar to the user interface illustrated in Figure R-1 (the “**IPTV UI**”). The IPTV UI shall include American Marks at American’s sole discretion. Gogo shall ensure that the IPTV UI includes a Dish mark at all times, and the size, placement and display of such Dish mark shall remain consistent with the size, placement and display of such mark on the IPTV UI as of the Amendment Effective Date unless and until a change to size, placement or display of the Dish mark is agreed to by the Parties, provided that Gogo shall not unreasonably withhold its agreement to a change proposed by American related to the foregoing. Figure R-1 provides an example of an acceptable use of a Dish mark. As between the Parties, Gogo shall be responsible for the development and implementation of the IPTV UI as set forth in this Section 4.
- 4.2 American may require that certain links or icons included within the Portal from which a User can directly access the IPTV UI include text substantially similar to “Live TV by DISH.” Such requirement shall be subject to the Parties agreeing upon an MCP in accordance with Section 3.3.6 of the Original Agreement.

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Amendment Three (to Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement)

Figure R-1:

IPTV UIs



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Amendment Four (to Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement)
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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 FOUR (TO UNIFIED IN-FLIGHT CONNECTIVITY HARDWARE, SERVICES AND MAINTENANCE AGREEMENT)

This Amendment Four (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 “**Agreement**”), by and between American Airlines, Inc. (“**American**”) and Gogo LLC (“**Gogo**”) (collectively the “Parties” and individually a “Party”), is made and entered into as of the November 15, 2018 (the “**Effective Date**”) and pertains to activities commencing March 1, 2018. Capitalized terms used but not defined herein shall have the meanings set forth in the Agreement.

WHEREAS, the Parties wish to extend the scope of the Agreement to include the installation of the 2Ku Solution and the provision of certain Gogo Services on [***] A319 aircraft being delivered to American, which installation requires the SOW set forth in Appendix B to accommodate the de-modification of the LiveTV system, and to amend certain terms of the Agreement solely with respect to these aircraft.

NOW, THEREFORE, in consideration of the foregoing premises and the covenants contained herein, American and Gogo agree as follows:

1. **Amendments to the Agreement.**

A. The [***] A319 aircraft set forth in Appendix A below are hereby incorporated into the 2Ku Fleet subject to the terms set out in this Amendment. The chart set forth in Appendix A below is hereby incorporated into the Agreement as Exhibit A-1-B. The SOW to de-modify the LiveTV system from the subject aircraft is set forth in Appendix B hereto.

B. Section 1.1 (Shipset Pricing – 2Ku Solution). The first paragraph under the header “Credit” in Section 1.1 of Exhibit D to the Agreement is hereby amended by adding the following sentence at the end of the paragraph:

[***]

2. **Effectiveness of Agreement/Definitions.** Except as specifically amended by this Amendment, the Agreement remains in full force and effect. All capitalized terms used but not defined herein shall have the respective meanings applied to them in the Agreement.

Confidential

**Amendment Four (to Unified In-Flight Connectivity Hardware, Services and
Maintenance Agreement)**

IN WITNESS WHEREOF, the Parties have executed and delivered this Amendment as of the Effective Date.

GOGO LLC

AMERICAN AIRLINES, INC.

By: /s/ David Bijur
Name: David Bijur
Title: SVP, Airlines

By: /s/ Craig Barton
Name: Craig Barton
Title: VP Technical Services

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**Amendment Four (to Unified In-Flight Connectivity Hardware, Services and
Maintenance Agreement)**

**Appendix A
Additions to Exhibit A-1 (2Ku Fleet) as Exhibit A-1-B**

[***]

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**Amendment Four (to Unified In-Flight Connectivity Hardware, Services and
Maintenance Agreement)**

**Appendix B
Statement of Work - A319 LiveTV De-Modification for American Airlines**

Described within this SOW is the A319 LiveTV De-Modification project, which consists of the Gogo Services and deliverables to be provided by Gogo, the other Gogo responsibilities and the related American Airlines responsibilities in accordance with the terms of this SOW. To the extent there is any contradiction, inconsistency or ambiguity between the terms of this SOW and of the Agreement, this SOW will govern.

1. Purpose

This Statement of Work defines the activities and requirements to be performed by Gogo and American Airlines to provide Engineering Services that will result in [***].

2. Scope

- A. Gogo Obligations. Gogo shall provide the following for [***] of the incoming American Airlines Airbus A319 aircraft:
- (i) draft engineering instructions for de-modification work of the remaining LiveTV structure on each Aircraft;
 - (ii) released engineering instructions for de-modification work of the remaining LiveTV structure on each Aircraft;
 - (iii) instructions for Continued Airworthiness (ICAs) for the two engineering instructions recited above;
 - (iv) FAA form 8110-3 approval for static ultimate strength and DTA prior to RTS (DTA approval for any repairs will come within 12 months after RTS);
 - (v) commercially reasonable Engineering Services support for meetings and milestone events;
 - (vi) upon American Airlines' request in accordance with Section 2. B. 13) below, provide Engineering Services support for purposes other than meetings and milestone events at the rate agreed by the Parties; and
- B. American Obligations. American Airlines shall provide the following for the [***] incoming American Airlines Airbus A319 aircraft referenced above:
- (i) LiveTV Data – American Airlines will provide STC approved LiveTV installation drawings, MDL, ICAs, any removal procedures;
 - (ii) feedback of draft revisions for work instructions (repair and/or alteration) to be provided within [***] of receipt;

Amendment Four (to Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement)

- (iii) written approval of the repair scope as defined in the Gogo engineering draft documents. This is to include the separation between repair and alteration procedures as defined by Gogo engineering;
- (iv) written approval for the use of FAA 8110-3 approvals for the LiveTV work scope;
- (v) an opportunity for Gogo sustaining engineering to perform a survey of the Aircraft. This will include access to the crown and interior access of all the structure of the reportable areas of the Aircraft (per Assumptions.5);
- (vi) OEM repair parts, fabricated repair parts, and spares of OEM and fabricated repair parts. This specifically includes but is not limited to replacement frame sections for locations 53, 54, and 55, stringer sections at S-2L, S-3L, and S-2R, shear ties in-between S-5R and S-5L along FR 53, 54, and 55, frame splices and stringer splices, and external repair doublers, as needed;
- (vii) written requests for additional Gogo deliverables (if any) that will be utilized;
- (viii) deadlines for the Engineering Services;
- (ix) subject Aircraft serial numbers;
- (x) Airbus drawing access to the affected area on the subject Aircraft;
- (xi) latest revision of the A319 SRM;
- (xii) any deactivation paperwork of the LiveTV system; and
- (xiii) Gogo with at least 30 days prior written notice for Engineering Services support and pay for a minimum of 4 days of such support.

3. Assumptions

- 1) Any deviations in aircraft configuration that are not clearly communicated in writing by an authorized American employee are out of scope for this SOW and will be quoted separately at the time of occurrence.
- 2) Any deviations from the Gogo engineering instructions caused by workmanship issues are out of scope for this SOW and will be quoted separately at the time of occurrence.
- 3) Upon receipt and review of the above requested data, Gogo reserves the right to request more data as needed. When requested, data will be provided to Gogo from American Airlines within [***] or within a mutually agreed time if three days is not prudent.
- 4) If an Airworthiness Directive (“AD”) is identified, Gogo will provide notice to American Airlines of such AD. The Parties shall discuss the impact of an AD to this SOW and amend this SOW as needed in view of the AD.
- 5) Any repairs or modifications found within frames 44-56 and stringers 14-L to 14-R that could affect the accomplishment of the engineering instructions or the substantiation data is outside the scope of this quote. Once the repairs have been documented and submitted to Gogo, Gogo may revise this quote to include any additional engineering costs that are required.

Amendment Four (to Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement)

- 6) The Gogo engineering instructions will not provide any instructions for removing any LiveTV electrical or structural items outside of what is installed in the Gogo reportable area as defined in the Assumptions.
- 7) The materials and information contained herein are confidential and proprietary to Gogo LLC and American Airlines, Inc. By accepting this document, each recipient agrees to use such materials and information solely for the purpose of development and execution of the A319 LiveTV De-Modification for American Airlines, as defined below, and shall hold such materials and information confidential and, except as required by law or with the consent of the other party, not disclose them to any other person.

4. Other Terms

- 1) Milestone Dates

<u>Milestone</u>	<u>Date</u>
EA Development	[***]
Provide Parts List	[***]
EA Rev 1 Release	[***]
EA Rev 2 Release	[***]
EA Drawing Release	[***]
EA Rev A Release	[***]
First LiveTV Demodification	[***]
Issuance and Release of 8110-3 for EA	[***]

- 2) Commercial Terms for the performance under this SOW are set forth in Schedule 1 to this Appendix B. Gogo may invoice American Airlines for its work under this SOW upon execution of this SOW by the Parties. Payment terms in connection with this SOW shall be as set forth in Section 13.1 of the Agreement.
- 3) Additional Aircraft may be added to this SOW per an American Airlines request and agreed modification to this SOW. Quotes for those Aircraft will be addressed as they are added. Modifications to this SOW that require additional Gogo resources or requests for additional Engineering Services, such as support services, not currently obligated under this SOW shall be the subject of a change order or amendment to this SOW.

**Amendment Four (to Unified In-Flight Connectivity Hardware, Services and
Maintenance Agreement)**

**Schedule 1 to Appendix B
Unique Commercial Pricing for SOW**

[**][**]

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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: [*]**

SERVICE ORDER AMENDMENT

This Service Order Amendment is submitted by Gogo LLC (“Customer”) to New Skies Satellites B.V. (“SES”) and amends Service Order 104149-0000, entered into on the 18 February 2016, in accordance with the terms and conditions of the Master Services Agreement between Customer and SES dated 17 August, 2012, as amended by Amendment No. 1 dated 30 November, 2012 (the “MSA”). All capitalized terms referenced but not otherwise defined in this Service Order Amendment will have the meanings assigned to them in lease 104149-0000. In the event of a conflict between the provisions of this Service Order Amendment and the provisions of the lease 104149-0000, the provisions of this Service Order Amendment will prevail.

Recitals

The parties desire to modify the Agreement in accordance with the terms set forth below.

Terms of Amendment

- 1) **Effective Date.** The Effective Date of this Service Order Amendment is 1 September 2018.
- 2) **Service Specifications.** Section C (Service Specifications) is deleted and replaced with the following:
 - C. Service Specifications.

Ramp Stage	Start Date – End Date	Spot Beam (MHz)	Atlantic Wide Beam (MHz)	Total (MHz)	Monthly Service Fee (US\$)
	Commencement Date –				
1	one day prior to the four (4) month anniversary of the Commencement Date	[***]	[***]	[***]	[***]
	the four (4) month anniversary of the Commencement Date -				
2	one day prior to the eight (8) month anniversary of the Commencement Date	[***]	[***]	[***]	[***]
	the eight (8) month anniversary of the Commencement Date -				
3	one day prior to the twelve (12) month anniversary of the Commencement Date	[***]	[***]	[***]	[***]
	the twelve (12) month anniversary of the Commencement Date-				
4	one day prior to the eighteen (18) month anniversary of the Commencement Date	[***]	[***]	[***]	[***]
	the eighteen (18) month anniversary of the Commencement Date –				
5	End Date	[***]	[***]	[***]	[***]

Customer may not accelerate any Ramp Stages without the prior written approval of SES. Additional Service Specifications are contained in Attachment A to this Service Order.

- 3) **Commencement Date.** The *Commencement Date* clause under Section D remains unchanged.
- 4) **End Date.** [***].
- 5) **Service in Mexico.** The following *Service in Mexico* clause is added under Section E (Other Applicable Terms and Conditions):

Service in Mexico: Customer acknowledges and agrees that if all or part of the Service will be to, from or within Mexico, including but not limited to Mexican airspace, then the provision of the relevant portion of the Service will be subject to a separate agreement with mutually-agreed terms and conditions therein between Customer and an SES entity holding the appropriate regulatory authorizations to provide service in Mexico.

6) Attachment A.

SES PROPRIETARY & CONFIDENTIAL
Issued: 8/17/2018

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Customer initials: TJ
SES initials: B

- a. The beam allocation under Table C (Minimum Initial Capacity) of Section III (*SES-14 HTS Beam Capacity Commitments*) is replaced with a table to be provided by SES following the Commencement Date and confirmed in writing by Customer.
- b. [***].

From and after the execution and delivery of this Service Order Amendment by the Parties, this Service Order Amendment will constitute a valid, binding, and enforceable amendment to lease 104149-0000. All terms and conditions of lease 104149-0000 will, except as modified herein, apply and remain in full force and effect.

Execution

IN WITNESS WHEREOF, this Service Order Amendment has been fully executed by authorized representatives of the Parties as of the date of the last signature hereto.

GOGO LLC

By: /s/ Tim Joyce
 Name: Tim Joyce
 Title: VP Engineering
 Date: October 9, 2018

NEW SKIES SATELLITES B.V.

By: /s/ U. Bouwsma
 Name: U. Bouwsma
 Title: Proxyholder A
 Date: October 11, 2018

NEW SKIES SATELLITES B.V.

By: /s/ Thai E. Rubin
 Name: Thai E. Rubin
 Title: EVP & General Counsel
 Date: October 11, 2018

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: [*]**

SERVICE ORDER

This Service Order is submitted by Gogo LLC (“Customer”) to New Skies Satellites B.V. (“SES”) in accordance with the terms and conditions of the Master Services Agreement between Customer and SES dated 17 August 2012, as amended by Amendment No. 1 dated 30 November 2012 (the “MSA”) for the provision of Service during the Service Term.

A. Notice Information.

Customer:

111 North Canal Street, Ste. 1500
Chicago, IL 60606
USA
Attn: Bhavini Desai
Telephone: +1 630 647 1124
E-Mail: BDesai@gogoair.com

SES:

Rooseveltplantsoen 4
2517 KR The Hague
The Netherlands
Attn: Legal Services, Commercial
Telephone: +31 70 306 4100
E-Mail: customer.notices@ses.com

B. Service Description.

SES will provide Customer with space segment capacity in accordance with the Service Specifications set forth below (the “Service”).

Satellite:	Orbital Location:	Orbital Tolerances:
SES-14	[***]	[***]

SES Fleet Satellite: The SES Satellite utilized to provide the Service is an SES Global Fleet Satellite.

SES reserves the right to transition Service to another satellite in accordance with the terms and conditions of the MSA and to modify the capacity allocation in order to [***].

C. Service Specifications.

Stage	Period	Designated Capacity
1	Commencement Date – 31 December 2018	[***]
2	1 January 2019 – 30 April 2019	[***]
3	1 May 2019 – 31 August 2019	[***]
4	1 September 2019 – End Date	[***]

Attachment A from Service Order 104149-0000, entered into by the Parties on 18 February 2016 and as may be amended from time to time (“Service Order 104149-0000”), is hereby incorporated by reference, except that the beam allocation under Table C (Minimum Initial Capacity) of Section III (Customer Capacity Allocations) will be updated by SES and amended only after being confirmed in writing by Customer to reflect the Service hereunder.

[***].

D. Service Term; Fees.

Commencement Date: 1 September 2018.

End Date: [***].

Minimum Commitment: Customer shall utilize Service under this Service Order 107808-0000 [***] and together with service on SES-15 under Service Order 107179-0000, entered into by the Parties on 30 April 2018, the [***].

SES PROPRIETARY & CONFIDENTIAL

Issued: 8/17/2018

Page 1 of 2

Customer initials: TJ

SES initials: MD

[***].

[***].

[***].

[***].

The Service Fee payment conditions and Security have been agreed between the Parties based on Customer’s credit rating at the time of execution of this Service Order. Delays in the fulfillment of Customer’s obligations (including required payments due upon execution) may cause delays in the commencement of Service, but will not delay the Commencement Date for payment purposes.

E. Other Applicable Terms and Conditions.

Conditions: This Agreement is subject to SES’s receipt of Customer’s signed Service Orders 104149-0001, on or before Customer’s execution of this Service Order 107808-0000, failing which this Agreement shall be *void ab initio* and the Parties shall have no further obligations or liabilities to each other under this Agreement.

Service in Mexico: Customer acknowledges and agrees that if all or part of the Service will be to, from or within Mexico, including but not limited to Mexican airspace, then the provision of the relevant portion of the Service will be subject to a separate agreement with mutually-agreed terms and conditions therein between Customer and an SES entity holding the appropriate regulatory authorizations to provide service in Mexico.

[***].

[***].

Acknowledgments: Customer acknowledges and agrees that it shall not be entitled to seek specific performance to compel SES to cause any satellite (whether or not in orbit), including SES-14, to be constructed, launched or made commercially operational at any orbital location. The Parties acknowledge that (i) the Satellite is a SES Global Fleet Satellite and the provisions of Appendix C (Additional Terms and Definitions for North American Fleet Satellites) of the MSA do not apply to this Service Order; (ii) the provisions in Section 1 (Service Orders) of the MSA regarding third party terms and conditions are not applicable to this Service Order (except to the extent third party teleport services are contracted as contemplated herein); and (iii) for purposes of this Service Order, the term “available” and “availability” mean as determined by SES in its sole discretion.

The services ordered pursuant to this Service Order are provided subject to the terms and conditions described in the MSA, including the applicable appendices attached thereto. Termination of the MSA will not affect the performance obligations of the Parties with respect to this Service Order or the applicability of the terms and conditions set forth in the MSA to this Service Order.

GOGO LLC

By: /s/ Tim Joyce
Name: Tim Joyce
Title: VP RAN Engineer
Date: December 5, 2018

NEW SKIES SATELLITES B.V.

By: /s/ M.W. Diemel
Name: M.W. Diemel
Title: Proxyholder B
Date: December 7, 2018

SES PROPRIETARY & CONFIDENTIAL
Issued: 8/17/2018

Customer initials: TJ
SES initials: MD

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: [***]

Statement of Work #3
To the 2Ku In-Flight Connectivity Services Agreement
Between
Delta Air Lines, Inc. and Gogo LLC
Dated April 1, 2015

Statement of Work Date: November 28th, 2018

This Statement of Work #3 (the "Statement of Work") is entered into as of the date set forth above (the "Effective Date"), and is pursuant to the 2Ku In-Flight Connectivity Services Agreement between Delta Air Lines, Inc. ("Delta") and Gogo LLC ("Contractor") dated April 1, 2015 (as amended, the "Agreement"), where the Statement of Work is subject to and incorporates by reference the provisions of the Agreement. Capitalized terms used without definition in this Statement of Work have the meanings assigned to them in the Agreement. To the extent there is any contradiction, inconsistency or ambiguity between the terms of this Statement of Work and the Agreement, this Statement of Work will govern.

WHEREAS, Delta and Contractor are parties to the Agreement under which Contractor provides installation of certain equipment and provision of services related to Contractor's 2Ku Connectivity Services;

WHEREAS, Delta and Contractor desire to provide for 2Ku Connectivity Services on certain Fleet Type A/C;

NOW, THEREFORE, in consideration of the foregoing premises and covenants contained herein, Delta and Contractor agree as follows:

1. Addition of Fleet Type A/C. Pursuant to Section 2.3 of the Agreement, the A/C listed in the chart below shall be added to the Agreement as an Additional Fleet Type A/C to those listed in the Agreement:

[***]

2. All such A/C shall be deemed "Domestic A/C".

3. Schedule for Prototype. The timeline below is the milestone schedule that applies to this Additional Fleet Type A/C.

An "*" in the timeline above indicates the milestones that are referenced in Section 2.5 of the Agreement.

6. Effectiveness. This Statement of Work #3 will be effective as of the Effective Date.

IN WITNESS WHEREOF, the parties have caused this Statement of Work #3 to be executed by their duly authorized representatives as of the Effective Date.

Delta:

DELTA AIR LINES, INC., a Delaware corporation

By: /s/ Jerry Rose

Name: Jerry Rose
Title: General Manager, SCM
Date: 12/11/2018

Contractor:

GOGO LLC, a Delaware limited liability company

By: /s/ Ben Murphy

Name: Ben Murphy
Title: VP, Accounts
Date: 12/21/18

List of Subsidiaries of Gogo Inc.

<u>Name of Subsidiary</u>	<u>Jurisdiction of Organization</u>	<u>Ownership Percentage</u>
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%

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-189594, 333-212072, 333-219777 and 333-225716 on Form S-8 of our reports dated February 21, 2019, relating to the consolidated financial statements of Gogo Inc. and subsidiaries (the "Company") (which report expresses an unqualified opinion and includes an explanatory paragraph related to the Company's adoption of FASB ASC 606, Revenue from Contracts with Customers, effective January 1, 2018), and the effectiveness of the Company's internal control over financial reporting, appearing in this Annual Report on Form 10-K of Gogo Inc. and subsidiaries for the year ended December 31, 2018.

/s/ Deloitte & Touche LLP

Chicago, Illinois
February 21, 2019

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: February 21, 2019

/s/ Oakleigh Thorne

Oakleigh Thorne
President and Chief Executive Officer
(Principal Executive Officer)

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: February 21, 2019

/s/ Barry Rowan

Barry Rowan
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

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, 2018 (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: February 21, 2019

/s/ Oakleigh Thorne

Oakleigh Thorne
President and Chief Executive Officer
(Principal Executive Officer)

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, 2018 (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: February 21, 2019

/s/ Barry Rowan

Barry Rowan

Executive Vice President and Chief Financial Officer

(Principal Financial Officer)