

EchoStar CORP
Form 10-K/A
February 27, 2019
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K/A
(Amendment No. 1)
(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: 001-33807

EchoStar Corporation
(Exact name of registrant as specified in its charter)
Nevada 26-1232727
(State or other jurisdiction of incorporation or organization) (I.R.S. Employer Identification No.)

100 Inverness Terrace East, Englewood, Colorado 80112-5308
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (303) 706-4000

Securities registered pursuant to Section 12(b) of the Act:
Title of each class Name of each exchange on which registered
Class A common stock, \$0.001 par value The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

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

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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, a smaller reporting company, or an emerging growth 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. (Check one):

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

As of June 30, 2018, the aggregate market value of Class A common stock held by non-affiliates of the registrant was \$2.1 billion based upon the closing price of the Class A common stock as reported on the Nasdaq Global Select Market as of the close of business on that date.

As of February 11, 2019, the registrant's outstanding common stock consisted of 47,658,409 shares of Class A common stock and 47,687,039 shares of Class B common stock, each \$0.001 par value.

DOCUMENTS INCORPORATED BY REFERENCE

The following documents are incorporated into this Amendment No. 1 to the Annual Report on Form 10-K/A by reference:

Portions of the registrant's definitive Proxy Statement to be filed in connection with its 2019 Annual Meeting of Shareholders are incorporated by reference in Part III.

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Explanatory Note

This Amendment No. 1 to Form 10-K on Form 10-K/A (this “Amended 10-K”) is being filed with respect to the Annual Report of EchoStar Corporation (“EchoStar” or the “Company”) on Form 10-K for the fiscal year ended December 31, 2018 filed with the Securities and Exchange Commission (“SEC”) on February 21, 2019 (the “10-K”). EchoStar is filing this Amended 10-K to correct various formatting errors in the 10-K that occurred due to a file corruption discovered after filing the 10-K. Other than such corrections, there are no other changes, amendments or updates to any other information in the 10 K, but this Amended 10-K is being filed in its entirety for ease of review.

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DISCLOSURE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K (“Form 10-K”) contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including but not limited to statements about our estimates, expectations, plans, objectives, strategies, and financial condition, expected impact of regulatory developments and legal proceedings, opportunities in our industries and businesses and other trends and projections for the next fiscal quarter and beyond. All statements, other than statements of historical facts, may be forward-looking statements. Forward-looking statements may also be identified by words such as “anticipate,” “intend,” “plan,” “goal,” “seek,” “believe,” “estimate,” “expect,” “predict,” “continue,” “future,” “will,” “would,” “could,” “can,” “may.” These forward-looking statements are based on information available to us as of the date of this Form 10-K and represent management’s current views and assumptions. Forward-looking statements are not guarantees of future performance, events or results and involve potential known and unknown risks, uncertainties and other factors, many of which may be beyond our control and may pose a risk to our operating and financial condition. Accordingly, actual performance, events or results could differ materially from those expressed or implied in the forward-looking statements due to a number of factors including, but not limited to:

- significant risks related to the construction and operation of our satellites, such as the risk of not being able to timely complete the construction of or material malfunction on one or more of our satellites, risks resulting from potentially missing our regulatory milestones, changes in the space weather environment that could interfere with the operation of our satellites and our general lack of commercial insurance coverage on our satellites;
- our reliance on DISH Network Corporation and its subsidiaries for a significant portion of our revenue;
- our ability to realize the anticipated benefits of our current satellites and any future satellite we may construct or acquire;
- our ability to implement and/or realize benefits of our domestic and/or international investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions and other strategic initiatives and transactions;
- the failure of third-party providers of components, manufacturing, installation services and customer support services to appropriately deliver the contracted goods or services;
- our ability to bring advanced technologies to market to keep pace with our customers and competitors; and
- risk related to our foreign operations and other uncertainties associated with doing business internationally, including changes in foreign exchange rates between foreign currencies and the United States dollar, economic instability and political disturbances.

Other factors that could cause or contribute to such differences include, but are not limited to, those discussed in Part I, Item 1A. — Risk Factors and Item 7. — Management’s Discussion and Analysis of Financial Condition and Results of Operations of this Form 10-K and those discussed in other documents we file with the Securities and Exchange Commission (“SEC”).

All cautionary statements made herein should be read as being applicable to all forward-looking statements wherever they appear. Investors should consider the risks and uncertainties described herein and should not place undue reliance on any forward-looking statements. We do not undertake, and specifically disclaim, any obligation to publicly release the results of any revisions that may be made to any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Although we believe that the expectations reflected in any forward-looking statements are reasonable, we cannot guarantee future results, events, levels of activity, performance or achievements. We do not assume responsibility for the accuracy and completeness of any forward-looking statements. We assume no responsibility for updating forward-looking information contained or incorporated by reference herein or in any documents we file with the SEC, except as required by law.

Should one or more of the risks or uncertainties described herein or in any documents we file with the SEC occur, or should underlying assumptions prove incorrect, our actual results and plans could differ materially from those expressed in any forward-looking statements.

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PART I

ITEM 1. BUSINESS

OVERVIEW

EchoStar Corporation (which, together with its subsidiaries, is referred to as “EchoStar,” the “Company,” “we,” “us” and/or “our”) is a holding company that was organized in October 2007 as a corporation under the laws of the State of Nevada and has operated as a separately traded public company from Dish Network Corporation (“DISH”) since 2008. A substantial majority of the voting power of the shares of each of EchoStar Corporation and DISH is owned beneficially by Charles W. Ergen, our Chairman, and by certain entities established by Mr. Ergen for the benefit of his family. Our Class A common stock is publicly traded on the Nasdaq Global Select Market (“Nasdaq”) under the symbol “SATS.”

We are a global provider of broadband satellite technologies, broadband internet services for home and small office customers, satellite operations and satellite services. We also deliver innovative network technologies, managed services and various communications solutions for aeronautical, enterprise and government customers.

Our industry continues to evolve with the increasing worldwide demand for broadband internet access for information, entertainment and commerce. In addition to fiber and wireless systems, other technologies such as geostationary high throughput satellites, low-earth orbit (“LEO”) networks, medium-earth orbit (“MEO”) systems, balloons and High Altitude Platform Systems are playing significant roles in enabling global broadband access, networks and services. We intend to use our expertise, technologies, capital, investments, global presence, relationships and other capabilities to continue to provide broadband internet systems, equipment, networks and services for information, the internet-of-things, entertainment and commerce in North America and internationally for consumers as well as aeronautical, enterprise and government customers. We are closely tracking the developments in next-generation satellite businesses, and we are seeking to utilize our services, technologies and expertise to find new commercial opportunities for our business.

We currently operate in two business segments: Hughes and EchoStar Satellite Services (“ESS”), as discussed below. Our corporate department operations as well as activities that have not been assigned to our operating segments and eliminations of intersegment transactions are all accounted for in Corporate and Other in our segment reporting.

During 2017, we and certain of our subsidiaries entered into a share exchange agreement with DISH and certain of its subsidiaries. We, and certain of our subsidiaries, received all of the shares of the Hughes Retail Preferred Tracking Stock previously issued by us and one of our subsidiaries (together, the “Tracking Stock”) in exchange for 100% of the equity interests of certain of our subsidiaries that held substantially all of our former EchoStar Technologies businesses and certain other assets (collectively, the “Share Exchange”). Following the consummation of the Share Exchange, we no longer operate our former EchoStar Technologies businesses, the Tracking Stock was retired and is no longer outstanding, and all agreements, arrangements and policy statements with respect to the Tracking Stock terminated. As a result of the Share Exchange, the operating results of the EchoStar Technologies businesses have been presented as discontinued operations and as such, have been excluded from continuing operations and segment results for all periods presented in our accompanying Consolidated Financial Statements in Item 15 of this Annual Report on Form 10-K (“Form 10-K”). See Note 4 for further discussion of our discontinued operations.

BUSINESS STRATEGIES

Capitalize on domestic and international demand for broadband services. We intend to capitalize on the domestic and international demand for satellite-delivered broadband internet services and enterprise solutions by utilizing, among other things, our industry expertise, technology leadership, increased satellite capacity, access to spectrum resources, and high-quality, reliable service to drive growth in consumer subscribers and enterprise customers. We also intend to continue to selectively explore opportunities to pursue investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions and other strategic initiatives and transactions, domestically and internationally that we believe may allow us to increase our market share, increase our satellite capacity, expand into new markets, obtain new customers, broaden our portfolio of services, products and intellectual property, make our business more valuable, align us for future growth and expansion, maximize the return on our investments and strengthen our business and relationships with our customers.

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Expand satellite capacity and related infrastructure. During 2018, we continued the design and construction of a new, next-generation, high throughput geostationary satellite, with a planned 2021 launch, that is primarily intended to provide additional capacity for our HughesNet satellite internet service (the “HughesNet service”) in North, Central and South America as well as aeronautical and enterprise services. We also continued to increase our satellite capacity in certain Central and South American countries and added capability for aeronautical, enterprise and international broadband internet services. We expect that our expertise in the identification, acquisition and development of satellite spectrum and orbital rights and satellite operations, together with our increased satellite capacity and existing, acquired or developed infrastructure, will provide opportunities to enter new international markets and enhance our services to our existing customers. We currently provide satellite broadband internet service in several Central and South American countries, and expect to continue to launch similar services in other Central and South American countries. We believe market opportunities exist that will facilitate the acquisition or leasing of additional satellite capacity which will enable us to provide services to a broader customer base, including providers of pay-TV services, satellite-delivered broadband, corporate communications, and government services.

Continue to selectively explore new domestic and international strategic initiatives. We intend to continue to selectively explore opportunities to pursue investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions and other strategic initiatives and transactions, domestically and internationally, that we believe may allow us to increase our existing market share, increase our satellite capacity, expand into new markets and new customers, broaden our portfolio of services, products and intellectual property, and strengthen our relationships with our customers. For example, our current agreement with WorldVu Satellites Limited (“OneWeb”), a global LEO satellite service company, enables us to provide certain equipment and services in connection with the ground network system for OneWeb’s LEO satellites.

Continue development of S-band and other hybrid spectrum resources. Commercial service has been available to customers on our EchoStar XXI satellite since the fourth quarter of 2017, and we believe we remain in a unique position to deploy a European wide mobile satellite service (“MSS”)/complementary ground component (“CGC”) network and maximize the long-term value of our S-band spectrum in Europe and other regions within the scope of our licenses. Additionally, we intend to seek additional licenses in the S-band spectrum and opportunities to align ourselves with other licensees for a coordinated development of the spectrum. We also intend to continue to explore development of S-band similar spectrum assets in additional international markets.

Develop improved and new technologies. Our engineering capabilities provide us with the opportunity to develop and deploy cutting edge technologies, license our technologies to others, and maintain a leading technological position in the industries in which we are active.

BUSINESS SEGMENTS

HUGHES SEGMENT

Our Products and Services

Our Hughes segment is a global provider of broadband satellite technologies and broadband internet services to home and small office customers and broadband network technologies, managed services, equipment, hardware, satellite services and communications solutions to consumers, aeronautical, enterprise and government customers. The Hughes segment also designs, provides and installs gateway and terminal equipment to customers for other satellite systems. In addition, our Hughes segment designs, develops, constructs and provides telecommunication networks comprising satellite ground segment systems and terminals to mobile system operators and our enterprise customers.

We incorporate advances in technology to reduce costs and to increase the functionality and reliability of our products and services. Through advanced and proprietary methodologies, technologies, software and techniques, we continue to improve the efficiency of our networks. We invest in technologies to enhance our system and network management capabilities, specifically our managed services for enterprises. We also continue to invest in next generation technologies that can be applied to our future products and services.

We continue to focus our efforts on growing our consumer revenue by maximizing utilization of our existing satellites while planning for new satellites to be launched or acquired. Our consumer revenue growth depends on our success in adding new and retaining existing subscribers in our domestic and international markets across wholesale and retail channels. The growth of our enterprise businesses, including aeronautical, relies heavily on global economic conditions and the competitive landscape for pricing relative to competitors and alternative technologies. Service costs related

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to ongoing support for our direct and indirect customers and partners are typically impacted most significantly by our growth.

Our Hughes segment currently uses capacity from three of our satellites (the SPACEWAY 3 satellite, the EchoStar XVII satellite and the EchoStar XIX satellite) and additional satellite capacity acquired from multiple third-party providers to provide services to our customers. In December 2016, we launched our EchoStar XIX satellite, a high throughput geostationary satellite employing a multi-spot beam, bent pipe Ka-band architecture, which provides capacity for the Hughes broadband services to our current and future customers in North America and certain Central and South American countries and our aeronautical and enterprise broadband services. Until new satellite launches or acquisitions provide additional capacity for subscriber growth, we manage subscriber growth across our existing satellite platform.

In August 2017, we entered into a contract for the design and construction of the EchoStar XXIV, a new, next-generation, high throughput geostationary satellite, with a planned 2021 launch. The EchoStar XXIV satellite is primarily intended to provide additional capacity for our HughesNet service in North, Central and South America as well as aeronautical and enterprise broadband services. The Federal Communications Commission (“FCC”) granted authorization to construct, deploy and operate the EchoStar XXIV satellite. In the second half of 2018, Maxar Technologies Inc. (“Maxar”), the parent company of Space Systems/Loral (“SSL”), the manufacturer of our EchoStar XXIV satellite, announced that it was reviewing strategic alternatives for its geostationary communications satellite business to improve its financial performance and that it was in active discussions with potential buyers of the business. SSL has indicated to us that it intends to meet its contractual obligations regarding the timely manufacture and delivery of the EchoStar XXIV satellite. However, if SSL or any potential successor fails to meet or is delayed in meeting these obligations for any reason, including if Maxar decides to discontinue, wind down or otherwise significantly modify its geostationary communications satellite business, such failure could have a material adverse impact on our business operations, future revenues, financial position and prospects, completing the manufacture of the EchoStar XXIV satellite and our planned expansion of satellite broadband services throughout North, South and Central America. Capital expenditures associated with the construction and launch of this satellite are included in Corporate and Other in our segment reporting.

We continue our efforts to expand our consumer satellite services business outside of the U.S. We currently provide satellite broadband internet service in several Central and South American countries, and expect to continue to launch similar services in other Central and South American countries. In April 2014, we entered into a 15-year agreement with Eutelsat do Brasil for Ka-band capacity into Brazil on the EUTELSAT 65 West A satellite, which was launched in March 2016. We began delivering high-speed consumer satellite broadband services in Brazil in July 2016. Additionally, in September 2015, we entered into 15-year agreements pursuant to which affiliates of Telesat Canada (“Telesat”) provide us Ka-band capacity on a satellite located at the 63 degree west longitude orbital location. This satellite was launched in July 2018, placed in service during the fourth quarter of 2018 and augments the capacity being provided by the EUTELSAT 65 West A and EchoStar XIX satellites in Central and South America.

In August 2018, we entered into an agreement with Al Yah Satellite Communications Company PrJSC (“Yahsat”) to establish a new entity, Broadband Connectivity Solutions (Restricted) Limited (together with its subsidiaries, “BCS”), to provide commercial Ka-band satellite broadband services across Africa, the Middle East and southwest Asia operating over Yahsat’s Al Yah 2 and Al Yah 3 Ka-band satellites. The transaction was consummated in December 2018 when we invested \$100 million in cash in exchange for a 20% interest in BCS. Under the terms of the agreement, we may also acquire, for further cash investments, additional ownership interests in BCS in the future provided certain conditions are met. We supply network operations and management services and equipment to BCS.

Our Customers

Our enterprise, government and aeronautical customers include, but are not limited to, lottery agencies, gas station operators, aircraft connectivity providers and companies with multi-branch networks that rely on satellite or terrestrial networks for critical communication across wide geographies. Most of our enterprise customers have contracts with us for the services they purchase. Our Hughes segment also designs, provides and installs gateway and terminal equipment to customers for other satellite systems and provides satellite ground segment systems and terminals for other satellite systems, including mobile system operators. Developments toward the launch of next-generation satellite systems, including LEO, MEO and geostationary systems, could provide additional opportunities to drive the demand for our equipment, hardware, technology and services.

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As of December 31, 2018, 2017 and 2016, we had approximately 1,361,000, 1,208,000 and 1,036,000 broadband subscribers, respectively. These broadband subscribers include customers that subscribe to our HughesNet services in North, Central and South America through retail, wholesale and small/medium enterprise service channels.

As of December 31, 2018 and 2017, our Hughes segment had approximately \$1.4 billion and \$1.6 billion, respectively, of contracted revenue backlog. We define Hughes contracted revenue backlog as our expected future revenue, including lease revenue, under customer contracts that are non-cancelable, excluding agreements with customers in our consumer market. Of the total contracted revenue backlog as of December 31, 2018, we expect to recognize approximately \$430 million of revenue in 2019.

Our Competition

Our industry is highly competitive. As a global provider of network technologies, products and services, our Hughes segment competes with a large number of telecommunications service providers, which puts pressure on prices and margins. To compete effectively, we emphasize our network quality, customization capability, offering of networks as a turnkey managed service, position as a single point of contact for products and services and competitive prices.

In our consumer broadband satellite technologies and internet services markets, we compete against traditional telecommunications and wireless carriers, other satellite internet providers, as well as digital subscriber line (“DSL”), fiber and cable internet service providers offering competitive services in many markets we seek to serve. Cost, speed and accessibility are key determining factors in the selection of a service provider by the consumer. Our primary satellite competitor in our North American consumer market is ViaSat Communications, Inc., which is owned by ViaSat, Inc. (“ViaSat”). We seek to differentiate ourselves based on the ubiquitous availability of our service, quality, proprietary technology, and distribution channels.

In our aeronautical, enterprise and government markets, we compete against providers of satellite-based and terrestrial-based networks, including fiber, DSL, cable modem service, multiprotocol label switching and interest protocol-based virtual private networks.

Our principal competitors for the supply of very-small-aperture terminal satellite networks are Gilat Satellite Networks Ltd, ViaSat, Newtec Cy N.V. and VT iDirect, Inc. To differentiate ourselves from our competitors, we emphasize particular technological features of our products and services, our ability to customize networks and perform desired development work and the quality of our customer service. We also face competition from resellers and numerous local companies who purchase equipment and sell services to local customers, including domestic and international telecommunications operators, cable companies and other major carriers.

Manufacturing

Certain products in our Hughes segment are assembled at our facilities in Maryland and we outsource a significant portion of the manufacturing of our products to third parties. We believe that the manufacturing facilities used by our Hughes segment have sufficient capacity to handle current demand. We adjust our capacity based on our production requirements. We also work with third-party vendors for the development and manufacture of components that are integrated into our products. We develop dual sourcing capabilities for critical parts when practical and we evaluate outsourced subcontract vendors on a periodic basis. Our operations group, together with our engineering group, works with our vendors and subcontractors to reduce development costs, to increase production efficiency, and to obtain components at lower prices.

ESS SEGMENT

Our Services

Our ESS segment is a global provider of satellite operations and satellite services. We operate our business using our owned and leased in-orbit satellites and related licenses. Revenue in our ESS segment depends largely on our ability to continuously make use of our available satellite capacity with existing customers and our ability to enter into commercial relationships with new customers. Our ESS segment, like others in the fixed satellite services (“FSS”) industry, has encountered, and may continue to encounter, negative pressure on transponder rates and demand.

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We are also pursuing other opportunities such as providing value added services such as telemetry, tracking and control services to third parties, which leverage the ground monitoring networks and personnel currently within our ESS segment.

Our Customers

We provide satellite operations and satellite services on a full-time and/or occasional-use basis primarily to DISH and its subsidiaries (“DISH Network”), Dish Mexico, S. de R.L. de C.V., a joint venture we entered into in 2008 (“Dish Mexico”), U.S. government service providers, internet service providers, broadcast news organizations, content providers and private enterprise customers. Our satellite capacity is currently used by our customers for a variety of applications, including:

DTH Services. We provide satellite operations and satellite services to broadcast news organizations, internet service providers and content providers who use our satellites to deliver programming and internet. Our satellites are also used for the transmission of live sporting events, internet access, disaster recovery, and satellite news gathering services.

Government Services. We provide satellite and technical services to U.S. government service providers.

Network Services. We provide satellite operations and satellite services to companies for private networks that allow delivery of video and data services for corporate communications. Our satellites can be used for point-to-point or point to multi-point communications.

For the years ended December 31, 2018, 2017 and 2016 DISH Network accounted for 86.5%, 87.9% and 85.7% of our total ESS segment revenue, and we expect that DISH Network will continue to be the primary source of revenue for our ESS segment as we have entered into certain commercial agreements with DISH Network pursuant to which we provide DISH Network with satellite services at fixed prices for varying lengths of time depending on the satellite. Therefore, the results of operations of our ESS segment are linked to changes in DISH Network’s satellite capacity requirements, which historically have been driven by the addition of new channels and migration of programming to high-definition television and video on demand services. DISH Network’s future satellite capacity requirements may change for a variety of reasons, including its ability to construct and launch or acquire its own satellites, to continue to add new channels and/or to migrate to the provision of such channels and other video on demand services through streaming and other alternative technologies. There is no assurance that we will continue to provide satellite services to DISH Network beyond the terms of our agreements. Any termination or reduction in the satellite services we provide to DISH Network would cause us to have unused capacity on our satellites and require that we aggressively pursue alternative sources of revenue for this business. The agreement with DISH Network to lease satellite capacity on the EchoStar VII satellite expired in June 2018. As a result, we expect a \$43 million annualized decrease in our revenue. We are exploring other opportunities to utilize this satellite in the future. See Note 20 in the notes to consolidated financial statements in Item 15 of this Form 10-K for further discussion of our related party transactions with DISH Network.

At each of December 31, 2018 and 2017, our ESS segment had contracted revenue backlog of approximately \$832 million and \$1.2 billion, respectively. We define contracted revenue backlog for our ESS segment as contracted future satellite lease revenue. Of the total contracted revenue backlog as of December 31, 2018, we expect to recognize approximately \$288 million of revenue in 2019.

Our Competition

Our ESS segment competes against larger, well-established satellite service companies, such as Intelsat S.A., SES S.A., Telesat, and Eutelsat Communications S.A., in an industry that is characterized by long-term contracts and high costs for customers to change service providers. Several of our competitors maintain key North American and other international orbital slots that may further limit competition and competitive pricing.

OTHER BUSINESS OPPORTUNITIES

We intend to continue to selectively explore opportunities to pursue investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions and other strategic initiatives and transactions, domestically and internationally, that we believe may allow us to increase our existing market share, increase our satellite capacity, expand into new markets and new customers, broaden our portfolio of services, products and intellectual property, make our business

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more valuable, align us for future growth and expansion, maximize the return on our investments and strengthen our business and relationships with our customers. We may allocate or dispose of significant resources for long-term value that may not have a short or medium-term or any positive impact on our revenue, results of operations, or cash flow.

In December 2013, we acquired an entity based in Dublin, Ireland, which we subsequently renamed EchoStar Mobile Limited (“EML”). EML is licensed by the European Union and its member states (“EU”) to provide MSS and CGC services covering the entire EU using S-band spectrum. Our EchoStar XXI satellite, which provides space segment capacity to EML in the EU, was launched in June 2017 and placed into service in November 2017. Commercial service has been available on our EchoStar XXI satellite since the fourth quarter of 2017. EML is focused on expanding its MSS operations in the EU through development of innovative mobile and machine-to-machine products and services. We believe we are in a unique position to deploy a European wide MSS and CGC network and maximize the long-term value of our S-band spectrum in Europe and other regions within the scope of our licenses.

OUR SATELLITE FLEET

Our operating satellite fleet consists of both owned and leased satellites detailed in the table below as of December 31, 2018.

Satellites	Segment	Launch Date	Nominal Degree Orbital Location (Longitude)	Depreciable Life In Years
Owned:				
SPACEWAY 3 (1)	Hughes	August 2007	95 W	12
EchoStar XVII	Hughes	July 2012	107 W	15
EchoStar XIX	Hughes	December 2016	97.1 W	15
EchoStar VII (2)(3)(4)	ESS	February 2002	119 W	3
EchoStar IX (2)(4)	ESS	August 2003	121 W	12
EchoStar X (2)(3)	ESS	February 2006	110 W	7
EchoStar XI (2)(3)	ESS	July 2008	110 W	9
EchoStar XII (2)(4)(5)	ESS	July 2003	86.4 W	2
EchoStar XIV (2)(3)	ESS	March 2010	119 W	11
EchoStar XVI (2)	ESS	November 2012	61.5 W	15
EchoStar XXI	Corporate and Other	June 2017	10.25 E	15
EchoStar XXIII	Corporate and Other	March 2017	45 W	15
EUTELSAT 10A (“W2A”) (6)	Corporate and Other	April 2009	10 E	—
Capital Leases:				
Eutelsat 65 West A	Hughes	March 2016	65 W	15
Telesat T19V	Hughes	July 2018	63 W	15
Nimiq 5 (2)	ESS	September 2009	72.7 W	15
QuetzSat-1 (2)	ESS	September 2011	77 W	10
EchoStar 105/SES-11	ESS	October 2017	105 W	15

(1) Depreciable life represents the remaining useful life as of June 8, 2011, the date EchoStar completed its acquisition of Hughes Communications, Inc. (“Hughes Communications”) and its subsidiaries.

(2) See Note 20 in the notes to consolidated financial statements in Item 15 of this Form 10-K for discussion of related party transactions with DISH Network.

Depreciable life represents the remaining useful life as of March 1, 2014, the effective date of our receipt of the (3) satellites from DISH Network as part of the Satellite and Tracking Stock Transaction (See Note 20 in the notes to consolidated financial statements in Item 15 of this Form 10-K).

(4) Fully depreciated assets as of December 31, 2018.

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- (5) Depreciable life represents the remaining useful life as of June 30, 2013, the date the EchoStar XII satellite was impaired.
- (6) The Company acquired the S-band payload on this satellite, which prior to the acquisition in December 2013, experienced an anomaly at the time of the launch. As a result, the S-band payload is not fully operational.

Construction in progress as of December 31, 2018 included our EchoStar XXIV satellite, which is expected to launch in 2021.

Recent Developments

EchoStar I and EchoStar VI. The EchoStar I and EchoStar VI satellites were removed from their orbital locations and retired from commercial service in January 2018 and May 2018, respectively. The retirement of these satellites has not had, and is not expected to have, a material impact on our results of operations or financial position.

EchoStar 105/SES-11. The EchoStar 105/SES-11 satellite was launched in October 2017 and was placed into service in November 2017 at the 105 degree west longitude orbital location. Pursuant to agreements that we entered into in August 2014, we funded substantially all construction, launch and other costs associated with the EchoStar 105/SES-11 satellite and transferred the C-, Ku- and Ka-band payloads to two affiliates of SES Americom, Inc. (“SES”) after the launch date, while retaining the right to use the entire Ku-band payload on the satellite for an initial ten-year term, with an option for us to renew the agreement on a year-to-year basis. In October 2017, we recorded a \$77 million receivable from SES in Other current assets in the Consolidated Balance Sheets, representing capitalized costs allocable to certain satellite payloads controlled by SES, and we reduced our carrying amount of the satellite by such amount. In January 2018, we received payment from SES for the receivable plus accrued interest. Our leased Ku-band payload on the EchoStar 105/SES-11 satellite has replaced the capacity we had on the AMC-15 satellite.

Telesat T19V. In September 2015, we entered into agreements pursuant to which affiliates of Telesat will provide to us Ka-band capacity on the Telesat T19V satellite at the 63 degree west longitude orbital location for a 15-year term. The Telesat T19V satellite was launched in July 2018 and placed into service in October 2018. This satellite augments the capacity being provided by the EUTELSAT 65 West A and EchoStar XIX satellites in Central and South America.

Satellite Anomalies and Impairments

Our satellites may experience anomalies from time to time, some of which may have a significant adverse effect on their remaining useful lives, the commercial operation of the satellites or our operating results or financial position. We are not aware of any anomalies with respect to our owned or leased satellites that have had any such significant adverse effect during the year ended December 31, 2018. There can be no assurance, however, that anomalies will not have any such adverse effects in the future. In addition, there can be no assurance that we can recover critical transmission capacity in the event one or more of our satellites were to fail.

The EchoStar X satellite experienced anomalies in the past which affected seven solar array circuits. In December 2017, the satellite experienced anomalies which affected one additional solar array circuit reducing the number of functional solar array circuits to 16. As a result of these anomalies, we had a reduction in revenue of \$4 million for the year ended December 31, 2018 as compared to the year ended December 31, 2017.

We historically have not carried in-orbit insurance on our satellites because we have assessed that the cost of insurance is not economical relative to the risk of failures. Therefore, we generally bear the risk of any in-orbit failures. Pursuant to the terms of the agreements governing certain portions of our indebtedness, we are required, subject to certain limitations on coverage, to maintain in-orbit insurance for our SPACEWAY 3, EchoStar XVI and

EchoStar XVII satellites. Our other satellites, either in orbit or under construction, are not covered by launch or in-orbit insurance. We will continue to assess circumstances going forward and make insurance decisions on a case-by-case basis.

We evaluate our satellites for impairment and test for recoverability whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Certain of the anomalies previously disclosed may be considered to represent a significant adverse change in the physical condition of a particular satellite. However, based on the redundancy designed within each satellite, certain of these anomalies are not necessarily considered to be significant events that would require a test of recoverability.

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GOVERNMENT REGULATIONS

We are subject to comprehensive regulation by the FCC for our domestic, as well as various international, satellite and telecommunications operations and equipment businesses. We are also regulated by other U.S. federal agencies, state and local authorities, the International Telecommunication Union (“ITU”), and certain foreign governments, including those in the EU and North, South and Central American countries. In addition, we are also subject to the export control laws and regulations and trade sanctions laws and regulations of the U.S. and other countries with respect to the export of telecommunications equipment and services. Depending upon the circumstances, noncompliance with applicable legislation or regulations could result in suspension or revocation of our licenses or authorizations, the termination or loss of contracts or the imposition of contractual damages, civil fines or criminal penalties.

The following summary of regulations and legislation is not intended to describe all present and proposed government regulation and legislation affecting our business. Government regulations that are currently the subject of judicial or administrative proceedings, draft legislation or administrative proposals could impact us and our industries to varying degrees. The FCC and other regulators from time to time initiate proceedings that could adversely impact our satellite operations, including spectrum usage. We cannot predict either the outcome of these proceedings or proposals or any potential impact they might have on the industry or on our operations.

FCC Regulations Applicable to Our Operations

FCC Jurisdiction over Satellite and Terrestrial Operations. Non-governmental, including commercial entities, that use radio frequencies to provide communications services to, from or within the U.S. are subject to the jurisdiction of the FCC under the Communications Act of 1934, as amended (the “Communications Act”). The Communications Act gives the FCC regulatory jurisdiction over many areas relating to communications operations, including:

- the assignment of satellite radio frequencies and orbital locations to specific services and companies, the licensing of satellites and earth stations, and the granting of related authorizations;
- approval for the relocation of satellites to different orbital locations, the replacement of a satellite with another new or existing satellite, and the authorization of specific earth stations to communicate with such newly relocated satellites;
- ensuring compliance with the terms and conditions of assignments, licenses, authorizations, and approvals;
- avoiding harmful interference with other radio frequency emitters; and
- ensuring compliance with other applicable provisions of the Communications Act and FCC rules and regulations.

All satellite licenses issued by the FCC are subject to expiration unless extended by the FCC. The term of each of our U.S. direct broadcast satellite (“DBS”) licenses is 10 years, and our U.S. FSS licenses generally have 15 year terms. We hold licenses and authorizations for satellite and earth stations as well as other services, including terrestrial wireless services. To obtain and operate under such FCC licenses and authorizations, we must satisfy legal, technical qualification requirements and other conditions including, among other things, satisfaction of certain technical and ongoing due diligence obligations, implementation bonds, annual regulatory fees and various reporting requirements. Licenses must be obtained prior to launching or operating a satellite.

Telecommunications Regulation. Many of the services we provide are also subject to FCC regulation as telecommunications services. For certain services in the U.S., we are required to contribute fees, computed as a percentage of our revenue from telecommunications services to the Universal Service Fund (“USF”) to support mechanisms that subsidize the provision of services to low-income consumers, high-cost areas, schools, libraries, and rural health care providers. Current FCC rules permit us to pass this USF contribution through to our customers. The FCC also requires broadband internet access and internet telephony service providers to comply with the requirements of the Federal Communications Assistance for Law Enforcement Act, which generally requires telecommunications carriers to ensure that law enforcement agencies are able to conduct lawfully-authorized surveillance of users of their

services. In addition, as a provider of interconnected voice over internet protocol services, we are required to abide by a number of rules related to telephony service, including rules dealing with the protection of customer information and the processing of emergency calls.

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State and Local Regulation

We are also regulated by state and local authorities. While the FCC has preempted many state and local regulations that would impair the installation and use of very-small-aperture terminals and other consumer satellite dishes, our businesses nonetheless are subject to state and local regulation, including, among others, obtaining regulatory authorizations and zoning regulations that affect the ability to install these consumer satellite earth station antennas.

International Regulation

Foreign Administrations' Jurisdiction Over Satellite and Terrestrial Operations. Some of our satellites and earth stations are licensed in foreign jurisdictions. We also have terrestrial authorizations in foreign jurisdictions. In order to provide service to a foreign location from a U.S. satellite, we are required to obtain approvals from the FCC and foreign administrative agencies. The laws and regulations addressing access to satellite and terrestrial systems vary from country to country. In most countries, a license is required to provide our services and to operate satellite earth stations. Such licenses may impose certain conditions, including implementation and operation of the satellite system in a manner consistent with certain milestones (such as for contracting, satellite design, construction, launch, and implementation of service), that the satellite or its launch be procured through a national entity, that the satellite control center be located in national territory, that a license be obtained prior to launching or operating the satellite, or that a license be obtained before interconnecting with the local switched telephone network and we may be subject to penalties or fines for failing to meet such conditions. Additionally, some countries may have restrictions on the services we provide and how we provide them and/or may limit the rates that can be charged for the services we provide or impose other service terms or restrictions. Furthermore, foreign countries in which we currently, or may in the future, operate may not authorize us access to all of the spectrum that we need to provide service in a particular country.

The ITU Frequency and Orbital Location Registration. The orbital location and frequencies for our satellites are subject to the frequency registration and coordination process of the ITU. The ITU Radio Regulations define the international rules, regulations, and rights for a satellite and associated earth stations to use specific radio frequencies at a specific orbital location. These rules, which include deadlines for the bringing of satellite networks into use, differ depending on the type of service to be provided and the frequencies to be used by the satellite. On our behalf, various countries have made, and may in the future make, additional filings for the frequency assignments at particular orbital locations that are used or to be used by our current satellite networks and potential future satellite networks we may build or acquire. In the event the international coordination process that is triggered by ITU filings under applicable rules is not successfully completed, or that the requests for modification of the broadcast satellite services plan regarding the allocation of orbital locations and frequencies are not granted by the ITU, we will have to operate the applicable satellite(s) on a non-interference basis, which could have an adverse impact on our business operations. If we cannot do so, we may have to cease operating such satellite(s) at the affected orbital locations. We cannot be sure of the successful outcome of these ITU coordination processes. We make commercially reasonable efforts to cooperate with the filing nation in the preparation of ITU filings, coordination of our operations in accordance with the relevant ITU Radio Regulations, and responses to relevant ITU inquiries.

Registration in the United Nations ("UN") Registry of Space Objects. The U.S. and other jurisdictions in which we license satellites are generally parties to the UN Convention on the Registration of Objects Launched into Outer Space, which requires a satellite's launching state to register the satellite as a space object. The act of registration carries liability for the registering country in the event that the satellite causes third party damage. Administrations may place certain requirements on satellite licensees in order to procure the necessary launch or operational authorizations that accompany registration of the satellite. In some jurisdictions, these authorizations are separate and distinct, with unique requirements, from the authorization to use a set of frequencies to provide satellite services.

Telecommunications Regulation. Many of the services we provide are also subject to the regulation of other countries as telecommunications services. For certain services, we may be required to contribute fees to a universal service or other fund to support mechanisms that subsidize the provision of services to designated groups. Many countries also impose requirements on telecommunications carriers to ensure that law enforcement agencies are able to conduct lawfully-authorized surveillance of users of their services. In addition, we are subject to a number of other rules, including rules related to telephony service such as the protection of customer information and processing of emergency calls.

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Export Control Regulation

In the operation of our business, we must comply with all applicable export control and trade sanctions laws and regulations of the U.S. and other countries. Applicable U.S. laws and regulations include the Arms Export Control Act, the International Traffic in Arms Regulations (“ITAR”), the Export Administration Regulations (“EAR”), and the trade sanctions laws and regulations administered by the U.S. Department of the Treasury’s Office of Foreign Assets Control (“OFAC”).

The export of certain hardware, technical data, and services relating to satellites and the supply of certain ground control equipment, technical data and services to non-U.S. persons or to destinations outside the U.S. is regulated by the U.S. Department of Commerce’s Bureau of Industry and Security (“BIS”) under the EAR. In addition, BIS regulates our export of satellite communications network equipment to non-U.S. persons or to destinations outside of the U.S. The export of other items is regulated by the U.S. Department of State’s Directorate of Defense Trade Controls (“DDTC”) under the ITAR and are subject to strict export control and prior approval requirements. In addition, we cannot provide certain equipment or services to certain countries subject to U.S. trade sanctions unless we first obtain the necessary authorizations from OFAC. We are also subject to the Foreign Corrupt Practices Act and similar anti-bribery laws in other jurisdictions that generally prohibit companies and their intermediaries from making improper payments or giving or promising to give anything of value to foreign government officials and other individuals for the purpose of obtaining or retaining business or gaining a competitive advantage.

Environmental Regulation

We are subject to the requirements of federal, state, local, and foreign environmental and occupational safety and health laws and regulations. These include laws regulating air emissions, waste-water discharge and waste management, most significantly the Resource Conservation and Recovery Act and the Emergency Planning and Community Right-to-Know Act (“EPCRA”). Under the Resource Conservation and Recovery Act, our Hughes segment is considered a small quantity generator.

As required by the EPCRA, we file annual reports with regulatory agencies covering four areas: Emergency Planning, Emergency Release, Hazardous Chemical Storage, and Toxic Chemical Release Inventory. We maintain small quantities of hazardous materials on our premises and, therefore, have relatively modest reporting requirements under the EPCRA. We are also subject to the requirements of other environmental and occupational safety and health laws and regulations. Additionally, we review the Superfund Amendments and Reauthorization Act Title III regulatory requirements and annually report quantities of onsite material storage using Tier II, state DEQ (Department of Environmental Quality) reporting systems.

Our environmental compliance costs, capital and other expenditures to date have not been material, and we do not expect them to be material in 2019. However, environmental requirements are complex, change frequently, and have become more stringent over time. Accordingly, we cannot provide assurance that these requirements will not change or become more stringent in the future in a manner that could have a material adverse effect on our business and/or environmental compliance costs, capital or other expenditures.

PATENTS AND TRADEMARKS

We currently rely on a combination of patent, trade secret, copyright and trademark law, together with licenses, non-disclosure and confidentiality agreements and technical measures, to establish and protect proprietary rights in our products. We hold U.S. and foreign patents covering various aspects of our products and services. The duration of each of our U.S. patents is generally 20 years from the earliest filing date to which the patent has priority. We have granted licenses to use our trademarks and service-marks to affiliates and resellers worldwide, and we typically retain

the right to monitor the use of those marks and impose significant restrictions on their use in efforts to ensure a consistent brand identity. We protect our proprietary rights in our software through software licenses that, among other things, require that the software source code be maintained as confidential information and that prohibit any reverse-engineering of that code.

We believe that our patents are important to our business. We also believe that, in some areas, the improvement of existing products and the development of new products, as well as reliance upon trade secrets and unpatented proprietary know-how, are important in establishing and maintaining a competitive advantage. We believe, to a certain extent, that the value of our products and services are dependent upon our proprietary software, hardware, and other technology remaining trade secrets and/or subject to copyright protection. Generally, we enter into non-disclosure

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and invention assignment agreements with our employees, subcontractors, and certain customers and other business partners. Please see Item 3. — Legal Proceedings of this Form 10-K for more information.

RESEARCH AND DEVELOPMENT AND ENGINEERING

We have a skilled and multi-disciplined engineering organization that develops our products and services. Our in-house technological capability includes a wide range of skills required to develop systems, hardware, software, and firmware used in our products and services.

With respect to hardware development, we have skill sets that include complex digital designs, radio frequency and intermediate frequency analog designs, advanced application-specific integrated circuit designs, and sophisticated consumer and system level packaging designs. We also have extensive experience in developing products for high-volume, low-cost manufacturing for the consumer industry, including dual mode satellite and wireless handsets.

As a complement to our hardware development, we have extensive experience in designing reliable, real time, embedded software systems as part of our communication systems and services offerings. For example, our broadband product line for the enterprise market supports an extensive range of protocols for data communications. Our engineers have also developed many large turnkey systems for our customers by designing the overall solution, implementing the various subsystems, deploying the entire network and user terminals, integrating and verifying the operational system, and ultimately training the customers' technicians and operators.

Costs incurred in research and development activities are generally expensed as incurred. A significant portion of our research and development costs are incurred in connection with the specific requirements of a customer's order. In such instances, the amounts for these customer funded development efforts are included in Cost of sales - equipment.

GEOGRAPHIC AREA DATA AND TRANSACTIONS WITH MAJOR CUSTOMERS

For principal geographic area data and transactions with major customers for 2018, 2017 and 2016, see Note 18 in the notes to consolidated financial statements in Item 15 of this Form 10-K. See Item 1A. — Risk Factors for information regarding risks related to our foreign operations.

EMPLOYEES

As of December 31, 2018, we had approximately 2,200 employees and generally consider relations with them to be good. Other than approximately 190 of our employees located in Italy and Brazil, none are represented by a union.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and accordingly file an annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements, and other information with the SEC. Our public filings are maintained on the SEC's internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that website is <http://www.sec.gov>.

WEBSITE ACCESS

Our Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, may also be accessed free of charge through our website as soon as reasonably practicable after we have electronically filed such

material with, or furnished it to, the SEC. The address of that website is <http://www.echostar.com>.

We have adopted a written code of ethics that applies to all of our directors, officers, and employees, including our principal executive officer, principal financial officer, principal accounting officer and controller, in accordance with the Sarbanes-Oxley Act of 2002 and the rules of the SEC promulgated thereunder. Our code of ethics is available on our corporate website at <http://www.echostar.com>. In the event that we make changes in, or provide waivers of, the provisions of this code of ethics that the SEC requires us to disclose, we intend to disclose these events on our website.

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EXECUTIVE OFFICERS OF THE REGISTRANT

(furnished in accordance with Item 401(b) of Regulation S-K, pursuant to General Instruction G(3) of Form 10-K)

The following table and information below sets forth the name, age and position with EchoStar of each of our executive officers, the period during which each executive officer has served as such, and each executive officer's business experience during at least the past five years:

Name	Age	Position
Charles W. Ergen	65	Chairman
Michael T. Dugan	70	Chief Executive Officer, President and Director
David J. Rayner	61	Executive Vice President, Chief Financial Officer, Chief Operating Officer and Treasurer
Anders N. Johnson	61	Chief Strategy Officer and President, EchoStar Satellite Services L.L.C.
Pradman P. Kaul	72	President, Hughes Communications and Director
Dean A. Manson	52	Executive Vice President, General Counsel and Secretary

Charles W. Ergen. Mr. Ergen has served as our executive Chairman since November 2009 and Chairman of the Board of Directors since our formation in 2007. Mr. Ergen served as our Chief Executive Officer from our formation in 2007 until November 2009. Mr. Ergen serves as executive Chairman and has been Chairman of the Board of Directors of DISH Network since its formation and, during the past five years, has held executive officer and director positions with DISH Network and its subsidiaries, most recently serving as the Chief Executive Officer of DISH Network from March 2015 to December 2017.

Michael T. Dugan. Mr. Dugan has served as our Chief Executive Officer and President since November 2009. Mr. Dugan has also served as a member of our Board of Directors since our formation in 2007. Mr. Dugan served as a senior advisor to EchoStar from January 1, 2008 until November 2009. From May 2004 to December 2007, he was a director of DISH Network and, from 1990 to 2006, he served in several executive roles at DISH Network, including as President, Chief Operating Officer, Chief Technical Officer and senior advisor.

David J. Rayner. Mr. Rayner has served as our Executive Vice President, Chief Financial Officer, and Treasurer since December 2012 and as our Chief Operating Officer since September 2016. From November 2011 to November 2012, Mr. Rayner served as Chief Financial Officer of Tendril Networks, Inc., a Boulder, Colorado software company. Mr. Rayner served as our Chief Financial Officer from June 2010 to November 2011 and served as our Chief Administrative Officer from January 2008 to June 2010. Prior to that, Mr. Rayner served as Executive Vice President of Installation and Service Networks of DISH and previously as Chief Financial Officer of DISH. Before joining DISH in December 2004, Mr. Rayner served as Senior Vice President and Chief Financial Officer of Time Warner Telecom in Denver, beginning in June 1998.

Anders N. Johnson. Mr. Johnson has served as President of EchoStar Satellite Services L.L.C. since June 2011 and as our Chief Strategy Officer since September 2016. Before joining EchoStar, Mr. Johnson was most recently at SES World Skies where he served as Senior Vice President of Strategic Satellite Development. Mr. Johnson joined SES GLOBAL after the combination of GE Americom and SES GLOBAL in 2001. Prior to SES GLOBAL, Mr. Johnson worked at GE Capital beginning in 1985 in a variety of executive level roles in Satellite Services, Aviation Services, and Transportation & Industrial Financing.

Pradman P. Kaul. Mr. Kaul has served as President of Hughes Communications since its formation in February 2006, and as President of Hughes Network Systems, LLC, a wholly owned subsidiary of Hughes Communications (and together with Hughes Communications, "Hughes") since 2000. Mr. Kaul has also served as a member of our Board of Directors since August 2011 as well as a member of the board of directors of Hughes Communications from February 2006 until June 2011. Previously, Mr. Kaul served as the Chief Operating Officer, Executive Vice President and Director of Engineering of Hughes Network Systems, LLC.

Dean A. Manson. Mr. Manson has served as our Executive Vice President, General Counsel and Secretary since November 2011. Mr. Manson also serves as Executive Vice President, General Counsel and Secretary of Hughes Communications. Mr. Manson joined Hughes in 2000 from the law firm of Milbank, Tweed, Hadley & McCloy LLP,

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where he focused on international project finance and corporate transactions, and was appointed General Counsel of Hughes in 2004.

There are no arrangements or understandings between any executive officer and any other person pursuant to which any executive officer was selected as such. Pursuant to the Bylaws of EchoStar, executive officers serve at the discretion of the Board of Directors.

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ITEM 1A. RISK FACTORS

The risks and uncertainties described below are not the only ones facing us. If any of the following events occur, our business, financial condition, results of operation, prospects or ability to fund a share or debt repurchase program, invest capital in or otherwise run our business, execute on our strategic plans or return capital to our shareholders could be materially and adversely affected.

GENERAL RISKS AFFECTING OUR BUSINESS

We currently derive a significant portion of our revenue from DISH Network. The loss of, or a significant reduction in, orders from, or a decrease in selling prices of satellite services, broadband equipment and/or other services or products to DISH Network would significantly reduce our revenue and materially adversely impact our results of operations.

DISH Network accounted for 18.1%, 23.7% and 26.1% of our total revenue for the years ended December 31, 2018, 2017 and 2016, respectively.

DISH Network is the primary customer of the satellite services provided by our ESS segment. For the years ended December 31, 2018, 2017 and 2016 DISH Network accounted for 86.5%, 87.9% and 85.7% of our total ESS segment revenue, and we expect that DISH Network will continue to be the primary source of revenue for our ESS segment as we have entered into certain commercial agreements with DISH Network pursuant to which we provide DISH Network with satellite services at fixed prices for varying lengths of time depending on the satellite. See Note 20 in the notes to consolidated financial statements in Item 15 of this report for further discussion of our related party transactions with DISH Network. The results of operations of our ESS segment are linked to changes in DISH Network's satellite capacity requirements, which historically have been driven by the addition of new channels and migration of programming to high-definition TV and video on demand services. DISH Network's future satellite capacity requirements may change for a variety of reasons, including its ability to construct and launch or acquire its own satellites, to continue to add new channels and/or to migrate to the provision of such channels and other video on demand services through streaming and other alternative technologies. There is no assurance that we will continue to provide satellite services to DISH Network beyond the terms of our agreements. Any termination or reduction in the satellite services we provide to DISH Network or the prices that DISH Network pays us for such services would cause us to have unused capacity on our satellites, require us to aggressively pursue alternative sources of revenue for this business and have a material adverse effect on our business, results of operation and financial position.

If we lose DISH Network as a customer of the satellite services provided by our ESS segment, it may be difficult for us to replace, in whole or in part, our historical revenue from DISH Network because there are a relatively small number of potential customers for our specialized services, and we have had limited success in attracting such potential new customers in the past. Historically, many potential customers of our ESS segment have perceived us as a competitor due to our affiliation with DISH Network. There can be no assurance that we will be successful in entering into any commercial relationships with potential new customers who are competitors of DISH Network (particularly if we continue to be perceived as affiliated with DISH Network as a result of common ownership and certain shared services). If we do not develop relationships with new customers, we may not be able to expand our customer base or maintain or increase our revenue.

Furthermore, DISH Network has transitioned from being a wholesale distributor of the satellite internet service of our Hughes segment to being a sales agent for such services. DISH Network (i) has the right, but not the obligation, to market, promote and solicit orders and upgrades for our HughesNet service and related equipment and other telecommunications services and (ii) installs HughesNet service equipment with respect to activations generated by DISH Network. For the years ended December 31, 2018, 2017 and 2016, DISH Network accounted for 2.9%, 5.6%

and 7.7% of our total Hughes segment revenue. Any material reduction in or termination of sales generated by DISH Network in its capacity as our sale agent could have a material adverse effect on our business, results of operations, and financial position.

Our strategic initiatives may not be successfully implemented, may not elicit the expected customer response in the market and may result in competitive reactions.

We intend to continue to selectively explore opportunities to pursue investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions and other strategic initiatives and transactions, domestically and internationally, that we believe may allow us to increase our existing market share, increase our satellite capacity, expand into new

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markets, obtain new customers, broaden our portfolio of services, products and intellectual property, make our business more valuable, align us for future growth and expansion, maximize the return on our investments and strengthen our business and relationships with our customers. We may allocate significant resources for long-term initiatives that may not have a short or medium-term or any positive impact on our revenue, results of operations, or cash flow. The successful implementation of our strategic initiatives requires an investment of time, talent and money and is dependent upon a number of factors some of which are not within our control. Those factors include the ability to execute such initiatives in new and existing markets, the response of existing and potential new customers, and the actions or reactions of competitors. If we fail to properly execute or deliver products or services that address customers' expectations, it may have an adverse effect on our ability to retain and attract customers and may increase our costs and reduce our revenue. Similarly, competitive actions or reactions to our initiatives or advancements in technology or competitive products or services could impair our ability to execute those strategic initiatives or advancements. In addition, new strategic initiatives may face barriers to entering new or existing markets with established or new competitors. There can be no assurance that we will successfully implement these strategic initiatives or that, if successfully pursued, they will have the desired effect on our business or results of operations.

We could face decreased demand and increased pricing pressure to our products and services due to competition.

Our business operates in an intensely competitive, consumer-driven and rapidly changing environment and competes with a growing number of companies that provide products and services to consumers. There can be no assurance that we will be able to effectively compete against our competitors due to their significant resources and operating history. Risks to our business from competition include, but are not limited to, the following:

Our ESS segment competes against larger, well-established satellite service companies. Because the satellite services industry is relatively mature, our strategy depends largely on our ability to displace current incumbent providers, which often have the benefit of long-term contracts with customers. These long-term contracts and other factors result in relatively high costs for customers to change service providers, making it more difficult for us to displace customers from their current relationships with our competitors. In addition, the supply of satellite capacity available in the market has increased in recent years, which makes it more difficult for us to sell our services in certain markets and to price our capacity at acceptable levels. Competition may cause downward pressure on prices and further reduce the utilization of our capacity, both of which could have an adverse effect on our financial performance. Our ESS segment also competes with both fiber optic cable and terrestrial delivery systems, which may have a cost advantage, particularly in point-to-point applications where such delivery systems have been installed, and with new delivery systems being developed, which may have lower latency and other advantages.

In our consumer market, our Hughes segment faces competition primarily from DSL, fiber and cable internet service providers. Also, other telecommunications, satellite and wireless broadband companies have launched or are planning the launch of consumer internet access services in competition with our service offerings in North, Central and South America. Some of these competitors offer consumer services and hardware at lower prices than ours. In addition, terrestrial alternatives do not require our external dish, which may limit customer acceptance of our products. We may be unsuccessful in competing effectively against DSL, fiber and cable internet service providers and other satellite broadband providers, which could harm our business, operating results and financial condition.

In our enterprise network communications market, our Hughes segment faces competition from providers of terrestrial-based networks, such as fiber, DSL, cable modem service, multiprotocol label switching and internet protocol-based virtual private networks, which may have advantages over satellite networks for certain customer applications. Although we also sell terrestrial services to this market, we may not be as cost competitive and it may become more difficult for us to compete. The network communications industry is characterized by competitive pressures to provide enhanced functionality for the same or lower price with each new generation of technology. Terrestrial-based networks are offered by telecommunications carriers and other large companies, many of which have substantially greater financial resources and greater name recognition than us. As the prices of our products decrease, we will need to sell more products and/or reduce the per-unit costs to improve or maintain our results of

operations. The costs of a satellite network may exceed those of a terrestrial-based network or other networks, especially in areas that have experienced significant DSL and cable internet build-out. It may become more difficult for us to compete with terrestrial and other providers as the number of these areas continues to increase and the cost of their network and hardware

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services continues to decline. Terrestrial networks also have a competitive edge because of lower latency for data transmission.

To the extent we have available satellite capacity in our ESS segment, our results of operations may be materially adversely affected if we are not able to provide satellite services on this capacity to third parties, including DISH Network.

While we are currently evaluating various opportunities to make profitable use of our available satellite capacity (including, but not limited to, supplying satellite capacity for new domestic and international ventures), there can be no assurance that we can successfully develop these business opportunities. If we are unable to utilize our available satellite capacity for providing satellite services to third parties, including DISH Network, our margins could be negatively impacted, and we may be required to record impairments related to our satellites.

The failure to adequately anticipate the need for satellite capacity or the inability to obtain satellite capacity for our Hughes segment could harm our results of operations.

Our Hughes segment has made substantial contractual commitments for satellite capacity based on our existing customer contracts and backlog. If our existing customer contracts were to be terminated prior to their respective expiration dates, we may be committed to maintaining excess satellite capacity for which we will have insufficient revenue to cover our costs, which would have a negative impact on our margins and results of operations. Alternatively, we may not have sufficient satellite capacity available from our satellites or purchased from third parties to meet demand and we may not be able to quickly or easily adjust our capacity to changes in demand. As capacity becomes full on our existing satellites, significant delays in the construction or launch of new satellites and/or satellite anomalies or failures could materially and adversely affect our ability to provide services to customers. We generally only purchase satellite capacity based on existing contracts and bookings. Therefore, capacity for certain types of coverage in the future may not be readily available to us, and we may not be able to satisfy certain needs of our customers, which could result in a loss of possible new business and could negatively impact the margins for those services. In addition, the FSS industry has seen consolidation in the past decade, and today, the main FSS providers in North America and a number of smaller regional providers own and operate the current satellites that are available for our capacity needs. The failure of any of these FSS providers to replace existing satellite assets at the end of their useful lives or a downturn in their industry as a whole could reduce the satellite capacity available to us. Our business and results of operations could be adversely affected if we are not able to renew our capacity leases at economically viable rates, or if capacity is not available due to problems experienced by these FSS provider. Our ability to provide additional capacity for subscriber growth in our North American consumer market could also be adversely affected by regulations and/or legislation in the U.S. that enable or propose to enable the use of a portion of the frequency bands, we currently use or in the future intend to use for satellite services, 5G mobile terrestrial services or other uses. These bands include the Ka-band, where we operate our broadband gateway earth stations, and other bands in which we may operate in the future. Such regulation or legislation could limit our ability to use the Ka-band and/or other bands, limit our flexibility to change the way in which we use the Ka-band and/or adversely impact our ability to use additional bands in the future. Other countries in which we currently, or may in the future, operate are also considering regulations that could similarly limit access to the Ka-band or other frequency bands.

We are dependent upon third-party providers for components, manufacturing, installation services, and customer support services, and our results of operations may be materially adversely affected if any of these third-party providers fail to appropriately deliver the contracted goods or services.

We are dependent upon third-party services and products provided to us, including the following:

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Components. A limited number of suppliers manufacture, and in some cases a single supplier manufactures, some of the key components required to build our products. These key components may not be continually available and we may not be able to forecast our component requirements sufficiently in advance, which may have a detrimental effect on supply. If we are required to change suppliers for any reason, we would experience a delay in manufacturing our products if another supplier is not able to meet our requirements on a timely basis. In addition, if we are unable to obtain the necessary volumes of components on favorable terms or prices on a timely basis, we may be unable to produce our products at competitive prices and we may be unable to satisfy demand from our customers. Our reliance on a single or limited group of suppliers, particularly foreign suppliers, and our reliance on subcontractors, involves several risks. These risks include a potential inability to obtain an adequate supply of required components, reduced control over pricing, quality, and timely delivery of these components, and the potential bankruptcy, lack of liquidity or operational failure of our

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suppliers. We do not generally maintain long-term agreements with any of our suppliers or subcontractors for our products. An inability to obtain adequate deliveries or any other circumstances requiring us to seek alternative sources of supply could affect our ability to ship our products on a timely basis, which could damage our relationships with current and prospective customers and harm our business, resulting in a loss of market share, and reduced revenue and income.

Commodity Price Risk. Fluctuations in pricing of raw materials can affect our product costs. To the extent that component pricing does not decline or increases, whether due to inflation, increased demand, decreased supply or other factors, we may not be able to pass on the impact of increasing raw materials prices, component prices or labor and other costs, to our customers, and we may not be able to operate profitably. Such changes could have an adverse impact on our product costs.

Manufacturing. While we develop and manufacture prototypes for certain of our products, we use contract manufacturers to produce a significant portion of our hardware. If these contract manufacturers fail to provide products that meet our specifications in a timely manner, then our customer relationships and revenue may be harmed.

Installation and customer support services. Some of our products and services, such as our North American and international operations, utilize a network of third-party installers to deploy our hardware. In addition, a portion of our customer support and management is provided by third-party call centers. A decline in levels of service or attention to the needs of our customers could adversely affect our reputation, renewal rates and ability to win new business.

Other services. Some of our products rely on third parties to provide services necessary for the operation of functionalities of the products, such as third-party cloud computing services and satellite uplink hosting services. The failure of these services could disrupt the operation of certain functionalities of our products, which could harm our customer relationship and result in a loss of sales. In addition, if the agreements for the provision of these services are terminated or not renewed, we could face difficulties replacing these service providers, which would adversely affect our ability to obtain and retain customers and result in reduced revenue and income.

Our foreign operations and investments expose us to risks and restrictions not present in our domestic operations.

Our sales outside the U.S. accounted for approximately 17.3%, 19.3% and 18.2% of our revenue for the years ended December 31, 2018, 2017 and 2016, respectively. We expect our foreign operations to continue to represent a significant and growing portion of our business. Over the last 10 years, we sold products in over 100 countries and began offering broadband internet services to consumers in several Central and South American countries. Our foreign operations involve varying degrees of risk and uncertainties inherent in doing business abroad. Such risks include:

Complications in complying with restrictions on foreign ownership and investment and limitations on repatriation.

We may not be permitted to own our operations in some countries and may have to enter into partnership or joint venture relationships. Many foreign legal regimes restrict our repatriation of earnings to the U.S. from our subsidiaries and joint venture entities. Applicable law in such foreign countries may also limit our ability to distribute or access our assets or offer our products and services in certain circumstances. In such event, we will not have access to the cash flow and assets of our subsidiaries and joint ventures.

Difficulties in following a variety of laws and regulations related to foreign operations. Our international operations are subject to the laws and regulations of many different jurisdictions that may differ significantly from U.S. laws and regulations. For example, local privacy or intellectual property laws may hold us responsible for the data that is transmitted over our network by our customers. In addition, we are subject to the Foreign Corrupt Practices Act and similar anti-bribery laws in other jurisdictions that generally prohibit companies and their intermediaries from making improper payments or giving or promising to give anything of value to foreign officials and other individuals for the purpose of obtaining or retaining business or gaining a competitive advantage. Our policies mandate compliance with these laws. However, we operate in many parts of the world that have experienced corruption to some degree.

Compliance with these laws may lead to increased operations costs or loss of business opportunities. Violations of these laws could result in fines or other penalties or sanctions, which could have a material adverse impact on our business, financial condition, and results of operations.

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Restrictions on space station landing/terrestrial rights. Satellite market access and landing rights and terrestrial wireless rights are dependent on the national regulations established by foreign governments, including, but not limited to obtaining national authorizations or approvals and meeting other regulatory, coordination and registration requirements for satellites. Because regulatory schemes vary by country, we may be subject to laws or regulations in foreign countries of which we are not presently aware. Non-compliance with these requirements may result in the loss of the authorizations and licenses to conduct business in these countries, as well as fines or other financial and non-financial penalties for non-compliance with regulations. If that were to be the case, we could be subject to sanctions, penalties and/or other actions by a foreign government that could materially and adversely affect our ability to operate in that country. There is no assurance that any current regulatory approvals held by us are, or will remain, sufficient in the view of foreign regulatory authorities, or that any additional necessary approvals will be granted on a timely basis or at all, in all jurisdictions in which we wish to operate new satellites, or that applicable restrictions in those jurisdictions will not be unduly burdensome. Violations of laws or regulations may result in various sanctions including fines, loss of authorizations and the denial of applications for new authorizations or for the renewal of existing authorizations, and the failure to obtain or comply with the authorizations and regulations governing our international operations could have a material adverse effect on our ability to generate revenue and our overall competitive position.

Financial and legal constraints and obligations. Operating pursuant to foreign licenses subjects us to certain financial constraints and obligations, including, but not limited to: (a) tax liabilities that may or may not be dependent on revenue; (b) the burden of creating and maintaining additional entities, branches, facilities and/or staffing in foreign jurisdictions; and (c) legal regulations requiring that we make certain satellite capacity available for “free,” which may impact our revenue. In addition, if we need to pursue legal remedies against our customers or our business partners located outside of the U.S., it may be difficult for us to enforce our rights against them.

Compliance with applicable export control laws and regulations in the U.S. and other countries. We must comply with all applicable export control and trade sanctions laws and regulations of the U.S. and other countries. U.S. laws and regulations applicable to us include the Arms Export Control Act, ITAR, EAR and trade sanctions laws and regulations administered by OFAC. The export of certain hardware, technical data and services relating to satellites is regulated by BIS under EAR. Other items are controlled for export by the U.S. Department of State’s Directorate of Defense Trade Controls under ITAR. We cannot provide equipment or services to certain countries subject to U.S. trade sanctions unless we first obtain the necessary authorizations from OFAC. Violations of these laws or regulations could result in significant sanctions including fines, more onerous compliance requirements, debarments from export privileges, or loss of authorizations needed to conduct aspects of our international business. A violation of ITAR or the other regulations enumerated above could materially adversely affect our business, financial condition and results of operations.

Changes in exchange rates between foreign currencies and the U.S. dollar. We conduct our business and incur cost in the local currency of a number of the countries in which we operate. Accordingly, our applicable results of operations are reported in the relevant local currency and then translated to U.S. dollars at the applicable currency exchange rate for inclusion in our financial statements. In addition, we sell our products and services and acquire supplies and components from countries that historically have been, and may continue to be, susceptible to recessions, instability or currency devaluation. These fluctuations in currency exchange rates, recessions and currency devaluations have affected, and may in the future affect, revenue, profits and cash earned on international sales.

Greater exposure to the possibility of economic instability, the disruption of operations from labor and political disturbances, expropriation or war. As we conduct operations throughout the world, we could be subject to regional or national economic downturns or instability, acts of terrorism, labor or political disturbances or conflicts of various sizes, including wars. Any of these disruptions could detrimentally affect our sales in the affected region or country or lead to damage to, or expropriation of, our property or danger to our personnel.

Competition with large or state-owned enterprises and/or regulations that effectively limit our operations and favor local competitors. Many of the countries in which we conduct business have traditionally had state owned or state granted monopolies on telecommunications services that favor an incumbent service provider. We face competition from these favored and entrenched companies in countries that have not deregulated. The slower pace of deregulation

in these countries, including in Asia, Latin America, Middle East, Africa and Eastern Europe, has adversely affected, and is likely to continue to adversely affect, the development and growth of our business in these regions.

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Customer credit risks. Customer credit risks are exacerbated in foreign operations because there is often little information available about the credit histories of customers in certain of the foreign countries in which we operate.

We may experience loss from some of our customer contracts.

We provide access to our telecommunications networks to customers that use a variety of platforms such as satellite, wireless 3G, 4G, cable, fiber optic and DSL. These customer contracts may require us to provide services at a fixed price for the term of the contract. To facilitate the provision of this access, we may enter into contracts with terrestrial platform providers. Our agreements with these subcontractors may allow for prices to be changed during the term of the contracts. We assume greater financial risk on these customer contracts than on other types of contracts because if we do not estimate costs accurately and there is an increase in our subcontractors' prices, our net profit may be significantly reduced or there may be a loss on the contracts.

We may experience significant financial losses on our existing investments.

We have entered into certain strategic transactions and investments. These investments involve a high degree of risk and could diminish our financial condition or our ability to fund a share or debt repurchase program, invest capital in our business or return capital to our shareholders. The overall sustained economic uncertainty, as well as financial, operational and other difficulties encountered by certain companies in which we have invested increases the risk that the actual amounts realized in the future on our debt and equity investments will differ significantly from the fair values currently assigned to them. In addition, the companies in which we invest or with whom we partner may not be able to compete effectively or there may be insufficient demand for the services and products offered by these companies. These investments could also expose us to significant financial losses and may restrict our ability to make other investments or limit alternative uses of our capital resources. If our investments suffer losses, our financial condition could be materially adversely affected.

We may pursue acquisitions, dispositions, capital expenditures, the development, acquisition and launch of new satellites and other strategic transactions to complement or expand our business, which may not be successful and we may lose a portion or all of our investment in these acquisitions and transactions.

Our future success may depend on the existence of, and our ability to capitalize on, opportunities to acquire or develop other businesses or technologies or partner with other companies that could complement, enhance or expand our current business, services or products or that may otherwise offer us growth opportunities. We may pursue investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions or other strategic initiatives and transactions or development activities, including, without limitation, the design, development, construction, acquisition and launch of new satellites, to complement or expand our business and satellite fleet. Any such acquisitions, dispositions, activities, transactions or investments that we are able to identify and complete which may become substantial over time, involve a high degree of risk, including, but not limited to, the following:

- the diversion of our management's attention from our existing business to integrate or divide the operations and personnel of the acquired, disposed or combined business, technology or joint venture and/or to engage in such investments, dispositions and/or other activities;
- the ability and capacity of our management team to carry out all of our business plans, including with respect to our existing businesses and any businesses we acquire or embark on in the future;
- possible adverse effects on our and our targets' and partners' business, financial condition or operating results during the integration process;
- exposure to significant financial losses if the transactions, activities, investments, dispositions and/or the underlying ventures are not successful and/or we are unable to achieve the intended objectives of the transaction, disposition or investment;

- the inability to obtain in the anticipated time frame, or at all, any regulatory approvals required to complete proposed acquisitions, dispositions, activities, transactions or investments;
- the risks associated with complying with regulations applicable to the acquired or developed business or technologies which may cause us to incur substantial expenses;
- the inability to realize anticipated benefits or synergies from acquisitions, dispositions, investments, alliances and/or the development and launch of new satellites;

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- the disruption of relationships with employees, vendors or customers;
- the risks associated with foreign and international operations and/or investments or dispositions; and
- the risks associated with developing and constructing new satellites.

New investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions, development activities, including, without limitation, the design, development, construction and launch of new satellites, and other strategic initiatives may require the commitment of significant capital that may otherwise be directed to investments in our existing businesses or be distributed to shareholders. Commitment of this capital may cause us to defer or suspend any share or debt repurchases or capital expenditures that we otherwise may have made.

We may not be able to generate cash to meet our debt service needs or fund our operations.

As of December 31, 2018, our total indebtedness was approximately \$3.5 billion. Our ability to make payments on or to refinance our indebtedness and to fund our operations will depend on our ability to generate cash in the future, which is subject in part to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. We may need to raise additional capital in order to fund ongoing operations or to capitalize on business opportunities. We may not be able to generate sufficient cash flow from operations and future borrowings or equity may not be available in amounts sufficient to enable us to service our indebtedness or to fund our operations or other liquidity needs. If we are unable to generate sufficient cash, we may be forced to take actions such as revising or delaying our strategic plans, reducing or delaying capital expenditures and/or the development, design, acquisition and construction of new satellites, selling assets, restructuring or refinancing our debt or seeking additional equity capital. We may not be able to implement any of these actions on satisfactory terms, or at all. The indentures governing our indebtedness limit our ability to dispose of assets and use the proceeds from such dispositions. Therefore, we may not be able to consummate those dispositions on satisfactory terms, or at all, or to use those proceeds in a manner we may otherwise prefer. The Tax Cuts and Jobs Act of 2017 enacted in December 2017 (the “2017 Tax Act”) limits the deductibility of interest expense for U.S. federal income tax purposes. While the 2017 Tax Act generally is likely to reduce our federal income tax obligations, if these limitations or other newly enacted provisions become applicable to us, they could minimize such reductions or otherwise require us to pay additional federal income taxes, which in turn could result in additional liquidity needs.

In addition, conditions in the financial markets could make it difficult for us to access equity or debt markets at acceptable terms or at all. Instability or other conditions in the equity markets could make it difficult for us to raise equity financing without incurring substantial dilution to our existing shareholders. In addition, sustained or increased economic weaknesses or pressures or new economic conditions may limit our ability to generate sufficient internal cash to fund investments, capital expenditures, acquisitions, and other strategic transactions and/or the development, design, acquisition and construction of new satellites. We cannot predict with any certainty whether or not we will be impacted by economic conditions. As a result, these conditions make it difficult for us to accurately forecast and plan future business activities because we may not have access to funding sources necessary for us to pursue organic and strategic business development opportunities.

Covenants in our indentures restrict our business in many ways.

The indentures governing the HSS 6 1/2% Senior Secured Notes due 2019, 7 5/8% Senior Notes due 2021, 5.250% Senior Secured Notes due August 1, 2026 and 6.625% Senior Unsecured Notes due August 1, 2026 contain various covenants, subject to certain exceptions, that limit HSS’ ability and/or certain of its subsidiaries’ ability to, among other things:

- incur additional debt;
- pay dividends or make distributions on HSS’ capital stock or repurchase HSS’ capital stock;

- make certain investments;
- create liens or enter into sale and leaseback transactions;
- enter into transactions with affiliates;
 - merge or consolidate with another company;
- transfer and sell assets; and

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allow to exist certain restrictions on its or their ability to pay dividends, make distributions, make other payments, or transfer assets.

Failure to comply with these and certain other financial covenants, if not cured or waived, may result in an event of default under the indentures, which could have a material adverse effect on our business, financial condition, results of operations or prospects. If an event of default occurs and is continuing under the respective indenture, the trustee under that indenture or the requisite holders of the notes under that indenture may declare all such notes to be immediately due and payable and, in the case of the indentures governing any of our secured notes, could proceed against the collateral that secures the applicable secured notes. Certain of our subsidiaries have pledged a significant portion of our assets as collateral to secure the 6 1/2% Senior Secured Notes due 2019 and the 5.250% Senior Secured Notes due August 1, 2026. If we do not have enough cash to service our debt or fund other liquidity needs, we may be required to take actions such as requesting a waiver from the holders of the notes, reducing or delaying capital expenditures, selling assets, restructuring or refinancing all or part of the existing debt, or seeking additional equity capital. We cannot assure you that any of these remedies can be implemented on commercially reasonable terms or at all, which could result in the trustee declaring the notes to be immediately due and payable and/or foreclosing on the collateral.

We rely on key personnel and the loss of their services may negatively affect our businesses.

We believe that our future success depends to a significant extent upon the performance of Mr. Charles W. Ergen, our Chairman, and certain other key executives. The loss of Mr. Ergen or of certain other key executives or of the ability of Mr. Ergen or certain other key executives to devote sufficient time and effort to our business could have a material adverse effect on our business, financial condition and results of operations. Although some of our key executives may have agreements relating to their equity compensation that limit their ability to work for or consult with competitors, under certain circumstances, we generally do not have employment agreements with them. To the extent Mr. Ergen or other officers are performing services for both DISH Network and us, their attention may be diverted away from our business and therefore adversely affect our business.

We may be subject to risks relating to the referendum of the United Kingdom's membership of the EU.

The formal two-year process governing the United Kingdom's (the "U.K.") departure from the EU, commonly referred to as the "Brexit," began on March 29, 2017. Discussions between the U.K. and the EU focused on finalizing withdrawal issues and transition agreements are ongoing. However, given the limited progress to date in these negotiations and ongoing uncertainty within the U.K. Government and Parliament, it is possible that the U.K. will leave the EU on March 29, 2019 without a withdrawal agreement and associated transition period in place, which is likely to cause significant market and economic disruption. Further, it is possible that there will be greater restrictions on imports and exports between the U.K. and EU countries. Brexit may also cause our customers to closely monitor their costs and reduce their spending budgets. The effects of Brexit, the uncertainty regarding the ultimate terms of Brexit and the perceptions as to the impact of the withdrawal of the U.K. from the EU have affected, and may continue to affect, business activity, political stability and economic and market conditions in the U.K., the Eurozone, the EU and elsewhere and could contribute to instability in global financial and foreign exchange markets, including volatility in the value of the Euro and the British Pound. Additionally, with the U.K. no longer being a part of the EU, there may be certain regulatory changes that may impact the regulatory regime under which we operate in both the U.K. and the EU. Given that a portion of our business is conducted in the EU, including the U.K., any of these and other changes, implications and consequences may adversely affect our business and results of operations.

A natural disaster could diminish our ability to provide service to our customers.

Natural disasters could damage or destroy our ground stations and/or other infrastructure, equipment and facilities, resulting in a disruption of service to our customers. We currently have backup systems and technology in place to safeguard our antennas and protect our ground stations during natural disasters such as tornadoes, but the possibility still exists that our ground facilities and/or other infrastructure, equipment and facilities could be impacted during a major natural disaster. If a future natural disaster impairs or destroys any of our ground facilities and/or other infrastructure, equipment and facilities, we may be unable to provide service to our customers in the affected area for a period of time which may adversely affect our business and results of operations.

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We may have additional tax liabilities and changes in tax laws or regulations may have a material adverse effect on our business, cash flow, financial condition or results of operations.

We are subject to income taxes in the U.S. and foreign jurisdictions. Significant judgments are required in determining our provisions for income taxes. In the course of preparing our tax provisions and returns, we must make calculations where the ultimate tax determination may be uncertain. Our tax returns are subject to examination by the Internal Revenue Service (“IRS”), state, and foreign tax authorities. There can be no assurance as to the outcome of these examinations. If the ultimate determination of taxes owed is for an amount in excess of amounts previously accrued, our operating results, cash flows, and financial condition could be adversely affected.

Additionally, new or modified income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which, like the 2017 Tax Act, could affect the tax treatment of our domestic and foreign earnings. Any new taxes could adversely affect our domestic and international business operations and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. The 2017 Tax Act contains many significant changes to U.S. tax laws, including changes in corporate tax rates, the availability of net deferred tax assets relating to our U.S. operations, the taxation and repatriation of foreign earnings, and the deductibility of expenses. The 2017 Tax Act or other tax reform legislation has had and could have a material impact on the value of our deferred tax assets, has and could result in significant charges, and could increase our future U.S. tax expense. Furthermore, changes to the taxation of undistributed foreign earnings could change our future intentions regarding reinvestment of such earnings. The foregoing items could have a material adverse effect on our business, cash flow, financial condition or results of operations.

We earn a portion of our operating income from outside the U.S., and any repatriation of funds currently held in foreign jurisdictions may result in higher effective tax rates for us. In addition, recent changes to U.S. tax laws significantly impacts how U.S. multinational corporations are taxed on foreign earnings. Numerous countries are evaluating their existing tax laws due in part, to recommendations made by the Organization for Economic Co-operation and Development’s Base Erosion and Profit Shifting project. Although we cannot predict whether or in what form any legislation based on such proposals may be adopted by the countries in which we do business, future tax reform based on such proposals or otherwise may increase the amount of taxes we pay and adversely affect our operating results and cash flows.

Recent developments with respect to trade policies, trade agreements, tariffs and related government regulations could increase our costs, limit the amount of components we can import, decrease demand for certain of our products and have a material adverse impact on our business, financial condition and results of operations.

We source certain parts, components and items used in our products from manufacturers located outside of the U.S. and we sell certain of our products to customers located outside of the U.S. Concerns have been raised about certain countries potentially engaging in unfair trade practices and, as a result, tariffs have been increased on certain goods imported into the U.S. from those countries, including China and other countries from which we import components or raw materials, and there is the possibility of additional tariff increases. The announcement of tariffs on imported products by the U.S. has triggered actions from certain foreign governments, including China, and may trigger additional actions by those and other foreign governments, potentially resulting in a “trade war”. A trade war of this nature or other governmental action related to tariffs, government regulations, or international trade agreements or policies could materially increase the cost of certain products we import, impact or limit the availability of such products, require us to change our manufacturers, and/or decrease demand for certain of our products, any or all of which could have a material adverse impact on our business, financial condition and results of operations.

RISKS RELATED TO OUR SATELLITES

Our owned and leased satellites in orbit are subject to significant operational and environmental risks that could limit our ability to utilize these satellites.

Satellites are subject to significant operational risks while in orbit. These risks include malfunctions, commonly referred to as anomalies, which have occurred and may occur in the future in our satellites and the satellites of other operators as a result of various factors, such as satellite design and manufacturing defects, problems with the power systems or control systems of the satellites, general failures resulting from operating satellites in the harsh environment of space and cyber-attacks on our satellites.

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Although we work closely with the satellite manufacturers to determine and eliminate the cause of anomalies in new satellites and provide for redundancies of many critical components in the satellites, we may not be able to prevent anomalies or outages from occurring and may experience anomalies and outages in the future, whether of the types described above or arising from the failure of other systems or components. The failure to perform of any of our manufacturers which provide in-orbit anomaly support for our satellites could result in our inability to determine, eliminate or manage anomalies for our satellites. Even if alternate in-orbit anomaly support services are available, we may have difficulty identifying them in a timely manner or we may incur significant additional expense in changing suppliers. Maxar, through its subsidiary SSL, provides in-orbit anomaly support for several of our satellites. In the second half of 2018, Maxar announced that it is reviewing strategic alternatives for its geostationary communications satellite business to improve its financial performance and that it is in active discussions with potential buyers of the business. A decision by Maxar to discontinue, wind down or otherwise significantly modify its geostationary communications satellite business could have a material adverse impact on the operation of several of our satellites, including our ability to remedy any anomalies or outages.

Any single anomaly or outage or series of anomalies or outages could materially and adversely affect our ability to utilize the satellite, our operations, services and revenue as well as our relationships with current customers and our ability to attract new customers. In particular, future anomalies or outages may result in, among other things, the loss of individual transponders/beams and/or functional solar array circuits on a satellite, a group of transponders/beams on that satellite or the entire satellite, depending on the nature of the anomaly or outage. Anomalies or outages may also reduce the expected capacity, commercial operation and/or useful life of a satellite, thereby reducing the revenue that could be generated by that satellite, or create additional expenses due to the need to provide replacement or back-up satellites or satellite capacity earlier than planned and could have a material adverse effect on our business, financial condition and results of operations.

The loss of a satellite or other satellite malfunctions or anomalies or outages could have a material adverse effect on our financial performance, which we may not be able to mitigate by using available capacity on other satellites. There can be no assurance that we can recover critical transmission capacity in the event one or more of our in-orbit satellites were to fail. In addition, the loss of a satellite or other satellite malfunctions or anomalies or outages could affect our ability to comply with FCC and other regulatory obligations and our ability to fund the construction or acquisition of replacement satellites for our in-orbit fleet in a timely fashion, or at all. There can be no assurance that anomalies or outages will not impact the remaining useful life and/or the commercial operation of any of the satellites in our fleet. In addition, there can be no assurance that we can recover critical transmission capacity in the event one or more of our in-orbit satellites were to fail.

Meteoroid events pose a potential threat to all in-orbit satellites. The probability that meteoroids will damage those satellites increases significantly when the Earth passes through the particulate stream left behind by comets. Occasionally, increased solar activity also poses a potential threat to all in-orbit satellites.

Some decommissioned satellites are in uncontrolled orbits, which pass through the geostationary belt at various points and present hazards to operational satellites, including our satellites. We may be required to perform maneuvers to avoid collisions and these maneuvers may prove unsuccessful or could reduce the useful life of the satellite through the expenditure of fuel to perform these maneuvers. The loss, damage or destruction of any of our satellites as a result of an electrostatic storm, collision with space debris, malfunction or other event could have a material adverse effect on our business, financial condition and results of operations.

We historically have not carried in-orbit insurance on many of our satellites because we have assessed that the cost of such insurance is uneconomical relative to the risk of failures. If one or more of our in-orbit uninsured satellites fail, we could be required to record significant impairment charges for the satellite.

Our satellites have minimum design lives of 15 years, but could fail or suffer reduced capacity before then.

Generally, the minimum design life of each of our satellites is 15 years. We can provide no assurance, however, as to the actual operational lives of our satellites, which may be shorter or longer than their design lives. Our ability to earn revenue depends on the continued operation of our satellites, each of which has a limited useful life. Several factors affect the useful lives of the satellites, including, among other things, the quality of their design and construction, the durability of their component parts, the ability to continue to maintain proper orbit and control over the satellite's functions, the efficiency of the launch vehicle used, and the remaining on-board fuel following orbit insertion. In addition, continued improvements in satellite technology may make obsolete our existing satellites, or any satellites we may acquire in the future, prior to the end of their design lives.

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In the event of a failure or loss of any of our satellites, we may relocate another satellite and use it as a replacement for the failed or lost satellite, which could have a material adverse effect on our business, financial condition and results of operations. Additionally, such relocation would require governmental approval. We cannot be certain that we could obtain such governmental 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 a substantial utilization of fuel. Any such utilization of fuel would reduce the operational life of the replacement satellite.

Our satellites under construction are subject to risks related to construction, technology, regulations and launch that could limit our ability to utilize these satellites and adversely affect our business and financial condition.

Satellite construction and launch are subject to significant risks, including delays, anomalies, launch failure and incorrect orbital placement. The technologies in our satellite designs are very complex and difficulties in constructing our designs could result in delays in the deployment of our satellites or increased or unanticipated costs. There also can be no assurance that the technologies in our existing satellites or in new satellites that we design, acquire and build will work as we expect and/or will not become obsolete, that we will realize any or all of the anticipated benefits of our satellite designs or our new satellites, or that we will obtain all regulatory approvals required to operate our new or acquired satellites. In addition, certain launch vehicles that may be used by us have either unproven track records or have experienced launch failures in the past. The risks of launch delay, launch anomalies and launch failure are usually greater when the launch vehicle does not have a track record of previous successful flights. Launch anomalies and failures can result in significant delays in the deployment of satellites because of the need both to construct replacement satellites, which can take more than three years, and to obtain other launch opportunities. Such significant delays could materially and adversely affect our business, expenses and results of operations, our ability to meet regulatory or contractual required milestones, the availability and our use of other or replacement satellite resources and our ability to provide services to customers as capacity becomes full on existing satellites. In addition, significant delays in a satellite program could give customers who have purchased or reserved capacity on that satellite a right to terminate their service contracts relating to the satellite. We may not be able to accommodate affected customers on other satellites until a replacement satellite is available. A customer's termination of its service contracts with us as a result of a launch delay or failure would reduce our contracted backlog and our ability to generate revenue. One of our launch services providers is a Russian Federation state-owned company. Certain ongoing political events have created uncertainty as to the stability of U.S. and Russian Federation relations. This could add to risks relative to scheduling uncertainties and timing. If a launch delay, anomaly or failure were to occur, it could result in the revocation of the applicable license to operate the satellite, undermine our ability to implement our business strategy or develop or pursue existing or future business opportunities with applicable licenses and otherwise have a material adverse effect on our business, expenses, assets, revenue, results of operations and ability to fund future satellite procurement and launch opportunities. Historically, we have not always carried launch insurance for the launch of our satellites and the occurrence of launch anomalies and failures, whether on our satellites or those of others, may significantly reduce our ability to place launch insurance for our satellites or make launch insurance uneconomical.

Our use of certain satellites is often dependent on satellite coordination agreements, which may be difficult to obtain.

Satellite transmissions and the use of frequencies often are dependent on coordination with other satellite systems operated by U.S. or foreign satellite operators, including governments, and it can be difficult to determine the outcome of these coordination agreements with these other entities and governments. The impact of a coordination agreement may result in the loss of rights to the use of certain frequencies or access to certain markets. The significance of such a loss would vary and it can therefore be difficult to determine which portion of our revenue will be impacted.

In the event the international coordination process that is triggered by ITU filings under applicable rules is not successfully completed, or that the requests for modification of the broadcast satellite services plan regarding the allocation of orbital locations and frequencies are not granted by the ITU, we will have to operate the applicable satellite(s) on a non-interference basis, which could have an adverse impact on our business operations. If we cannot do so, we may have to cease operating such satellite(s) at the affected orbital locations, which could have a material adverse effect on our business, results of operations and financial position.

Furthermore, the satellite coordination process is conducted under the guidance of the ITU radio regulations and the national regulations of the satellites involved in the coordination process. These rules and regulations could be amended and could therefore materially adversely affect our business, financial condition and results of operations.

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We may face interference from other services sharing satellite spectrum.

The FCC and other regulators have adopted rules or may adopt rules in the future that allow non-geostationary orbit satellite services to operate on a co-primary basis in the same frequency band as DBS and FSS. The FCC has also authorized the use of multichannel video and data distribution service in the DBS band. Several multichannel video and data distribution service systems are now being commercially deployed. Despite regulatory provisions designed to protect DBS and FSS operations from harmful interference, there can be no assurance that operations by other satellites or terrestrial communication services in the DBS and FSS bands will not interfere with our DBS and FSS operations and adversely affect our business.

Our dependence on outside contractors could result in delays related to the design, manufacture and launch of our new satellites, which could in turn adversely affect our operating results.

There are a limited number of manufacturers that are able to design and build satellites according to the technical specifications and standards of quality we require, including Airbus Defence and Space, Boeing Satellite Systems, Lockheed Martin, SSL and Thales Alenia Space. There are also a limited number of launch service providers that are able to launch such satellites, including International Launch Services, Arianespace, Lockheed Martin Commercial Launch Services and Space Exploration. The failure to perform of any of our manufacturers or launch service providers could increase the cost and result in the delay of the design, construction or launch of our satellites. Even if alternate suppliers for such services are available, we may have difficulty identifying them in a timely manner or we may incur significant additional expense in changing suppliers, and this could result in difficulties or delays in the design, construction or launch of our satellites. For example, in the second half of 2018, Maxar announced that it is reviewing strategic alternatives for its geostationary communications satellite business to improve its financial performance and that it is in active discussions with potential buyers of the business. SSL has indicated to us that it intends to meet its contractual obligations regarding the timely manufacture and delivery of the EchoStar XXIV satellite. However, if SSL or any potential successor fails to meet or is delayed in meeting these obligations for any reason, including if Maxar decides to discontinue, wind down or otherwise significantly modify its geostationary communications satellite business, such failure could have a material adverse effect on completing the manufacture of the EchoStar XXIV satellite and, like any other delays in the design, construction or launch of our other satellites, could have a material adverse impact on our business operations, future revenues, financial position and prospects.

RISKS RELATED TO OUR PRODUCTS AND TECHNOLOGY

If we are unable to properly respond to technological changes, our business could be significantly harmed.

Our business and the markets in which we operate are characterized by rapid technological changes, evolving industry standards and frequent product and service introductions and enhancements. If we or our suppliers are unable to properly respond to or keep pace with technological developments, fail to develop new technologies, or if our competitors obtain or develop proprietary technologies that are perceived by the market as being superior to ours, our existing products and services may become obsolete and demand for our products and services may decline. Even if we keep up with technological innovation, we may not meet the demands of the markets we serve. Furthermore, after we have incurred substantial research and development costs, one or more of the technologies under our development, or under development by one or more of our strategic partners, could become obsolete prior to its introduction. If we are unable to respond to or keep pace with technological advances on a cost-effective and timely basis, or if our products, applications or services are not accepted by the market, then our business, financial condition and results of operations could be adversely affected.

Our response to technological developments depends, to a significant degree, on the work of technically skilled employees. Competition for the services of such employees has become more intense as demand for these types of employees grows. We compete with other companies for these employees and although we strive to attract and retain these employees, we may not succeed in these respects. Additionally, if we were to lose certain key technically skilled employees, the loss of knowledge and intellectual capital might have an adverse impact on business, financial condition and results of operations.

We have made and will continue to make significant investments in research, development, and marketing for new products, services, satellites and related technologies, as well as entry into new business areas. Investments in new technologies, satellites and business areas are inherently speculative and commercial success thereof depends on numerous factors including innovativeness, quality of service and support, and effectiveness of sales and marketing.

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We may not achieve revenue or profitability from such investments for a number of years, if at all. Moreover, even if such products, services, satellites, technologies and business areas become profitable, their operating margins may be minimal.

Our future growth depends on growing demand for advanced technologies.

Future demand and effective delivery for our products will depend significantly on the growing demand for advanced technologies, such as broadband internet connectivity. If the deployment of, or demand for, advanced technologies is not as widespread or as rapid as we or our customers expect, our revenue growth will be negatively impacted.

Our business depends on certain intellectual property rights and on not infringing the intellectual property rights of others. The loss of our intellectual property rights or our infringement of the intellectual property rights of others could have a significant adverse impact on our business.

We rely on our patents, copyrights, trademarks and trade secrets, as well as licenses and other agreements with our vendors and other parties, to use our technologies, conduct our operations and sell our products and services. Legal challenges to our intellectual property rights and claims by third parties of intellectual property infringement could require that we enter into royalty or licensing agreements on unfavorable terms, incur substantial monetary liability or be enjoined preliminarily or permanently from further use of the intellectual property in question or from the continuation of our businesses as currently conducted or as we plan to conduct it, which could require us to change our business practices or limit our ability to compete effectively or could otherwise have an adverse effect on our business, financial condition, results of operations or prospects. Even if any such challenges or claims prove to be without merit, they can be time-consuming and costly to defend and may divert management's attention and resources away from our business.

Moreover, due to the rapid pace of technological change, we rely in part on technologies developed or licensed by third parties, and if we are unable to obtain or continue to obtain licenses or other required intellectual property rights from these third parties on reasonable terms, our business, financial position and results of operations could be adversely affected. Technology licensed from third parties or developed by us may have undetected errors that impair the functionality or prevent the successful integration of our products or services. As a result of any such changes or loss, we may need to incur additional development costs to ensure continued performance of our products or suffer delays until replacement technology, if available, can be obtained and integrated.

In addition, we work with third parties such as vendors, contractors and suppliers for the development and manufacture of components that are integrated into our products and our products may contain technologies provided to us by these third parties. We may have little or no ability to determine in advance whether any such technology infringes the intellectual property rights of others. Our vendors, contractors and suppliers may not be required to indemnify us in the event that a claim of infringement is asserted against us, or they may be required to indemnify us only up to a maximum amount, above which we would be responsible for any further costs or damages. Legal challenges to these intellectual property rights may impair our ability to use the products and technologies that we need in order to operate our business and may materially and adversely affect our business, financial condition and results of operations.

We are, and may become, party to various lawsuits which, if adversely decided, could have a significant adverse impact on our business, particularly lawsuits regarding intellectual property.

We are, and may become, subject to various legal proceedings and claims, which arise both in and out of the ordinary course of our business. Many entities, including some of our competitors, have or may in the future obtain patents and other intellectual property rights that cover or affect products or services related to those that we offer. In general, if a

court determines that one or more of our products or services infringes valid intellectual property rights held by others, we may be required to cease developing or marketing those products or services, to obtain licenses from the holders of the intellectual property at a material cost, to pay damages or to redesign those products or services in such a way as to avoid infringement. If those intellectual property rights are held by a competitor, we may be unable to license the necessary intellectual property rights at any price, which could adversely affect our competitive position.

We may not be aware of all patents and other intellectual property rights that our products and services may potentially infringe. In addition, patent applications in the U.S. and foreign countries are confidential until the Patent and Trademark Office either publishes the application or issues a patent (whichever arises first) and, accordingly, our products may infringe claims contained in pending patent applications of which we are not aware. Further, the process of determining

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definitively whether a patent claim is valid and whether a particular product infringes a valid patent claim often involves expensive and protracted litigation, even if we are ultimately successful on the merits.

We cannot estimate the extent to which we may be required in the future to obtain licenses with respect to intellectual property rights held by others and the availability and cost of any such licenses. Those costs, and their impact on our results of operations, could be material. Damages in patent infringement cases can be substantial, and in certain circumstances, can be trebled. To the extent that we are required to pay unanticipated royalties to third parties, these increased costs of doing business could negatively affect our liquidity and operating results. We from time to time may defend patent infringement actions and may from time to time assert our own actions against parties we suspect of infringing our patents and trademarks. We cannot be certain the courts will conclude these companies do not own the rights they claim, that these rights are not valid, or that our products and services do not infringe on these rights. We also cannot be certain that we will be able to obtain licenses from these persons on commercially reasonable terms or, if we were unable to obtain such licenses, that we would be able to redesign our products and services to avoid infringement. The legal costs associated with defending patent suits and pursuing patent claims against others may be borne by us if we are not awarded reimbursement through the legal process. See further discussion under Item 1. - Business — Patents and Trademarks and Item 3. - Legal Proceedings of this Form 10-K.

Future litigation or governmental proceedings could result in material adverse consequences, including judgments or settlements.

We may become involved in lawsuits, regulatory inquiries, audits, consumer claims and governmental and other legal proceedings arising from our business, including new products and services that we may offer. Some of these proceedings may raise difficult and complicated factual and legal issues and can be subject to uncertainties and complexities. The timing of the final resolutions to lawsuits, regulatory inquiries, audits, and governmental and other legal proceedings is typically uncertain. Additionally, the possible outcomes of, or resolutions to, these proceedings could include adverse judgments, settlements, injunctions or liabilities, any of which could require substantial payments or have other adverse impacts on our revenue, results of operations or cash flow.

If the encryption and related security technology used in our products is compromised, sales of our products may decline.

Our customers use encryption and related security technology obtained from us or our suppliers in the products that they purchase from us to protect their data and products from unauthorized access to the features or functionalities of such products. Such encryption and related security technology has been compromised in the past and may be compromised in the future even though we continue to respond with significant investment in security measures, such as updates in security software, that are intended to make data theft more difficult. It has been our prior experience that security measures may only be effective for short periods of time or not at all. We cannot ensure that we will be successful in reducing or controlling theft of our customers' data. As a result, sales of our products may decline, our reputation and customer relationship could be damaged and we may incur additional costs or financial liability in the future if security of our customers' system is compromised.

We may be exposed to financial and reputational damage to our business by cybersecurity incidents.

We and third parties with whom we work face a constantly developing landscape of cybersecurity threats in which hackers and other parties use a complex assortment of techniques and methods to execute cyber-attacks, including but not limited to the use of stolen access credentials, social engineering, malware, ransomware, phishing, insider threats (which may be malicious or erroneous), structured query language injection attacks and distributed denial-of-service attacks. Cybersecurity incidents such as these have increased significantly in quantity and severity and are expected to continue to increase. Additionally, the risk of cyber-attacks and compromises will likely increase as we expand our

business into other areas of the world outside of North America, some of which are still developing their cybersecurity infrastructure maturity. Should we be affected by such an incident, we may incur substantial costs and suffer other negative consequences, which may include:

- remediation costs, such as liability for stolen assets or information, repairs of system damage and/or incentives to customers or business partners in an effort to maintain relationships after an attack;
- increased cybersecurity protection costs, which may include the costs of making organizational changes, deploying additional personnel and protection technologies, training employees and engaging third party experts and consultants;
- increased liability due to financial or other harm inflicted on our partners;

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lost revenues resulting from attacks on our satellites or technology, the unauthorized use of proprietary information or the failure to retain or attract customers following an attack;
litigation and legal risks, including regulatory actions by state, federal and international regulators; and
loss of or damage to reputation.

Our business is subject to varying degrees of regulation that include programs designed to review our protections against cybersecurity threats and risks. If it is determined that our systems do not reasonably protect our partners' assets and data and/or that we have violated these regulations, we could be subject to enforcement activity and sanctions.

We regularly review and revise our internal cybersecurity policies and procedures, invest in and maintain internal and external cybersecurity teams and systems and software to detect, deter, prevent and/or mitigate cyber-attacks and review, modify and supplement our defenses through the use of various services, programs and outside vendors. It is impossible, however, for us to know when or if any particular cyber-attack may arise or the impact on our business and operations of any such incident. We expect to continue to incur increasing costs in preparing our infrastructure and maintaining it to resist any such attacks. There can be no assurance that we can successfully detect, deter, prevent or mitigate the effects of cyber-attacks, any of which could have a material adverse effect on our business, costs, operations, prospects, results of operation or financial position. Furthermore, the amount and scope of insurance that we maintain against losses resulting from these events may not be sufficient to compensate us adequately for any disruptions to our business or otherwise cover our losses, including reputational harm and negative publicity as well as any litigation liability.

If our products contain defects, we could be subject to significant costs to correct such defects and our product and network service contracts could be delayed or cancelled, which could adversely affect our revenue.

The products and the networks we deploy are highly complex, and some may contain defects when first introduced or when new versions or enhancements are released, despite testing and our quality control procedures. For example, our products may contain software "bugs" that can unexpectedly interfere with their operation. Defects may also occur in components and products that we purchase from third parties. In addition, many of our products and network services are designed to interface with our customers' existing networks, each of which has different specifications and utilize multiple protocol standards. Our products and services must interoperate with the other products and services within our customers' networks, as well as with future products and services that might be added to these networks, to meet our customers' requirements. There can be no assurance that we will be able to detect and fix all defects in the products and networks we sell. The occurrence of any defects, errors or failures in our products or network services could result in: (i) additional costs to correct such defects; (ii) cancellation of orders and lost revenue; (iii) a reduction in revenue backlog; (iv) product returns or recalls; (v) diversion of our resources; (vi) the issuance of credits to customers and other losses to us, our customers or end-users; (vii) liability for harm to persons and property caused by defects in or failures of our products or services; and (viii) harm to our reputation if we fail to detect or effectively address such issues through design, testing or warranty repairs. Any of these occurrences could also result in the loss of or delay in market acceptance of our products and services and loss of sales, which would harm our reputation and our business and materially adversely affect our revenue and profitability.

RISKS RELATED TO THE REGULATION OF OUR BUSINESS

Our business is subject to risks of adverse government regulation.

Our business is subject to varying degrees of regulation in the U.S. by the FCC, and other federal, state and local entities, and in foreign countries by similar entities and internationally by the ITU. These regulations are subject to the administrative and political process and do change, for political and other reasons, from time to time and may limit

or constrain and/or have other adverse effects on and implications for our business and operations. The U.S. and foreign countries in which we currently, or may in the future, operate may not authorize us access to all of the spectrum that we need to provide service in a particular country. Moreover, the U.S. and a substantial number of foreign countries in which we have, or may in the future make, an investment, regulate, in varying degrees, the ownership of satellites and other telecommunication facilities/networks and foreign investment in telecommunications companies. Violations of laws or regulations may result in various sanctions including fines, loss of authorizations and the denial of applications for new authorizations or for the renewal of existing authorizations. Further material changes in law and regulatory requirements may also occur, and there can be no assurance that our business and the business of our subsidiaries and affiliates will not be adversely affected by future legislation, new regulation or deregulation. The failure to obtain

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or comply with the authorizations and regulations governing our operations could have a material adverse effect on our ability to generate revenue and our overall competitive position and could result in our suffering serious harm to our reputation.

Our business depends on regulatory authorizations issued by the FCC and state and foreign regulators that can expire, be revoked or modified, and applications for licenses and other authorizations that may not be granted.

Generally all satellite, earth stations and other licenses granted by the FCC and most other countries are subject to expiration unless renewed by the regulatory agency. Our satellite licenses are currently set to expire at various times. In addition, we occasionally receive special temporary authorizations that are granted for limited periods of time (e.g., 180 days or less) and subject to possible renewal. Generally, our licenses and special temporary authorizations have been renewed on a routine basis, but there can be no assurance that this will continue. In addition, we must obtain new licenses from the FCC and other countries' regulators for the operation of new satellites that we may build and/or acquire. There can be no assurance that the FCC or other regulators will continue granting applications for new licenses or for the renewal of existing ones. If the FCC or other regulators were to cancel, revoke, suspend, or fail to renew any of our licenses or authorizations, fail to grant or impose conditions on our applications for FCC or other licenses, it could have a material adverse effect on our business, financial condition and results of operations. Specifically, loss of a frequency authorization or limitations on our ability to use the frequencies we currently use and/or intend to use in the future would reduce the amount of spectrum available to us, potentially reducing the amount of services we provide to our customers. The significance of such a loss of authorizations would vary based upon, among other things, the orbital location, the frequency band and the availability of replacement spectrum. In addition, the legislative and executive branches of the U.S. government and foreign governments often consider legislation and regulatory requirements that could affect us, as could the actions that the FCC and foreign regulatory bodies take. We cannot predict the outcomes of these legislative or regulatory proceedings or their effect on our business.

In addition, third parties have or may oppose some of our license applications and pending and future requests for extensions, modifications, waivers and approvals of our licenses. Even if we have fully complied with all of the required reporting, filing and other requirements in connection with our authorizations, it is possible a regulator could decline to grant certain of our applications or requests for authority, or could revoke, terminate, condition or decline to modify, extend or renew certain of our authorizations or licenses.

We may face difficulties in accurately assessing and collecting contributions towards the USF.

Because our customer contracts often include both telecommunications services, which create obligations to contribute to the USF, and other goods and services, which do not, it can be difficult to determine what portion of our revenue forms the basis for our required contribution to the USF and the amount that we can recover from our customers. If the FCC, which oversees the USF, or a court or other governmental entity were to determine that we computed our USF contribution obligation incorrectly or passed the wrong amount onto our customers, we could become subject to additional assessments, liabilities, or other financial penalties. In addition, the FCC is considering substantial changes to its USF contribution and distribution rules. These changes could impact our future contribution obligations and those of third parties that provide communication services to our business. Any such change to the USF contribution rules could adversely affect our costs of providing service to our customers. In addition, changes to the USF distribution rules could intensify the competition we face by offering subsidies to competing firms and/or technologies.

Restrictions on immigration or increased enforcement of immigration laws could limit our access to qualified and skilled professionals, increase our cost of doing business or otherwise disrupt our operations.

The success of our business is dependent on our ability to recruit engineers and other professionals. Immigration laws in the U.S. and other countries in which we operate are subject to legislative changes, as well as variations in the standards of application and enforcement due to political forces and economic conditions. It is difficult to predict the political and economic events that could affect immigration laws, or the restrictive impact they could have on obtaining or renewing work visas for our professionals. If immigration laws are changed or if new more restrictive government regulations are enacted or increased, our access to qualified and skilled professionals may be limited, the costs of doing business may increase and our operations may be disrupted.

RISKS RELATED TO THE SHARE EXCHANGE

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We might not be able to engage in certain strategic transactions because we have agreed to certain restrictions to comply with U.S. federal income tax requirements for a tax-free split-off.

To preserve the intended tax-free treatment of the Share Exchange we must comply with certain restrictions under current U.S. federal income tax laws for split-offs, including (i) refraining from engaging in certain transactions that would result in a fifty percent or greater change by vote or by value in our stock ownership, (ii) continuing to own and manage our historic businesses, and (iii) limiting sales or redemptions of our and our subsidiary HSS's common stock. If these restrictions, among others, are not followed, the Share Exchange could be taxable to us and possibly our stockholders. In addition, we could be required to indemnify DISH Network for any tax liability incurred by DISH Network as a result of our non-compliance with these restrictions.

OTHER RISKS

We are controlled by one principal stockholder who is our Chairman.

Charles W. Ergen, our Chairman, beneficially owns approximately 50.9% of our total equity securities (assuming conversion of only the Class B common stock beneficially owned by Mr. Ergen into Class A common stock and giving effect to the exercise of options held by Mr. Ergen that are either currently exercisable as of, or may become exercisable within 60 days after, February 11, 2019) and beneficially owns approximately 88.3% of the total voting power of all classes of shares (assuming no conversion of any Class B common stock and giving effect to the exercise of options held by Mr. Ergen that are either currently exercisable as of, or may become exercisable within 60 days after, February 11, 2019). Through his beneficial ownership of our equity securities, Mr. Ergen has the ability to elect a majority of our directors and to control all other matters requiring the approval of our stockholders. As a result of Mr. Ergen's voting power, we are a "controlled company" as defined in the Nasdaq listing rules and, therefore, are not subject to Nasdaq requirements that would otherwise require us to have (i) a majority of independent directors; (ii) a nominating committee composed solely of independent directors; (iii) compensation of our executive officers determined by a majority of the independent directors or a compensation committee composed solely of independent directors; (iv) a compensation committee charter which provides the compensation committee with the authority and funding to retain compensation consultants and other advisors and/or (v) director nominees selected, or recommended for the Board's selection, either by a majority of the independent directors or a nominating committee composed solely of independent directors.

We have potential conflicts of interest with DISH Network due to our common ownership.

Questions relating to conflicts of interest may arise between DISH Network and us in a number of areas relating to our past and ongoing relationships. Areas in which conflicts of interest between DISH Network and us could arise include, but are not limited to, the following:

Cross directorships and stock ownership. We have certain overlap in our directors and Chairman position with DISH, which may lead to conflicting interests. Our board of directors includes persons who are members of the board of directors of DISH, including Charles W. Ergen, who serves as the Chairman of and is employed by both companies. Our Chairman and the other members of our board of directors who overlap with DISH also have fiduciary duties to DISH's shareholders. Therefore, these individuals may have actual or apparent conflicts of interest with respect to matters involving or affecting each company. For example, there is potential for a conflict of interest when we or DISH Network look at acquisitions and other corporate opportunities that may be suitable for both companies. In addition, some of our directors and officers own DISH stock and options to purchase DISH stock, certain of which they acquired or were granted prior to our spin-off from DISH in 2008 (the "Spin-off"), including Mr. Ergen. These ownership interests could create actual, apparent or potential conflicts of interest when these individuals are faced with decisions that could have different implications for our company and DISH Network.

Intercompany agreements with DISH Network. We have entered into various agreements with DISH Network. Pursuant to certain agreements, we obtain certain products, services and rights from DISH Network; DISH Network obtains certain products, services and rights from us; and we and DISH Network indemnify each other against certain liabilities arising from our respective businesses. Generally, the amounts paid for products and services provided under the agreements are based on cost plus a fixed margin, which varies depending on the nature of the products and services provided. Certain other intercompany agreements cover matters such as tax sharing and our responsibility for certain liabilities previously undertaken by DISH Network for certain of our businesses. We have also entered into certain commercial agreements with DISH Network.

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The terms of certain of these agreements were established while we were a wholly-owned subsidiary of DISH Network and were not the result of arm's length negotiations. The allocation of assets, liabilities, rights, indemnifications and other obligations between DISH Network and us under the separation and ancillary agreements we entered into with DISH Network in connection with the Spin-Off and the Share Exchange did not necessarily reflect what two unaffiliated parties might have agreed to. Had these agreements been negotiated with unaffiliated third parties, their terms may have been more favorable, or less favorable, to us. In addition, DISH Network or its affiliates will likely continue to enter into transactions, including joint ventures, acquisitions, dispositions and other strategic initiatives and transactions, with us or our subsidiaries or other affiliates. Although the terms of any such transactions will be established based upon negotiations between DISH Network and us and, when appropriate, subject to approval by a committee of non-interlocking directors or in certain instances non-interlocking management, there can be no assurance that the terms of any such transactions will be as favorable to us or our subsidiaries or affiliates as may otherwise be obtained in negotiations between unaffiliated third parties.

Competition for business opportunities. DISH Network may have interests in various companies that have subsidiaries or controlled affiliates that own or operate domestic or foreign services that may compete with services offered by our businesses. DISH Network also has a distribution agreement with ViaSat, a competitor of our Hughes segment, to sell services similar to those offered by our Hughes segment. We may also compete with DISH Network when we participate in auctions for spectrum or orbital slots for our satellites.

We may not be able to resolve any potential conflicts of interest with DISH Network and, even if we do so, the resolution may be less favorable to us than if we were dealing with an unaffiliated party.

We do not have any agreements not to compete with DISH Network. However, many of our potential customers who compete with DISH Network have historically perceived us as a competitor due to our affiliation with DISH Network. There can be no assurance that we will be successful in entering into any commercial relationships with potential customers who are competitors of DISH Network (particularly if we continue to be perceived as affiliated with DISH Network as a result of common ownership, certain shared management services and other arrangements with DISH Network).

It may be difficult for a third party to acquire us, even if doing so may be beneficial to our shareholders, because of our capital structure.

Certain provisions of our articles of incorporation and bylaws may discourage, delay or prevent a change in control of our company that a shareholder may consider favorable. These provisions include the following:

- a capital structure with multiple classes of common stock: a Class A that entitles the holders to one vote per share; a Class B that entitles the holders to ten votes per share; a Class C that entitles the holders to one vote per share, except upon a change in control of our company in which case the holders of Class C are entitled to ten votes per share; and a non-voting Class D;
- a provision that authorizes the issuance of "blank check" preferred stock, which could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt;
- a provision limiting who may call special meetings of shareholders; and
- a provision establishing advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by shareholders at shareholder meetings.

In addition, Charles W. Ergen, our Chairman, beneficially owns approximately 50.9% of our total equity securities (assuming conversion of only the Class B common stock beneficially owned by Mr. Ergen into Class A common stock and giving effect to the exercise of options held by Mr. Ergen that are either currently exercisable as of, or may become exercisable within 60 days after, February 11, 2019) and beneficially owns approximately 88.3% of the total voting power of all classes of shares (assuming no conversion of any Class B common stock and giving effect to the

exercise of options held by Mr. Ergen that are either currently exercisable as of, or may become exercisable within 60 days after, February 11, 2019). Through his beneficial ownership of our equity securities, Mr. Ergen has the power to elect all of our directors and control shareholder decision on matters on which all classes of our common stock vote together.

In addition, pursuant to our articles of incorporation we have a significant amount of authorized and unissued stock that would allow our board of directors to issue shares to persons friendly to current management, thereby protecting

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the continuity of management, or which could be used to dilute the stock ownership of persons seeking to obtain control of us.

Our articles of incorporation designate the Eighth Judicial District Court of Clark County of the State of Nevada as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our articles of incorporation provide that, unless we consent in writing to an alternative forum, the Eighth Judicial District Court of Clark County of the State of Nevada will be the sole and exclusive forum for any and all actions, suits or proceedings, whether civil, administrative or investigative or that asserts any claim or counterclaim brought in our name or on our behalf, asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or agents to us or our stockholders, arising or asserting a claim arising pursuant to any provision of the Nevada Restated Statutes Chapters 78 or 92A, our articles of incorporation or our bylaws, interpreting, applying, enforcing or determining the validity of our articles of incorporation or bylaws or asserting a claim that is governed by the internal affairs doctrine. Any person purchasing or otherwise acquiring any interest in any shares of our capital stock shall be deemed to have notice of and to have consented to this provision of our articles of incorporation. This choice of forum provision may limit our stockholders' ability to bring certain claims, including claims against our directors, officers or employees, in a judicial forum that the stockholder finds favorable and therefore the choice of forum provision may discourage lawsuits with respect to such claims. Stockholders who do bring a claim in the Eighth Judicial District Court of Clark County could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near Nevada. The Eighth Judicial District Court of Clark County may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. Alternatively, if a court were to find this provision of our articles of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could have a material adverse effect on our business, financial condition or results of operations.

We may face other risks described from time to time in periodic and current reports we file with the SEC.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

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ITEM 2. PROPERTIES

Our principal executive offices are located at 100 Inverness Terrace East, Englewood, Colorado 80112-5308 and our telephone number is (303) 706-4000. The following table sets forth certain information concerning our principal properties related to our Hughes segment (“Hughes”) and EchoStar Satellite Services segment (“ESS”) and to our other operations and administrative functions (“Other”) as of December 31, 2018. We operate various facilities in the United States and abroad. We believe that our facilities are well maintained and are sufficient to meet our current and projected needs.

Location (3)(4)	Segment(s)	Leased/ Owned	Function
San Diego, California	Hughes	Leased	Engineering and sales offices
Englewood, Colorado (1)(4)	Hughes	Leased	Gateways
Gaithersburg, Maryland	Hughes	Leased	Manufacturing and testing facilities, engineering and logistics and administrative offices
Southfield, Michigan (1)	Hughes	Leased	Shared hub and regional network management center
Las Vegas, Nevada (1)	Hughes	Leased	Shared hub, antennae yards, gateway, backup network operation and control center for Hughes corporate headquarters
American Fork, Utah	Hughes	Leased	Office space, engineering offices
Sao Paulo, Brazil	Hughes	Leased	Hughes Brazil corporate headquarters, sales offices and warehouse
Bangalore, India (2)	Hughes	Leased	Engineering office and office space
Gurgaon, India (1)(2)	Hughes	Leased	Administrative offices, shared hub, operations, warehouse, and development center
New Delhi, India	Hughes	Leased	Hughes India corporate headquarters
Milton Keynes, United Kingdom (3)	Hughes	Leased	Hughes Europe corporate headquarters and operations
Germantown, Maryland (1)	Hughes	Owned	Hughes corporate headquarters, engineering offices, network operations and shared hubs
Griesheim, Germany (1)	Hughes	Owned	Shared hub, operations, administrative offices and warehouse
Cheyenne, Wyoming (1)	Hughes/ESS	Leased	Spacecraft operations center, satellite access center and gateway
Gilbert, Arizona (1)	Hughes/ESS	Leased	Spacecraft operations center, satellite access center and gateway
Barueri, Brazil (1)	Hughes/Other	Leased	Shared hub, warehouse, operations center and spacecraft operations center
Black Hawk, South Dakota (1)	ESS	Owned	Spacecraft auto-track operations center
Englewood, Colorado	ESS/Other	Owned	Corporate headquarters, engineering offices
Campinas, Brazil	Other	Leased	Uplink facility
Cheyenne, Wyoming	Other	Owned	Data Center

(1) We perform network services and customer support functions 24 hours a day, 365 days a year at these locations.

(2) These properties are used by subsidiaries that are less than wholly-owned by the Company.

(3) We also have multiple gateways throughout the European Union that support the EchoStar XXI satellite.

(4) We have multiple gateways throughout the Western part of the United States, Mexico and Canada that support the SPACEWAY 3, EchoStar XVII and EchoStar XIX satellites.

ITEM 3. LEGAL PROCEEDINGS

For a discussion of legal proceedings, see Note 17 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Annual Report on Form 10-K.

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ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Price of and Dividends on the Registrant's Common Equity and Related Stockholder Matters

Market Information. Our Class A common stock is publicly traded on the Nasdaq Global Select Market under the symbol "SATS."

Holders. As of February 11, 2019, there were approximately 8,086 holders of record of our Class A common stock, not including stockholders who beneficially own Class A common stock held in nominee or street name. As of February 11, 2019, there were 47,687,039 shares outstanding of our Class B common stock of which 5,895,972 shares were held by Charles W. Ergen, our Chairman and 41,791,067 shares were held in trusts and entities established for the benefit of Mr. Ergen's family. There is currently no established trading market for our Class B common stock.

Dividends. We have not paid any cash dividends on our common stock in the past two years. We currently do not intend to declare dividends on our common stock. Payment of any future dividends will depend upon our earnings, capital requirements, contractual restrictions and other factors the board of directors considers appropriate. We currently intend to retain our earnings, if any, to support operations, future growth and expansion, although we have repurchased and may, in the future, repurchase shares of our common stock from time to time. Our ability to declare dividends is affected by the covenants in our subsidiary Hughes Satellite Systems Corporation's indentures. See further discussion under Item 7. — Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources in this Annual Report on Form 10-K.

Securities Authorized for Issuance Under Equity Compensation Plans. See Item 12. — Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters in this Annual Report on Form 10-K.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Pursuant to a stock repurchase program approved by our board of directors, we are authorized to repurchase up to \$500 million of our Class A common stock through December 31, 2019. During the year ended December 31, 2017, we did not repurchase any common stock under this program.

The following table provides information regarding repurchases of our Class A common stock during the year ended December 31, 2018.

Period	Total Number of Shares (or Units) Purchased	Average Price Paid Per Share (Or Unit)	Total Number of Shares (or Units) Purchased As Part of Publicly Announced Plans or Program	Maximum Number (or Approximate Dollar Value) of Shares (or Units) That May Yet Be Purchased Under The Plans or Program (1)
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(Dollars in thousands, except per share amounts and per unit amounts)

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October 1 - 31	—	\$—		\$ 500,000
November 1 - 30	848,863	\$ 35.00	848,863	\$ 470,292
December 1 - 31	103,740	\$ 34.54	103,740	\$ 466,708
Total	952,603	\$ 34.95	952,603	\$ 466,708

(1) On October 30, 2018, our Board of Directors extended our authorization to repurchase up to \$500 million of our Class A common stock through and including December 31, 2019. Purchases under our repurchase authorization may be made through privately negotiated transactions, open market repurchases, one or more trading plans in accordance with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended, or otherwise, subject to market conditions and other factors. We may elect to purchase some or all of, or not to purchase the maximum amount or any of, the remaining shares allowable under this program and we may also enter into additional share repurchase programs authorized by our Board of Directors. All shares repurchased reflected in the table above have been converted to treasury shares.

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ITEM 6. SELECTED FINANCIAL DATA

The accompanying consolidated financial statements for 2018 included in our accompanying Consolidated Financial Statements in Item 15 of this Annual Report on Form 10-K ("Form 10-K") have been prepared in accordance with generally accepted accounting principles in the United States. Certain prior period amounts have been adjusted to conform to the current period presentation.

The following tables present selected information relating to our consolidated financial condition and results of operations for the past five years. The selected financial data should be read in conjunction with our accompanying Consolidated Financial Statements and related notes thereto, and Management's Discussion and Analysis of Financial Condition and Results of Operations included elsewhere in this Form 10-K. Historical financial data presented below may not be indicative of future financial condition. See Notes 1, 4 and 20 in the notes to consolidated financial statements in Item 15 of this Form 10-K for further discussion of the Share Exchange transaction.

Statements of Operations Data:	For the years ended December 31,				
	2018	2017(1)	2016	2015	2014
	(In thousands, except per share amounts)				
Total revenue (2, 3)	\$2,091,363	\$1,885,508	\$1,810,466	\$1,848,857	\$1,822,238
Total costs and expenses (2)	1,908,120	1,689,201	1,514,303	1,575,092	1,611,678
Operating income (2)	\$183,243	\$196,307	\$296,163	\$273,765	\$210,560
Net income (loss) from continuing operations to EchoStar common stock	\$(40,475)	\$385,261	\$137,353	\$102,421	\$73,151
Basic earnings per share - continuing operations	\$(0.42)	\$4.04	\$1.46	\$1.11	\$0.80
Diluted earnings per share - continuing operations	\$(0.42)	\$3.98	\$1.45	\$1.10	\$0.79
Balance Sheet Data:	As of December 31,				
	2018	2017(1)	2016	2015	2014
	(In thousands)				
Cash, cash equivalents and current marketable securities	\$3,210,458	\$3,245,617	\$3,092,881	\$1,527,883	\$1,669,590
Total assets (4)	\$8,661,294	\$8,750,014	\$9,008,859	\$6,572,463	\$6,601,292
Total debt and capital lease obligations	\$3,532,781	\$3,634,844	\$3,655,447	\$2,185,272	\$2,326,143
Total stockholders' equity	\$4,155,474	\$4,177,385	\$4,006,805	\$3,781,642	\$3,623,638
Cash Flow Data:	For the years ended December 31,				
	2018	2017	2016	2015	2014
	(In thousands)				
Net cash flows from:					
Operating activities	\$734,522	\$726,892	\$803,343	\$776,451	\$840,131
Investing activities	\$(2,098,480)	\$(867,932)	\$(632,199)	\$(275,311)	\$(887,590)
Financing activities	\$(136,563)	\$72	\$1,475,689	\$(120,257)	\$(35,096)

The Tax Cuts and Jobs Act of 2017 increased the complexity of our income tax accounting and resulted in significant adjustments to our deferred income tax accounts in 2017. As a result, our results of operations and (1) balance sheet data for the years ended December 31, 2018 and 2017 are not comparable to our results of operations for the years ended December 31, 2016, 2015 and 2014. See Note 13 to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K for further information.

As a result of the Share Exchange, the consolidated financial statements of the EchoStar Technologies businesses (2) have been presented as discontinued operations and, as such, have been excluded from the selected financial data presented above for all periods presented. See Note 4 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K for further discussion of our discontinued operations.

(3) On January 1, 2018, we adopted Topic 606, Revenue from Contracts with Customers, using the modified retrospective approach. As a result, total revenues for the year ended December 31, 2018 may not be comparable to prior years. See Note 2 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K for further discussion of the adoption of this standard.

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(4) In 2015, we prospectively adopted Accounting Standard Update No. 2015-17, Balance Sheet Classification of Deferred Taxes. As a result, our total assets as of December 31, 2018, 2017, 2016 and 2015 are not comparable to our total assets as reported in prior years.

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Unless the context indicates otherwise, as used herein, the terms "we," "us," "EchoStar," the "Company" and "our" refer to EchoStar Corporation and its subsidiaries. References to "\$" are to United States ("U.S.") dollars. The following management's discussion and analysis of our financial condition and results of operations should be read in conjunction with our accompanying Consolidated Financial Statements and notes thereto included elsewhere in this Annual Report on Form 10-K ("Form 10-K"). This management's discussion and analysis is intended to help provide an understanding of our financial condition, changes in our financial condition and our results of operations. Many of the statements in this management's discussion and analysis are forward-looking statements that involve assumptions and are subject to risks and uncertainties that are often difficult to predict and beyond our control. Actual results could differ materially from those expressed or implied by such forward-looking statements. See Disclosure Regarding Forward-Looking Statements in this Form 10-K for further discussion. For a discussion of additional risks, uncertainties and other factors that could impact our results of operations or financial condition, see the caption Risk Factors in Item 1A of this Form 10-K. Further, such forward-looking statements speak only as of the date of this Form 10-K and we undertake no obligation to update them.

EXECUTIVE SUMMARY

EchoStar is a global provider of broadband satellite technologies, broadband internet services for home and small office customers, satellite operations and satellite services. We also deliver innovative network technologies, managed services and various communications solutions for aeronautical, enterprise and government customers.

Prior to March 2017, we operated in three primary business segments: Hughes, EchoStar Technologies and EchoStar Satellite Services ("ESS"). On January 31, 2017, EchoStar Corporation and certain of our subsidiaries entered into a share exchange agreement with DISH Network Corporation ("DISH") and certain of its subsidiaries. We, and certain of our subsidiaries, received all of the shares of the Hughes Retail Preferred Tracking Stock previously issued by us and one of our subsidiaries (together, the "Tracking Stock") in exchange for 100% of the equity interests of certain of our subsidiaries that held substantially all of our former EchoStar Technologies businesses and certain other assets (collectively, the "Share Exchange"). Following the consummation of the Share Exchange, we no longer operate our former EchoStar Technologies businesses, the Tracking Stock was retired and is no longer outstanding, and all agreements, arrangements and policy statements with respect to the Tracking Stock terminated. See Note 4 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K for further discussion of our discontinued operations.

We currently operate in two business segments: Hughes and ESS. These segments are consistent with the way we make decisions regarding the allocation of resources, as well as how operating results are reviewed by our chief operating decision maker, who is the Company's Chief Executive Officer.

Our operations also include various corporate departments (primarily Executive, Treasury, Strategic Development, Human Resources, IT, Finance, Real Estate, Accounting and Legal) and other activities that have not been assigned to our operating segments such as costs incurred in certain satellite development programs and other business development activities, and gains or losses from certain of our investments. These activities, costs and income, as well as eliminations of intersegment transactions, are accounted for in Corporate and Other in our segment reporting.

Highlights from our financial results are as follows:

Consolidated Results of Operations for the Year Ended December 31, 2018

- Revenue of \$2.1 billion
- Operating income of \$183 million
- Net loss from continuing operations of \$39 million
- Net loss attributable to EchoStar common stock of \$40 million and basic loss per share of common stock of \$(0.42)
- Earnings before interest, taxes, depreciation and amortization (“EBITDA”) of \$757 million (see reconciliation of this non-GAAP measure on page 48)

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Consolidated Financial Condition as of December 31, 2018

- Total assets of \$8.7 billion
- Total liabilities of \$4.5 billion
- Total stockholders' equity of \$4.2 billion
- Cash, cash equivalents and current marketable investment securities of \$3.2 billion

Hughes Segment

Our Hughes segment is a global provider of broadband satellite technologies and broadband internet services to home and small office customers and broadband network technologies, managed services, equipment, hardware, satellite services and communications solutions to consumers, aeronautical, enterprise and government customers. The Hughes segment also designs, provides and installs gateway and terminal equipment to customers for other satellite systems. In addition, our Hughes segment designs, develops, constructs and provides telecommunication networks comprising satellite ground segment systems and terminals to mobile system operators and our enterprise customers.

We incorporate advances in technology to reduce costs and to increase the functionality and reliability of our products and services. Through advanced and proprietary methodologies, technologies, software and techniques, we continue to improve the efficiency of our networks. We invest in technologies to enhance our system and network management capabilities, specifically our managed services for enterprises. We also continue to invest in next generation technologies that can be applied to our future products and services.

We continue to focus our efforts on growing our consumer revenue by maximizing utilization of our existing satellites while planning for new satellites to be launched or acquired. Our consumer revenue growth depends on our success in adding new and retaining existing subscribers in our domestic and international markets across wholesale and retail channels. The growth of our enterprise businesses, including aeronautical, relies heavily on global economic conditions and the competitive landscape for pricing relative to competitors and alternative technologies. Service costs related to ongoing support for our direct and indirect customers and partners are typically impacted most significantly by our growth.

Our Hughes segment currently uses capacity from three of our satellites (the SPACEWAY 3 satellite, the EchoStar XVII satellite and the EchoStar XIX satellite) and additional satellite capacity acquired from multiple third-party providers to provide services to our customers. In December 2016, we launched our EchoStar XIX satellite, a high throughput geostationary satellite employing a multi-spot beam, bent pipe Ka-band architecture, which provides capacity for the Hughes broadband services to our current and future customers in North America and certain Central and South American countries and our aeronautical and enterprise broadband services. Until new satellite launches or acquisitions provide additional capacity for subscriber growth, we manage subscriber growth across our existing satellite platform.

In August 2018, we entered into an agreement with Al Yah Satellite Communications Company PrJSC ("Yahsat") to establish a new entity, Broadband Connectivity Solutions (Restricted) Limited (together with its subsidiaries, "BCS"), to provide commercial Ka-band satellite broadband services across Africa, the Middle East and southwest Asia operating over Yahsat's Al Yah 2 and Al Yah 3 Ka-band satellites. The transaction was consummated in December 2018 when we invested \$100 million in cash in exchange for a 20% interest in BCS. Under the terms of the agreement, we may also acquire, for further cash investments, additional ownership interests in BCS in the future provided certain

conditions are met. We supply network operations and management services and equipment to BCS.

In August 2017, we entered into a contract for the design and construction of the EchoStar XXIV, a new, next-generation, high throughput geostationary satellite, with a planned 2021 launch. The EchoStar XXIV satellite is primarily intended to provide additional capacity for our Hughes satellite internet (“HughesNet”) service in North, Central and South America as well as aeronautical and enterprise broadband services. In March 2018, the Federal Communications Commission (“FCC”) granted authorization to construct, deploy and operate the EchoStar XXIV satellite. In the second half of 2018, Maxar Technologies Inc. (“Maxar”), the parent company of Space Systems/Loral (“SSL”), the manufacturer of our EchoStar XXIV satellite, announced that it was reviewing strategic alternatives for its geostationary communications satellite business to improve its financial performance and that it was in active discussions with potential buyers of the business. SSL has indicated to us that it intends to meet its contractual obligations regarding

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

the timely manufacture and delivery of the EchoStar XXIV satellite. However, if SSL or any potential successor fails to meet or is delayed in meeting these obligations for any reason, including if Maxar decides to discontinue, wind down or otherwise significantly modify its geostationary communications satellite business, such failure could have a material adverse impact on our business operations, future revenues, financial position and prospects, completing the manufacture of the EchoStar XXIV satellite and our planned expansion of satellite broadband services throughout North, South and Central America. Capital expenditures associated with the construction and launch of this satellite are included in Corporate and Other in our segment reporting.

In March 2017, we and a wholly-owned subsidiary of DISH entered into a master service agreement (the "Hughes Broadband MSA"). Pursuant to the Hughes Broadband MSA, DISH's subsidiary, among other things: (i) has the right, but not the obligation, to market, promote and solicit orders and upgrades for the HughesNet service and related equipment and other telecommunication services and (ii) installs HughesNet service equipment with respect to activations generated by DNLLC. As a result of the Hughes Broadband MSA, we have not earned and do not expect to earn in the future, significant equipment revenue from our distribution agreement with another wholly-owned subsidiary of DISH. We expect churn in the existing wholesale subscribers to continue to reduce Services and other revenue - DISH Network in the future.

Developments toward the launch of next-generation satellite systems including low-earth orbit ("LEO"), medium-earth orbit ("MEO") and geostationary systems could provide additional opportunities to drive the demand for our equipment, hardware, technology and services. In June 2015, we made an equity investment in WorldVu Satellites Limited ("OneWeb"), a global LEO satellite service company. The investment is reflected in Corporate and Other. In addition, we have an agreement with OneWeb to provide certain equipment and services in connection with the ground network system for OneWeb's LEO satellites. We expect to continue delivering additional equipment and services to OneWeb.

We continue our efforts to expand our consumer satellite services business outside of the U.S. In April 2014, we entered into a 15-year agreement with Eutelsat do Brasil for Ka-band capacity into Brazil on the EUTELSAT 65 West A satellite, which was launched in March 2016. We began delivering high-speed consumer satellite broadband services in Brazil in July 2016. Additionally, in September 2015, we entered into 15-year agreements pursuant to which affiliates of Telesat Canada will provide to us Ka-band capacity on a satellite to be located at the 63 degree west longitude orbital location. This satellite was launched in July 2018, placed in service during the fourth quarter of 2018 and augmented the capacity being provided by the EUTELSAT 65 West A and EchoStar XIX satellites in Central and South America. We currently provide satellite broadband internet service in several Central and South American countries, and expect to continue to launch similar services in other Central and South American countries.

Our subscriber metrics as of December 31, 2018 and for the quarter then ended are as follows were:

	As of December 31,		
	2018	2017	2016
Total broadband subscribers	1,361,000	1,208,000	1,036,000

	For the three months ended	
	December 31, 2018	September 30, 2018
Net additions	29,000	33,000

These broadband subscribers include customers that subscribe to our HughesNet services in North, Central and South America through retail, wholesale and small/medium enterprise service channels. Our total gross subscriber additions for the fourth quarter of 2018 decreased by approximately 7,000 compared to the third quarter of 2018 primarily due to reduced satellite capacity available for sale. Our total net subscriber additions for the quarter ended December 31, 2018 decreased by approximately 4,000 compared to the quarter ended September 30, 2018 primarily due to lower gross consumer subscriber additions, partially offset by a lower average monthly subscriber churn percentage.

As of December 31, 2018 and 2017, our Hughes segment had approximately \$1.4 billion and \$1.6 billion, respectively, of contracted revenue backlog. We define Hughes contracted revenue backlog as our expected future revenue,

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

including lease revenue, under customer contracts that are non-cancelable, excluding agreements with customers in our consumer market. The decrease in our contracted revenue backlog reflects our recognition of revenue in excess of additions to backlog resulting from new orders from our customers. Of the total contracted revenue backlog as of December 31, 2018, we expect to recognize approximately \$430 million of revenue in 2019.

ESS Segment

Our ESS segment is a global provider of satellite operations and satellite services. We operate our business using our owned and leased in-orbit satellites and related licenses. Revenue in our ESS segment depends largely on our ability to continuously make use of our available satellite capacity with existing customers and our ability to enter into commercial relationships with new customers. Our ESS segment, like others in the fixed satellite services industry, has encountered, and may continue to encounter, negative pressure on transponder rates and demand. We are also pursuing other opportunities such as providing value added services such as telemetry, tracking and control ("TT&C") services to third parties, which leverage the ground monitoring networks and personnel currently within our ESS segment.

We provide satellite operations and satellite services on a full-time and/or occasional-use basis primarily to DISH Network Corporation and its subsidiaries ("DISH Network"), Dish Mexico, S. de R.L. de C.V., a joint venture we entered into in 2008 ("Dish Mexico"), U.S. government service providers, internet service providers, broadcast news organizations, content providers and private enterprise customers.

We depend on DISH Network for a significant portion of the revenue for our ESS segment, and we expect that DISH Network will continue to be the primary source of revenue for our ESS segment as we have entered into certain commercial agreements with DISH Network pursuant to which we provide DISH Network with satellite services at fixed prices for varying lengths of time depending on the satellite. Therefore, the results of operations of our ESS segment are linked to changes in DISH Network's satellite capacity requirements, which historically have been driven by the addition of new channels and migration of programming to high-definition television and video on demand services. DISH Network's future satellite capacity requirements may change for a variety of reasons, including its ability to construct and launch or acquire its own satellites, to continue to add new channels and/or to migrate to the provision of such channels and other video on demand services through streaming and other alternative technologies. There is no assurance that we will continue to provide satellite services to DISH Network beyond the terms of our agreements. Any termination or reduction in the satellite services we provide to DISH Network would cause us to have unused capacity on our satellites and require that we aggressively pursue alternative sources of revenue for this business. The agreement with DISH Network to lease satellite capacity on the EchoStar VII satellite expired in June 2018. As a result, we expect a \$43 million annualized decrease in our revenue. We are exploring other opportunities to utilize this satellite in the future.

In August 2014, we entered into: (i) a contract with Airbus Defence and Space SAS for the construction of the EchoStar 105/SES-11 satellite with C-, Ku- and Ka-band payloads; (ii) an agreement with SES Satellite Leasing Limited for the procurement of the related launch services; and (iii) an agreement with SES Americom Inc. pursuant to which we transferred the title to the payloads to two affiliates of SES Americom Inc. We retained the right to use the entire Ku-band payload on the satellite for an initial ten-year term, with an option for us to renew the agreement on a year-to-year basis. The EchoStar 105/SES-11 satellite was launched in October 2017 and placed into service in November 2017 at the 105 degree west longitude orbital location. Our Ku-band payload on the EchoStar 105/SES-11 satellite replaced and augments the capacity we had on the AMC-15 satellite. We transferred activities from the

AMC-15 satellite to the EchoStar 105/SES-11 satellite in the fourth quarter of 2017 and our agreement for satellite services on certain transponders on the AMC-15 satellite terminated according to its terms in December 2017.

As of December 31, 2018 and 2017, our ESS segment had contracted revenue backlog of approximately \$832 million and \$1.2 billion, respectively. We define contracted revenue backlog for our ESS segment as contracted future satellite lease revenue. The decrease is primarily driven by the fixed-term nature of the satellite services agreements with DISH Network and Dish Mexico. Of the total contracted revenue backlog as of December 31, 2018, we expect to recognize approximately \$288 million of revenue in 2019.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

New Business Opportunities

Our industry continues to evolve with the increasing worldwide demand for broadband internet access for information, entertainment and commerce. In addition to fiber and wireless systems, other technologies such as geostationary high throughput satellites, low-earth orbit ("LEO") networks, medium-earth orbit ("MEO") systems, balloons and High Altitude Platform Systems are playing significant roles in enabling global broadband access, networks and services. We intend to use our expertise, technologies, capital, investments, global presence, relationships and other capabilities to continue to provide broadband internet systems, equipment, networks and services for information, the internet-of-things, entertainment and commerce in North America and internationally for consumers as well as aeronautical, enterprise and government customers. We are closely tracking the developments in next-generation satellite businesses, and we are seeking to utilize our services, technologies and expertise to find new commercial opportunities for our business.

We intend to continue to selectively explore opportunities to pursue investments, commercial alliances, partnerships, joint ventures, acquisitions, dispositions and other strategic initiatives and transactions, domestically and internationally, that we believe may allow us to increase our existing market share, increase our satellite capacity, expand into new markets and new customers, broaden our portfolio of services, products and intellectual property, make our business more valuable, align us for future growth and expansion, maximize the return on our investments and strengthen our business and relationships with our customers. We may allocate or dispose of significant resources for long-term value that may not have a short or medium-term or any positive impact on our revenue, results of operations, or cash flow.

In 2012, we acquired the right to use various frequencies at the 45 degree west longitude orbital location ("45 West") from ANATEL, the Brazilian communications regulatory agency. In October 2017, ANATEL declined our request to extend milestone deadlines we had for our S- band and Ka- band license at 45 West; and, as a result, we do not have the right to use such license and may be subject to penalties as a result of our failure to meet these milestones. In January 2019, we determined that we are not able to develop a business using our 45 West regulatory authorization and, as a result, plan to relocate our EchoStar XXIII satellite. In order to relocate our satellite, we are providing notice of the relocation to ANATEL and requesting a waiver from it of our obligations for our Ku- band license at 45 West.

In December 2013, we acquired an entity based in Dublin, Ireland, which we subsequently renamed EchoStar Mobile Limited ("EML"). EML is licensed by the European Union and its member states ("EU") to provide mobile satellite service ("MSS") and complementary ground component ("CGC") services covering the entire EU using S-band spectrum. Our EchoStar XXI satellite, which provides space segment capacity to EML in the EU, was launched in June 2017 and placed into service in November 2017. Commercial service has been available on our EchoStar XXI satellite since the fourth quarter of 2017. EML is focused on expanding its MSS operations in the EU through development of innovative mobile and machine-to-machine products and services. We believe we are in a unique position to deploy a European wide MSS and CGC network and maximize the long-term value of our S-band spectrum in Europe and other regions within the scope of our licenses.

Cybersecurity

As a global provider of satellite technologies and services, internet services and communications equipment and networks, we may be prone to more targeted and persistent levels of cyber-attacks than other businesses. These risks may be more prevalent as we continue to expand and grow our business into other areas of the world outside of North

America, some of which are still developing their cybersecurity infrastructure maturity. Detecting, deterring, preventing and mitigating incidents caused by hackers and other parties may result in significant costs to us and may expose our customers to financial or other harm that have the potential to significantly increase our liability.

We treat cybersecurity risk seriously and are focused on maintaining the security of our and our partners' systems, networks, technologies and data. We regularly review and revise our relevant policies and procedures, invest in and maintain internal resources, personnel and systems and review, modify and supplement our defenses through the use of various services, programs and outside vendors. We also maintain agreements with third party vendors and experts to assist in our remediation and mitigation efforts if we experience or identify a material incident or threat. In addition, senior management and the Audit Committee of our Board of Directors are regularly briefed on cybersecurity matters.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

We are not aware of any cyber-incidents with respect to our owned or leased satellites or other networks, equipment or systems that have had a material adverse effect on our business, costs, operations, prospects, results of operation or financial position during the year ended December 31, 2018. There can be no assurance, however, that any such incident can be detected or thwarted or will not have such a material adverse effect in the future.

RESULTS OF OPERATIONS

Basis of Presentation

The following discussion and analysis of our consolidated results of operations is presented on a historical basis.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Statements of Operations Data (1)	For the years ended December 31,		Variance	
	2018	2017	Amount	%
	(Dollars in thousands)			
Revenue:				
Services and other revenue - DISH Network	\$378,694	\$445,698	\$(67,004)	(15.0)
Services and other revenue - other	1,507,259	1,200,321	306,938	25.6
Equipment revenue	205,410	239,489	(34,079)	(14.2)
Total revenue	2,091,363	1,885,508	205,855	10.9
Costs and expenses:				
Cost of sales - services and other	604,305	563,346	40,959	7.3
% of total services and other revenue	32.0	% 34.2	%	
Cost of sales - equipment	176,600	195,151	(18,551)	(9.5)
% of total equipment revenue	86.0	% 81.5	%	
Selling, general and administrative expenses	436,247	366,007	70,240	19.2
% of total revenue	20.9	% 19.4	%	
Research and development expenses	27,570	31,745	(4,175)	(13.2)
% of total revenue	1.3	% 1.7	%	
Depreciation and amortization	598,178	522,190	75,988	14.6
Impairment of long-lived assets	65,220	10,762	54,458	*
Total costs and expenses	1,908,120	1,689,201	218,919	13.0
Operating income	183,243	196,307	(13,064)	(6.7)
Other income (expense):				
Interest income	80,275	44,619	35,656	79.9
Interest expense, net of amounts capitalized	(248,568)	(217,240)	(31,328)	14.4
Gains (losses) on investments, net	(12,207)	53,453	(65,660)	*
Equity in earnings (losses) of unconsolidated affiliates, net	(5,954)	16,973	(22,927)	*
Other, net	(4,749)	6,582	(11,331)	*
Total other income (expense), net	(191,203)	(95,613)	(95,590)	100.0
Income (loss) from continuing operations before income taxes	(7,960)	100,694	(108,654)	*
Income tax benefit (provision), net	(30,673)	284,286	(314,959)	*
Net income (loss) from continuing operations	(38,633)	384,980	(423,613)	*
Net income from discontinued operations	—	8,509	(8,509)	(100.0)
Net income (loss)	(38,633)	393,489	(432,122)	*
Less: Net income attributable to noncontrolling interests	1,842	928	914	98.5
Net income (loss) attributable to EchoStar Corporation	\$(40,475)	\$392,561	\$(433,036)	*

Other data:

EBITDA (2)	\$756,669	\$794,577	\$(37,908)	(4.8)
Subscribers, end of period	1,361,000	1,208,000	153,000	12.7

* Percentage is not meaningful

(1)

An explanation of our key metrics is included on pages 63 and 64 under the heading Explanation of Key Metrics and Other Items.

A reconciliation of EBITDA to Net income, the most directly comparable generally accepted accounting principles (2) (“U.S. GAAP”) measure in the accompanying financial statements, is included on page 48. For further information on our use of EBITDA, see Explanation of Key Metrics and Other Items on page 64.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Services and other revenue — DISH Network. Services and other revenue — DISH Network totaled \$379 million for the year ended December 31, 2018, a decrease of \$67 million, or 15.0%, compared to the same period in 2017.

Services and other revenue — DISH Network from our Hughes segment for the year ended December 31, 2018 decreased by \$33 million, or 39.5%, to \$50 million compared to the same period in 2017. The decrease was primarily attributable to a continued decrease in residential wholesale broadband services.

Services and other revenue — DISH Network from our ESS segment for the year ended December 31, 2018 decreased by \$35 million, or 10.2%, to \$310 million compared to the same period in 2017. The decrease was primarily attributable to the revenue reduction of (i) \$21 million resulting from the expiration of DISH Network's agreement to lease satellite capacity from us on the EchoStar VII satellite at the end of June 2018, (ii) \$7 million resulting from DISH Network's termination of its agreement to lease satellite capacity from us on the EchoStar XII satellite at the end of September 2017, (iii) \$4 million as a result of the satellite anomaly experienced by the EchoStar X satellite in December 2017 which reduced the satellite capacity leased to DISH Network and (iv) \$3 million as a result of a decrease in satellite capacity leased to DISH Network on the EchoStar IX satellite.

Services and other revenue — other. Services and other revenue — other totaled \$1.5 billion for the year ended December 31, 2018, an increase of \$307 million, or 25.6%, compared to the same period in 2017.

Services and other revenue — other from our Hughes segment for the year ended December 31, 2018 increased by \$305 million, or 26.4%, to \$1.5 billion compared to the same period in 2017. The increase was primarily attributable to increases in sales of broadband services to our consumer and enterprise customers of \$271 million and \$28 million, respectively.

Services and other revenue — other from our ESS segment for the year ended December 31, 2018 increased by \$1 million, or 1.8%, to \$48 million compared to the same period in 2017. The increase was due to a net increase in transponder services provided.

Equipment revenue. Equipment revenue totaled \$205 million for the year ended December 31, 2018, a decrease of \$34 million, or 14.2%, compared to the same period in 2017. The decrease was primarily due to a decrease in hardware sales in our Hughes segment of \$23 million to our domestic enterprise customers, \$8 million to our mobile satellite systems customers and \$6 million to our consumer customers. The decrease was partially offset by an increase in hardware sales in our Hughes segment of \$3 million to our international enterprise customers.

Cost of sales — services and other. Cost of sales — services and other totaled \$604 million for the year ended December 31, 2018, an increase of \$41 million, or 7.3%, compared to the same period in 2017.

Cost of sales — services and other from our Hughes segment for the year ended December 31, 2018 increased by \$60 million, or 12.0%, to \$555 million compared to the same period in 2017. The increase was primarily attributable to an increase in the costs of broadband services provided to our consumer and enterprise customers.

Cost of sales — services and other from our ESS segment for the year ended December 31, 2018 decreased by \$20 million, or 31.7%, to \$44 million compared to the same period in 2017. The decrease was primarily attributable to the termination of our agreement for satellite capacity on the AMC-15 satellite in December 2017.

Cost of sales — equipment. Cost of sales — equipment totaled \$177 million for the year ended December 31, 2018, a decrease of \$19 million, or 9.5%, compared to the same period in 2017. The decrease was primarily attributable to a decrease in hardware sales in our Hughes segment provided to our consumer customers, domestic enterprise customers and mobile satellite systems customers, partially offset by an increase in hardware sales in our Hughes segment to our international enterprise customers.

Selling, general and administrative expenses. Selling, general and administrative expenses totaled \$436 million for the year ended December 31, 2018, an increase of \$70 million, or 19.2%, compared to the same period in 2017.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Selling expenses increased \$37 million primarily attributable to the amortization of contract acquisition and fulfillment costs from our Hughes segment and an increase in marketing and promotional costs from our Hughes segment mainly associated with our consumer business. General and administration expenses increased \$33 million primarily attributable to increases in bad debt expense, costs associated with beginning operations in certain Central and South American countries and other administrative costs from our Hughes segment.

Depreciation and amortization. Depreciation and amortization expenses totaled \$598 million for the year ended December 31, 2018, an increase of \$76 million, or 14.6%, compared to the same period in 2017. The increase was primarily due to an increase in depreciation expense of (i) \$39 million relating to the EchoStar XIX, EchoStar XXIII, EchoStar XXI, EchoStar 105/SES-11 satellites that were placed into service in the first, second and fourth quarters of 2017, respectively and the Telesat T19V satellite that was placed into service in the fourth quarter of 2018, (ii) \$28 million relating to our customer rental equipment, (iii) \$11 million relating to machinery and equipment and (iv) \$9 million relating to the decrease in depreciable life of the SPACEWAY 3 satellite. The increase in depreciation expense was partially offset by a decrease of \$8 million in amortization expense from certain fully amortized other intangible assets in our Hughes segment.

Impairment of long-lived assets. During the year ended December 31, 2018, impairment of long-lived assets was \$65 million which was primarily attributable to the determination that the fair value of the 45 degree west longitude regulatory authorization was de minimis and our recognition of a loss on the assets and in-substance liquidation of the business related to this regulatory authorization. During the year ended December 31, 2017, impairment of long-lived assets was \$11 million which was primarily attributable to an impairment loss of \$6 million relating to our regulatory authorizations with indefinite lives from our ESS segment in 2017 and a loss of \$5 million due to impairment of certain projects in construction in progress from Corporate and Other in 2017.

Interest income. Interest income totaled \$80 million for the year ended December 31, 2018, an increase of \$36 million, or 79.9% compared to the same period in 2017. The increase was primarily attributable to an increase in yield percentage in 2018 compared to 2017.

Interest expense, net of amounts capitalized. Interest expense, net of amounts capitalized totaled \$249 million for the year ended December 31, 2018, an increase of \$31 million or 14.4%, compared to the same period in 2017. The increase was primarily due to a decrease of \$45 million in capitalized interest relating to the EchoStar XIX, EchoStar XXIII, EchoStar XXI and EchoStar 105/SES-11 satellites that were placed into service in the first, second and fourth quarters of 2017, respectively. The increase was partially offset by an increase of \$11 million in capitalized interest relating to the construction of the EchoStar XXIV satellite and a decrease of \$3 million in interest expense relating to lower principal balances on certain capital lease obligations.

Gains (losses) on investments, net. Gains (losses) on investments, net totaled \$12 million in losses for the year ended December 31, 2018 compared to \$53 million in gains for the year ended December 31, 2017. For the year ended December 31, 2018, the net loss included (i) unrealized losses of \$16 million on certain marketable equity securities and (ii) unrealized gains of \$4 million on certain debt securities that we account for using the fair value option. For the year ended December 31, 2017, the net gain included (i) gains of \$45 million attributable to unrealized gains on certain marketable equity securities, (ii) gains of \$9 million from the sale of our investment in Invidi Technologies Corporation ("Invidi") to an entity owned in part by DISH Network, (iii) gains of \$3 million from the sales of certain available-for-sale securities and (iv) an other-than-temporary impairment loss of \$3 million on one of our available-for-sale securities.

Equity in earnings (losses) of unconsolidated affiliates, net. Equity losses of unconsolidated affiliates, net totaled \$6 million for the year ended December 31, 2018 compared to \$17 million in earnings for the year ended December 31, 2017. The change of \$23 million was primarily related to a decrease in earnings from our investments in our unconsolidated affiliates.

Other, net. Other, net totaled \$5 million in losses for the year ended December 31, 2018 compared to \$7 million in income for the year ended December 31, 2017. The change of \$11 million was primarily related to an unfavorable foreign exchange impact of \$17 million in 2018 compared to the same period in 2017 and a decrease of \$3 million in dividends received from certain marketable equity securities in 2018 compared to the same period in 2017. The

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

decreases were partially offset by a net gain of \$10 million due to the settlement of certain amounts due to and from a third party vendor in the second quarter of 2018.

Income tax benefit (provision), net. Income tax provision was \$31 million for the year ended December 31, 2018 compared to an income tax benefit of \$284 million for the year ended December 31, 2017. Our effective income tax rate was (385.4)% and (282.3)% for the year ended December 31, 2018 and 2017, respectively. The variations in our current year effective tax rate from the U.S. federal statutory rate were primarily due to the change in net unrealized gains that are capital in nature and research and experimentation credits, partially offset by the impact of state and local taxes and the increase in our valuation allowance associated with certain foreign losses. In addition, we did not record any tax benefit from the impairment of long-lived assets in Brazil as we do not expect to realize a tax benefit from this loss in the foreseeable future. This resulted in further variance from the U.S. statutory effective rate in 2018. The variations in our effective tax rate from the U.S. federal statutory rate for the year ended December 31, 2017 were primarily due to the Tax Cuts and Jobs Act of 2017, the recognition of a one-time tax benefit for the revaluation of our deferred tax assets and liabilities due to a change in our state effective tax rate as a result of the Share Exchange, the increase in our valuation allowance associated with unrealized gains that are capital in nature, and change in the amount of unrecognized tax benefit from uncertain tax positions. The tax benefit recognized from the change in our effective tax rate was partially offset by the increase in our valuation allowance associated with certain state and foreign losses.

Net income (loss) attributable to EchoStar Corporation. Net income (loss) attributable to EchoStar Corporation was \$40 million for the year ended December 31, 2018, a decrease of \$433 million, compared to the same period in 2017 as set forth in the following table:

	Amounts (In thousands)
Net income attributable to EchoStar Corporation for the year ended December 31, 2017	\$ 392,561
Increase in income tax provision, net	(314,959)
Decrease in gains on investments, net	(65,660)
Increase in interest expense, net of amounts capitalized	(31,328)
Decrease in equity in earnings of unconsolidated affiliates, net	(22,927)
Decrease in other income	(11,331)
Decrease in net income from discontinued operations	(8,509)
Increase in net income attributable to noncontrolling interests	(914)
Increase in operating income, including depreciation and amortization	41,394
Increase in impairment of long-lived assets	(54,458)
Increase in interest income	35,656
Net loss attributable to EchoStar Corporation for the year ended December 31, 2018	\$(40,475)

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

EBITDA. EBITDA is a non-GAAP financial measure and is described under Explanation of Key Metrics and Other Items below. The following table reconciles EBITDA to Net income (loss), the most directly comparable U.S. GAAP measure in the accompanying financial statements.

	For the years		Variance	
	ended December 31,		Amount	%
	2018	2017		
	(Dollars in thousands)			
Net income (loss)	\$(38,633)	\$393,489	\$(432,122)	*
Interest income and expense, net	168,293	172,621	(4,328)	(2.5)
Income tax (benefit) provision, net	30,673	(284,286)	314,959	*
Depreciation and amortization	598,178	522,190	75,988	14.6
Net income from discontinued operations	—	(8,509)	8,509	(100.0)
Net income attributable to noncontrolling interests	(1,842)	(928)	(914)	98.5
EBITDA	\$756,669	\$794,577	\$(37,908)	(4.8)

* Percentage is not meaningful

EBITDA was \$757 million for the year ended December 31, 2018, a decrease of \$38 million or 4.8%, compared to the same period in 2017. The decrease was primarily due to (i) a decrease of \$66 million in gains (losses) on investments, net, (ii) an increase of \$55 million in impairment of long lived assets, (iii) a decrease of \$23 million in equity in earnings of unconsolidated affiliates, net, and (iv) a decrease of \$11 million of other income (expense). The decrease was partially offset by an increase of \$117 million in operating income, excluding depreciation and amortization and impairment of long lived assets.

Segment Operating Results and Capital Expenditures

	Hughes	ESS	Corporate and Other	Consolidated Total
	(In thousands)			
For the year ended December 31, 2018				
Total revenue	\$1,716,528	\$358,058	\$16,777	\$2,091,363
Capital expenditures	\$390,108	\$(76,582)	\$164,091	\$477,617
EBITDA	\$601,319	\$308,058	\$(152,708)	\$756,669
For the year ended December 31, 2017				
Total revenue	\$1,477,918	\$392,244	\$15,346	\$1,885,508
Capital expenditures	\$376,502	\$20,725	\$169,157	\$566,384
EBITDA	\$475,222	\$315,285	\$4,070	\$794,577

Capital expenditures in the table above are net of refunds and other receipts related to property and equipment and exclude capital expenditures from discontinued operations of \$12 million for the year ended December 31, 2017.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Hughes Segment

	For the years ended December 31,		Variance	
	2018	2017	Amount	%
	(Dollars in thousands)			
Total revenue	\$1,716,528	\$1,477,918	\$238,610	16.1
Capital expenditures	\$390,108	\$376,502	\$13,606	3.6
EBITDA	\$601,319	\$475,222	\$126,097	26.5

Total revenue for the year ended December 31, 2018 increased by \$239 million, or 16.1%, compared to the same period in 2017. The increase was primarily due to an increase in sales of broadband services to our consumer and enterprise customers of \$271 million and \$28 million, respectively, and an increase in hardware sales of \$3 million to our international enterprise customers. The increase was partially offset by (i) a decrease of \$33 million in residential wholesale broadband services and a decrease in hardware sales of (ii) \$23 million to our domestic enterprise customers, (iii) \$8 million to our mobile satellite systems customers and (iv) \$6 million to our consumer customers.

Capital expenditures for the year ended December 31, 2018 increased by \$14 million, or 3.6%, compared to the same period in 2017, primarily due to increases in capital expenditures relating to our Telesat T19V satellite and our enterprise business of \$31 million. The increases were partially offset by a decrease of \$17 million in capital expenditures mainly associated with satellite ground facilities.

EBITDA for the year ended December 31, 2018 increased by \$126 million, or 26.5%, compared to the same period in 2017. The increase was primarily due to an increase of \$196 million in gross margin and an other-than-temporary impairment loss of \$3 million on one of our available-for-sale securities in the first quarter of 2017. The increase was partially offset by (i) an increase of \$66 million in selling, general and administrative expenses due to bad debt expense, the amortization of contract acquisition and fulfillment costs and an increase in marketing and promotional costs mainly associated with our consumer business and (ii) an unfavorable foreign exchange impact of \$11 million in 2018 compared to the same period in 2017.

ESS Segment

	For the years ended December 31,		Variance	
	2018	2017	Amount	%
	(Dollars in thousands)			
Total revenue	\$358,058	\$392,244	\$(34,186)	(8.7)
Capital expenditures	\$(76,582)	\$20,725	\$(97,307)	*
EBITDA	\$308,058	\$315,285	\$(7,227)	(2.3)

* Percentage is not meaningful

Total revenue for the year ended December 31, 2018 decreased by \$34 million, or 8.7%, compared to the same period in 2017. The decrease was primarily attributable to revenue reduction of (i) \$21 million resulting from the expiration of DISH Network's agreement to lease satellite capacity from us on the EchoStar VII satellite at the end of June 2018, (ii) \$7 million resulting from DISH Network's termination of its agreement to lease satellite capacity from us on the EchoStar XII satellite at the end of September 2017, (iii) \$4 million as a result of the satellite anomaly experienced by

the EchoStar X satellite in December 2017 which reduced the satellite capacity leased to DISH Network and (iv) \$3 million as a result of a decrease in satellite capacity leased to DISH Network on the EchoStar IX satellite.

Capital expenditures for the year ended December 31, 2018 decreased by \$97 million compared to the same period in 2017, primarily reflect a reimbursement of \$77 million and a decrease in satellite expenditure as a result of the EchoStar 105/SES-11 satellite that was placed into service in the fourth quarter of 2017.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

EBITDA for the year ended December 31, 2018 decreased by \$7 million, or 2.3%, compared to the same period in 2017. The decrease was primarily due to the decrease in ESS segment total revenue of \$34 million in 2018 compared to the same period in 2017. The decrease was partially offset by a decrease in satellite services costs of \$19 million mainly associated with the termination of our agreement for satellite capacity on the AMC-15 satellite in December 2017 and an impairment loss of \$6 million relating to our regulatory authorizations with indefinite lives in 2017.

Corporate and Other

	For the years ended December 31,		Variance	
	2018	2017	Amount	%
	(Dollars in thousands)			
Total revenue	\$16,777	\$15,346	\$1,431	9.3
Capital expenditures	\$164,091	\$169,157	\$(5,066)	(3.0)
EBITDA	\$(152,708)	\$4,070	\$(156,778)	*

* Percentage is not meaningful

Total revenue for the year ended December 31, 2018 increased by \$1 million, or 9.3%, compared to the same period in 2017. The increase was attributable to an increase in rental income resulting from the lease of certain real estate to DISH Network.

Capital expenditures for the year ended December 31, 2018 decreased by \$5 million, or 3.0%, compared to the same period in 2017, primarily related to decreases of \$46 million in satellite expenditures on the EchoStar XIX, EchoStar XXIII and EchoStar XXI satellites, partially offset by increases of \$44 million in satellite expenditures on the EchoStar XXIV satellite. The EchoStar XIX, EchoStar XXIII and EchoStar XXI satellites were placed into service in 2017 and the EchoStar XIX was contributed to the Hughes segment in the first quarter of 2017. The EchoStar XXIV satellite is primarily intended to provide additional capacity for our HughesNet service in North, South and Central American countries.

EBITDA for the year ended December 31, 2018 was \$153 million in loss compared to \$4 million in earnings for the same period in 2017. The change of \$157 million was primarily related to (i) a decrease of \$61 million in gains on certain marketable equity securities in 2018 compared to the same period in 2017, (ii) a \$54 million increase in impairment charges on certain long-lived assets, (iii) a decrease of \$23 million in Equity in earnings (losses) of unconsolidated affiliates, net, in 2018 compared to the same period in 2017, (iv) gains of \$9 million from the sale of our investment in Invidi to an entity owned in part by DISH Network in the first quarter of 2017, (v) an unfavorable foreign exchange impact of \$5 million in 2018 compared to the same period in 2017, (vi) an increase of \$3 million in general and administrative expenses and (vii) a decrease of \$3 million in dividends received from certain marketable equity securities in 2018 compared to the same period in 2017. The decrease was partially offset by a net gain of \$10 million due to the settlement of certain amounts due to and from a third party vendor in the second quarter of 2018.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Statements of Operations Data (1)	For the years ended December 31,		Variance	
	2017	2016	Amount	%
	(Dollars in thousands)			
Revenue:				
Services and other revenue - DISH Network	\$445,698	\$463,442	\$(17,744)	(3.8)
Services and other revenue - other	1,200,321	1,100,828	99,493	9.0
Equipment revenue	239,489	246,196	(6,707)	(2.7)
Total revenue	1,885,508	1,810,466	75,042	4.1
Costs and expenses:				
Cost of sales - services and other	563,346	536,568	26,778	5.0
% of total services and other revenue	34.2	% 34.3	%	
Cost of sales - equipment	195,151	188,617	6,534	3.5
% of total equipment revenue	81.5	% 76.6	%	
Selling, general and administrative expenses	366,007	325,044	40,963	12.6
% of total revenue	19.4	% 18.0	%	
Research and development expenses	31,745	31,170	575	1.8
% of total revenue	1.7	% 1.7	%	
Depreciation and amortization	522,190	432,904	89,286	20.6
Impairment of long-lived assets	10,762	—	10,762	*
Total costs and expenses	1,689,201	1,514,303	174,898	11.5
Operating income	196,307	296,163	(99,856)	(33.7)
Other income (expense):				
Interest income	44,619	21,244	23,375	*
Interest expense, net of amounts capitalized	(217,240)	(123,481)	(93,759)	75.9
Gains (losses) on investments, net	53,453	9,767	43,686	*
Equity in earnings of unconsolidated affiliates, net	16,973	10,802	6,171	57.1
Other, net	6,582	2,131	4,451	*
Total other income (expense), net	(95,613)	(79,537)	(16,076)	20.2
Income (loss) from continuing operations before income taxes	100,694	216,626	(115,932)	(53.5)
Income tax benefit (provision), net	284,286	(80,254)	364,540	*
Net income (loss) from continuing operations	384,980	136,372	248,608	*
Net income from discontinued operations	8,509	44,320	(35,811)	(80.8)
Net income (loss)	393,489	180,692	212,797	*
Less: Net income attributable to noncontrolling interests	928	762	166	21.8
Net income (loss) attributable to EchoStar Corporation	\$392,561	\$179,930	\$212,631	*
Other data:				
EBITDA (2)	\$794,577	\$751,005	\$43,572	5.8
Subscribers, end of period	1,208,000	1,036,000	172,000	16.6

* Percentage is not meaningful

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(1) An explanation of our key metrics is included on pages 63 and 64 under the heading Explanation of Key Metrics and Other Items.

(2) A reconciliation of EBITDA to Net income, the most directly comparable U.S. GAAP measure in the accompanying financial statements, is included on page 55 For further information on our use of EBITDA, see Explanation of Key Metrics and Other Items on page 64.

Services and other revenue — DISH Network. Services and other revenue — DISH Network totaled \$446 million for the year ended December 31, 2017, a decrease of \$18 million, or 3.8%, compared to the same period in 2016.

Services and other revenue — DISH Network from our Hughes segment for the year ended December 31, 2017 decreased by \$16 million, or 16.4%, to \$82 million compared to the same period in 2016. The decrease was primarily attributable to a decrease in wholesale subscribers.

Services and other revenue — DISH Network from our ESS segment for the year ended December 31, 2017 decreased by \$5 million, or 1.3%, to \$345 million compared to the same period in 2016. The decrease was primarily attributable to the termination of the satellite services agreement with DISH Network on the EchoStar XII satellite in September 2017.

Services and other revenue — DISH Network from Corporate and Other for the year ended December 31, 2017 increased by \$3 million, or 20.0%, to \$19 million compared to the same period in 2016. The increase was primarily attributable to an increase in rental income relating to certain lease agreements pursuant to which DISH Network leases certain real estate from us.

Services and other revenue — other. Services and other revenue — other totaled \$1.2 billion for the year ended December 31, 2017, an increase of \$99 million, or 9.0%, compared to the same period in 2016.

Services and other revenue — other from our Hughes segment for the year ended December 31, 2017 increased by \$109 million, or 10.4%, to \$1.2 billion compared to the same period in 2016. The increase was primarily attributable to increases in sales of broadband services of \$103 million to our consumer customers, \$15 million to our domestic enterprise customers and \$5 million to our mobile satellite systems customers. The increase was partially offset by a decrease in sales of broadband services of \$14 million to our international enterprise customers.

Services and other revenue — other from our ESS segment for the year ended December 31, 2017 decreased by \$11 million, or 18.4%, to \$47 million compared to the same period in 2016. The decrease was primarily attributable to decreases in sales of transponder services due to expired service contracts.

Equipment revenue. Equipment revenue totaled \$239 million for the year ended December 31, 2017, a decrease of \$7 million, or 2.7%, compared to the same period in 2016 primarily from our Hughes segment. The decrease in revenue was primarily due to a decrease in unit sales of broadband equipment of (i) \$17 million to our mobile satellite systems customers, (ii) \$10 million to our international enterprise customers, (iii) \$9 million to a subsidiary of DISH as a result of the Hughes Broadband MSA and (iv) \$4 million to our government customers. See Note 20 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K for additional information about the Hughes Broadband MSA. The decreases were partially offset by an increase of \$32 million in sales of broadband equipment to our domestic consumer and enterprise customers.

Cost of sales — services and other. Cost of sales — services and other totaled \$563 million for the year ended December 31, 2017, an increase of \$27 million, or 5.0%, compared to the same period in 2016.

Cost of sales — services and other from our Hughes segment for the year ended December 31, 2017 increased by \$25 million, or 5.4%, to \$495 million compared to the same period in 2016. The increase was primarily attributable to an increase in the costs of broadband services provided to our consumer customers, domestic enterprise customers, and mobile satellite systems customers primarily due to the increase in sales of broadband services.

Cost of sales — services and other from Corporate and Other for the year ended December 31, 2017 increased by \$1 million, or 48.2%, to \$4 million compared to the same period in 2016. The increase was primarily

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attributable to an increase in expenses relating to certain lease agreements pursuant to which DISH Network leases certain real estate to us.

Cost of sales — equipment. Cost of sales — equipment totaled \$195 million for the year ended December 31, 2017, an increase of \$7 million, or 3.5%, compared to the same period in 2016 primarily from our Hughes segment. The increase was primarily attributable to an increase of \$26 million in equipment costs related to the increase in sales to our domestic consumer and enterprise customers. The increase was partially offset by a decrease of \$18 million in equipment costs related to the decrease in sales to a subsidiary of DISH, international enterprise customers and our mobile satellite systems customers

Selling, general and administrative expenses. Selling, general and administrative expenses totaled \$366 million for the year ended December 31, 2017, an increase of \$41 million, or 12.6%, compared to the same period in 2016. The increase was primarily related to an increase of \$51 million in marketing and promotional costs primarily attributable to our consumer broadband sales in our Hughes segment and an increase of \$3 million in litigation expense in 2017, partially offset by a decrease of \$13 million in general and administrative expenses.

Depreciation and amortization. Depreciation and amortization expenses totaled \$522 million for the year ended December 31, 2017, an increase of \$89 million, or 20.6%, compared to the same period in 2016. The increase was primarily related to (i) an increase of \$51 million in depreciation expense of the EUTELSAT 65 West A satellite placed into service in 2016 and the EchoStar XIX, EchoStar XXIII, EchoStar XXI and EchoStar 105/SES-11 satellites that were placed into service in 2017, (ii) an increase of \$32 million in depreciation expense relating to customer rental equipment, (iii) an increase of \$10 million in depreciation expense relating to buildings and improvements, (iv) an increase of \$10 million in amortization expense relating to the development of externally marketed software and (v) an increase of \$7 million in depreciation expense relating to machinery and equipment. The increase was partially offset by a decrease of \$13 million in amortization expense from certain fully amortized other intangible assets in our Hughes segment and Corporate and Other and a decrease of \$3 million in depreciation expense relating to the fully depreciated EchoStar VII satellite as of April 2017.

Impairment of long-lived assets. Impairment of long-lived assets totaled \$11 million for the year ended December 31, 2017, an increase of \$11 million, compared to the same period in 2016. The increase was primarily attributable to an impairment loss of \$6 million relating to our regulatory authorizations with indefinite lives from our ESS segment and a loss of \$5 million due to impairment of certain projects in construction in progress from Corporate and Other.

Interest income. Interest income totaled \$45 million for the year ended December 31, 2017, an increase of \$23 million compared to the same period in 2016. The increase was primarily attributable to the increase in our marketable investments and an increase in yield percentage in 2017 when compared to 2016.

Interest expense, net of amounts capitalized. Interest expense, net of amounts capitalized totaled \$217 million for the year ended December 31, 2017, an increase of \$94 million or 75.9%, compared to the same period in 2016. The increase was primarily due to an increase of \$51 million in interest expense relating to the issuance of the 5.250% Senior Secured Notes due August 1, 2026 and 6.625% Senior Unsecured Notes due August 1, 2026 in the third quarter of 2016 and a decrease of \$42 million in capitalized interest relating to the EchoStar XIX and EchoStar XXIII satellites that were placed into service in the first and second quarters of 2017, respectively, and the EchoStar XXI and EchoStar 105/SES-11 satellites that were placed into service in the fourth quarter of 2017.

Gains (losses) on investments, net. Gains (losses) on investments, net totaled \$53 million in gains for the year ended December 31, 2017, an increase of \$44 million, compared to the same period in 2016. The increase was primarily due to an increase of \$41 million in gains on our trading securities in 2017, gains of \$9 million from the sale of our investment in Invidi to an entity owned in part by DISH Network in the first quarter of 2017, partially offset by an other-than-temporary impairment loss of \$3 million on certain strategic equity securities in our marketable investment securities in 2017 and a decrease of \$3 million in realized gains on our securities classified as available-for-sale in 2017.

Equity in earnings of unconsolidated affiliates, net. Equity in earnings of unconsolidated affiliates, net totaled \$17 million in earnings for the year ended December 31, 2017, an increase of \$6 million or 57.1%, compared to the

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same period in 2016. The increase was primarily related to a net increase in earnings from our investment in unconsolidated affiliates.

Other, net. Other, net totaled \$7 million in income for the year ended December 31, 2017, an increase of \$4 million compared to the same period in 2016. The increase was primarily related to dividends of \$6 million received from certain strategic equity investments in 2017, \$3 million in a protective put associated with our trading securities in 2016 and a favorable foreign exchange impact of \$2 million in 2017 compared to the same period in 2016, partially offset by a \$7 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016.

Income tax benefit (provision), net. Income tax benefit was \$284 million for the year ended December 31, 2017 compared to an income tax provision of \$80 million for the year ended December 31, 2016. Our effective income tax rate was (282.3)% and 37.0% for the year ended December 31, 2017 and 2016, respectively. The effective tax rate for the year ended December 31, 2017 was significantly impacted by the Tax Cuts and Jobs Act of 2017 enacted in December 2017 (the "2017 Tax Act"). The 2017 Tax Act made broad and complex changes to the U.S. tax code including (i) reduction of the U.S. federal corporate income tax rate to 21% effective for years beginning after December 31, 2017, and (ii) requiring a one-time deemed repatriation tax on certain un-repatriated earnings of foreign subsidiaries that is payable over eight years. We provisionally recorded a deferred tax benefit of \$304 million to reflect re-measurement of our deferred tax assets and liabilities at the new rate. We provisionally estimated that we would have had a \$0.2 million liability resulting from the one-time deemed repatriation tax. See Note 13 of the notes to our accompanying Consolidated Financial Statements included in Item 15 of this Form 10-K for further information. Further variations in our effective tax rate from the U.S. federal statutory rate for the year ended December 31, 2017 were primarily due to the recognition of a one-time tax benefit for the revaluation of our deferred tax assets and liabilities due to a change in our state effective tax rate as a result of the Share Exchange, the decrease in our valuation allowance associated with unrealized gains that are capital in nature, and change in the amount of unrecognized tax benefit from uncertain tax positions. The tax benefit recognized from the change in our effective tax rate was partially offset by the increase in our valuation allowance associated with certain state and foreign losses. The variations in our effective tax rate from the U.S. federal statutory rate for the year ended December 31, 2016 were state income taxes and various permanent differences, partially offset by research and experimentation credits.

Net income (loss) attributable to EchoStar Corporation. Net income (loss) attributable to EchoStar Corporation was \$393 million for the year ended December 31, 2017, an increase of \$213 million compared to the same period in 2016 as set forth in the following table:

	Amounts (In thousands)
Net income attributable to EchoStar Corporation for the year ended December 31, 2016	\$ 179,930
Increase in income tax benefit, net	364,540
Increase in gains on investments, net	43,686
Increase in interest income	23,375
Increase in equity in earnings of unconsolidated affiliates, net	6,171
Increase in other income	4,451
Decrease in operating income, including depreciation and amortization	(99,856)
Decrease in interest expense, net of amounts capitalized	(93,759)
Decrease in net income from discontinued operations	(35,811)

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Increase in net income attributable to noncontrolling interests	(166)
Net income attributable to EchoStar Corporation for the year ended December 31, 2017	\$392,561

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EBITDA. EBITDA is a non-GAAP financial measure and is described under Explanation of Key Metrics and Other Items below. The following table reconciles EBITDA to Net income (loss), the most directly comparable U.S. GAAP measure in the accompanying financial statements.

	For the years ended December 31,		Variance	
	2017	2016	Amount	%
	(Dollars in thousands)			
Net income (loss)	\$393,489	\$180,692	\$212,797	*
Interest income and expense, net	172,621	102,237	70,384	68.8
Income tax (benefit) provision, net	(284,286)	80,254	(364,540)	*
Depreciation and amortization	522,190	432,904	89,286	20.6
Net income from discontinued operations	(8,509)	(44,320)	35,811	(80.8)
Net income attributable to noncontrolling interests	(928)	(762)	(166)	21.8
EBITDA	\$794,577	\$751,005	\$43,572	5.8

* Percentage is not meaningful

EBITDA was \$795 million for the year ended December 31, 2017, an increase of \$44 million, or 5.8%, compared to the same period in 2016. The increase was primarily due to (i) an increase of \$44 million in gains on investments, net of losses and impairments, (ii) an increase of \$6 million in equity in earnings of unconsolidated affiliates, net and (iii) an increase of \$5 million in other income. The increase was partially offset by a decrease of \$11 million in operating income, excluding depreciation and amortization.

Segment Operating Results and Capital Expenditures

	Hughes	EchoStar Satellite Services	Corporate and Other	Consolidated Total
	(In thousands)			
For the year ended December 31, 2017				
Total revenue	\$1,477,918	\$392,244	\$15,346	\$1,885,508
Capital expenditures	\$376,502	\$20,725	\$169,157	\$566,384
EBITDA	\$475,222	\$315,285	\$4,070	\$794,577
For the year ended December 31, 2016				
Total revenue	\$1,392,361	\$407,660	\$10,445	\$1,810,466
Capital expenditures	\$322,362	\$58,925	\$247,223	\$628,510
EBITDA	\$477,165	\$341,516	\$(67,676)	\$751,005

Capital expenditures in the table above are net of refunds and other receipts related to property and equipment and exclude capital expenditures from discontinued operations of \$12 million and \$70 million for the years ended December 31, 2017 and 2016, respectively

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Hughes Segment

	For the years ended December 31,		Variance	
	2017	2016	Amount	%
	(Dollars in thousands)			
Total revenue	\$1,477,918	\$1,392,361	\$85,557	6.1
Capital expenditures	\$376,502	\$322,362	\$54,140	16.8
EBITDA	\$475,222	\$477,165	\$(1,943)	(0.4)

Total revenue for the year ended December 31, 2017 increased by \$86 million, or 6.1%, compared to the same period in 2016. The increase was primarily due to an increase of \$118 million in sales of broadband equipment and services to our domestic consumer and enterprise customers, an increase of \$33 million in sales of broadband equipment and services to our international consumer customers and an increase of \$5 million in sales of services to our mobile satellite systems customers. The increase was partially offset by a decrease of \$25 million in sales of broadband equipment and services to DISH Network, a decrease of \$25 million in sales of broadband equipment and services to our international enterprise customers, a decrease of \$17 million in sales of broadband equipment to our mobile satellite systems customers and a decrease of \$4 million in sales of broadband equipment to our government customers.

Capital expenditures for the year ended December 31, 2017 increased by \$54 million, or 16.8%, compared to the same period in 2016, primarily as a result of an increase of \$134 million in expenditures primarily related to customer rental equipment for consumer services provided on the EUTELSAT 65 West A and EchoStar XIX satellites that were placed into service in the third quarter of 2016 and the first quarter of 2017, respectively, partially offset by a decrease of \$83 million in expenditures as a result of the EUTELSAT 65 West A satellite being placed into service and lower spend on satellite ground facilities.

EBITDA for the year ended December 31, 2017 decreased by \$2 million, or 0.4%, compared to the same period in 2016. The decrease was primarily due to (i) an increase of \$50 million in marketing and promotional costs primarily attributable our domestic and international consumer broadband sales, (ii) an other than temporary impairment loss of \$3 million on certain strategic equity securities in our marketable investment securities in 2017, (iii) an increase of \$3 million in litigation expense in 2017 and (iv) an unfavorable foreign exchange impact of \$1 million in 2017. The decrease was partially offset by an increase of \$54 million in gross margin and a decrease of \$2 million in general and administrative expenses.

ESS Segment

	For the years ended December 31,		Variance	
	2017	2016	Amount	%
	(Dollars in thousands)			
Total revenue	\$392,244	\$407,660	\$(15,416)	(3.8)
Capital expenditures	\$20,725	\$58,925	\$(38,200)	(64.8)
EBITDA	\$315,285	\$341,516	\$(26,231)	(7.7)

Total revenue for the year ended December 31, 2017 decreased by \$15 million, or 3.8%, compared to the same period in 2016, primarily attributable to decreases in sales of transponder services due to expired service contracts and the termination of the satellite services agreement with DISH Network on the EchoStar XII satellite in September 2017.

Capital expenditures for the year ended December 31, 2017 decreased by \$38 million, or 64.8%, compared to the same period in 2016, primarily related to a decrease in expenditures on the EchoStar 105/SES-11 satellite.

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EBITDA for the year ended December 31, 2017 decreased by \$26 million, or 7.7%, compared to the same period in 2016. The decrease was primarily due to a decrease of \$16 million in gross margin, an impairment loss of \$6 million relating to our regulatory authorizations with indefinite lives and a decrease of \$4 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016.

Corporate and Other

	For the years		Variance	
	ended December 31, 2017	ended December 31, 2016	Amount	%
	(Dollars in thousands)			
Total revenue	\$15,346	\$10,445	\$4,901	46.9
Capital expenditures	\$169,157	\$247,223	\$(78,066)	(31.6)
EBITDA	\$4,070	\$(67,676)	\$71,746	*

* Percentage is not meaningful

Capital expenditures for the year ended December 31, 2017 decreased by \$78 million, or 31.6%, compared to the same period in 2016, primarily related to a decrease in satellite expenditures of \$110 million on the EchoStar XIX satellite, a decrease in satellite expenditures of \$41 million on the EchoStar XXIII satellite and a decrease in satellite expenditures of \$33 million on the EchoStar XXI satellite, partially offset by an increase in satellite expenditures of \$110 million on the EchoStar XXIV satellite. The EchoStar XIX, EchoStar XXIII and EchoStar XXI satellites were placed into service in 2017 and the EchoStar XIX satellite was contributed to the Hughes segment in the first quarter of 2017. The EchoStar XXIV satellite is intended to provide additional capacity for the Hughes broadband services in North America and certain Latin American countries.

EBITDA for the year ended December 31, 2017 was \$4 million in income compared to \$68 million in loss for the same period in 2016. The change of \$72 million was primarily related to (i) an increase of \$43 million in gains on our trading securities in 2017, (ii) a decrease of \$13 million in personnel and other employee-related expenses and professional fees, (iii) a gain of \$9 million from the sale of Invidi in the first quarter of 2017, (iv) dividends of \$6 million received from certain strategic equity investments in 2017, (v) an increase of \$6 million in equity in earnings of unconsolidated affiliates, net in 2017, (vi) a favorable foreign exchange impact of \$3 million in 2017 when compared to the same period in 2016, and (vii) an increase of \$3 million in rental income relating to certain lease agreements pursuant to which DISH Network leases certain real estate from us. The increase was partially offset by a loss of \$5 million due to impairment of certain projects in construction in progress and \$3 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016.

LIQUIDITY AND CAPITAL RESOURCES

Cash, Cash Equivalents and Current Marketable Investment Securities

We consider all liquid investments purchased with an original maturity of 90 days or less to be cash equivalents. See Item 7A. — Quantitative and Qualitative Disclosures about Market Risk in this Form 10-K for further discussion regarding our marketable investment securities.

As of December 31, 2018 and 2017, our cash, cash equivalents, including restricted cash, and current marketable investment securities, totaled \$3.2 billion.

As of December 31, 2018 and 2017, we held \$2.3 billion and \$814 million, respectively, of marketable investment securities, consisting of various debt and equity instruments including corporate bonds, corporate equity securities, government bonds and mutual funds.

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The following discussion highlights our cash flow activities for the years ended December 31, 2018, 2017 and 2016.

Cash flows from operating activities. We typically reinvest the cash flow from operating activities in our business. For the years ended December 31, 2018, 2017 and 2016, we reported net cash inflows from operating activities of \$735 million, \$727 million and \$803 million, respectively. Cash flows from operating activities reflects a benefit from the disposition of the EchoStar Technologies businesses as a result of the Share Exchange.

Net cash inflows from operating activities for the year ended December 31, 2018 increased by \$8 million compared to the same period in 2017. The increase in cash inflows was primarily attributable to a higher net income of \$81 million adjusted to exclude: (i) Depreciation and amortization; (ii) Impairment of long-lived assets; (iii) Equity in earnings (losses) of unconsolidated affiliates, net; (iv) Gains and losses on investments, net; (v) Stock-based compensation; (vi) Deferred tax provision (benefit); (vii) Dividends received from unconsolidated entities; (viii) Proceeds from sale of trading securities; and (ix) Other, net. The decrease in cash inflows was partially offset by an decrease in cash outflows of \$73 million resulting from timing differences in operating assets and liabilities.

Net cash inflows from operating activities for the year ended December 31, 2017 decreased by \$77 million compared to the same period in 2016. The decrease in cash inflows was primarily attributable to a lower net income of \$185 million adjusted to exclude: (i) Depreciation and amortization; (ii) Impairment of long-lived assets; (iii) Equity in earnings (losses) of unconsolidated affiliates, net; (iv) Gains and losses on investments, net; (v) Stock-based compensation; (vi) Deferred tax provision (benefit); (vii) Other, net; (viii) Dividends received from unconsolidated entities; and (ix) Proceeds from sale of trading securities. The decrease in cash inflows was partially offset by an increase in cash outflows of \$108 million resulting from timing differences in operating assets and liabilities.

Cash flows from investing activities. Our investing activities generally include purchases and sales of marketable investment securities, capital expenditures, acquisitions and strategic investments. For the years ended December 31, 2018, 2017 and 2016, we reported net cash outflows from investing activities of \$2.1 billion, \$868 million and \$632 million, respectively.

Net cash outflows from investing activities for the year ended December 31, 2018 increased by \$1.2 billion compared to the same period in 2017. The increase of net cash outflows was primarily related to an increase of \$1.2 billion in purchases of marketable investment securities, net of sales and maturities, an increase of \$116 million in investments in unconsolidated entities, primarily BCS, an increase of \$62 million in satellite expenditures associated with the EchoStar XXIV and Telesat T19V satellites, an increase of \$27 million in capital expenditure relating to our enterprise business in the Hughes segment in 2018 and cash proceeds of \$18 million from the sale of our investment in Invidi to an entity owned in part by DISH Network in the first quarter of 2017. The increase was partially offset by a reimbursement of \$77 million related to the EchoStar 105/SES-11 satellite in the first quarter of 2018, a decrease of \$101 million in satellite expenditures associated with the EUTELSAT 65W, EchoStar XIX, EchoStar XXI, EchoStar 105/SES-11 and EchoStar XXIII satellites, a \$12 million in expenditures for property and equipment of our discontinued operations in 2017.

Net cash outflows from investing activities for the year ended December 31, 2017 increased by \$236 million compared to the same period in 2016. The increase in cash outflows primarily related to a decrease of \$358 million in sales and maturities of marketable investment securities, net of purchases, and an increase of \$8 million in expenditures for externally marketed software and a decrease of \$6 million in restricted cash and marketable investment securities. The increase in cash outflows was partially offset by a decrease of \$119 million in capital

expenditures, net of related refunds, in 2017 when compared to the same period in 2016 and cash proceeds of \$18 million from the sale of our investment in Invidi to an entity owned in part by DISH Network in the first quarter of 2017.

Cash flows from financing activities. Our financing activities generally include proceeds related to the issuance of debt and cash used for the repurchase, redemption or payment of debt and capital lease obligations, payments relating to stock and debt repurchases and the proceeds from Class A common stock options exercised and stock issued under our stock incentive plans and employee stock purchase plan. For the years ended December 31, 2018, 2017 and 2016, we reported net cash outflows from financing activities of \$137 million, net cash inflows from financing activities of \$0.1 million, and net cash inflows from financing activities of \$1.5 billion, respectively.

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Net cash outflows from financing activities increased by \$137 million for the year ended December 31, 2018 compared to the same period in 2017. The increase in cash outflows was primarily due to our repurchase of \$70 million of HSS's 6 1/2% Senior Secured Notes due 2019 (the "2019 Senior Secured Notes"), our repurchase of \$33 million of shares of our common stock, and a decrease of \$31 million in net proceeds from Class A common stock options exercised under our stock incentive plans.

Net cash inflows from financing activities decreased by \$1.5 billion for the year ended December 31, 2017 compared to the same period in 2016. The decrease in cash inflows was primarily due to proceeds of \$1.5 billion from the issuance of the 5.250% Senior Secured Notes due August 1, 2026 and 6.625% Senior Unsecured Notes due August 1, 2026 in the third quarter of 2016.

Obligations and Future Capital Requirements

Contractual Obligations

The following table summarizes our contractual obligations at December 31, 2018:

	Payments Due in the Year Ending December 31,						
	Total	2019	2020	2021	2022	2023	Thereafter
	(In thousands)						
Long-term debt	\$3,320,836	\$920,836	\$—	\$900,000	\$—	\$—	\$1,500,000
Capital lease obligations	228,702	40,662	45,031	46,353	31,857	35,476	29,323
Interest on long-term debt and capital lease obligations	983,824	209,989	175,808	136,662	98,265	94,529	268,571
Satellite-related obligations	731,684	207,403	166,601	60,852	47,996	47,907	200,925
Operating lease obligations	93,918	21,146	18,081	13,873	10,118	8,814	21,886
Other obligations	866	176	181	186	192	131	—
Total	\$5,359,830	\$1,400,212	\$405,702	\$1,157,926	\$188,428	\$186,857	\$2,020,705

Our satellite-related obligations primarily include payments pursuant to agreements for the construction of the EchoStar XXIV satellite; payments pursuant to Regulatory Authorizations; executory costs for our capital lease satellites; and in-orbit incentives relating to certain satellites; as well as commitments for satellite service arrangements.

The table above does not include amounts related to deferred tax liabilities, unrecognized tax positions and certain other amounts recorded in our noncurrent liabilities as the timing of any payments is uncertain. The table also excludes long-term deferred revenue and other long-term liabilities that do not require future cash payments.

In certain circumstances, the dates on which we are obligated to pay our contractual obligations could change.

Off-Balance Sheet Arrangements

We generally do not engage in off-balance sheet financing activities or use derivative financial instruments for hedge accounting or speculative purposes.

As of December 31, 2018, we had foreign currency forward contracts with a notional value of \$7 million in place to partially mitigate foreign currency exchange risk. From time to time, we may enter into foreign currency forward contracts, or take other measures, to mitigate risks associated with foreign currency denominated assets, liabilities, commitments and anticipated foreign currency transactions.

Letters of Credit

As of December 31, 2018, we had \$39 million of letters of credit and insurance bonds. Of this amount, \$10 million was secured by restricted cash, \$4 million was related to insurance bonds and \$25 million was issued under credit

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arrangements available to our foreign subsidiaries. Certain letters of credit are secured by assets of our foreign subsidiaries.

Satellite Insurance

We historically have not carried in-orbit insurance on our satellites because we have assessed that the cost of insurance is not economical relative to the risk of failures. Therefore, we generally bear the risk of any in-orbit failures. Pursuant to the terms of the agreements governing certain portions of our indebtedness, we are required, subject to certain limitations on coverage, to maintain in-orbit insurance for our SPACEWAY 3, EchoStar XVI and EchoStar XVII satellites. Our other satellites, either in orbit or under construction, are not covered by launch or in-orbit insurance. We will continue to assess circumstances going forward and make insurance decisions on a case-by-case basis.

Future Capital Requirements

We primarily rely on our existing cash and marketable investment securities balances, as well as cash flow generated through our operations to fund our business. The loss of or a significant reduction in provision of satellite services would significantly reduce our revenue and materially adversely impact our results of operations. Revenue in our ESS segment depends largely on our ability to continuously make use of our available satellite capacity with existing customers and our ability to enter into commercial relationships with new customers. Consumer revenue in our Hughes segment depends on our success in adding new and retaining existing subscribers and driving higher average revenue per subscriber across our wholesale and retail channels. Revenue in our aeronautical, enterprise and equipment businesses relies heavily on global economic conditions and the competitive landscape for pricing relative to competitors and alternative technologies. Service costs related to ongoing support of our direct and indirect customers and partners are typically impacted most significantly by our growth. There can be no assurance that we will have positive cash flows from operations. Furthermore, if we experience negative cash flows, our existing cash and marketable investment securities balances may be reduced.

We have a significant amount of outstanding indebtedness. As of December 31, 2018, our total indebtedness was \$3.5 billion, of which \$229 million was related to capital lease obligations. For a discussion of the terms of our indebtedness, see Note 12 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K. Our liquidity requirements will be significant, primarily due to our debt service requirements and the design and construction of our new EchoStar XXIV satellite. The 2019 Senior Secured Notes have an outstanding principal balance as of February 11, 2019 of \$919.7 million and will mature and be due and payable in June 2019. As of February 11, 2019, we have repurchased a total of \$70.4 million in principal of the 2019 Senior Secured Notes in open market trades. We may from time to time seek to purchase additional amounts of such notes and/or amounts of our other outstanding debt in open market purchases, privately negotiated transactions or otherwise, depending on market conditions, our liquidity needs and other factors. The amounts we may repurchase may be material.

In addition, our future capital expenditures are likely to increase if we make acquisitions or additional investments in infrastructure or joint ventures to support and expand our business, or if we decide to purchase or build one or more additional satellites. Other aspects of our business operations may also require additional capital. We periodically evaluate various strategic initiatives, the pursuit of which could also require us to invest or raise significant additional capital, which may not be available on acceptable terms or at all. The 2017 Tax Act limits the deductibility of interest expense for U.S. federal income tax purposes. While the 2017 Tax Act generally is likely to reduce our federal income

tax obligations, if these limitations or other newly enacted provisions become applicable to us they could minimize such reductions or otherwise require us to pay additional federal income taxes, which in turn could result in additional liquidity needs. We expect to owe U.S. Federal income tax for 2019.

We anticipate that our existing cash and marketable investment securities are sufficient to repay the 2019 Senior Secured Notes that mature and are due and payable in June 2019 and to fund the currently anticipated operations of our business through the next twelve months.

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Satellites

As our satellite fleet ages, we will be required to evaluate replacement alternatives such as acquiring, leasing or constructing additional satellites, with or without customer commitments for capacity. We may also construct, acquire or lease additional satellites in the future to provide satellite services at additional orbital locations or to improve the quality of our satellite services.

Stock Repurchases

Pursuant to a stock repurchase program approved by our board of directors on October 30, 2018, we are authorized to repurchase up to \$500 million of our Class A common stock through December 31, 2019. During the year ended December 31, 2018, we repurchased 952,603 shares of our common stock at an average price per share of \$34.95 for a total purchase price of \$33 million. During the years ended December 31, 2017 and 2016, we did not repurchase any common stock under this program.

Critical Accounting Policies and Estimates

The preparation of our accompanying Consolidated Financial Statements in conformity with U.S. GAAP requires us to make certain estimates, judgments and assumptions that affect the reported amounts of assets and liabilities at the date of the balance sheets, the reported amounts of revenue and expenses for each reporting period, and certain information disclosed in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K. We base our estimates, judgments and assumptions on historical experience and on various other factors that we believe to be relevant under the circumstances. Actual results may differ from previously estimated amounts, and such differences may be material to our accompanying Consolidated Financial Statements. We review our estimates and assumptions periodically, and the effects of revisions are reflected in the period they occur or prospectively if the revised estimate affects future periods. The following represent what we believe are the critical accounting policies that may involve a high degree of estimation, judgment and complexity. For a summary of our significant accounting policies, including those discussed below, see Note 2 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K.

Contingent Liabilities

We record an accrual for litigation and other loss contingencies when we determine that a loss is probable and the amount of the loss can be reasonably estimated. Legal fees and other costs of defending litigation are charged to expense as incurred. A significant amount of management judgment is required in determining whether an accrual should be recorded for a loss contingency and the amount of such accrual. Estimates generally are developed in consultation with legal counsel and are based on an analysis of potential outcomes. Due to the inherent uncertainty in determining the likelihood of potential outcomes and the potential financial statement impact of such outcomes, it is possible that upon further development or resolution of a contingent matter, charges related to existing loss contingencies could be recorded in future periods, which could be material to our consolidated results of operations and financial position.

Revenue Recognition

Our Hughes segment enters into contracts to design, develop and deliver telecommunication networks to customers in our enterprise and mobile satellite systems markets. Those contracts require significant effort to develop and construct the network over an extended time period. Revenue from such contracts is recognized over time using an appropriate method to measure progress toward completion. Depending on the nature of the arrangement, we measure progress toward completion using the cost-to-cost input method or the units-of-delivery output method. Under the cost-to-cost method, revenue reflects the ratio of costs incurred to estimated total costs at completion. Under the units-of-delivery method, revenue and related costs are recognized as products are delivered based on the expected profit for the entire agreement. Profit margins on long-term contracts are based on estimates of total revenue and costs at completion. We review and revise our estimates periodically and recognize related adjustments in the period in which the revisions are made. Estimated losses on contracts are recorded in the period in which they are identified. Changes in our periodic estimates for these contracts could result in significant adjustments to our revenue or costs, which could be material to our consolidated results of operations.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Impairment of Long-lived Assets

We evaluate our long-lived assets other than goodwill and intangible assets with indefinite lives for impairment whenever events and changes in circumstances indicate that their carrying amounts may not be recoverable. The carrying amount of a long-lived asset or asset group is considered to not be recoverable when the estimated future undiscounted cash flows from such asset or asset group is less than its carrying amount. In that event, an impairment loss is recorded in the determination of operating income based on the amount by which the carrying amount exceeds the estimated fair value of the long-lived asset or asset group. Fair value is determined primarily using discounted cash flow techniques reflecting the estimated cash flows and discount rate that would be assumed by a market participant for the asset or asset group under review. Our discounted cash flow estimates typically include assumptions based on unobservable inputs and may reflect probability-weighting of alternative scenarios. Estimated losses on long-lived assets to be disposed of by sale may be determined in a similar manner, except that fair value estimates are reduced for estimated selling costs. Changes in estimates of future cash flows, discount rates and other assumptions could result in recognition of additional impairment losses in future periods.

New Accounting Pronouncements

For a discussion of new accounting pronouncements, see Note 2 in the notes to our accompanying Consolidated Financial Statements in Item 15 of this Form 10-K. We are continuing to assess the impact of adopting certain recently issued accounting pronouncements on our consolidated financial statements and related disclosures.

Seasonality

For our Hughes segment, service revenue is generally not impacted by seasonal fluctuations other than those associated with fluctuations related to sales and promotional activities. However, like many communications infrastructure equipment vendors, a higher amount of our hardware revenue occurs in the second half of the year due to our customers' annual procurement and budget cycles. Large enterprises and operators often allocate their capital expenditure budgets at the beginning of their fiscal year (which often coincides with the calendar year). The typical sales cycle for large complex system procurements is six to 12 months, which often results in the customer expenditure occurring towards the end of the year. Customers often seek to expend the budgeted funds prior to the end of the year and the next budget cycle.

Our ESS segment is not generally affected by seasonal impacts.

Inflation

Inflation has not materially affected our operations during the past three years. We believe that our ability to increase the prices charged for our products and services in future periods will depend primarily on competitive pressures or contractual terms.

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EXPLANATION OF KEY METRICS AND OTHER ITEMS

Services and other revenue — DISH Network. Services and other revenue — DISH Network primarily includes revenue associated with satellite and transponder leases and services, TT&C, professional services, facilities rental revenue and other services provided to DISH Network. Services and other revenue — DISH Network also includes subscriber wholesale service fees for the HughesNet service sold to DISH Network.

Services and other revenue — other. Services and other revenue — other primarily includes the sales of enterprise and consumer broadband services, as well as maintenance and other contracted services. Services and other revenue — other also includes revenue associated with satellite and transponder leases and services, satellite uplinking/downlinking and other services provided to customers other than DISH Network.

Equipment revenue. Equipment revenue primarily includes broadband equipment and networks sold to customers in our enterprise and consumer markets and sales of satellite broadband equipment and related equipment, related to the HughesNet service, to DISH Network.

Cost of sales — services and other. Cost of sales — services and other primarily includes the cost of broadband services provided to our enterprise and consumer customers, and to DISH Network, as well as the cost of providing maintenance and other contracted services. Cost of sales — services and other also includes the costs associated with satellite and transponder leases and services, TT&C, professional services, facilities rental costs and other services provided to our customers, including DISH Network.

Cost of sales — equipment. Cost of sales — equipment consists primarily of the cost of broadband equipment and networks sold to customers in our enterprise and consumer markets, and to DISH Network. Cost of sales — equipment also includes certain other costs associated with the deployment of equipment to our customers.

Selling, general and administrative expenses. Selling, general and administrative expenses primarily includes selling and marketing costs and employee-related costs associated with administrative services (e.g., information systems, human resources and other services), including stock-based compensation expense. It also includes professional fees (e.g. legal, information systems and accounting services) and other items associated with facilities and administrative services provided by DISH Network and other third parties.

Research and development expenses. Research and development expenses primarily includes costs associated with the design and development of products to support future growth and provide new technology and innovation to our customers.

Impairment of long-lived assets. Impairment of long-lived assets includes our impairment losses related to our property and equipment, goodwill and other intangible assets.

Interest income. Interest income primarily includes interest earned on our cash, cash equivalents and marketable investment securities, including premium amortization and discount accretion on debt securities.

Interest expense, net of amounts capitalized. Interest expense, net of amounts capitalized primarily includes interest expense associated with our debt and capital lease obligations (net of capitalized interest) and amortization of debt issuance costs.

Gains (losses) on investments, net. Gains (losses) on investments, net primarily includes changes in fair value of our marketable equity securities and other investments for which we have elected the fair value option. It may also include realized gains and losses on the sale or exchange of our available-for-sale debt securities, other-than-temporary

impairment losses on our available-for-sale securities, realized gains and losses on the sale or exchange of our investments in unconsolidated entities and adjustments to the carrying amount of investments in unconsolidated entities resulting from impairments and observable price changes.

Equity in earnings (losses) of unconsolidated affiliates, net. Equity in earnings (losses) of unconsolidated affiliates, net includes earnings or losses from our investments accounted for using the equity method.

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Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Other, net. Other, net primarily includes foreign exchange gains and losses, dividends received from our marketable investment securities and other non-operating income or expense items that are not appropriately classified elsewhere in our Consolidated Statements of Operations.

Net income from discontinued operations. Net income from discontinued operations represents net income of the EchoStar Technologies businesses and certain other assets transferred to DISH Network pursuant to the Share Exchange.

Earnings before interest, taxes, depreciation and amortization ("EBITDA"). EBITDA is defined as Net income (loss) excluding Interest income and expense, net, Income tax benefit (provision), net, Depreciation and amortization, Net income from discontinued operations and Net income attributable to noncontrolling interests. EBITDA is not a measure determined in accordance with U.S. GAAP. This non-GAAP measure is reconciled to Net income (loss) in our discussion of Results of Operations above. EBITDA should not be considered in isolation or as a substitute for operating income, net income or any other measure determined in accordance with U.S. GAAP. EBITDA is used by our management as a measure of operating efficiency and overall financial performance for benchmarking against our peers and competitors. Management believes EBITDA provides meaningful supplemental information regarding the underlying operating performance of our business and is appropriate to enhance an overall understanding of our financial performance. Management also believes that EBITDA is useful to investors because it is frequently used by securities analysts, investors and other interested parties to evaluate the performance of companies in our industry.

Subscribers. Subscribers include customers that subscribe to our HughesNet service, through retail, wholesale and small/medium enterprise service channels.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risks Associated with Financial Instruments and Foreign Currency

Our investments and debt are exposed to market risks, discussed below.

Cash, Cash Equivalents and Current Marketable Investment Securities

As of December 31, 2018, our cash, cash equivalents and current marketable investment securities had a fair value of \$3.2 billion. Of this amount, a total of \$3.1 billion was invested in: (a) cash; (b) commercial paper and corporate notes with an overall average maturity of less than one year and rated in one of the four highest rating categories by at least two nationally recognized statistical rating organizations; (c) debt instruments of the United States (“U.S.”) government and its agencies; and/or (d) instruments with similar risk, duration and credit quality characteristics to the commercial paper and corporate obligations described above. The primary purpose of these investing activities has been to preserve principal until the cash is required to, among other things, fund operations, make strategic investments and expand the business. Consequently, the size of this portfolio fluctuates significantly as cash is received and used in our business. The value of this portfolio may be negatively impacted by credit losses; however, this risk is mitigated through diversification that limits our exposure to any one issuer.

Interest Rate Risk

A change in interest rates would not affect the fair value of our cash, or materially affect the fair value of our cash equivalents due to their maturities of less than 90 days. A change in interest rates would affect the fair value of our current marketable debt securities portfolio; however, we normally hold these investments to maturity. Based on our cash, cash equivalents and current marketable debt securities investment portfolio of \$3.1 billion as of December 31, 2018, a hypothetical 10% change in average interest rates during 2018 would not have had a material impact on the fair value of our cash, cash equivalents and debt securities portfolio due to the limited duration of our investments.

Our cash, cash equivalents and current marketable debt securities had an average annual rate of return for the year ended December 31, 2018 of 2.4%. A change in interest rates would affect our future annual interest income from this portfolio, since funds would be re-invested at different rates as the instruments mature. A hypothetical 10% decrease in average interest rates during 2018 would have resulted in a decrease of approximately \$8 million in annual interest income.

Strategic Marketable Investment Securities

As of December 31, 2018, we held current strategic investments in the publicly traded securities of several companies with a fair value of \$91 million. These investments, which are held for strategic and financial purposes, are concentrated in a small number of companies, are highly speculative and have experienced and continue to experience volatility. The fair value of these investments can be significantly impacted by the risk of adverse changes in securities markets generally, as well as risks related to the performance of the companies whose securities we have invested in, risks associated with specific industries and other factors. These investments are subject to significant fluctuations in fair value due to the volatility of the securities markets and of the underlying businesses. In general, our strategic marketable investment securities portfolio is not significantly impacted by interest rate fluctuations as it currently consists primarily of equity securities, the value of which is more closely related to factors specific to the underlying business. A hypothetical 10% adverse change in the market price of our public strategic equity investments during 2018 would have resulted in a decrease of approximately \$9 million in the fair value of these investments.

Investments in Unconsolidated Entities

As of December 31, 2018, we had investments with an aggregate carrying amount of \$262 million in securities of privately held companies that we hold for strategic business purposes. The fair value of these investments is not readily determinable. We periodically review these investments and we may estimate fair value and adjust the carrying amount when there are indications of impairment or observable prices changes for the investments. A hypothetical adverse change equal to 10% of the carrying amount of these equity instruments during 2018 would have resulted in a decrease of approximately \$26 million in the value of these investments.

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Our ability to realize value from our strategic investments in companies that are privately held depends on the success of those companies' businesses and their ability to obtain sufficient capital to execute their business plans. Because private markets are not as liquid as public markets, there is also increased risk that we will not be able to sell these investments, or that when we desire to sell them we will not be able to obtain fair value for them.

Foreign Currency Exchange Risk

We generally conduct our business in U.S. dollars. Our international business is conducted in a variety of foreign currencies with our largest exposures being to the Brazilian real, the Indian rupee and the British pound. This exposes us to fluctuations in foreign currency exchange rates. Transactions in foreign currencies are converted into U.S. dollars using exchange rates in effect on the dates of the transactions.

Our objective in managing our exposure to foreign currency changes is to reduce earnings and cash flow volatility associated with foreign exchange rate fluctuations. Accordingly, we may enter into foreign currency forward contracts, or take other measures, to mitigate risks associated with foreign currency denominated assets, liabilities, commitments and anticipated foreign currency transactions. As of December 31, 2018, we had \$8 million of net foreign currency denominated receivables and payables outstanding and foreign currency forward contracts with a notional value of \$7 million in place to partially mitigate foreign currency exchange risk. The estimated fair values of the foreign exchange contracts were not material as of December 31, 2018. The impact of a hypothetical 10% adverse change in exchange rates on the carrying amount of the net assets and liabilities of our foreign subsidiaries during 2018 would have been an estimated loss to the cumulative translation adjustment of \$23 million as of December 31, 2018.

Derivative Financial Instruments

We generally do not use derivative financial instruments for speculative purposes and we generally do not apply hedge accounting treatment to our derivative financial instruments. We evaluate our derivative financial instruments from time to time but there can be no assurance that we will not enter into additional foreign currency forward contracts, or take other measures, in the future to mitigate our foreign exchange risk.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our accompanying Consolidated Financial Statements are included in Item 15 of this Annual Report on Form 10-K beginning on page F-4.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this Annual Report on Form 10-K ("Form 10-K). Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were

effective as of the end of the period covered by this Form 10-K such that the information required to be disclosed in our Securities and Exchange Commission reports is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms, and is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

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Changes in Internal Control Over Financial Reporting

There has been no change in our internal control over financial reporting (as defined in Rule 13a-15(f) and Rule 15d-15(f) under the Exchange Act) that occurred during the three months ended December 31, 2018 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. We continue to review our internal control over financial reporting, and may from time to time make changes aimed at enhancing its effectiveness and to ensure that our systems evolve with our business.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is 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 in the United States.

Our internal control over financial reporting includes those policies and procedures that:

- (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets;
- (ii) provide reasonable assurance that our transactions are recorded as necessary to permit preparation of our financial statements in accordance with generally accepted accounting principles in the United States, and that our receipts and expenditures are being made only in accordance with authorizations of our management and our directors; and
- (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on our 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 policies or procedures may deteriorate.

Our management conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management has concluded that our internal control over financial reporting was effective as of December 31, 2018.

The effectiveness of our internal control over financial reporting as of December 31, 2018 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report which appears in Item 15(a) of this Form 10-K.

ITEM 9B. OTHER INFORMATION

On February 21, 2019, we issued a press release (the "Press Release") announcing our financial results for the quarter and year ended December 31, 2018. A copy of the Press Release is furnished herewith as Exhibit 99.1.

The foregoing information, including the exhibit related thereto, is furnished in response to Item 2.02 of Form 8-K and shall not be deemed "filed" for the purposes of Section 18 of the Exchange Act, or otherwise, and shall not be incorporated by reference into any registration statement or other document pursuant to the Securities Act of 1933, as amended, or into any filing or other document pursuant to the Exchange Act, except as otherwise expressly stated in any such filing.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item with respect to the identity and business experience of our directors and corporate governance will be set forth in our Proxy Statement for the 2019 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2018, under the caption “Election of Directors,” which information is hereby incorporated herein by reference.

The information required by this Item with respect to the identity and business experience of our executive officers is set forth on pages 12-13 of this Annual Report on Form 10-K under the caption “Executive Officers of the Registrant.”

The information required by this Item with respect to our code of ethics is contained in Part I of this Annual Report on Form 10-K under the caption “Item 1. — Business — Website Access.”

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item will be set forth in our Proxy Statement for the 2019 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2018, under the caption “Executive Compensation and Other Information,” which information is hereby incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item will be set forth in our Proxy Statement for the 2019 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2018, under the captions “Election of Directors,” “Equity Security Ownership” and “Equity Compensation Plan Information,” which information is hereby incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item will be set forth in our Proxy Statement for the 2019 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2018, under the caption “Certain Relationships and Related Party Transactions,” which information is hereby incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item will be set forth in our Proxy Statement for the 2019 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2018, under the caption “Principal Accountant Fees and Services,” which information is hereby incorporated herein by reference.

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PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

	Page
(1) Consolidated Financial Statements	
<u>Index to Consolidated Financial Statements</u>	<u>F-1</u>
<u>Report of Independent Registered Public Accounting Firm</u>	<u>F-2</u>
<u>Consolidated Balance Sheets as of December 31, 2018 and 2017</u>	<u>F-4</u>
<u>Consolidated Statements of Operations for the years ended December 31, 2018, 2017 and 2016</u>	<u>F-5</u>
<u>Consolidated Statements of Comprehensive Income (Loss) for the years ended December 31, 2018, 2017 and 2016</u>	<u>F-6</u>
<u>Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2018, 2017 and 2016</u>	<u>F-7</u>
<u>Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016</u>	<u>F-8</u>
<u>Notes to Consolidated Financial Statements</u>	<u>F-9</u>
(2) Financial Statement Schedules	
<u>Schedule II — Valuation and Qualifying Accounts</u>	<u>F-69</u>
(3) Exhibits	
<u>2.1* Form of Separation Agreement between EchoStar Corporation and DISH Network Corporation (incorporated by reference to Exhibit 2.1 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).</u>	
<u>2.2* Agreement and Plan of Merger between EchoStar Corporation, EchoStar Satellite Services L.L.C., Broadband Acquisition Corporation and Hughes Communications, Inc. dated as of February 13, 2011 (incorporated by reference to Exhibit 2.1 to Hughes Communications Inc.'s Current Report on Form 8-K, filed February 15, 2011, Commission File No. 1-33040). *****</u>	
<u>3.1* Articles of Incorporation of EchoStar Corporation (incorporated by reference to Exhibit 3.1 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).</u>	
<u>3.2* Amendment to the Articles of Incorporation of EchoStar Corporation (incorporated by reference to Exhibit 3.1 to EchoStar Corporation's Current Report on Form 8-K filed January 25, 2008, Commission File No. 001-33807).</u>	
<u>3.3* Certificate of Amendment to Articles of Incorporation of EchoStar Corporation, dated as of May 4, 2016 (incorporated by reference to Exhibit 3.1 to EchoStar Corporation's Current Report on Form 8-K, filed May 5, 2016, Commission File No. 001-33807).</u>	
<u>3.4* Certificate of Withdrawal of Certificate of Designation of EchoStar Corporation (incorporated by reference to Exhibit 3.1 to EchoStar Corporation's Current Report on Form 8-K, filed March 6, 2017, Commission File No. 001-33807).</u>	
<u>3.5* Bylaws of EchoStar Corporation (incorporated by reference to Exhibit 3.2 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).</u>	

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- 4.1* Specimen Class A Common Stock Certificate of EchoStar Corporation (incorporated by reference to Exhibit 4.1 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).
- 4.2* Indenture relating to the EH Holding Corporation (currently known as Hughes Satellite Systems Corporation) 6 1/2% Senior Secured Notes due 2019, dated as of June 1, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Current Report on Form 8-K filed June 2, 2011, Commission File No. 001-33807).
- 4.3* Indenture relating to the EH Holding Corporation (currently known as Hughes Satellite Systems Corporation) 7 5/8% Senior Unsecured Notes due 2021, dated as of June 1, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Current Report on Form 8-K filed June 2, 2011, Commission File No. 001-33807).
- 4.4* Supplemental Indenture relating to the 6 1/2% Senior Secured Notes due 2019 of EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), dated as of June 8, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Current Report on Form 8-K filed June 9, 2011, Commission File No. 001-33807).
- 4.5* Supplemental Indenture relating to the 7 5/8% Senior Unsecured Notes due 2021 of EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), dated as of June 8, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Current Report on Form 8-K filed June 9, 2011, Commission File No. 001-33807).
- 4.6* Registration Rights Agreement, dated as of June 1, 2011, among EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), the guarantors listed on the signature page thereto and Deutsche Bank Securities Inc. (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Current Report on Form 8-K filed June 2, 2011, Commission File No. 001-33807).
- 4.7* Security Agreement, dated as of June 8, 2011, among EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), the guarantors listed on the signature pages thereto, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Current Report on Form 8-K filed June 9, 2011, Commission File No. 001-33807).
- 4.8* Second Supplemental Indenture relating to the 6 1/2% Senior Secured Notes due 2019 of Hughes Satellite Systems Corporation, dated as of March 28, 2014, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantors listed on the signature pages thereto, and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).
- 4.9* Second Supplemental Indenture relating to the 7 5/8% Senior Unsecured Notes due 2021 of Hughes Satellite Systems Corporation, dated as of March 28, 2014, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantors listed on the signature pages thereto, and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Quarterly

Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).

4.10* Joinder Agreement, dated as of March 28, 2014, to the Security Agreement dated as of June 8, 2011, by and among EchoStar XI Holding L.L.C., EchoStar XIV Holding L.L.C., and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).

4.11* Form of Note for 6 1/2% Senior Secured Notes due 2019 (included as part of Exhibit 4.2).

4.12* Form of Note for 7 5/8% Senior Unsecured Notes due 2021 (included as part of Exhibit 4.3).

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4.13* Indenture, relating to the 5.250% Senior Secured Notes, dated as of July 27, 2016, among Hughes Satellite Systems Corporation, the guarantors party thereto, U.S. Bank National Association, as trustee, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).

4.14* Indenture, relating to the 6.625% Senior Unsecured Notes, dated as of July 27, 2016, among Hughes Satellite Systems Corporation, the guarantors party thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).

4.15* Registration Rights Agreement, dated as of July 27, 2016, among Hughes Satellite Systems Corporation, the guarantors party thereto and Deutsche Bank Securities Inc. (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).

4.16* Additional Secured Party Joinder, dated as of July 27, 2016, among U.S. Bank National Association, as trustee, Wells Fargo Bank, National Association, as collateral agent and Hughes Satellite Systems Corporation (incorporated by reference to Exhibit 4.4 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).

4.17* Form of 5.250% Senior Secured Note due 2026 (included as part of Exhibit 4.13).

4.18* Form of 6.625% Senior Unsecured Note due 2026 (included as part of Exhibit 4.14).

4.19* Joinder Agreement, dated as of March 23, 2017, to the Security Agreement dated as of June 8, 2011, by and between Cheyenne Data Center L.L.C. and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.18 to Hughes Satellite Systems Corporation's Registration Statement on Form S-4, filed April 6, 2017, Commission File No. 333-179121).

4.20* Supplemental Indenture relating to Hughes Satellite Systems Corporation's 5.250% Senior Secured Notes due 2026, dated March 23, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto, U.S. Bank National Association, as trustee, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.19 to Hughes Satellite Systems Corporation's Registration Statement on Form S-4, filed April 6, 2017, Commission File No. 333-179121).

4.21* Supplemental Indenture relating to Hughes Satellite Systems Corporation's 6.625% Senior Notes due 2026, dated as of March 23, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.20 to Hughes Satellite Systems Corporation's Registration Statement on Form S-4, filed April 6, 2017, Commission File No. 333-179121).

4.22* Third Supplemental Indenture relating to Hughes Satellite Systems Corporation's 6½% Senior Secured Notes due 2019, dated March 23, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.21 to Hughes Satellite Systems Corporation's Registration Statement on Form S-4, filed April 6, 2017, Commission File No. 333-179121).

4.23* Third Supplemental Indenture relating to Hughes Satellite Systems Corporation's 7 % Senior Notes due 2021, dated March 23, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the

supplemental guarantor listed on the signature pages thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.22 to Hughes Satellite Systems Corporation's Registration Statement on Form S-4, filed April 6, 2017, Commission File No. 333-179121).

Joinder Agreement, dated as of August 10, 2017, to the Security Agreement dated as of June 8, 2011, by and between HNS Americas, L.L.C., HNS Americas II, L.L.C. and Wells Fargo Bank, National Association, as 4.24* collateral agent (incorporated by reference to Exhibit 4.24 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2017, filed February 22, 2018, Commission File No. 001-33807).

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- 4.25* Second Supplemental Indenture relating to Hughes Satellite Systems Corporation’s 5.250% Senior Secured Notes due 2026, dated August 10, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto, U.S. Bank National Association, as trustee, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.25 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2017, filed February 22, 2018, Commission File No. 001-33807).
- 4.26* Second Supplemental Indenture relating to Hughes Satellite Systems Corporation’s 6.625% Senior Notes due 2026, dated as of August 10, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.26 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2017, filed February 22, 2018, Commission File No. 001-33807).
- 4.27* Fourth Supplemental Indenture relating to Hughes Satellite Systems Corporation’s 6½% Senior Secured Notes due 2019, dated August 10, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.27 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2017, filed February 22, 2018, Commission File No. 001-33807).
- 4.28* Fourth Supplemental Indenture relating to Hughes Satellite Systems Corporation’s 7 % Senior Notes due 2021, dated August 10, 2017, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantor listed on the signature pages thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.28 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2017, filed February 22, 2018, Commission File No. 001-33807).
- 10.1* Form of Tax Sharing Agreement between EchoStar Corporation and DISH Network Corporation (incorporated by reference to Exhibit 10.2 to Amendment No. 1 of EchoStar Corporation’s Form 10 filed December 12, 2007, Commission File No. 001-33807).
- 10.2* Form of EchoStar Corporation 2008 Class B CEO Stock Option Plan (incorporated by reference to Exhibit 10.25 to Amendment No. 1 of EchoStar Corporation’s Form 10 filed December 12, 2007, Commission File No. 001-33807).**
- 10.3* QuetzSat-1 Satellite Service Agreement, dated November 24, 2008, between SES Latin America S.A. and EchoStar 77 Corporation, a subsidiary of EchoStar Corporation (incorporated by reference to Exhibit 10.24 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807). ***
- 10.4* QuetzSat-1 Satellite Service Agreement, dated November 24, 2008, between EchoStar 77 Corporation, a subsidiary of EchoStar Corporation, and DISH Network L.L.C. (incorporated by reference to Exhibit 10.25 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807). ***
- 10.5* Amended and Restated EchoStar Corporation 2008 Stock Incentive Plan (the “2008 Stock Incentive Plan”) (incorporated by reference to EchoStar Corporation’s Definitive Proxy Statement on Form 14, filed September 18, 2014, Commission File No. 001-33807).**
- 10.6* Amended and Restated EchoStar Corporation 2008 Non-Employee Director Stock Option Plan (the “2008 Non-Employee Director Stock Option Plan”) (incorporated by reference to EchoStar Corporation’s Definitive

Proxy Statement on Form 14, filed March 31, 2009, Commission File No. 001-33807).**

10.7* NIMIQ 5 Whole RF Channel Service Agreement, dated September 15, 2009, between Telesat Canada and EchoStar Corporation (incorporated by reference to Exhibit 10.30 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).***

10.8* NIMIQ 5 Whole RF Channel Service Agreement, dated September 15, 2009, between EchoStar Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.31 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).***

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- 10.9* Allocation Agreement, dated August 4, 2009, between EchoStar Corporation and DISH Network Corporation (incorporated by reference from Exhibit 10.4 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009, filed November 9, 2009, Commission File No. 001-33807).
- 10.10* EchoStar XVI Satellite Transponder Service Agreement between EchoStar Satellite Operating Corporation and DISH Network L.L.C., effective December 21, 2009 (incorporated by reference to Exhibit 10.36 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).***
- 10.11* Employment Agreement, dated as of April 23, 2005 between Hughes Network Systems, LLC and Pradman Kaul (incorporated by reference to Exhibit 10.3 to Hughes Communications Inc.'s Registration Statement on Form S-1, filed December 5, 2005, Commission File No. 333-130136).**
- 10.12* Amendment to Employment Agreement, dated as of December 23, 2010 between Hughes Communications, Inc. and Pradman Kaul (incorporated by reference to Exhibit 10.29 to Hughes Communications Inc.'s Annual Report on Form 10-K, filed March 7, 2011, Commission File No. 001-33040).**
- 10.13* Amendment to Employment Agreement, dated as of April 1, 2016, between Hughes Communications, Inc. and Pradman Kaul (incorporated by reference to Exhibit 10.1 EchoStar Corporation's Current Report on Form 8-K, filed April 6, 2016, Commission File No. 001-33807).**
- 10.14* First Amendment to EchoStar XVI Satellite Transponder Service Agreement, dated as of December 21, 2012 between EchoStar Satellite Operating Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.47 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2012, filed February 20, 2013, Commission File No. 001-33807).***
- 10.15* Form of Satellite Transponder Service Agreement by and between EchoStar Satellite Operating Corporation and DISH Operating L.L.C (incorporated by reference to Exhibit 10.3 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).
- 10.16* Form of Restricted Stock Unit Agreement for 2008 Stock Incentive Plan — Executive or Director (incorporated by reference to Exhibit 10.1 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015, filed November 6, 2015, Commission File No. 001-33807).**
- 10.17* Form of Stock Option Agreement for 2008 Stock Incentive Plan (1999) (incorporated by reference to Exhibit 10.39 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
- 10.18* Form of Stock Option Agreement for 2008 Stock Incentive Plan — Employee (2008) (incorporated by reference to Exhibit 10.40 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
- 10.19* Form of Stock Option Agreement for 2008 Stock Incentive Plan — Executive (2008) (incorporated by reference to Exhibit 10.41 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
- 10.20*

Form of Stock Option Agreement for 2008 Stock Incentive Plan — Employee (2014) (incorporated by reference to Exhibit 10.42 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807). **

10.21* Form of Stock Option Agreement for 2008 Stock Incentive Plan — Executive (2014) (incorporated by reference to Exhibit 10.43 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807). **

10.22* Form of Non-Employee Director Stock Option Agreement for 2008 Non-Employee Director Stock Option Plan (incorporated by reference to Exhibit 10.44 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807). **

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- 10.23* Form of Restricted Stock Unit Agreement for 2008 Stock Incentive Plan — Executive or Director (2011) (incorporated by reference to Exhibit 10.45 to EchoStar Corporation’s Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
- 10.24* EchoStar Corporation Executive Officer Bonus Incentive Plan, dated as of May 4, 2016 (incorporated by reference to Exhibit 10.1 to EchoStar Corporation’s Current Report on Form 8-K, filed May 5, 2016, Commission File No. 001-33807).**
- 10.25* Share Exchange Agreement among DISH Network Corporation, DISH Network L.L.C., DISH Operating L.L.C., EchoStar Corporation, EchoStar Broadcasting Holding Parent L.L.C., EchoStar Broadcasting Holding Corporation, EchoStar Technologies Holding Corporation, and EchoStar Technologies L.L.C. (incorporated by reference to Exhibit 10.1 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017, filed May 10, 2017, Commission File No. 001-33807**/****)
- 10.26* EchoStar Corporation 2017 Stock Incentive Plan (incorporated by reference to EchoStar Corporation’s Definitive Proxy Statement on Form 14, filed March 23, 2017, Commission File No. 001-33807).**
- 10.27* EchoStar Corporation 2017 Non-Employee Director Stock Incentive Plan (incorporated by reference to EchoStar Corporation’s Definitive Proxy Statement on Form 14, filed March 23, 2017, Commission File No. 001-33807).**
- 10.28* Amended and Restated EchoStar Corporation 2017 Employee Stock Purchase Plan (incorporated by reference to EchoStar Corporation’s Definitive Proxy Statement on Form 14, filed March 23, 2017, Commission File No. 001-33807).**
- 10.29* EchoStar Non-Qualified Plan -- Executive Plan and Adoption Agreement, as amended (incorporated by reference to Exhibit 10.1 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, filed August 9, 2017, Commission File No. 001-33807).**
- 10.30* Form of Stock Option Agreement for the EchoStar Corporation 2017 Stock Incentive Plan - Employee (2017) (incorporated by reference to Exhibit 10.2 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, filed August 9, 2017, Commission File No. 001-33807).**
- 10.31* Form of Stock Option Agreement for the EchoStar Corporation 2017 Stock Incentive Plan - Executive (2017) (incorporated by reference to Exhibit 10.3 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, filed August 9, 2017, Commission File No. 001-33807). **
- 10.32* Form of Non-Employee Director Stock Option Agreement for the EchoStar Corporation 2017 Non-Employee Director Stock Incentive Plan (incorporated by reference to Exhibit 10.4 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, filed August 9, 2017, Commission File No. 001-33807).**
- 10.33* Form of Restricted Stock Unit Agreement for the EchoStar Corporation 2017 Stock Incentive Plan - Executive (2017) (incorporated by reference to Exhibit 10.5 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, filed August 9, 2017, Commission File No. 001-33807).**
- 10.34* Letter Agreement between EchoStar Corporation and DISH Network Corporation, dated August 3, 2018, amending that certain Form of Tax Sharing Agreement between EchoStar Corporation and DISH Network (incorporated by reference to Exhibit 10.1 to EchoStar Corporation’s Quarterly Report on Form 10-Q for the

quarter ended September 2018, filed November 8, 2018, Commission File No. 001-33807).

10.35(J) Amendment to EchoStar Non-Qualified Plan -- Executive Plan and Adoption Agreement, dated November 1, 2018.**

21(J) Subsidiaries of EchoStar Corporation.

23(H) Consent of KPMG LLP, Independent Registered Public Accounting Firm.

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24(H) Powers of Attorney of Charles W. Ergen, R. Stanton Dodge, Anthony M. Federico, Pradman P. Kaul, Tom A. Ortoff, C. Michael Schroeder and William David Wade.

99.1(J) Press release dated February 21, 2019 issued by EchoStar Corporation regarding financial results for the quarter and full year ended December 31, 2018.

31.1(H) Section 302 Certification of Chief Executive Officer.

31.2(H) Section 302 Certification of Chief Financial Officer.

32.1(I) Section 906 Certifications of Chief Executive Officer and Chief Financial Officer.

101.SCH XBRL Taxonomy Extension Schema.

101.CAL XBRL Taxonomy Extension Calculation Linkbase.

101.DEF XBRL Taxonomy Extension Definition Linkbase.

101.LAB XBRL Taxonomy Extension Label Linkbase.

101.PRE XBRL Taxonomy Extension Presentation Linkbase.

(H) Filed herewith.

(I) Furnished herewith

(J) Included as an exhibit to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2018, filed February 21, 2019, Commission File No. 001-33807.

* Incorporated by reference.

** Constitutes a management contract or compensatory plan or arrangement.

*** Certain portions of the exhibit have been omitted and separately filed with the Securities and Exchange Commission with a request for confidential treatment.

**** Schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K. We agree to furnish supplementally to the Securities and Exchange Commission a copy of any omitted schedule or exhibit upon request, subject to our right to request confidential treatment of any requested schedule or exhibit.

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, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ECHOSTAR CORPORATION

By: /s/ David J. Rayner
 David J. Rayner
 Executive Vice President,
 Chief Financial Officer,
 Chief Operating Officer, and
 Treasurer

Date: February 27, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Michael T. Dugan Michael T. Dugan	Chief Executive Officer, President and Director (Principal Executive Officer)	February 27, 2019
/s/ David J. Rayner David J. Rayner	Executive Vice President, Chief Financial Officer, Chief Operating Officer and Treasurer (Principal Financial and Accounting Officer)	February 27, 2019
* Charles W. Ergen	Chairman	February 27, 2019
* R. Stanton Dodge	Director	February 27, 2019
* Anthony M. Federico	Director	February 27, 2019
* Pradman P. Kaul	Director	February 27, 2019
* Tom A. Ortolf	Director	February 27, 2019
* C. Michael Schroeder	Director	February 27, 2019
* William David Wade	Director	February 27, 2019
* By: /s/ Dean A. Manson Dean A. Manson		

Attorney-in-Fact

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INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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Report of Independent Registered Public Accounting Firm

To the stockholders and board of directors
EchoStar Corporation:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of EchoStar Corporation and subsidiaries (the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), changes in stockholders’ equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes and financial statement schedule II listed in Item 15, collectively, the “consolidated financial statements.” We also have audited 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 (COSO).

In our opinion, the consolidated financial statements referred to above 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 years in the three-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles. Also 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.

Changes in Accounting Principles

As discussed in Note 2 to the consolidated financial statements, in 2018 the Company has changed its method of accounting for revenue recognition due to the adoption of Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers and changed its method of accounting for marketable investment securities and fair value measurements due to the adoption of Accounting Standards Update No. 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities. In 2017, the Company has changed its method of accounting for excess tax benefits and deficiencies related to share-based payment awards due to the adoption of Accounting Standards Update No. 2016-09, Improvements to Employee Share-Based Payment Accounting.

Basis for Opinions

The Company’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, included in the accompanying Management’s Annual Report on Internal Control Over Financial Reporting, and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on the Company’s consolidated financial statements and an opinion on the Company’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated 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 consolidated 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 consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide

a reasonable basis for our opinions.

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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/ KPMG LLP

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

Denver, Colorado
February 21, 2019

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CONSOLIDATED BALANCE SHEETS

(Dollars in thousands, except per share amounts)

	As of December 31,	
	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	\$928,306	\$2,431,456
Marketable investment securities, at fair value	2,282,152	814,161
Trade accounts receivable and contract assets, net (Note 3)	201,096	196,840
Trade accounts receivable - DISH Network	14,200	43,295
Inventory	75,379	83,595
Prepays and deposits	61,177	54,533
Other current assets	18,539	91,671
Total current assets	3,580,849	3,715,551
Noncurrent assets:		
Property and equipment, net	3,414,908	3,465,471
Regulatory authorizations, net	495,654	536,936
Goodwill	504,173	504,173
Other intangible assets, net	44,231	58,955
Investments in unconsolidated entities	262,473	161,427
Other receivables - DISH Network	95,114	92,687
Other noncurrent assets, net	263,892	214,814
Total noncurrent assets	5,080,445	5,034,463
Total assets	\$8,661,294	\$8,750,014
Liabilities and Stockholders' Equity		
Current liabilities:		
Trade accounts payable	\$121,437	\$108,406
Trade accounts payable - DISH Network	1,698	4,753
Current portion of long-term debt and capital lease obligations	959,577	40,631
Contract liabilities	72,284	65,959
Accrued interest	47,416	47,616
Accrued compensation	54,242	47,756
Accrued taxes	16,013	16,122
Accrued expenses and other	72,470	82,647
Total current liabilities	1,345,137	413,890
Noncurrent liabilities:		
Long-term debt and capital lease obligations, net	2,573,204	3,594,213
Deferred tax liabilities, net	465,933	436,023
Other noncurrent liabilities	121,546	128,503
Total noncurrent liabilities	3,160,683	4,158,739
Total liabilities	4,505,820	4,572,629
Commitments and contingencies (Note 17)		
Stockholders' equity:		
Preferred stock, \$0.001 par value, 20,000,000 shares authorized, none issued and outstanding at each of December 31, 2018 and 2017	—	—
Common stock, \$0.001 par value, 4,000,000,000 shares authorized:		
Class A common stock, \$0.001 par value, 1,600,000,000 shares authorized, 54,142,566 shares issued and 47,657,645 shares outstanding at December 31, 2018 and 53,663,859	54	54

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shares issued and 48,131,541 shares outstanding at December 31, 2017		
Class B convertible common stock, \$0.001 par value, 800,000,000 shares authorized, 47,687,039 shares issued and outstanding at each of December 31, 2018 and 2017	48	48
Class C convertible common stock, \$0.001 par value, 800,000,000 shares authorized, none issued and outstanding at each of December 31, 2018 and 2017	—	—
Class D common stock, \$0.001 par value, 800,000,000 shares authorized, none issued and outstanding at each of December 31, 2018 and 2017	—	—
Additional paid-in capital	3,702,522	3,669,461
Accumulated other comprehensive loss	(125,100)	(130,154)
Accumulated earnings	694,129	721,316
Treasury stock, at cost	(131,454)	(98,162)
Total EchoStar Corporation stockholders' equity	4,140,199	4,162,563
Other noncontrolling interests	15,275	14,822
Total stockholders' equity	4,155,474	4,177,385
Total liabilities and stockholders' equity	\$8,661,294	\$8,750,014

The accompanying notes are an integral part of these consolidated financial statements.

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CONSOLIDATED STATEMENTS OF OPERATIONS

(Dollars in thousands, except per share amounts)

	For the years ended December 31,		
	2018	2017	2016
Revenue:			
Services and other revenue - DISH Network	\$ 378,694	\$ 445,698	\$ 463,442
Services and other revenue - other	1,507,259	1,200,321	1,100,828
Equipment revenue	205,410	239,489	246,196
Total revenue	2,091,363	1,885,508	1,810,466
Costs and expenses:			
Cost of sales - services and other (exclusive of depreciation and amortization)	604,305	563,346	536,568
Cost of sales - equipment (exclusive of depreciation and amortization)	176,600	195,151	188,617
Selling, general and administrative expenses	436,247	366,007	325,044
Research and development expenses	27,570	31,745	31,170
Depreciation and amortization	598,178	522,190	432,904
Impairment of long-lived assets	65,220	10,762	—
Total costs and expenses	1,908,120	1,689,201	1,514,303
Operating income	183,243	196,307	296,163
Other income (expense):			
Interest income	80,275	44,619	21,244
Interest expense, net of amounts capitalized	(248,568)	(217,240)	(123,481)
Gains (losses) on investments, net	(12,207)	53,453	9,767
Equity in earnings (losses) of unconsolidated affiliates, net	(5,954)	16,973	10,802
Other, net	(4,749)	6,582	2,131
Total other income (expense), net	(191,203)	(95,613)	(79,537)
Income (loss) from continuing operations before income taxes	(7,960)	100,694	216,626
Income tax benefit (provision), net	(30,673)	284,286	(80,254)
Net income (loss) from continuing operations	(38,633)	384,980	136,372
Net income from discontinued operations	—	8,509	44,320
Net income (loss)	(38,633)	393,489	180,692
Less: Net income attributable to noncontrolling interests	1,842	928	762
Net income (loss) attributable to EchoStar Corporation	(40,475)	392,561	179,930
Less: Net loss attributable to Hughes Retail Preferred Tracking Stock (Note 1)	—	(1,209)	(1,743)
Net income (loss) attributable to EchoStar Corporation common stock	\$(40,475)	\$ 393,770	\$ 181,673
Earnings per share - Class A and B common stock:			
Basic earnings (loss) from continuing operations per share	\$(0.42)	\$ 4.04	\$ 1.46
Total basic earnings (loss) per share	\$(0.42)	\$ 4.13	\$ 1.94
Diluted earnings (loss) from continuing operations per share	\$(0.42)	\$ 3.98	\$ 1.45
Total diluted earnings (loss) per share	\$(0.42)	\$ 4.07	\$ 1.92

The accompanying notes are an integral part of these consolidated financial statements.

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ECHOSTAR CORPORATION
 CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
 (Dollars in thousands)

	For the years ended December 31,		
	2018	2017	2016
Comprehensive income (loss):			
Net income (loss)	\$(38,633)	\$393,489	\$180,692
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	(34,399)	16,413	(11,315)
Unrealized gains (losses) on available-for-sale securities and other	(2,872)	(21,895)	9,149
Amounts reclassified to net income:			
Foreign currency translation realized to due impairment of long lived assets	32,136	—	—
Realized gains on available-for-sale securities	—	(2,758)	(5,590)
Other-than-temporary impairment loss on available-for-sale securities	(278)	3,298	—
Total other comprehensive income (loss), net of tax	(5,413)	(4,942)	(7,756)
Comprehensive income (loss)	(44,046)	388,547	172,936
Less: Comprehensive income attributable to noncontrolling interests	453	1,337	576
Comprehensive income (loss) attributable to EchoStar Corporation	\$(44,499)	\$387,210	\$172,360

The accompanying notes are an integral part of these consolidated financial statements.

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CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

(Dollars in thousands)

	Class A and Common Stock	Hughes Preferred Tracking Stock	Retail Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Earnings (Deficit)	Treasury Stock	Noncontrolling Interest in HSS Tracking Stock	Other Noncontrolling Interests	Total
Balance, January 1, 2016	\$ 99	\$ 6	\$ 3,776,451	\$(117,233)	\$ 134,317	\$(98,162)	\$ 74,854	\$ 11,310	\$ 3,781,642
Issuances of Class A common stock:									
Exercise of stock options	1	—	13,065	—	—	—	—	—	13,066
Employee benefits	—	—	11,126	—	—	—	—	—	11,126
Employee Stock Purchase Plan	—	—	14,367	—	—	—	—	—	14,367
Stock-based compensation	—	—	15,234	—	—	—	—	—	15,234
Excess tax benefit from stock option exercises	—	—	848	—	—	—	—	—	848
R&D tax credits utilized by DISH Network	—	—	(1,600)	—	—	—	—	—	(1,600)
Other comprehensive loss	—	—	—	(7,506)	—	—	—	(186)	(7,692)
Net income (loss)	—	—	—	—	179,930	—	(944)	1,706	180,692
Other, net	—	—	(814)	(64)	—	—	—	—	(878)
Balance, December 31, 2016	100	6	3,828,677	(124,803)	314,247	(98,162)	73,910	12,830	4,006,805
Cumulative effect of adoption of ASU No. 2016-09 as of January 1, 2017 (Note 2)	—	—	—	—	14,508	—	—	—	14,508
Balance, January 1, 2017	100	6	3,828,677	(124,803)	328,755	(98,162)	73,910	12,830	4,021,313
Issuances of Class A common stock:									
Exercise of stock options	2	—	36,503	—	—	—	—	—	36,505

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Employee benefits	—	—	11,200	—	—	—	—	—	11,200
Employee Stock Purchase Plan	—	—	8,758	—	—	—	—	—	8,758
Stock-based compensation	—	—	10,103	—	—	—	—	—	10,103
Reacquisition and retirement of Tracking Stock pursuant to the Share Exchange (Note 1)	—	(6)	(227,278)	—	—	—	(73,255)	—	(300,539)
R&D tax credits utilized by DISH Network	—	—	1,624	—	—	—	—	—	1,624
Other comprehensive loss	—	—	—	(5,443)	—	—	—	409	(5,034)
Net income (loss)	—	—	—	—	392,561	—	(655)	1,583	393,489
Other, net	—	—	(126)	92	—	—	—	—	(34)
Balance, December 31, 2017	102	—	3,669,461	(130,154)	721,316	(98,162)	—	14,822	4,177,385
Cumulative effect of adoption of ASU No. 2014-09 and ASU No. 2016-01 as of January 1, 2018 (Note 2)	—	—	—	10,467	12,656	—	—	—	23,123
Balance, January 1, 2018	102	—	3,669,461	(119,687)	733,972	(98,162)	—	14,822	4,200,508
Issuances of Class A common stock:									
Exercise of stock options	—	—	4,404	—	—	—	—	—	4,404
Employee benefits	—	—	7,605	—	—	—	—	—	7,605
Employee Stock Purchase Plan	—	—	9,368	—	—	—	—	—	9,368
Stock-based compensation	—	—	9,990	—	—	—	—	—	9,990
R&D tax credits utilized by DISH Network	—	—	1,822	—	—	—	—	—	1,822
Other comprehensive	—	—	—	(3,462)	—	—	—	(1,389)	(4,851)

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income (loss)									
Net income	—	—	—	—	(40,475)	—	—	1,842	(38,633)
(loss)									
Treasury share	—	—	—	—	—	(33,292)	—	—	(33,292)
repurchase									
Other, net	—	—	(128)	(1,951)	632	—	—	—	(1,447)
Balance,									
December 31,	\$ 102	\$ —	\$3,702,522	\$(125,100)	\$694,129	\$(131,454)	\$—	\$ 15,275	\$4,155,474
2018									

The accompanying notes are an integral part of these consolidated financial statements.

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ECHOSTAR CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Dollars in thousands)

	For the years ended December 31,		
	2018	2017	2016
Cash flows from operating activities:			
Net income (loss)	\$(38,633)	\$393,489	\$180,692
Adjustments to reconcile net income (loss) to net cash flows from operating activities:			
Depreciation and amortization	598,178	533,849	495,068
Impairment of long-lived assets	65,220	10,762	—
Equity in earnings of unconsolidated affiliates, net	6,037	(15,814)	(13,310)
Amortization of debt issuance costs	7,923	7,378	6,551
Gains and losses on investments, net	12,109	(53,453)	(9,767)
Stock-based compensation	9,990	10,103	15,234
Deferred tax provision (benefit)	26,327	(288,577)	98,148
Dividends received from unconsolidated entities	10,000	19,000	15,000
Proceeds from sale of trading securities	—	8,922	7,140
Changes in current assets and current liabilities, net:			
Trade accounts receivable, net	(17,842)	421	(26,942)
Trade accounts receivable - DISH Network	29,188	235,227	(1,456)
Inventory	5,650	(19,291)	(4,814)
Other current assets	(16,261)	(15,352)	2,263
Trade accounts payable	9,562	(78,419)	(24,571)
Trade accounts payable - DISH Network	(3,055)	731	(19,650)
Accrued expenses and other	23,105	11,993	55,998
Changes in noncurrent assets and noncurrent liabilities, net	(5,070)	(36,975)	9,459
Other, net	12,094	2,898	18,300
Net cash flows from operating activities	734,522	726,892	803,343
Cash flows from investing activities:			
Purchases of marketable investment securities	(2,973,254)	(855,717)	(921,247)
Sales and maturities of marketable investment securities	1,498,463	580,235	1,009,310
Expenditures for property and equipment	(555,141)	(583,211)	(722,341)
Refunds and other receipts related to property and equipment	77,524	4,311	24,087
Sale of investment in unconsolidated entity	1,558	17,781	—
Expenditures for externally marketed software	(31,639)	(31,331)	(23,252)
Investments in unconsolidated entities	(115,991)	—	(1,636)
Other, net	—	—	2,880
Net cash flows from investing activities	(2,098,480)	(867,932)	(632,199)
Cash flows from financing activities:			
Proceeds from issuance of long-term debt	—	—	1,500,000
Payments of debt issuance costs	—	(414)	(7,097)
Repurchase of the 2019 Senior Secured Notes (Note 12)	(70,173)	—	—
Purchase of treasury shares (Note 14)	(33,292)	—	—
Repayment of debt and capital lease obligations	(41,019)	(37,670)	(40,364)
Net proceeds from Class A common stock options exercised	4,424	35,536	13,065
Net proceeds from Class A common stock issued under the Employee Stock Purchase Plan	9,368	8,758	14,367
Repayment of in-orbit incentive obligations	(5,350)	(5,487)	(5,499)

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Cash exchanged for Tracking Stock (Note 1)	—	(651) —
Other, net	(521) —	1,217
Net cash flows from financing activities	(136,563) 72	1,475,689
Effect of exchange rates on cash and cash equivalents	(2,233) 1,351	138
Net increase (decrease) in cash and cash equivalents	(1,502,754	(139,617) 1,646,971
Cash and cash equivalents, including restricted amounts, beginning of period	2,432,249	2,571,866	924,895
Cash and cash equivalents, including restricted amounts, end of period	\$929,495	\$2,432,249	\$2,571,866
Supplemental disclosure of cash flow information:			
Cash paid for interest, net of amounts capitalized	\$240,596	\$207,617	\$78,312
Cash paid for income taxes	\$5,209	\$11,033	\$11,700

The accompanying notes are an integral part of these consolidated financial statements.

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EHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. ORGANIZATION AND BUSINESS ACTIVITIES

Principal Business

EchoStar Corporation (which, together with its subsidiaries, is referred to as “EchoStar,” the “Company,” “we,” “us” and/or “our”) is a holding company that was organized in October 2007 as a corporation under the laws of the State of Nevada and has operated as a separately traded public company from Dish Network Corporation (“DISH”) since 2008. Our Class A common stock is publicly traded on the Nasdaq Global Select Market under the symbol “SATS.”

We are a global provider of broadband satellite technologies, broadband internet services for home and small office customers, satellite operations and satellite services. We also deliver innovative network technologies, managed services and various communications solutions for aeronautical, enterprise and government customers. We primarily operate in the following two business segments:

- Hughes — which provides broadband satellite technologies and broadband internet services to domestic and international home and small office customers and broadband network technologies, managed services, equipment, hardware, satellite services and communication solutions to domestic and international consumers and aeronautical, enterprise and government customers. The Hughes segment also designs, provides and installs gateway and terminal equipment to customers for other satellite systems. In addition, our Hughes segment designs, develops, constructs and provides telecommunication networks comprising satellite ground segment systems and terminals to mobile system operators and our enterprise customers.
- EchoStar Satellite Services (“ESS”) — which uses certain of our owned and leased in-orbit satellites and related licenses to provide satellite operations and satellite services on a full-time and/or occasional-use basis primarily to DISH Network Corporation and its subsidiaries (“DISH Network”), Dish Mexico, S. de R.L. de C.V., a joint venture we entered into in 2008 (“Dish Mexico”), United States (“U.S.”) government service providers, internet service providers, broadcast news organizations, content providers and private enterprise customers.

Our operations also include various corporate departments (primarily Executive, Treasury, Strategic Development, Human Resources, IT, Finance, Real Estate, Accounting and Legal) and other activities that have not been assigned to our operating segments such as costs incurred in certain satellite development programs and other business development activities, and gains or losses from certain of our investments. These activities, costs and income, as well as eliminations of intersegment transactions, are accounted for in Corporate and Other in our segment reporting.

During 2017, we and certain of our subsidiaries entered into a share exchange agreement with DISH and certain of its subsidiaries. We, and certain of our subsidiaries, received all of the shares of the Hughes Retail Preferred Tracking Stock previously issued by us and one of our subsidiaries (together, the “Tracking Stock”) in exchange for 100% of the equity interests of certain of our subsidiaries that held substantially all of our former EchoStar Technologies businesses and certain other assets (collectively, the “Share Exchange”). Following the consummation of the Share Exchange, we no longer operate our former EchoStar Technologies businesses, the Tracking Stock was retired and is no longer outstanding, and all agreements, arrangements and policy statements with respect to the Tracking Stock terminated. As a result of the Share Exchange, the operating results of the EchoStar Technologies businesses have been presented as discontinued operations and as such, have been excluded from continuing operations and segment results for all periods presented in our accompanying Consolidated Financial Statements. See Note 4 for further discussion of our discontinued operations.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation and Basis of Presentation

We consolidate all entities in which we have a controlling financial interest. We are deemed to have a controlling financial interest in variable interest entities where we are the primary beneficiary. We are deemed to have a controlling financial interest in other entities when we own more than 50% of the outstanding voting shares and other shareholders do not have substantive rights to participate in management. For entities we control but do not wholly own, we record a noncontrolling interest within stockholders' equity for the portion of the entity's equity attributed to the noncontrolling ownership interests. Prior to the consummation of the Share Exchange, noncontrolling interests consisted primarily

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EHOSTAR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

of the Hughes Retail Preferred Tracking Stock issued by our subsidiary, Hughes Network Systems Corporation (“HSS”), (the “HSS Tracking Stock”) owned by DISH Network as described in Notes 1 and 4. All significant intercompany balances and transactions have been eliminated in consolidation.

Reclassification

Certain prior period amounts have been reclassified to conform with the current period presentation.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the U.S. (“GAAP”) requires us to make certain estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the balance sheets, the reported amounts of revenue and expense for each reporting period and certain information disclosed in the notes to our financial statements. Estimates are used in accounting for, among other things, (i) amortization periods for deferred contract acquisition costs, (ii) inputs used to recognize revenue over time, (iii) allowances for doubtful accounts, (iv) warranty obligations, (v) self-insurance obligations, (vi) deferred taxes and related valuation allowances, (vii) uncertain tax positions, (viii) loss contingencies, (ix) fair value of financial instruments, (x) fair value of stock-based compensation awards, (xi) fair value of assets and liabilities acquired in business combinations, (xii) lease classifications, (xiii) asset impairment testing and (xiv) useful lives and methods for depreciation and amortization of long-lived assets.

We base our estimates and assumptions on historical experience, observable market inputs and on various other factors that we believe to be relevant under the circumstances. Due to the inherent uncertainty involved in making estimates, actual results may differ from previously estimated amounts, and such differences may be material to our financial statements. Additionally, changing economic conditions may increase the inherent uncertainty in the estimates and assumptions indicated above. We review our estimates and assumptions periodically and the effects of revisions thereto are reflected in the period they occur or prospectively if the revised estimate affects future periods.

Fair Value Measurements

We determine fair value based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. Market or observable inputs are the preferred source of values, followed by unobservable inputs or assumptions based on hypothetical transactions in the absence of market inputs. We utilize the highest level of inputs available according to the following hierarchy in determining fair value:

Level 1 - Defined as observable inputs being quoted prices in active markets for identical assets;

Level 2 - Defined as observable inputs other than quoted prices included in Level 1, including quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-derived valuations in which significant inputs and significant value drivers are observable in active markets; and

Level 3 - Defined as unobservable inputs for which little or no market data exists, consistent with characteristics of the asset or liability that would be considered by market participants in a transaction to purchase or sell the asset or liability.

Fair values of our marketable investment securities are based on a variety of observable market inputs. For our investments in publicly traded equity securities and U.S. government securities, fair value ordinarily is determined based on Level 1 measurements that reflect quoted prices for identical securities in active markets. Fair values of our investments in other marketable debt securities are generally based on Level 2 measurements, as the markets for such debt securities are less active. We consider trades of identical debt securities on or near the measurement date as a strong indication of fair value and matrix pricing techniques that consider par value, coupon rate, credit quality, maturity and other relevant features may also be used to determine fair value of our investments in marketable debt securities. Fair values for our outstanding debt (see Note 12) are based on quoted market prices in less active markets and are categorized as Level 2 measurements. Additionally, we use fair value measurements from time to time in connection with asset impairment testing and the assignment of purchase consideration to assets and liabilities of

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EHOSTAR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

acquired companies. Those fair value measurements typically include significant unobservable inputs and are categorized within Level 3 of the fair value hierarchy.

Transfers between levels in the fair value hierarchy are considered to occur at the beginning of the quarterly accounting period. There were no transfers between levels for each of the years ended December 31, 2018 and 2017.

As of December 31, 2018 and 2017, the carrying amounts of our cash and cash equivalents, trade and other receivables, net of allowance for doubtful accounts, accounts payable and accrued liabilities were equal to or approximated their fair value due to their short-term nature or proximity to current market rates.

Revenue Recognition

Overview

We account for our sales and services revenue in accordance with Accounting Standards Codification (“ASC”) Topic 606, Revenue from Contracts with Customers (“Topic 606”), which we adopted on January 1, 2018, using the modified retrospective approach to contracts not completed as of the adoption date. Topic 606 provides a five-step revenue recognition model that we apply to our customer contracts. Under this model we (i) identify the contract with the customer, (ii) identify our performance obligations in the contract, (iii) determine the transaction price for the contract, (iv) allocate the transaction price to our performance obligations and (v) recognize revenue when or as we satisfy our performance obligations.

Revenue is recognized upon transfer of control of the promised goods or our performance of the services to our customers in an amount that reflects the consideration we expect to receive in exchange for those goods or services. We enter into contracts that may include various combinations of products and services, which are generally distinct and accounted for as separate performance obligations.

Additionally, a significant portion of our revenue is derived from leases of property and equipment that is reported in Services and other revenue - other and Services and other revenue - DISH Network in our Consolidated Statements of Operations. Certain of our customer contracts contain embedded equipment leases, which we separate from non-lease components of the contract based on the relative standalone selling prices of the lease and non-lease components.

Hughes

Our Hughes segment provides various communication and networking services to consumer and enterprise customers in both domestic and international markets. Our service contracts typically obligate us to provide substantially the same services on a recurring basis in exchange for fixed recurring fees over the term of the contract. We satisfy such performance obligations over time and recognize revenue ratably as services are rendered over the service period. Certain of our contracts with service obligations provide for fees based on usage, capacity or volume. We satisfy these performance obligations and recognize the related revenue at the point in time or over the period when the services are rendered. Our Hughes segment also sells and leases communications equipment to its customers. Revenue from equipment sales generally is recognized upon shipment of the equipment. Our equipment sales contracts typically include standard product warranties, but generally do not provide for returns or refunds. Revenue for extended warranties is recognized ratably over the extended warranty period. For contracts with multiple performance obligations, we typically allocate the contract’s transaction price to each performance obligation based on their relative

standalone selling prices. When the standalone selling price is not observable, our primary method used to estimate standalone selling price is the expected cost plus a margin. Our contracts generally require customer payments to be made at or shortly after the time we transfer control of goods or perform the services.

In addition to equipment and service offerings, our Hughes segment also enters into long-term contracts to design, develop, construct and install complex telecommunication networks to customers in its enterprise and mobile satellite systems markets. Revenue from such contracts is generally recognized over time at a measure of progress that depicts the transfer of control of the goods or services to the customer. Depending on the nature of the arrangement, we measure progress toward contract completion using an appropriate input method or output method. Under the input method, we recognize the transaction price as revenue based on the ratio of costs incurred to estimated total costs at completion. Under the output method, revenue and cost of sales are recognized as products are delivered based on

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

the expected profit for the entire agreement. Profit margins on long-term contracts generally are based on estimates of revenue and costs at completion. We review and revise our estimates periodically and recognize related adjustments in the period in which the revisions are made. Estimated losses on contracts are recorded in the period in which they are identified. We generally receive interim payments as work progresses, although for some contracts, we may be entitled to receive an advance payment.

ESS

Our ESS segment provides satellite operations through leasing arrangements and satellite services on a full-time and/or occasional-use basis to DISH Network and Dish Mexico, as well as government service providers, internet service providers, broadcast news organizations, content providers and private enterprise customers. Our ESS segment also provides telemetry, tracking and control (“TT&C”) services for satellites owned by DISH Network and technical consulting services that are billed by the hour. Generally, our service contracts with customers contain a single performance obligation and therefore there is no need to allocate the transaction price. We transfer control and recognize revenue for satellite services at the point in time or over the period when the services are rendered.

Other

Sales and Value Added Taxes, Universal Service Fees and other taxes that we collect concurrent with revenue producing activities are excluded from revenue.

Shipping and handling costs associated with outbound freight are accounted for as a fulfillment cost after control over a product has transferred to the customer and are included in Cost of sales - equipment in our Consolidated Statements of Operations at the time of shipment.

Contract Balances

Trade Accounts Receivable

Trade accounts receivable includes amounts billed and currently due from customers and represents our unconditional rights to consideration arising from our performance under our customer contracts. Trade accounts receivable also includes amounts due from customers under our leasing arrangements. We make ongoing estimates relating to the collectability of our trade accounts receivable and maintain an allowance for estimated losses resulting from the inability of our customers to make the required payments. In determining the amount of the allowance, we consider historical levels of credit losses and make judgments about the creditworthiness of our customers based on ongoing credit evaluations. Past due trade accounts receivable balances are written off when our internal collection efforts have been unsuccessful. Bad debt expense related to our trade accounts receivable and other contract assets is included in Selling, general and administrative expenses in our Consolidated Statements of Operations.

Contract Assets and Contract Liabilities

Contract assets represent revenue that we have recognized in advance of billing the customer and are included in Trade accounts receivable and contract assets, net or Other noncurrent assets, net in our Consolidated Balance Sheets based on the expected timing of customer payment. Our contract assets include amounts that we referred to as Contracts in Process in prior periods. Our contract assets typically relate to our long-term contracts where we

recognize revenue using the cost-based input method and the revenue recognized exceeds the amount billed to the customer.

Contract liabilities consist of advance payments and billings in excess of revenue recognized under customer contracts and are included in Contract liabilities or Other noncurrent liabilities in our Consolidated Balance Sheets based on the timing of when we expect to recognize revenue. Contract liabilities include amounts that we referred to as deferred revenue in prior periods. We recognize contract liabilities as revenue after all revenue recognition criteria have been met.

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EHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Contract Acquisition and Fulfillment Costs

Contract Acquisition Costs

Our contract acquisition costs represent incremental direct costs of obtaining a contract and consist primarily of sales incentives paid to employees and third-party representatives. When we determine that our contract acquisition costs are recoverable, we defer and amortize the costs over the contract term, or over the estimated life of the customer relationship if anticipated renewals are expected and the incentives payable upon renewal are not commensurate with the initial incentive. We amortize contract acquisition costs in proportion to the revenue to which the costs relate. We expense sales incentives as incurred if the expected amortization period is one year or less. Unamortized contract acquisition costs are included in Other noncurrent assets, net in our Consolidated Balance Sheets and related amortization expense is included in Selling, general and administrative expenses in our Consolidated Statements of Operations.

Contract Fulfillment Costs

We recognize costs to fulfill a contract as an asset when the costs relate directly to a specific contract, the costs generate or enhance our resources that will be used in satisfying future performance obligations and the costs are expected to be recovered. We may incur such costs on certain contracts that require initial setup activities in advance of the transfer of goods or services to the customer. We amortize these costs in proportion to the revenue to which the costs relate. Unamortized contract fulfillment costs are included in Other noncurrent assets, net in our Consolidated Balance Sheets and related amortization expense is included in Cost of sales - services and other in our Consolidated Statements of Operations.

Foreign Currency

The functional currency for certain of our foreign operations is determined to be the local currency. Accordingly, we translate assets and liabilities of these foreign entities from their local currencies to U.S. dollars using period-end exchange rates and translate income and expense accounts at monthly average rates. The resulting translation adjustments are reported in other comprehensive income (loss) as Foreign currency translation adjustments in our Consolidated Statements of Comprehensive Income (Loss). Except in certain uncommon circumstances, we have not recorded deferred income taxes related to our foreign currency translation adjustments. Gains and losses resulting from re-measurement of monetary assets and liabilities denominated in foreign currencies into the functional currency are recognized in Other, net in our Consolidated Statements of Operations.

Cash and Cash Equivalents

We consider all liquid investments purchased with an original maturity of 90 days or less to be cash equivalents. Cash equivalents as of December 31, 2018 and 2017 primarily consisted of commercial paper, government bonds, corporate notes, and money market funds. The amortized cost of these investments approximates their fair value.

Inventory

Inventory is stated at the lower of cost, determined using the first-in, first-out (“FIFO”) method, or net realizable value. Cost of inventory consists primarily of materials, direct labor and indirect overhead incurred in the procurement and

manufacturing of our products. We use standard costing methodologies in determining the cost of certain of our finished goods and work-in-process inventories. We determine net realizable value using our best estimates of future use or recovery, considering the aging and composition of inventory balances, the effects of technological and/or design changes, forecasted future product demand based on firm or near-firm customer orders, and alternative means of disposition of excess or obsolete items. We recognize losses within operating income when we determine that the cost of inventory and commitments to purchase inventory exceed net realizable value.

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EHOSTAR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Capitalized Software Costs

Internal-Use Software

Costs related to the procurement and development of software for internal-use are capitalized and amortized using the straight-line method over the estimated useful life of the software, not in excess of five years. Capitalized costs of internal-use software are included in Property and equipment, net in our Consolidated Balance Sheets.

Externally Marketed Software

Costs related to the procurement and development of software for externally marketed software are capitalized and amortized using the straight-line method over the estimated useful life of the software, not in excess of five years. Capitalized costs of externally marketed software are included in Other noncurrent assets, net in our Consolidated Balance Sheets. Externally marketed software generally is installed in the equipment we sell or lease to customers. We conduct software program reviews for externally marketed capitalized software costs at least annually, or as events and circumstances warrant such a review, to determine if capitalized software development costs are recoverable and to ensure that costs associated with programs that are no longer generating revenue are expensed.

Marketable Investment Securities

Our marketable investment securities portfolio consists of investments in debt and equity instruments with readily determinable fair values.

Debt Securities

We classify all of our debt securities as available-for-sale based on our investment strategy for the securities. Generally, we recognize periodic changes in the difference between fair value and amortized cost in Unrealized gains (losses) on available-for-sale securities and other in our Consolidated Statements of Comprehensive Income (Loss). Realized gains and losses upon sales of debt securities are reclassified from other comprehensive income (loss) and recognized on the trade date in Gains (losses) on investments, net in our Consolidated Statements of Operations. We use the FIFO method to determine the cost basis on sales of debt securities. Interest income from debt securities is reported in Interest income in our Consolidated Statements of Operations. We could realize proceeds from certain investments prior to their contractual maturity if we sell these securities before such maturity.

We evaluate our available-for-sale debt securities portfolio periodically to determine whether declines in the fair value of these securities are other-than-temporary. Our evaluation considers, among other things, the length of time and the extent to which the fair value of such security has been lower than amortized cost, market and company-specific factors related to the security and our intent and ability to hold the investment to maturity or when it recovers its value. We generally consider a decline to be other-than-temporary when: (i) we intend to sell the security, (ii) it is more likely than not that we will be required to sell the security before maturity or when it recovers its value, or (iii) we do not expect to recover the amortized cost of the security at maturity. Declines in the fair value of available-for-sale debt securities that are determined to be other-than-temporary are reclassified from other comprehensive income (loss) and recognized in Net income (loss) in our Consolidated Statements of Operations, thus establishing a new cost basis for the investment.

From time to time we make strategic investments in corporate debt securities. Generally, we elect to account for these debt securities using the fair value option because it results in consistency in accounting for unrealized gains and losses for all securities in our portfolio of strategic investments. When we elect the fair value option for investments in debt securities, we recognize periodic changes in fair value of these securities in Gains (losses) on investments, net in our Consolidated Statements of Operations. Interest income from these securities is reported in Interest income in our Consolidated Statements of Operations.

Equity Securities

Prior to January 1, 2018, we classified our marketable equity securities as available-for-sale or trading securities, depending on our investment strategy for the securities. For available-for-sale securities, we recognized periodic changes in the difference between fair value and cost in Unrealized gains (losses) on available-for-sale securities and

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EHOSTAR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

other in our Consolidated Statements of Comprehensive Income (Loss). Realized gains and losses upon sale of available-for-sale securities were reclassified from other comprehensive income (loss) and recognized on the trade date in Gains (losses) on investments, net in our Consolidated Statements of Operations. We used the FIFO method to determine the cost basis on sales of available-for-sale securities. For trading securities, we recognized periodic changes in the fair value of the securities in Gains (losses) on investments, net in our Consolidated Statements of Operations.

Effective January 1, 2018, we adopted Accounting Standards Update (“ASU”) No. 2016-01, Financial Instruments (the “New Investment Standard”), which established new requirements for investments in equity securities in ASC Topic 321, Investments - Equity Securities. Accordingly, beginning in 2018, we recognize periodic changes in the fair value of all of our equity securities with a readily determinable fair value that are not accounted for using the equity method in Gains (losses) on investments, net in our Consolidated Statements of Operations. We recognize dividend income on equity securities on the ex-dividend date and report such income in Other, net in our Consolidated Statements of Operations.

Restricted Marketable Investment Securities

Restricted marketable investment securities that are pledged as collateral for our letters of credit or surety bonds are included in Other noncurrent assets, net in our Consolidated Balance Sheets. Restricted marketable securities are accounted for in the same manner as marketable securities that are not restricted, however, the restricted marketable securities are presented differently in the consolidated financial statements.

Investments in Unconsolidated Entities

Our investments in unconsolidated entities consist of investments in equity securities that are not publicly traded and do not have readily determinable fair values.

Equity Method

We use the equity method to account for investments when we have the ability to exercise significant influence on the operating decisions of the investee. Such investments in unconsolidated entities are initially recorded at cost and subsequently adjusted for our proportionate share of the net earnings or loss of the investee, which is reported in Equity in earnings (losses) of unconsolidated affiliates, net in our Consolidated Statements of Operations. The carrying amount of such investments may include a component of goodwill if the cost of our investment exceeds the fair value of the underlying identifiable assets and liabilities of the investee. Dividends received from equity method investees reduce the carrying amount of the investment.

We defer, to the extent of our ownership interest in the investee, recognition of intra-entity profits on sales of equipment to the investee until the investee has charged the cost of the equipment to expense in a subsequent sale to a third party or through depreciation. In these circumstances, we report the gross amounts of revenue and cost of sales in the Consolidated Statements of Operations and include the intra-entity profit eliminations within Equity in earnings (losses) of unconsolidated affiliates, net in our Consolidated Statements of Operations.

Other Investments

Prior to January 1, 2018, we accounted for other investments without a readily determinable fair value using the cost method. In connection with our adoption of the New Investment Standard as of January 1, 2018, we have elected to measure such investments at cost, adjusted for changes resulting from impairments and observable price changes in orderly transactions for identical or similar securities of the same issuer. We consider information in periodic financial statements and other documentation provided by our investees and we may make inquiries of investee management to determine whether observable price changes have occurred.

Impairment Considerations

We evaluate all of our investments in unconsolidated entities periodically to determine whether events or changes in circumstances have occurred that may have a significant adverse effect on the fair value of the investment. As part

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of our evaluation, we review available information such as business plans and current financial statements of these companies for factors that may indicate an impairment of our investments. Such factors may include, but are not limited to, unprofitable operations, negative cash flow, material litigation, violations of debt covenants, bankruptcy and changes in business strategy. When we determine that an investment is impaired, we adjust the carrying amount of the investment to its estimated fair value and recognize the impairment loss in Gains (losses) on investments, net in our Consolidated Statements of Operations.

Property and Equipment

Property and equipment is stated at cost, less accumulated depreciation. Depreciation is recorded on a straight-line basis over lives ranging from one to 40 years. The cost of our satellites includes construction costs, including the present value of in-orbit incentives payable to the satellite manufacturer, launch costs, capitalized interest, and related insurance premiums. Repair and maintenance costs are charged to expense when incurred. Costs of renewals and betterments are capitalized.

Impairment of Long-lived Assets

We review our long-lived assets for recoverability whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. The evaluation is performed at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. For assets held and used in operations, the asset is not recoverable if the carrying amount of the asset exceeds its undiscounted estimated future net cash flows. When an asset is not recoverable, we adjust the carrying amount of such asset to its estimated fair value and recognize the impairment loss in Net Income in our Consolidated Statements of Operations. Assets to be disposed of by sale are reported at the lower of the carrying amount or fair value less costs to sell.

Goodwill

Goodwill represents the excess of the cost of acquired businesses over the estimated fair value assigned to the identifiable assets acquired and liabilities assumed. We do not amortize goodwill, but test goodwill for impairment annually, or more frequently if circumstances indicate impairment may exist. Our goodwill as of December 31, 2018 and 2017 is assigned to reporting units of our Hughes segment. We test such goodwill for impairment in the second fiscal quarter. The goodwill impairment test involves a comparison of the fair value of a reporting unit with its carrying amount, including goodwill. We typically estimate fair value of reporting units using discounted cash flow techniques, which includes significant assumptions about prospective financial information, terminal value and discount rates (Level 3 inputs). If the reporting unit's carrying amount exceeds its estimated fair value, we recognize an impairment loss equal to such excess, not to exceed the carrying amount of goodwill. We may bypass the quantitative goodwill impairment test if we determine, based on a qualitative assessment, that it is more likely than not that the fair value of a reporting unit exceeds its carrying amount including goodwill.

Regulatory Authorizations and Other Intangible Assets

At acquisition and periodically thereafter, we evaluate our intangible assets to determine whether their useful lives are finite or indefinite. We consider our intangible assets to have indefinite lives when no significant legal, regulatory, contractual, competitive, economic, or other factors limit their useful lives.

Intangible assets that have finite lives are amortized over their estimated useful lives, ranging from approximately one to 30 years. When we expect to incur significant costs to renew or extend finite-lived intangible assets, we amortize the total initial and estimated renewal costs over the combined initial and expected renewal terms. In such instances, actual renewal costs are capitalized when they are incurred. We test intangible assets with finite lives for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable (see Impairment of Long-lived Assets above).

We do not amortize our indefinite-lived intangible assets, but test those assets for impairment annually or more frequently if circumstances indicate that it is more likely than not that the asset may be impaired. Costs incurred to maintain or renew indefinite-lived intangible assets are expensed as incurred.

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Our indefinite-lived intangible assets include Federal Communications Commission (“FCC”) authorizations and certain other contractual or regulatory rights to use spectrum at specified orbital locations (collectively “Regulatory Authorizations”). We have determined that our FCC authorizations generally have indefinite useful lives due to the following:

- FCC authorizations are non-depleting assets;
- renewal satellite applications generally are authorized by the FCC subject to certain conditions, without substantial cost under a stable regulatory, legislative, and legal environment;
- expenditures required to maintain the authorization are not significant; and
- we intend to use these authorizations indefinitely.

Our non-FCC Regulatory Authorizations consist primarily of authorizations in Europe and Brazil that we acquired in 2013 and 2012, respectively. We have determined that those Regulatory Authorizations have finite lives due to uncertainties about the ability to extend or renew their terms.

Debt Issuance Costs

Costs of issuing debt generally are deferred and amortized utilizing the effective interest method with amortization included in Interest expense, net of amounts capitalized in our Consolidated Statements of Operations. We report unamortized debt issuance costs as a reduction of the related long-term debt in our Consolidated Balance Sheets.

Income Taxes

We recognize a provision or benefit for income taxes currently payable or receivable and for income tax amounts deferred to future periods. Deferred tax assets and liabilities are recorded based on enacted tax laws for the estimated future tax effects of differences that exist between the financial reporting carrying amount and tax basis of assets and liabilities. Deferred tax assets are offset by valuation allowances when we determine it is more likely than not that such deferred tax assets will not be realized in the foreseeable future. We determine deferred tax assets and liabilities separately for each taxing jurisdiction and report the net amount for each jurisdiction as a noncurrent asset or liability in our Consolidated Balance Sheets.

From time to time, we engage in transactions where the income tax consequences are uncertain. We recognize tax benefits when, in management’s judgment, a tax filing position is more likely than not to be sustained if challenged by the tax authorities. For tax positions that meet the more-likely-than-not threshold, we may not recognize a portion of a tax benefit depending on management’s assessment of how the tax position will ultimately be settled. Unrecognized tax benefits generally are netted against the deferred tax assets associated with our net operating loss carryforwards. We adjust our estimates periodically based on ongoing examinations by and settlements with various taxing authorities, as well as changes in tax laws, regulations and precedent. We classify interest and penalties, if any, associated with our unrecognized tax benefits as a component of income tax provision or benefit.

Cost of Sales - Services and Equipment

Cost of sales - services and other in our Consolidated Statements of Operations primarily consists of costs of satellite capacity and services, hub infrastructure, customer care, wireline and wireless capacity, and direct labor costs associated with the services provided. Cost of sales - services and other generally are charged to expense as incurred.

Cost of sales - equipment in our Consolidated Statements of Operations primarily consists of inventory costs, including freight and royalties. Cost of sales - equipment generally is recognized as products are delivered to customers and related revenue is recognized.

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Research and Development

Costs incurred in research and development activities are generally expensed as incurred. A significant portion of our research and development costs are incurred in connection with the specific requirements of a customer's order. In such instances, the amounts for these customer funded development efforts are included in Cost of sales - equipment in our Consolidated Statements of Operations.

Stock-based Compensation Expense

Stock-based compensation expense is recognized based on the fair value of stock awards ultimately expected to vest. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Compensation expense for awards with service conditions only is recognized on a straight-line basis over the requisite service period for the entire award. Compensation expense for awards subject to performance conditions is recognized only when satisfaction of the performance condition is probable. We adopted ASU No. 2016-09, Improvements to Employee Share-Based Payment Accounting, prospectively as of January 1, 2017. This update requires all excess tax benefits and deficiencies to be recognized as income tax expense or benefit and permits an entity to make an entity-wide policy election to either estimate forfeitures or recognize forfeitures as they occur. Upon adoption of this standard as of January 1, 2017, we recorded a \$14 million deferred tax asset and a corresponding credit to Accumulated earnings in our Consolidated Balance Sheets for excess tax benefits that had not previously been recognized because the related tax deductions had not reduced taxes payable. We did not change our accounting policy to estimate forfeitures in determining compensation cost.

Advertising Costs

Advertising costs are expensed as incurred and are included in Selling, general and administrative expenses in Consolidated Statements of Operations.

Recently Adopted Accounting Pronouncements

Revenue Recognition and Financial Instruments

On January 1, 2018, we adopted ASU No. 2014-09, Revenue from Contracts with Customers and related amendments (collectively, the "New Revenue Standard"). The New Revenue Standard established a comprehensive new model for revenue recognition, which is codified in Topic 606 (see Revenue Recognition above), and provided guidance for certain costs associated with customer contracts. We adopted the New Revenue Standard using the modified retrospective method for contracts that were not completed as of January 1, 2018. Accordingly, comparative information for prior periods has not been restated and continues to be reported under the accounting standards in effect for those periods. Upon adoption of the New Revenue Standard, we recognized the cumulative effect of its initial application as a net increase to Accumulated earnings in our Consolidated Balance Sheets of \$23 million, net of related income taxes. The adoption of the New Revenue Standard also impacted the timing of recognition of certain fees charged to our customers in our consumer markets; however, the adoption has not had, and we do not expect it to have, a material impact on the overall timing or amount of revenue recognition.

The primary impacts of the New Revenue Standard on our operating results relate to how we account for sales incentive costs. Historically, we charged sales incentives to expense as incurred, except for incentives related to the

consumer business in our Hughes segment, which were initially deferred and subsequently amortized over the related service agreement term. Under the New Revenue Standard, we continue to defer incentives for our consumer business; however, we now amortize those incentives over the estimated customer life, which includes expected contract renewal periods. In addition, we now defer certain sales incentives related to other businesses in our Hughes segment and amortize those incentives over the related service agreement term. As a result of these changes, we have recognized additional contract acquisition costs on our Consolidated Balance Sheets and the costs generally are recognized as expenses over a longer period of time in our Consolidated Statements of Operations. The adoption of the New Revenue Standard by an unconsolidated entity had a similar impact on our investment in the unconsolidated entity, which we account for using the equity method.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Additionally, on January 1, 2018, we prospectively adopted the applicable requirements of the New Investment Standard. The New Investment Standard substantially revises standards for the recognition, measurement and presentation of financial instruments, including requiring all equity investments, except for investments in consolidated subsidiaries and investments accounted for using the equity method, to be measured at fair value with changes in the fair value recognized through earnings. The New Investment Standard permits an entity to elect to measure an equity security without a readily determinable fair value at its cost, adjusted for changes resulting from impairments and observable price changes in orderly transactions for identical or similar securities of the same issuer. It also amends certain disclosure requirements associated with equity investments and the fair value of financial instruments. Upon adoption of the New Investment Standard on January 1, 2018, we recorded a \$10 million charge to Accumulated earnings to include net unrealized losses on our marketable equity securities then designated as available-for-sale, which previously were recorded in Accumulated other comprehensive loss in our Consolidated Balance Sheets. For our equity investments without a readily determinable fair value that were previously accounted for using the cost method, we have elected to measure such securities at cost, adjusted for impairments and observable price changes. We expect our future net income or loss to be more volatile as a result of these changes in accounting for our investments in equity securities that were previously accounted for as available-for-sale or using the cost method.

The cumulative effects of changes to the impacted line items on our Consolidated Balance Sheets as of January 1, 2018 for the adoption of these standards were as follows:

	Balance at December 31, 2017	Adjustments Due to		Balance at January 1, 2018
		the New Revenue Standard	New Investment Standard	
	(In thousands)			
Assets:				
Trade accounts receivable and contract assets, net	\$ 196,840	\$(7,103)	\$ —	\$ 189,737
Other current assets	\$ 91,671	\$ 533	\$ —	\$ 92,204
Investments in unconsolidated entities	\$ 161,427	\$ 6,917	\$ —	\$ 168,344
Other noncurrent assets, net	\$ 214,814	\$ 22,545	\$ —	\$ 237,359
Total assets	\$ 8,750,014	\$ 22,892	\$ —	\$ 8,772,906
Liabilities:				
Contract liabilities	\$ 65,959	\$(1,542)	\$ —	\$ 64,417
Accrued expenses and other	\$ 82,647	\$ 255	\$ —	\$ 82,902
Deferred tax liabilities, net	\$ 436,023	\$ 5,124	\$ —	\$ 441,147
Other noncurrent liabilities	\$ 128,503	\$(4,068)	\$ —	\$ 124,435
Total liabilities	\$ 4,572,629	\$(231)	\$ —	\$ 4,572,398
Stockholders' Equity:				
Accumulated other comprehensive income (loss)	\$(130,154)	\$ —	\$ 10,467	\$(119,687)
Accumulated earnings (losses)	\$ 721,316	\$ 23,123	\$(10,467)	\$ 733,972
Total stockholders' equity	\$ 4,177,385	\$ 23,123	\$ —	\$ 4,200,508
Total liabilities and stockholders' equity	\$ 8,750,014	\$ 22,892	\$ —	\$ 8,772,906

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Our adoption of these standards impacted the referenced line items on our Consolidated Balance Sheets, Statement of Operations and Statements of Comprehensive Income (Loss) as follows:

Balance Sheet	As of December 31, 2018			Balances If We Had Not Adopted the New Standards
	As Reported	Adjustments Due to the New Revenue Standard	New Investment Standard	
	(In thousands)			
Assets:				
Trade accounts receivable and contract assets, net	\$201,096	\$8,379	\$—	\$209,475
Other current assets	\$18,539	\$(533)	\$—	\$18,006
Investments in unconsolidated entities	\$262,473	\$(5,639)	\$—	\$256,834
Other noncurrent assets, net	\$263,892	\$(35,314)	\$—	\$228,578
Total assets	\$8,661,294	\$(33,107)	\$—	\$8,628,187
Liabilities:				
Contract liabilities	\$72,284	\$878	\$—	\$73,162
Accrued expenses and other	\$72,470	\$(255)	\$—	\$72,215
Deferred tax liabilities, net	\$465,933	\$(6,976)	\$—	\$458,957
Other noncurrent liabilities	\$121,546	\$1,635	\$—	\$123,181
Total liabilities	\$4,505,820	\$(4,718)	\$—	\$4,501,102
Stockholders' Equity:				
Accumulated other comprehensive income (loss)	\$(125,100)	\$—	\$20,064	\$(105,036)
Accumulated earnings (losses)	\$694,129	\$(28,389)	\$(20,064)	\$645,676
Total stockholders' equity	\$4,155,474	\$(28,389)	\$—	\$4,127,085
Total liabilities and stockholders' equity	\$8,661,294	\$(33,107)	\$—	\$8,628,187

Comprehensive income (loss) attributable to EchoStar Corporation	\$(44,499)	\$(5,266)	\$—	\$(49,765)
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Restricted Cash and Cash Equivalents

ASU No. 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash requires restricted cash and restricted cash equivalents to be included with cash and cash equivalents in our Statement of Cash Flows. We adopted ASU No. 2016-18 as of January 1, 2018. As a result, the beginning and ending balances of cash and cash equivalents presented in our Consolidated Statements of Cash Flows include amounts for restricted cash and cash equivalents, which historically were not included in such balances, and receipts and payments of restricted cash and cash equivalents, exclusive of transfers to and from unrestricted accounts, are reported in our Consolidated Statements of Cash Flows. The adoption of this accounting standard did not have a material impact on our Statements of Cash Flows and related disclosures.

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Leases

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842). This standard requires lessees to recognize assets and liabilities for all leases with lease terms greater than 12 months, including leases classified as operating leases. The standard also modifies the definition of a lease and the criteria for classifying leases as operating, finance or sales-type leases and requires certain additional disclosures. ASU No. 2016-02 is effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years. The new standard, as amended in July 2018, may be applied either on a modified retrospective basis or prospectively as of the adoption date without restating prior periods, with certain practical expedients available. We adopted the new standard prospectively as of January 1, 2019 and elected certain practical expedients permitted under the new standard's transition guidance. This allows us to carry forward the historical lease classification and to not reassess the lease term for leases in existence as of the adoption date and to carry forward our historical accounting treatment for land easements on agreements existing on the adoption date. We also made policy elections for certain classes of underlying assets to not separate lease and non-lease components in a contract as permitted under the new standard.

We currently lease real estate and equipment from third parties under operating leases and we lease certain satellites from third parties under capital leases. We also lease satellites, real estate and equipment to some of our customers. Upon adoption of the new standard, we recognized right-of-use assets and liabilities related to substantially all operating leases where we are the lessee. While our work is not finalized, we expect that the aggregate increase in our operating lease assets and liabilities will be approximately 1% of total assets as of January 1, 2019.

Our accounting for capital leases was not significantly impacted on the adoption date. Based on our transition method, practical expedients and policy elections, our leases existing as of the adoption date will continue to be reported in our Consolidated Statements of Operations in accordance with current accounting standards throughout their remaining terms unless the leases are modified. However, all leases entered into or modified after the adoption date will be accounted for in accordance with the new standard. The classification of those leases as operating, finance or sales type may be impacted by the new standard and affect our future operating results and the classification of our cash flows.

Recently Issued Accounting Pronouncements Not Yet Adopted

Credit Losses

In June 2016, the FASB issued ASU No. 2016-13, Measurement of Credit Losses on Financial Instruments, which introduces a new approach to estimate credit losses on certain types of financial instruments based on expected losses instead of incurred losses. It also modifies the impairment model for available-for-sale debt securities and provides a simplified accounting model for purchased financial assets with credit deterioration since their origination. ASU No. 2016-13 is effective for fiscal years beginning after December 15, 2019 and interim periods within those fiscal years. Early adoption is permitted. We are currently assessing the impact of adopting this new accounting standard on our Consolidated Financial Statements and related disclosures.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 3. REVENUE RECOGNITION

Information About Contract Balances

The following table provides information about our contract balances with customers, including amounts for certain embedded leases.

	As of	
	December 31,	January 1,
	2018	2018
	(In thousands)	
Trade accounts receivable:		
Sales and services	\$ 154,415	\$ 156,794
Leasing	7,990	10,355
Total	162,405	167,149
Contract assets	55,295	34,615
Allowance for doubtful accounts	(16,604)	(12,027)
Total trade accounts receivable and contract assets, net	\$ 201,096	\$ 189,737
Trade accounts receivable - DISH Network:		
Sales and services	\$ 12,274	\$ 16,118
Leasing	1,926	27,177
Total trade accounts receivable - DISH Network, net	\$ 14,200	\$ 43,295
Contract liabilities:		
Current	\$ 72,284	\$ 64,417
Noncurrent	10,133	13,036
Total contract liabilities	\$ 82,417	\$ 77,453

For the year ended December 31, 2018, we recognized revenue of \$52 million that was previously included in the contract liability balance at January 1, 2018.

Our bad debt expense was \$25 million, \$10 million and \$14 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Transaction Price Allocated to Remaining Performance Obligations

As of December 31, 2018, the remaining performance obligations for our customer contracts with original expected durations of more than one year was \$939 million. We expect to recognize approximately 35.7% of our remaining performance obligations of these contracts as revenue in the next twelve months. This amount excludes agreements with consumer customers in our Hughes segment and our leasing arrangements.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Disaggregation of Revenue

In the following tables, revenue is disaggregated by segment, primary geographic market, nature of the products and services and transactions with major customers.

Geographic Information

The following table disaggregates revenue from customer contracts attributed to our North America (the U.S and its territories, Mexico and Canada), South and Central America and other foreign locations as well as by segment, based on the location where the goods or services are provided. All other revenue includes transactions with customers in Asia, Africa, Australia, Europe, and the Middle East.

	Hughes	ESS	Corporate and Other	Consolidated Total
	(In thousands)			
For the year ended December 31, 2018				
North America	\$1,444,628	\$357,357	\$17,478	\$1,819,463
South and Central America	101,632	—	—	101,632
All other	170,268	701	(701)	170,268
Total revenue	\$1,716,528	\$358,058	\$16,777	\$2,091,363

Nature of Products and Services

The following table disaggregates revenue based on the nature of products and services and by segment.

	Hughes	ESS	Corporate and Other	Consolidated Total
	(In thousands)			
For the year ended December 31, 2018				
Equipment	\$119,657	\$—	\$—	\$119,657
Services	1,313,059	24,113	18,908	1,356,080
Design, development and construction services	85,753	—	—	85,753
Revenue from sales and services	1,518,469	24,113	18,908	1,561,490
Leasing income	198,059	333,945	(2,131)	529,873
Total revenue	\$1,716,528	\$358,058	\$16,777	\$2,091,363

During the fourth quarter of 2018, we reclassified our revenue among the categories above applicable for the full year.

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NOTE 4. DISCONTINUED OPERATIONS

On February 28, 2017, EchoStar Corporation and certain of our subsidiaries consummated the Share Exchange, pursuant to which, among other things, we received all of the shares of the Tracking Stock in exchange for 100% of the equity interests of certain of our subsidiaries that held substantially all of our former EchoStar Technologies businesses and certain other assets. Following the consummation of the Share Exchange, we no longer operate our former EchoStar Technologies businesses, the Tracking Stock was retired and is no longer outstanding, and all agreements, arrangements and policy statements with respect to the Tracking Stock terminated.

As a result of the Share Exchange, the historical financial results of our EchoStar Technologies segment prior to the closing of the Share Exchange are reflected in our accompanying Consolidated Financial Statements as discontinued operations and, as such, have been excluded from continuing operations and segment results for all periods presented. The noncontrolling interest in HSS Tracking Stock, as reflected in our stockholders' equity, was extinguished as of February 28, 2017 as a result of the Share Exchange.

We have had de minimis activity from our discontinued operations for the year ended December 31, 2018. The following table presents the operating results of our discontinued operations for the years ended December 31, 2017 and 2016:

	For the years ended December 31,	
	2017	2016
	(In thousands)	
Revenue:		
Equipment, services and other revenue - DISH Network	\$143,118	\$1,127,610
Equipment, services and other revenue - other	10,344	118,654
Total revenue	153,462	1,246,264
Costs and expenses:		
Cost of equipment, services and other	121,967	1,010,421
Selling, general and administrative expenses	5,439	60,590
Research and development expenses	4,635	44,854
Depreciation and amortization	11,659	62,164
Total costs and expenses	143,700	1,178,029
Operating income	9,762	68,235
Other income (expense):		
Interest expense	(15) (144
Equity in earnings (losses) of unconsolidated affiliates, net	(1,159) 2,508
Other, net	(57) (381
Total income (expense), net	(1,231) 1,983
Income from discontinued operations before income taxes	8,531	70,218
Income tax provision	(22) (25,898
Net income from discontinued operations	\$8,509	\$44,320

Expenditures for property and equipment from our discontinued operations totaled \$12 million and \$70 million for the years ended December 31, 2017 and 2016, respectively.

Total assets and total liabilities of the discontinued operations were \$0.1 million and \$1 million, respectively, as of December 31, 2017.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 5. EARNINGS PER SHARE

We present basic earnings or losses per share (“EPS”) and diluted EPS for our Class A and Class B common stock. Basic EPS for our Class A and Class B common stock excludes potential dilution and is computed by dividing Net income (loss) attributable to EchoStar Corporation common stock by the weighted-average number of common shares outstanding for the period. Diluted EPS reflects the potential dilution that could occur if shares of common stock were issued pursuant to our stock-based compensation awards. The potential dilution from common stock awards was computed using the treasury stock method based on the average market value of our Class A common stock during the period. The calculation of our diluted weighted-average common shares outstanding excluded options to purchase shares of our Class A common stock, whose effect would be anti-dilutive, of 1 million and 4 million shares for the years ended December 31, 2017 and 2016, respectively.

The following table presents basic and diluted EPS amounts for all periods and the corresponding weighted-average shares outstanding used in the calculations.

	For the years ended December 31,		
	2018	2017	2016
	(In thousands, except per share amounts)		
Amounts attributable to EchoStar Corporation common stock:			
Net income from continuing operations	\$(40,475)	\$ 385,261	\$ 137,353
Net income from discontinued operations	—	8,509	44,320
Net income (loss) attributable to EchoStar Corporation common stock	\$(40,475)	\$ 393,770	\$ 181,673
Weighted-average common shares outstanding:			
Basic	96,250	95,425	93,795
Dilutive impact of stock awards outstanding	—	1,316	615
Diluted	96,250	96,741	94,410
Earnings per share:			
Basic:			
Continuing operations	\$(0.42)	\$ 4.04	\$ 1.46
Discontinued operations	—	0.09	0.48
Total basic earnings (loss) per share	\$(0.42)	\$ 4.13	\$ 1.94
Diluted:			
Continuing operations	\$(0.42)	\$ 3.98	\$ 1.45
Discontinued operations	—	0.09	0.47
Total diluted earnings (loss) per share	\$(0.42)	\$ 4.07	\$ 1.92

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 6. OTHER COMPREHENSIVE INCOME (LOSS) AND RELATED TAX EFFECTS

The changes in the balances of Accumulated other comprehensive loss by component were as follows:

	Cumulative Foreign Currency Translation Losses	Unrealized Gain (Loss) On Available-For-Sale Securities	Other	Accumulated Other Comprehensive Loss
	(In thousands)			
Balance, December 31, 2016	\$ (135,434)	\$ 10,646	\$ (15)	\$ (124,803)
Other comprehensive income before reclassifications	16,004	(21,987)	92	(5,891)
Amounts reclassified to net income	—	540	—	540
Other comprehensive income (loss)	16,004	(21,447)	92	(5,351)
Balance, December 31, 2017	(119,430)	(10,801)	77	(130,154)
Cumulative effect of adoption of the New Investment Standard	—	10,467	—	10,467
Balance, January 1, 2018	(119,430)	(334)	77	(119,687)
Other comprehensive loss before reclassifications	(34,399)	(962)	(1,910)	(37,271)
Amounts reclassified to net income	32,136	(278)	—	31,858
Other comprehensive loss	(2,263)	(1,240)	(1,910)	(5,413)
Balance, December 31, 2018	\$ (121,693)	\$ (1,574)	\$ (1,833)	\$ (125,100)

The amounts reclassified to net income related to unrealized gain or loss on available-for-sale securities in the table above are included in Gains (losses) on investments, net in our Consolidated Statements of Operations.

Except in unusual circumstances, we do not recognize tax effects on foreign currency translation adjustments because they are not expected to result in future taxable income or deductions.

Other comprehensive income includes deferred tax benefits for foreign currency translation losses related to assets that were transferred from a foreign subsidiary to a domestic subsidiary of \$7 million for year ended December 31, 2017. There were no similar transactions in 2018 or 2016.

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NOTE 7. MARKETABLE INVESTMENT SECURITIES

Overview

Our marketable investment securities portfolio consists of various debt and equity instruments summarized in the table below. Certain of our investments in debt and equity instruments have historically experienced and are likely to continue experiencing volatility.

	As of December 31,	
	2018	2017
	(In thousands)	
Marketable investment securities:		
Debt securities:		
Corporate bonds	\$1,735,653	\$542,573
Other debt securities	464,997	142,036
Total debt securities	2,200,650	684,609
Equity securities	90,976	139,571
Total marketable investment securities	2,291,626	824,180
Less: Restricted marketable investment securities	9,474	10,019
Total marketable investment securities - current	\$2,282,152	\$814,161

Debt Securities

Our corporate bond portfolio includes debt instruments issued by individual corporations, primarily in the industrial and financial services industries. Our other debt securities portfolio includes investments in various debt instruments, including U.S. government bonds, commercial paper and mutual funds.

A summary of our available-for-sale debt securities, exclusive of securities where we have elected the fair value option, is presented in the table below.

	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
	(In thousands)			
As of December 31, 2018				
Corporate bonds	\$1,689,093	\$318	\$(1,896)	\$1,687,515
Other debt securities	464,993	7	(3)	464,997
Total available-for-sale debt securities	\$2,154,086	\$325	\$(1,899)	\$2,152,512
As of December 31, 2017				
Corporate bonds	\$542,861	\$—	\$(288)	\$542,573
Other debt securities	142,082	—	(46)	142,036
Total available-for-sale debt securities	\$684,943	\$—	\$(334)	\$684,609

As of December 31, 2018, corporate bonds where we have elected the fair value option have a fair value of \$48 million. We recognized gains of \$4 million on these securities for the year ended December 31, 2018. We had no debt securities that were accounted for using the fair value option during the year ended December 31, 2017.

As of December 31, 2018, we have \$1.6 billion of available-for-sale debt securities with contractual maturities of one year or less and \$512 million with contractual maturities greater than one year.

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Equity Securities

Our marketable equity securities consist primarily of shares of common stock of public companies. Prior to January 1, 2018, we classified our marketable equity securities as available-for-sale or trading securities, depending on our investment strategy for the securities. As of December 31, 2017, our marketable equity securities consisted of available-for-sale securities with a fair value of \$87 million and trading securities with a fair value of \$53 million. Our available-for-sale securities as of December 31, 2017 reflected an adjusted cost basis of \$97 million and unrealized gains and losses of \$8 million and \$18 million, respectively. Substantially all unrealized losses on our available-for-sale securities related to securities that were in a continuous loss position for less than 12 months. We recognized a \$3 million other-than-temporary impairment for the year ended December 31, 2017 on one of our available-for-sale securities which had experienced a decline in market value as a result of adverse developments during the year ended December 31, 2017.

For the years ended December 31, 2017 and 2016, Gains (losses) on investments, net in our Consolidated Statements of Operations included gains of \$43 million and \$1 million, respectively, related to trading securities that we held as of December 31, 2017 and 2016, respectively. The fair values of our trading securities were \$47 million and \$7 million as of December 31, 2017 and 2016, respectively.

Upon adoption of the New Investment Standard as of January 1, 2018 (see Note 2), we account for investments in equity securities at their fair value and we recognize unrealized gains and losses in Gains (losses) on investments, net in our Consolidated Statements of Operations. For the year ended December 31, 2018, Gains (losses) on investments, net in our Consolidated Statements of Operations included net losses of \$17 million related to equity securities that we held as of December 31, 2018. The fair value of our equity securities was \$91 million as of December 31, 2018.

Sales of Available-for-Sale Securities

Proceeds from sales of our available-for-sale securities, including securities accounted for using the fair value option, were \$151 million, \$31 million and \$80 million for the years ended December 31, 2018, 2017 and 2016, respectively. We recognized gains as a result of such sales of nil, \$3 million and \$6 million for the years ended December 31, 2018, 2017 and 2016, respectively. Sales of securities accounted for using the fair value option do not result in gains or losses because we recognize unrealized gains and losses on such securities prior to the time of sale.

Fair Value Measurements

Our marketable investment securities are measured at fair value on a recurring basis as summarized in the table below. As of December 31, 2018 and 2017, we did not have investments that were categorized within Level 3 of the fair value hierarchy.

	As of December 31, 2018			2017		
	Level 1	Level 2	Total	Level 1	Level 2	Total
	(In thousands)					
Debt securities:						
Corporate bonds	\$—	\$1,735,653	\$1,735,653	\$—	\$542,573	\$542,573
Other debt securities	9,474	455,523	464,997	13,311	128,725	142,036
Total debt securities	9,474	2,191,176	2,200,650	13,311	671,298	684,609

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Equity securities	85,298	5,678	90,976	133,736	5,835	139,571
Total marketable investment securities	\$94,772	\$2,196,854	\$2,291,626	\$147,047	\$677,133	\$824,180

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NOTE 8. INVENTORY

Our inventory consisted of the following:

	As of December 31,	
	2018	2017
	(In thousands)	
Raw materials	\$ 4,856	\$ 5,484
Work-in-process	13,901	7,442
Finished goods	56,622	70,669
Total inventory	\$ 75,379	\$ 83,595

NOTE 9. PROPERTY AND EQUIPMENT

Property and equipment consisted of the following:

	Depreciable Life In Years	As of December 31,	
		2018	2017
		(In thousands)	
Land	—	\$33,606	\$33,713
Buildings and improvements	1 to 40	174,227	185,148
Furniture, fixtures, equipment and other	1 to 12	812,566	736,533
Customer rental equipment	2 to 4	1,159,977	929,775
Satellites - owned	2 to 15	2,816,628	3,064,391
Satellites - acquired under capital leases	10 to 15	1,051,110	916,820
Construction in progress	—	307,026	260,220
Total property and equipment		6,355,140	6,126,600
Accumulated depreciation		(2,940,232)	(2,661,129)
Property and equipment, net		\$3,414,908	\$3,465,471

As of December 31, 2018 and 2017, accumulated depreciation included amounts for satellites acquired under capital leases of \$468 million and \$394 million, respectively.

Construction in progress consisted of the following:

	As of December 31,	
	2018	2017
	(In thousands)	
Progress amounts for satellite construction, including prepayments under capital leases and launch services costs	\$277,583	\$211,765
Satellite related equipment	13,001	28,358
Other	16,442	20,097
Construction in progress	\$307,026	\$260,220

Construction in progress as of December 31, 2018 included our EchoStar XXIV satellite, which is expected to launch in 2021. In August 2017, we entered into a contract for the design and construction of the EchoStar XXIV, a new, next-generation, high throughput geostationary satellite, with a planned 2021 launch. The EchoStar XXIV satellite is primarily intended to provide additional capacity for our HughesNet service in North, Central and South America as

well as aeronautical and enterprise broadband services. The Federal Communications Commission (“FCC”) granted authorization to construct, deploy and operate the EchoStar XXIV satellite. In the second half of 2018, Maxar

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Technologies Inc. (“Maxar”), the parent company of Space Systems/Loral (“SSL”), the manufacturer of our EchoStar XXIV satellite, announced that it was reviewing strategic alternatives for its geostationary communications satellite business to improve its financial performance and that it was in active discussions with potential buyers of the business. SSL has indicated to us that it intends to meet its contractual obligations regarding the timely manufacture and delivery of the EchoStar XXIV satellite. However, if SSL or any potential successor fails to meet or is delayed in meeting these obligations for any reason, including if Maxar decides to discontinue, wind down or otherwise significantly modify its geostationary communications satellite business, such failure could have a material adverse impact on our business operations, future revenues, financial position and prospects, completing the manufacture of the EchoStar XXIV satellite and our planned expansion of satellite broadband services throughout North, South and Central America.

We recorded capitalized interest related to our satellites, satellite payloads and related ground facilities under construction of \$18 million, \$52 million and \$94 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Depreciation expense associated with our property and equipment consisted of the following:

	For the years ended December 31,		
	2018	2017	2016
	(In thousands)		
Buildings and improvements	\$ 11,596	\$ 17,285	\$ 7,505
Furniture, fixtures, equipment and other	83,746	72,387	64,767
Customer rental equipment	174,749	146,562	114,568
Satellites	285,206	239,072	191,729
Total depreciation expense	\$ 555,297	\$ 475,306	\$ 378,569

Satellites depreciation expense includes amortization of satellites under capital lease agreements of \$76 million, \$66 million and \$56 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Satellites

As of December 31, 2018, our satellite fleet consisted of 18 satellites, 13 of which are owned and five of which are leased. They are all in geosynchronous orbit, approximately 22,300 miles above the equator. We depreciate our owned satellites on a straight-line basis over the estimated useful life of each satellite. We depreciate our leased satellites on a straight-line basis over their respective lease terms.

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Our operating satellite fleet consists of both owned and leased satellites detailed in the table below as of December 31, 2018.

Satellites	Segment	Launch Date	Nominal Degree Orbital Location (Longitude)	Depreciable Life In Years
Owned:				
SPACEWAY 3 (1)	Hughes	August 2007	95 W	12
EchoStar XVII	Hughes	July 2012	107 W	15
EchoStar XIX	Hughes	December 2016	97.1 W	15
EchoStar VII (2)(3)(4)	ESS	February 2002	119 W	3
EchoStar IX (2)(4)	ESS	August 2003	121 W	12
EchoStar X (2)(3)	ESS	February 2006	110 W	7
EchoStar XI (2)(3)	ESS	July 2008	110 W	9
EchoStar XII (2)(4)(5)	ESS	July 2003	86.4 W	2
EchoStar XIV (2)(3)	ESS	March 2010	119 W	11
EchoStar XVI (2)	ESS	November 2012	61.5 W	15
EchoStar XXI	Corporate and Other	June 2017	10.25 E	15
EchoStar XXIII	Corporate and Other	March 2017	45 W	15
EUTELSAT 10A ("W2A") (6)	Corporate and Other	April 2009	10 E	—
Capital Leases:				
Eutelsat 65 West A	Hughes	March 2016	65 W	15
Telesat T19V	Hughes	July 2018	63 W	15
Nimiq 5 (2)	ESS	September 2009	72.7 W	15
QuetzSat-1 (2)	ESS	September 2011	77 W	10
EchoStar 105/SES-11	ESS	October 2017	105 W	15

(1) Depreciable life represents the remaining useful life as of June 8, 2011, the date EchoStar completed its acquisition of Hughes Communications, Inc. and its subsidiaries (the "Hughes Acquisition").

(2) See Note 20 for discussion of related party transactions with DISH Network.

(3) Depreciable life represents the remaining useful life as of March 1, 2014, the effective date of our receipt of the satellites from DISH Network as part of the Satellite and Tracking Stock Transaction (See Note 20).

(4) Fully depreciated assets as of December 31, 2018.

(5) Depreciable life represents the remaining useful life as of June 30, 2013, the date the EchoStar XII satellite was impaired.

(6) The Company acquired the S-band payload on this satellite, which prior to the acquisition in December 2013, experienced an anomaly at the time of the launch. As a result, the S-band payload is not fully operational.

Recent Developments

EchoStar I and EchoStar VI. The EchoStar I and EchoStar VI satellites were removed from their orbital locations and retired from commercial service in January 2018 and May 2018, respectively. The retirement of these satellites has not had, and is not expected to have, a material impact on our results of operations or financial position.

EchoStar 105/SES-11. The EchoStar 105/SES-11 satellite was launched in October 2017 and was placed into service in November 2017 at the 105 degree west longitude orbital location. Pursuant to agreements that we entered into in August 2014, we funded substantially all construction, launch and other costs associated with the EchoStar 105/SES-11 satellite and transferred the C-, Ku- and Ka-band payloads to two affiliates of SES Americom, Inc. (“SES”) after the launch date, while retaining the right to use the entire Ku-band payload on the satellite for an initial ten-year term, with an option for us to renew the agreement on a year-to-year basis. In October 2017, we recorded a \$77 million receivable from SES in Other current assets in the Consolidated Balance Sheets, representing capitalized costs allocable to

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certain satellite payloads controlled by SES, and we reduced our carrying amount of the satellite by such amount. In January 2018, we received payment from SES for the receivable plus accrued interest. Our leased Ku-band payload on the EchoStar 105/SES-11 satellite has replaced the capacity we had on the AMC-15 satellite.

Telesat T19V. In September 2015, we entered into agreements pursuant to which affiliates of Telesat Canada will provide to us Ka-band capacity on the Telesat T19V satellite at the 63 degree west longitude orbital location for a 15-year term. The Telesat T19V satellite was launched in July 2018 and placed into service in October 2018. This satellite augments the capacity being provided by the EUTELSAT 65 West A and EchoStar XIX satellites in Central and South America.

Satellite Anomalies and Impairments

Our satellites may experience anomalies from time to time, some of which may have a significant adverse effect on their remaining useful lives, the commercial operation of the satellites or our operating results or financial position. We are not aware of any anomalies with respect to our owned or leased satellites that have had any such significant adverse effect during the year ended December 31, 2018. There can be no assurance, however, that anomalies will not have any such adverse effects in the future. In addition, there can be no assurance that we can recover critical transmission capacity in the event one or more of our satellites were to fail.

The EchoStar X satellite experienced anomalies in the past which affected seven solar array circuits. In December 2017, the satellite experienced anomalies which affected one additional solar array circuit reducing the number of functional solar array circuits to 16. As a result of these anomalies, we had a reduction in revenue of \$4 million for the year ended December 31, 2018.

We historically have not carried in-orbit insurance on our satellites because we have assessed that the cost of insurance is not economical relative to the risk of failures. Therefore, we generally bear the risk of any in-orbit failures. Pursuant to the terms of the agreements governing certain portions of our indebtedness, we are required, subject to certain limitations on coverage, to maintain in-orbit insurance for our SPACEWAY 3, EchoStar XVI and EchoStar XVII satellites. Our other satellites, either in orbit or under construction, are not covered by launch or in-orbit insurance. We will continue to assess circumstances going forward and make insurance decisions on a case-by-case basis.

We evaluate our satellites for impairment and test for recoverability whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Certain of the anomalies previously disclosed may be considered to represent a significant adverse change in the physical condition of a particular satellite. However, based on the redundancy designed within each satellite, certain of these anomalies are not necessarily considered to be significant events that would require a test of recoverability.

NOTE 10. GOODWILL, REGULATORY AUTHORIZATIONS AND OTHER INTANGIBLE ASSETS

Goodwill

The excess of the cost of an acquired business over the fair values of net tangible and identifiable intangible assets at the time of the acquisition is recorded as goodwill. Goodwill is assigned to the reporting units within our operating segments and is subject to impairment testing annually, or more frequently when events or changes in circumstances

indicate the fair value of a reporting unit is more likely than not less than its carrying amount.

As of December 31, 2018 and 2017, all of our goodwill was assigned to reporting units of our Hughes segment. We test this goodwill for impairment annually in the second quarter. Based on our impairment testing in the second quarter of 2018, our goodwill is considered to be not impaired.

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Regulatory Authorizations

Regulatory Authorizations included amounts with both finite and indefinite useful lives, as follows:

	As of December 31, 2017 (In thousands)	Additions	Impairment	Currency Translation Adjustment	As of December 31, 2018
Finite useful lives:					
Cost	\$92,621	\$—	\$ (37,476)	\$ (8,358)	\$ 46,787
Accumulated amortization	(21,342)	(5,190)	7,848	1,894	(16,790)
Net	71,279	(5,190)	(29,628)	(6,464)	29,997
Indefinite lives	465,657	—	—	—	465,657
Total regulatory authorizations, net	\$536,936	\$(5,190)	\$(29,628)	\$(6,464)	\$ 495,654

Amortization expense for the Regulatory Authorizations with finite lives was \$5 million for each of the years ended December 31, 2018, 2017 and 2016, respectively.

Prior to the fourth quarter of 2017, our Regulatory Authorizations with indefinite lives included \$6 million for contractual rights to utilize certain frequencies, in addition to those specified in the Brazilian license, at the 45 degree west longitude orbital location. We acquired such contractual rights in 2012 and have evaluated potential opportunities to utilize the frequencies in conjunction with our Brazilian license. We determined in the fourth quarter of 2017 that certain actions required to utilize the frequencies had become impractical with the passage of time. As a result of these circumstances, we determined that the fair value of such contractual rights was de minimis and we recognized a \$6 million impairment loss in our ESS segment in the fourth quarter of 2017.

In January 2019, we determined that we are not able to develop a business using our 45 degree west longitude regulatory authorization. We determined that the fair value of this authorization and certain related ground infrastructure have a fair value that is de minimus and we have recognized a loss on those assets of \$33 million. In addition we have included a loss related to foreign currency of \$32 million as a result of the in-substance liquidation of our business related to the 45 degree west longitude regulatory authorization.

Other Intangible Assets

Our other intangible assets, which are subject to amortization, consisted of the following:

	Weighted Average Useful Life (in Years)	As of December 31, 2018		2017			
		Cost	Accumulated Amortization	Carrying Amount	Cost	Accumulated Amortization	Carrying Amount
		(In thousands)					
Customer relationships	8	\$270,300	\$(244,787)	\$25,513	\$270,300	\$(231,642)	\$38,658
Technology-based	6	61,283	(61,004)	279	61,300	(60,927)	373
Trademark portfolio	20	29,700	(11,261)	18,439	29,700	(9,776)	19,924
Total other intangible assets		\$361,283	\$(317,052)	\$44,231	\$361,300	\$(302,345)	\$58,955

Customer relationships are amortized predominantly in relation to the expected contribution of cash flow to the business over the life of the intangible asset. Other intangible assets are amortized on a straight-line basis over the periods the assets are expected to contribute to our cash flows. Intangible asset amortization expense, including amortization of regulatory authorizations with finite lives and externally marketed capitalized software, was \$43 million, \$47 million and \$54 million for the years ended December 31, 2018, 2017 and 2016, respectively.

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Future Amortization

As of December 31, 2018, our estimated future amortization of intangible assets, including regulatory authorizations with finite lives, was as follows:

	Amount (In thousands)
For the years ending December 31,	
2019	\$ 18,304
2020	14,663
2021	8,029
2022	5,065
2023	5,065
Thereafter	23,102
Total	\$ 74,228

NOTE 11. INVESTMENTS IN UNCONSOLIDATED ENTITIES

We have strategic investments in certain non-publicly traded equity securities that do not have a readily determinable fair value. We account for most of these investments using the equity method. We accounted for other investments in such equity securities using the cost method of accounting prior to January 1, 2018. In connection with our adoption of the New Investment Standard effective January 1, 2018 (see Note 2), we elected to measure our equity securities without a readily determinable fair value, other than those accounted for using the equity method, at cost adjusted for changes resulting from impairments, if any, and observable price changes in orderly transactions for the identical or similar securities of the same issuer. For the year ended December 31, 2018, we did not identify any observable price changes requiring an adjustment to our investments.

Our investments in unconsolidated entities consisted of the following:

	As of December 31,	
	2018	2017
	(In thousands)	
Investments in unconsolidated entities:		
Equity method	\$ 182,035	\$ 91,702
Other equity investments without a readily determinable fair value	80,438	69,725
Total investments in unconsolidated entities	\$ 262,473	\$ 161,427

As of December 31, 2018, our aggregate investment in our equity method investees exceeded our proportionate share of the net assets of the investees by \$24 million. This difference is attributable to goodwill recorded at acquisition and certain adjustments related to intra-entity transactions subsequent to acquisition.

We recorded cash distributions from our investments accounted for using the equity method of \$10 million, \$19 million and \$10 million for the years ended December 31, 2018, 2017 and 2016, respectively. These cash distributions were determined to be a return on investment and reported in cash flows from operating activities in our consolidated statements of cash flows.

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A summary of financial information for Dish Mexico and our equity method investees in the aggregate is as follows:

	As of December 31,			
	2018		2017	
	Dish	Aggregate	Dish	Aggregate
	Mexico		Mexico	
	(In thousands)			
Balance sheet data:				
Current assets	\$ 147,140	\$ 162,593	\$ 146,851	\$ 172,234
Noncurrent assets	187,130	188,077	185,345	187,067
Total assets	\$ 334,270	\$ 350,670	\$ 332,196	\$ 359,301

Current liabilities	\$ 128,708	\$ 129,837	\$ 129,087	\$ 130,443
Noncurrent liabilities	109,643	110,460	109,428	110,472
Total liabilities	\$ 238,351	\$ 240,297	\$ 238,515	\$ 240,915

	As of December 31,					
	2018		2017		2016	
	Dish	Aggregate	Dish	Aggregate	Dish	Aggregate
	Mexico		Mexico		Mexico	
	(In thousands)					
Income statement data:						
Revenue		\$ 444,264	\$ 475,559	\$ 497,096	\$ 535,153	\$ 498,069
Operating income (loss)		\$(55,062)	\$(43,553)	\$ 15,094	\$ 31,919	\$ 32,280
Income (loss) before income taxes		\$(33,449)	\$(23,701)	\$ 18,267	\$ 32,739	\$ 10,195
Net income (loss)		\$(20,126)	\$(10,378)	\$ 15,658	\$ 30,130	\$ 6,374
Net income (loss) attributable to EchoStar		\$(10,828)	\$(5,954)	\$ 9,946	\$ 16,973	\$ 1,358

In January 2017, we sold our investment in Invidi Technologies Corporation (“Invidi”) to an entity owned in part by DISH Network for \$19 million. Our investment was accounted for using the cost method and had a carrying amount of \$11 million on the date of sale and as a result we recognized a gain of \$9 million in connection with this transaction for the year ended December 31, 2017. See Note 20 for additional information about this transaction.

In connection with the Share Exchange (see Notes 4 and 20) our equity interests in NagraStar L.L.C. (“NagraStar”) and SmarDTV SA (“SmarDTV”), which we accounted for using the equity method, and our equity interest in Sling TV Holding L.L.C. (“Sling TV Holding”), which we accounted for using the cost method, were transferred to DISH Network as of February 28, 2017.

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NOTE 12. LONG-TERM DEBT AND CAPITAL LEASE OBLIGATIONS

As of December 31, 2018, our debt primarily consisted of the 2019 Senior Secured Notes, the 2021 Senior Unsecured Notes, the 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes, each as defined below, and our capital lease obligations.

The following table summarizes the carrying amounts and fair values of our long-term debt and capital lease obligations.

	Effective Interest Rate	As of December 31,		2017	
		2018 Carrying Amount	Fair Value	Carrying Amount	Fair Value
(In thousands)					
Senior Secured Notes:					
6 1/2% Senior Secured Notes due 2019	6.959%	\$920,836	\$932,696	\$990,000	\$1,042,609
5 1/4% Senior Secured Notes due 2026	5.320%	750,000	695,865	750,000	769,305
Senior Unsecured Notes:					
7 5/8% Senior Unsecured Notes due 2021	8.062%	900,000	934,902	900,000	992,745
6 5/8% Senior Unsecured Notes due 2026	6.688%	750,000	696,353	750,000	791,865
Less: Unamortized debt issuance costs		(16,757)	—	(24,857)	—
Subtotal		3,304,079	\$3,259,816	3,365,143	\$3,596,524
Capital lease obligations		228,702		269,701	
Total debt and capital lease obligations		3,532,781		3,634,844	
Less: Current portion		(959,577)		(40,631)	
Long-term debt and capital lease obligations, net		\$2,573,204		\$3,594,213	

2019 Senior Secured Notes and 2021 Senior Unsecured Notes

On June 1, 2011, HSS issued \$1.1 billion aggregate principal amount of 6 1/2% Senior Secured Notes due 2019 (the “2019 Senior Secured Notes”) at an issue price of 100.0%, pursuant to a Secured Indenture dated June 1, 2011, (as amended the “2011 Secured Indenture”). The 2019 Senior Secured Notes mature on June 15, 2019. Interest accrues at an annual rate of 6 1/2% and is payable semi-annually in cash, in arrears on June 15 and December 15 of each year. As of December 31, 2018 and 2017, the outstanding principal balance on the 2019 Senior Secured Notes was \$921 million and \$990 million, respectively. The decrease in the principal outstanding was due to our repurchase of \$69 million in the open market during 2018. We recorded a loss on the repurchase of \$1 million.

On June 1, 2011, HSS also issued \$900 million aggregate principal amount of 7 5/8% Senior Unsecured Notes due 2021 (the “2021 Senior Unsecured Notes,”) at an issue price of 100.0%, pursuant to an Unsecured Indenture dated June 1, 2011 (together with the “2011 Secured Indenture”, the “2011 Indentures”). The 2021 Senior Unsecured Notes mature on June 15, 2021. Interest accrues at an annual rate of 7 5/8% and is payable semi-annually in cash, in arrears on June 15 and December 15 of each year. As of December 31, 2018 and 2017, the outstanding principal balance on the 2021 Senior Unsecured Notes was \$900 million.

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2026 Senior Secured Notes and 2026 Senior Unsecured Notes

On July 27, 2016, HSS issued \$750 million aggregate principal amount of 5 1/4% Senior Secured Notes due 2026 (the “2026 Senior Secured Notes” and, together with the 2019 Senior Secured Notes, the “Secured Notes”) at an issue price of 100.0%, pursuant to an indenture dated July 27, 2016 (the “2016 Secured Indenture”) and \$750 million aggregate principal amount of 6 5/8% Senior Unsecured Notes due 2026 (the “2026 Senior Unsecured Notes” and, together with the 2021 Senior Unsecured Notes, the “Unsecured Notes”) at an issue price of 100.0%, pursuant to an indenture dated July 27, 2016 (together with the 2011 Indentures and the 2016 Secured Indenture, the “Indentures”). The 2019 Senior Secured Notes, the 2021 Senior Unsecured Notes, the 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes are referred to collectively as the “Notes” and individually as a series of the Notes. The 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes (collectively, the “2026 Notes”) mature on August 1, 2026. Interest on the 2026 Senior Secured Notes accrues at an annual rate of 5 1/4% and interest on the 2026 Senior Unsecured Notes accrues at an annual rate of 6 5/8%. Interest on the 2026 Notes is payable semi-annually in cash, in arrears on February 1 and August 1 of each year commencing February 1, 2017. At each of December 31, 2018 and 2017, the outstanding principal balance on each of the 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes was \$750 million, respectively.

Additional Information Relating to the Notes

Each series of the Notes is redeemable, in whole or in part, at any time at a redemption price equal to 100.0% of the principal amount thereof plus a “make-whole” premium, as defined in the applicable Indenture, together with accrued and unpaid interest, if any, to the date of redemption. HSS may also redeem up to 10% of the outstanding 2026 Senior Secured Notes per year prior to August 1, 2020 at a redemption price equal to 103% of the principal amount thereof plus accrued and unpaid interest to the date of redemption. In addition, HSS may, at any time prior to August 1, 2019, with the net cash proceeds from certain equity offerings or capital contributions, redeem up to 35% of the 2026 Senior Secured Notes, at 105.250% of the principal amount, and up to 35% of the 2026 Senior Unsecured Notes, at a redemption price equal to 106.625% of the principal amount plus, in each case, accrued and unpaid interest on the 2026 Notes being redeemed to the date of redemption.

The Secured Notes are:

- secured obligations of HSS;
- secured by security interests in substantially all existing and future tangible and intangible assets of HSS and certain of its subsidiaries on a first priority basis, subject to certain exceptions;
- ranked equally and ratably as between the 2019 Senior Secured Notes and the 2026 Senior Secured Notes;
- effectively junior to HSS’ obligations that are secured by assets that are not part of the collateral that secures the respective Secured Notes, in each case, to the extent of the value of the collateral securing such obligations;
- effectively senior to HSS’ existing and future unsecured obligations to the extent of the value of the collateral securing the respective Secured Notes, after giving effect to permitted liens as provided in the Indenture governing the respective Secured Notes;
- senior in right of payment to all existing and future obligations of HSS that are expressly subordinated to the respective Secured Notes;
- structurally junior to any existing and future obligations of any of HSS’ subsidiaries that do not guarantee the respective Secured Notes; and
-

unconditionally guaranteed, jointly and severally, on a general senior secured basis by certain of our HSS' subsidiaries, which guarantees rank equally with all of the guarantors' existing and future unsubordinated indebtedness and effectively senior to such guarantors' existing and future obligations to the extent of the value of the assets securing the respective Secured Notes.

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The Unsecured Notes are:

- unsecured senior obligations of HSS;
 - ranked equally with all existing and future unsubordinated indebtedness (including as between the 2021 Senior Unsecured Notes and the 2026 Senior Unsecured Notes) and effectively junior to any secured indebtedness up to the value of the assets securing such indebtedness;
- effectively junior to HSS' obligations that are secured to the extent of the value of the collateral securing such obligations;
- senior in right of payment to all existing and future obligations of HSS that are expressly subordinated to the respective Unsecured Notes;
- structurally junior to any existing and future obligations of any of HSS' subsidiaries that do not guarantee the respective Unsecured Notes; and
- unconditionally guaranteed, jointly and severally, on a general senior secured basis by certain of HSS' subsidiaries, which guarantees rank equally with all of the guarantors' existing and future unsubordinated indebtedness, and effectively junior to any secured indebtedness of the guarantors up to the value of the assets securing such indebtedness.

Subject to certain exceptions, the Indentures contain restrictive covenants that, among other things, impose limitations on HSS' ability and, in certain instances, the ability of certain of HSS' subsidiaries to:

- incur additional debt;
- pay dividends or make distributions on HSS' capital stock or repurchase HSS' capital stock;
- make certain investments;
- create liens or enter into sale and leaseback transactions;
- enter into transactions with affiliates;
 - merge or consolidate with another company;
- transfer and sell assets; and
- allow to exist certain restrictions on the ability of certain of HSS' subsidiaries to pay dividends, make distributions, make other payments, or transfer assets to HSS or its subsidiaries.

In the event of a Change of Control, as defined in the respective Indentures, HSS would be required to make an offer to repurchase all or any part of a holder's Notes at a purchase price equal to 101.0% of the aggregate principal amount thereof, together with accrued and unpaid interest to the date of repurchase.

The Indentures provide for customary events of default for each series of the Notes, including, among other things, nonpayment, breach of the covenants in the applicable Indentures, payment defaults or acceleration of other indebtedness, a failure to pay certain judgments and certain events of bankruptcy, insolvency and reorganization. If any event of default occurs and is continuing with respect to any series of the Notes, the trustee or the holders of at least 25% in principal amount of the then outstanding Notes of such series may declare all the Notes of such series to be due and payable immediately, together with any accrued and unpaid interest.

Pursuant to the terms of a registration rights agreement, HSS registered notes having substantially identical terms as the 2026 Notes with the Securities and Exchange Commission as part of an offer to exchange registered notes for the 2026 Notes. This exchange offer expired May 11, 2017 with 99.98% of the 2026 Notes being tendered for exchange.

Debt Issuance Costs

In connection with the issuance of the 2026 Notes, we incurred \$8 million of debt issuance costs. For the years ended December 31, 2018, 2017 and 2016, we amortized \$8 million, \$7 million and \$7 million of debt issuance costs incurred for all debt issuances, respectively, which are included in Interest expense, net of amounts capitalized in our Consolidated Statements of Operations.

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Capital Lease Obligations

Our capital lease obligations reflect the present value of future minimum lease payments under noncancelable lease agreements, primarily for certain of our satellites (see Note 9). These agreements require monthly recurring payments, which generally include principal, interest, an amount for use of the orbital location and estimated executory costs, such as insurance and maintenance. The monthly recurring payments generally are subject to reduction in the event of failures that reduce the satellite transponder capacity. Certain of these agreements provide for extension of the initial lease term at our option. The effective interest rates for our satellite capital lease obligations range from 9.1% to 11.2%, with a weighted average of 10.7% as of December 31, 2018.

Our capital lease obligations consist primarily of our payment obligations under agreements for the Nimiq 5 and QuetzSat-1 satellites, which have remaining noncancelable terms ending in September 2024 and November 2021, respectively. As discussed in Note 20, we have subleased transponders on these satellites to DISH Network.

Future minimum lease payments under our capital lease obligations, together with the present value of the net minimum lease payments as of December 31, 2018, are as follows:

	Amount (In thousands)
For the Years Ending December 31,	
2019	\$ 88,615
2020	88,395
2021	84,248
2022	63,484
2023	63,360
Thereafter	47,520
Total minimum lease payments	435,622
Less: Amount representing use of the orbital location and estimated executory costs including profit thereon, included in total minimum lease payments	(136,799)
Net minimum lease payments	298,823
Less: Amount representing interest	(70,121)
Present value of net minimum lease payments	228,702
Less: Current portion	(40,662)
Long-term portion of capital lease obligations	\$ 188,040

We received rental income from the sublease of our capital lease satellites of approximately \$132 million for each of the years ended December 31, 2018, 2017 and 2016. As of December 31, 2018, our future minimum sublease rental income was \$216 million relating to such satellites. The subleases have a remaining weighted average term of two years.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 13. INCOME TAXES

The components of Income (loss) from continuing operations before income taxes in our Consolidated Statements of Operations are as follows:

	For the years ended December 31,		
	2018	2017	2016
	(In thousands)		
Domestic	\$ 151,002	\$ 146,383	\$ 236,200
Foreign	(158,962)	(45,689)	(19,574)
Income from continuing operations before income taxes	\$(7,960)	\$ 100,694	\$ 216,626

The components of Income tax benefit (provision), net, in our Consolidated Statements of Operations are as follows:

	For the years ended December 31,		
	2018	2017	2016
	(In thousands)		
Current benefit (provision):			
Federal	\$(1,472)	\$(8,652)	\$(19,385)
State	(184)	(1,237)	267
Foreign	(2,690)	(2,335)	(2,481)
Total current benefit (provision)	(4,346)	(12,224)	(21,599)
Deferred benefit (provision):			
Federal	(19,189)	299,693	(58,250)
State	(7,365)	2,356	(6,232)
Foreign	227	(5,539)	5,827
Total deferred benefit (provision)	(26,327)	296,510	(58,655)
Total income tax benefit (provision), net	\$(30,673)	\$ 284,286	\$(80,254)

The actual tax provisions for the years ended December 31, 2018, 2017 and 2016 reconcile to the amounts computed by applying the statutory federal tax rate to Income (loss) from continuing operations before income taxes in our Consolidated Statements of Operations as shown below:

	For the years ended December 31,					
	2018		2017		2016	
Statutory rate	21.0	%	35.0	%	35.0	%
State income taxes, net of Federal benefit	(94.4)	%	(12.2)	%	5.0	%
Permanent differences	(16.9)	%	(0.3)	%	1.4	%
Tax credits	68.6	%	(8.1)	%	(4.2)	%
Valuation allowance	(491.9)	%	4.6	%	(0.3)	%
Enactment of Tax Cuts and Job Act of 2017	—	%	(301.4)	%	—	%
Rates different than statutory	116.6	%	—	%	—	%
Other	11.6	%	0.1	%	0.1	%
Total effective tax rate	(385.4)	%	(282.3)	%	37.0	%

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

The components of our deferred tax assets and liabilities are as follows:

	As of December 31,	
	2018	2017
	(In thousands)	
Deferred tax assets:		
Net operating losses, credit and other carryforwards	\$284,300	\$278,540
Unrealized losses on investments, net	41,852	22,260
Accrued expenses	22,148	23,583
Stock-based compensation	10,210	9,148
Other assets	22,366	11,890
Total deferred tax assets	380,876	345,421
Valuation allowance	(109,762)	(66,886)
Deferred tax assets after valuation allowance	271,114	278,535
Deferred tax liabilities:		
Depreciation and amortization	(731,447)	(708,599)
Other liabilities	(1,290)	(1,509)
Total deferred tax liabilities	(732,737)	(710,108)
Total net deferred tax liabilities	\$(461,623)	\$(431,573)

Deferred tax assets and liabilities reflect the effects of tax losses, credits, and the future income tax effects of temporary differences between the accompanying Consolidated Financial Statement carrying amounts of existing assets and liabilities and their respective tax bases and are measured using enacted tax rates that apply to taxable income in the years in which those temporary differences are expected to be recovered or settled.

We evaluate our deferred tax assets for realization and record a valuation allowance when we determine that it is more likely than not that the amounts will not be realized. Overall, our net deferred tax assets were offset by a valuation allowance of \$110 million and \$67 million as of December 31, 2018 and 2017, respectively. The change in the valuation allowance primarily relates to an increase in the net operating loss carryforwards of certain foreign subsidiaries and a decrease associated with unrealized gains that are capital in nature.

Tax benefits of net operating loss and tax credit carryforwards are evaluated on an ongoing basis, including a review of historical and projected future operating results, the eligible carryforward period, and other circumstances. As of December 31, 2018, we had net operating loss carryforwards of \$797 million, including \$237 million of foreign net operating loss carryforwards. A substantial portion of these net operating loss carryforwards will begin to expire in 2029. As of December 31, 2018, we have tax credit carryforwards of \$133 million and \$98 million for federal and state income tax purposes, respectively. If not utilized, the federal tax credit carryforwards will begin to expire in 2026 and the state tax credit carryforwards will begin to expire in 2018.

As of December 31, 2018, we had undistributed earnings attributable to foreign subsidiaries for which no provision for U.S. income taxes or foreign withholding taxes has been made because it is expected that such earnings will be reinvested outside the U.S. indefinitely. It is not practicable to determine the amount of the unrecognized deferred tax liability at this time. However, due to the one-time transition tax on the deemed repatriation of post-1986 undistributed foreign subsidiary earnings, the majority of previously unremitted earnings have now been subjected to U.S. federal income tax.

Accounting for the U.S. Tax Cuts and Jobs Act

The Tax Cuts and Jobs Act of 2017 (the “2017 Tax Act”) was enacted in December 2017 and has significantly impacted our effective tax rate and the tax benefit calculated for the year ended December 31, 2017. For the year ended December 31, 2017, we recorded a benefit of \$304 million to reflect the change in the value of our deferred tax assets

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and liabilities resulting from the change in the federal corporate tax rate from 35% to 21%. For the year ended December 31, 2018, we recorded an additional tax benefit of \$1 million upon the completion of our analysis. This amount included an estimate of zero related to valuation allowances on foreign tax credit carryforwards. We account for the effects, if any, of the global intangible low-taxed income provisions (“GILTI”) of the 2017 Tax Act as incurred. We also recorded a tax provision of nil related to the tax on deemed mandatory repatriation of our unrepatriated foreign earnings.

Accounting for Uncertainty in Income Taxes

In addition to filing U.S. federal income tax returns, we file income tax returns in all states that impose an income tax. As of December 31, 2018, we are not currently under a U.S. federal income tax examination, however, the IRS can perform tax examination as early as tax year 2008. We are also subject to frequent state income tax audits and have open state examinations in years as early as 2008. We also file income tax returns in the United Kingdom, Brazil, India and a number of other foreign jurisdictions. We generally are open to income tax examination in these foreign jurisdictions for taxable years beginning in 2003. As of December 31, 2018, we are currently being audited by the Indian tax authorities for fiscal years 2003 through 2012. We have no other on-going significant income tax examinations in process in our foreign jurisdictions.

A reconciliation of the beginning and ending amount of unrecognized income tax benefits is as follows:

Unrecognized tax benefit	For the years ended December 31,		
	2018	2017	2016
	(In thousands)		
Balance as of beginning of period	\$ 63,296	\$ 63,502	\$ 62,366
Additions based on tax positions related to the current year	4,361	1,116	2,132
Additions based on tax positions related to prior years	2,539	258	3
Reductions based on tax positions related to prior years	(656)	(852)	(734)
Reductions based on tax settlements	—	—	(265)
Reductions based on expirations of statute of limitations	—	(728)	—
Balance as of end of period	\$ 69,540	\$ 63,296	\$ 63,502

As of December 31, 2018, we had \$70 million of unrecognized income tax benefits, all of which, if recognized, would affect our effective tax rate. As of December 31, 2017, we had \$63 million of unrecognized income tax benefits, all of which, if recognized, would affect our effective tax rate. We do not believe that the total amount of unrecognized income tax benefits will significantly increase or decrease within the next twelve months due to the lapse of statute of limitations or settlement with tax authorities.

For the years ended December 31, 2018, 2017 and 2016, our income tax provision included an insignificant amount of interest and penalties.

Estimates of our uncertain tax positions are made based upon prior experience and are updated in light of changes in facts and circumstances. However, due to the uncertain and complex application of tax regulations, it is possible that the ultimate resolution of audits may result in liabilities which could be materially different from these estimates. In such an event, we will record additional income tax provision or benefit in the period in which such resolution occurs.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 14. STOCKHOLDERS' EQUITY

Preferred Stock

Our board of directors is authorized to divide the preferred stock into series and, with respect to each series, to determine the preferences and rights and the qualifications, limitations or restrictions of the series, including the dividend rights, conversion rights, voting rights, redemption rights and terms, liquidation preferences, sinking fund provisions, the number of shares constituting the series, and the designation of such series. Our board of directors may, without stockholder approval, issue additional preferred stock of existing or new series with voting and other rights that could adversely affect the voting power of the holders of common stock and could have certain anti-takeover effects.

In February 2014, our board of directors authorized 13,000,000 shares of Tracking Stock with a par value of \$0.001 per share, of which 6,290,499 shares were issued to DISH Network on March 1, 2014. Following the consummation of the Share Exchange, we no longer operate our former EchoStar Technologies businesses, the Tracking Stock was retired and is no longer outstanding, and all agreements, arrangements and policy statements with respect to the Tracking Stock terminated. See Note 20 for additional information about the Share Exchange.

Common Stock

Our Class A, Class B, and Class C common stock are equivalent except for voting rights. Holders of Class A and Class C common stock are entitled to one vote per share and holders of Class B common stock are entitled to 10 votes per share. Upon a change in control of the Company, each holder of outstanding shares of Class C common stock is entitled to 10 votes for each share of Class C common stock held. Each share of Class B and Class C common stock is convertible, at the option of the holder, into one share of Class A common stock. Our principal stockholder and certain entities established by him for the benefit of his family own all outstanding Class B common stock. There are no shares of Class C common stock outstanding.

Any holder of Class D common stock is not entitled to a vote on any matter or to convert the shares of Class D common stock into any other class of common stock. There are no shares of Class D common stock outstanding.

Each share of common stock is entitled to receive its pro rata share, based upon the number of shares of common stock held, of dividends and distributions upon liquidation.

Common Stock Repurchase Program

Pursuant to a stock repurchase program approved by our board of directors on October 30, 2018, we are authorized to repurchase up to \$500 million of our outstanding shares of Class A common stock through and including December 31, 2019. For the year ended December 31, 2018, we repurchased 952,603 shares of our common stock at an average price per share of \$34.95 for a total purchase price of \$33 million. For the year ended December 31, 2017, we did not repurchase any common stock under this program.

NOTE 15. EMPLOYEE BENEFIT PLANS

Employee Stock Purchase Plan

We have an employee stock purchase plan (the “ESPP”), under which we are authorized to issue 5.0 million shares of Class A common stock. As of December 31, 2018, we had approximately 2.5 million shares of Class A common stock which remain available for issuance under the ESPP. Generally, all full-time employees who have been employed by EchoStar for at least one calendar quarter are eligible to participate in the ESPP. Employee stock purchases are made through payroll deductions. Under the terms of the ESPP, each employee’s deductions are limited so that the maximum they may purchase under the ESPP is \$25,000 in fair value of Class A common stock per year. Stock purchases are made on the last business day of each calendar quarter at 85.0% of the closing price of the Class A common stock on that date. For the years ended December 31, 2018, 2017 and 2016, employee purchases of Class A common stock through the ESPP totaled approximately 245,000 shares, 176,000 shares and 227,000 shares, respectively.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

401(k) Employee Savings Plans

Under the EchoStar 401(k) Plan (“the Plan”), eligible employees are entitled to contribute up to 75.0% of their eligible compensation subject to the maximum contribution limit provided by the Internal Revenue Code of 1986, as amended (the “Code”). Eligible employees have the option to contribute up to 75% of their eligible compensation on a pre-tax and/or after-tax basis subject to the Code limits. All employee contributions to the Plan are immediately vested. We match 50 cents on the dollar for the first 6.0% of each employee’s salary contributions to the Plan for a total of 3.0% match on a pre-tax basis up to a maximum of \$7,500 annually. Our match is calculated each pay period there is an employee contribution. In addition, we may make an annual discretionary contribution to the Plan to be made in cash or our stock. Our contributions under the Plan vest at 20.0% per year and are 100.0% vested after an eligible employee has completed five years of employment. Forfeitures of unvested participant balances may be used to fund matching and discretionary contributions.

During the years ended December 31, 2018, 2017 and 2016, we recognized matching contributions, net of forfeitures, of \$5 million, \$5 million and \$6 million, respectively, and made discretionary contributions of shares of our Class A common stock, net of forfeitures, with a fair value of \$8 million, \$7 million and \$8 million, respectively (approximately 127,000, 130,000 and 210,500 shares, respectively), to the Plan.

NOTE 16. STOCK-BASED COMPENSATION

Stock Incentive Plans

We maintain stock incentive plans to attract and retain officers, directors and employees. Stock awards under these plans may include both performance-based and non-performance based stock incentives. As of December 31, 2018, we had outstanding under these plans stock options to acquire approximately 5.0 million shares of our Class A common stock. Stock options granted prior to December 31, 2018 were granted with exercise prices equal to or greater than the market value of our Class A common stock at the date of grant or the last trading day prior to the date of grant (if the grant date is not a trading day) and generally with a maximum term of ten years for our officers and employees and five years for our non-employee directors. While generally we issue stock awards subject to vesting, typically over five years, some stock awards have been granted with immediate or longer vesting and other stock awards vest also or only upon the achievement of certain performance objectives. Under these plans, we grant to certain of our employees awards of fully vested shares of Class A common stock under our Employee Innovator Recognition Program, which is available to all of our eligible employees. As of December 31, 2018, we had approximately 8 million shares of our Class A common stock available for future grant under our stock incentive plans.

Exercise prices for stock options outstanding and exercisable as of December 31, 2018 are as follows:

Price Range	Options Outstanding			Options Exercisable		
	Number Outstanding as of December 31, 2018	Weighted-Average Remaining Contractual Term (In Years)	Weighted-Average Exercise Price	Number Exercisable as of December 31, 2018	Weighted-Average Remaining Contractual Term (In Years)	Weighted-Average Exercise Price
\$0.00 - \$20.00	51,359	2	\$ 18.74	51,359	2	\$ 18.74
\$20.01 - \$25.00	429,306	1	\$ 20.18	429,306	1	\$ 20.18

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\$25.01 - \$30.00	3,300	3	\$ 26.42	3,300	3	\$ 26.42
\$30.01 - \$35.00	352,500	4	\$ 34.22	352,500	4	\$ 34.22
\$35.01 - \$40.00	1,985,200	4	\$ 38.19	1,832,500	3	\$ 38.09
\$40.01 - \$45.00	277,000	7	\$ 43.98	111,400	7	\$ 44.04
\$45.01 - \$50.00	766,973	6	\$ 47.58	577,473	5	\$ 47.64
\$50.01 - \$55.00	487,400	7	\$ 52.24	197,300	6	\$ 51.99
\$55.01 - \$60.00	600,000	8	\$ 56.97	127,000	8	\$ 56.95
\$60.01 and over	60,000	7	\$ 60.70	28,000	5	\$ 60.70
	5,013,038	5	\$ 41.80	3,710,138	4	\$ 38.59

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Stock Award Activity

Our stock option activity was as follows:

	For the years ended December 31,					
	2018	Weighted- Average Exercise Price	2017	Weighted- Average Exercise Price	2016	Weighted- Average Exercise Price
	Options		Options		Options	
Total options outstanding, beginning of period	4,951,256	\$ 41.42	5,968,763	\$ 39.30	5,893,241	\$ 38.38
Granted	215,500	\$ 51.71	1,262,500	\$ 57.12	732,000	\$ 41.86
Exercised	(108,318)	\$ 40.67	(1,018,507)	\$ 35.84	(453,182)	\$ 28.83
Forfeited and canceled	(45,400)	\$ 50.21	(1,261,500)	\$ 51.63	(203,296)	\$ 45.15
Total options outstanding, end of period	5,013,038	\$ 41.80	4,951,256	\$ 41.42	5,968,763	\$ 39.30
Exercisable at end of period	3,710,138	\$ 38.59	3,143,656	\$ 36.98	3,551,063	\$ 35.40

On April 1, 2017, we granted to Mr. Ergen, our Chairman, an option to purchase 1,100,000 shares of Class A common stock. On April 24, 2017, Mr. Ergen voluntarily forfeited a portion of the option covering 600,000 shares and we canceled such forfeited portion of the option.

We realized total tax benefits from stock options exercised of \$0.4 million, \$3 million and \$2 million for the years ended December 31, 2018, 2017 and 2016, respectively. The aggregate intrinsic value of our stock options exercised was \$2 million, \$20 million and \$8 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Our restricted stock unit activity was as follows:

	For the years ended December 31,					
	2018	Weighted- Restricted Average Stock Grant Date Units Fair Value	2017	Weighted- Restricted Average Stock Grant Date Units Fair Value	2016	Weighted- Restricted Average Stock Grant Date Units Fair Value
Total restricted stock units outstanding, beginning of period	—	\$ —	6,667	\$ 34.22	57,328	\$ 42.31
Vested	—	\$ —	(6,667)	\$ 34.22	(50,661)	\$ 43.38
Total restricted stock units outstanding, end of period	—	\$ —	—	\$ —	6,667	\$ 34.22

The total fair value of restricted stock units vested was nil, \$0.2 million and \$2 million for the years ended December 31, 2018, 2017 and 2016, respectively.

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Stock-Based Compensation

Total noncash, stock-based compensation expense for all of our employees is shown in the following table for the years ended December 31, 2018, 2017 and 2016, respectively, and was assigned to the same expense categories as the base compensation for such employees:

	For the years ended December 31,		
	2018	2017	2016
	(In thousands)		
Research and development expenses	\$ 634	\$ 1,010	\$ 1,046
Selling, general and administrative expenses	9,356	10,630	9,865
Total stock-based compensation	\$ 9,990	\$ 11,640	\$ 10,911

The income tax benefits related to stock-based compensation expense was \$2 million, \$4 million and \$4 million for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, total unrecognized stock-based compensation cost, net of estimated forfeitures, related to our unvested stock awards was \$14 million. This amount is based on an estimated future forfeiture rate of approximately 2.0% per year and will be recognized over a weighted-average period of approximately two years.

Valuation of Stock Options

The fair value of each stock option granted for the years ended December 31, 2018, 2017 and 2016 was estimated at the date of the grant using a Black-Scholes option valuation model. The estimated grant-date fair values and related assumptions were as follows:

Assumptions:	For the years ended December 31,		
	2018	2017	2016
Risk-free interest rate	2.25% - 2.99%	1.98% - 2.05%	1.10% - 1.87%
Volatility factor	22.77% - 23.28%	24.20% - 26.69%	27.22% - 27.37%
Expected term of options in years	5.7 - 5.8	5.7 - 5.8	5.7 - 5.8
Weighted-average grant-date fair value	\$12.38 - \$16.23	\$15.25 - \$16.49	\$11.15 - \$12.49

We do not currently intend to pay dividends on our common stock and accordingly, the dividend yield used in the Black-Scholes option valuation model was assumed to be zero for all periods. The Black-Scholes option valuation model was developed for use in estimating the fair value of traded stock options which have no vesting restrictions and are fully transferable. Consequently, our estimate of fair value may differ from that determined using other valuation models. Further, the Black-Scholes option valuation model requires the input of subjective assumptions. Changes in the subjective input assumptions can materially affect the fair value estimate.

Based on the closing market price of our Class A common stock on December 31, 2018, the aggregate intrinsic value of our stock options was \$9 million for options outstanding and \$9 million for options exercisable as of December 31, 2018.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 17. COMMITMENTS AND CONTINGENCIES

Commitments

The following table summarizes our contractual obligations at December 31, 2018:

	Payments Due in the Year Ending December 31,						
	Total	2019	2020	2021	2022	2023	Thereafter
	(In thousands)						
Long-term debt	\$3,320,836	\$920,836	\$—	\$900,000	\$—	\$—	\$1,500,000
Capital lease obligations	228,702	40,662	45,031	46,353	31,857	35,476	29,323
Interest on long-term debt and capital lease obligations	983,824	209,989	175,808	136,662	98,265	94,529	268,571
Satellite-related obligations	731,684	207,403	166,601	60,852	47,996	47,907	200,925
Operating lease obligations	93,918	21,146	18,081	13,873	10,118	8,814	21,886
Service commitments	866	176	181	186	192	131	—
Total	\$5,359,830	\$1,400,212	\$405,702	\$1,157,926	\$188,428	\$186,857	\$2,020,705

Our satellite-related obligations primarily include payments pursuant to agreements for the construction of the EchoStar XXIV satellite; payments pursuant to Regulatory Authorizations; executory costs for our capital lease satellites; and in-orbit incentives relating to certain satellites; as well as commitments for satellite service arrangements. We incurred satellite-related expenses of \$101 million, \$140 million and \$144 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Our operating lease obligations consist of minimum rental payments under noncancelable leases. Certain of our lease agreements require us to pay additional amounts for utilities, common area maintenance, property taxes, and other executory costs.

The table above does not include amounts related to deferred tax liabilities, unrecognized tax positions and certain other amounts recorded in our noncurrent liabilities as the timing of any payments is uncertain. The table also excludes long-term deferred revenue and other long-term liabilities that do not require future cash payments.

In certain circumstances, the dates on which we are obligated to pay our contractual obligations could change.

Rent Expense

For the years ended December 31, 2018, 2017 and 2016, we recorded \$27 million, \$30 million and \$21 million, respectively, of operating lease expense relating to the leases of office space, equipment, and other facilities.

Contingencies

Patents and Intellectual Property

Many entities, including some of our competitors, have or may have in the future patents and other intellectual property rights that cover or affect products or services directly or indirectly related to those that we offer. We may not be aware of all patents and other intellectual property rights that our products and services may potentially

infringe. Damages in patent infringement cases can be substantial, and in certain circumstances can be tripled. Further, we cannot estimate the extent to which we may be required in the future to obtain licenses with respect to intellectual property rights held by others and the availability and cost of any such licenses. Various parties have asserted patent and other intellectual property rights with respect to our products and services. We cannot be certain that these parties do not own the rights they claim, that these rights are not valid or that our products and services do not infringe on these rights. Further, we cannot be certain that we would be able to obtain licenses from these parties on commercially reasonable terms or, if we were unable to obtain such licenses, that we would be able to redesign our products and services to avoid infringement.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Separation Agreement and Share Exchange

In connection with our spin-off from DISH in 2008 (the “Spin-off”), we entered into a separation agreement with DISH Network that provides, among other things, for the division of certain liabilities, including liabilities resulting from litigation. Under the terms of the separation agreement, we assumed certain liabilities that relate to our business, including certain designated liabilities for acts or omissions that occurred prior to the Spin-off. Certain specific provisions govern intellectual property related claims under which, we will generally only be liable for our acts or omissions following the Spin-off and DISH Network will indemnify us for any liabilities or damages resulting from intellectual property claims relating to the period prior to the Spin-off, as well as DISH Network’s acts or omissions following the Spin-off. Additionally, in connection with the Share Exchange, we entered into a share exchange agreement and other agreements which provide, among other things, for the division of certain liabilities, including liabilities relating to taxes, intellectual property and employees and liabilities resulting from litigation and the assumption of certain liabilities that relate to the transferred businesses and assets. These agreements also contain additional indemnification provisions between us and DISH Network for certain pre-existing liabilities and legal proceedings.

Litigation

We are involved in a number of legal proceedings concerning matters arising in connection with the conduct of our business activities. Many of these proceedings are at preliminary stages and/or seek an indeterminate amount of damages. We regularly evaluate the status of the legal proceedings in which we are involved to assess whether a loss is probable and to determine if accruals are appropriate. We record an accrual for litigation and other loss contingencies when we determine that a loss is probable and the amount of the loss can be reasonably estimated. If accruals are not appropriate, we further evaluate each legal proceeding to assess whether an estimate of possible loss or range of loss can be made. There can be no assurance that legal proceedings against us will be resolved in amounts that will not differ from the amounts of our recorded accruals. Legal fees and other costs of defending litigation are charged to expense as incurred.

For certain cases, management is unable to predict with any degree of certainty the outcome or provide a meaningful estimate of the possible loss or range of possible loss because, among other reasons, (i) the proceedings are in various stages; (ii) damages have not been sought or specified; (iii) damages are unsupported, indeterminate and/or exaggerated in management’s opinion; (iv) there is uncertainty as to the outcome of pending trials, appeals or motions; (v) there are significant factual issues to be resolved; and/or (vi) there are novel legal issues or unsettled legal theories to be presented or a large number of parties are involved (as with many patent-related cases). Except as described below, however, management does not believe, based on currently available information, that the outcomes of these proceedings will have a material effect on our financial condition, operating results or cash flows, though there is no assurance that the resolution and outcomes of these proceedings, individually or in the aggregate, will not be material to our financial condition, operating results or cash flows for any particular period, depending, in part, upon the operating results for such period.

We intend to vigorously defend the proceedings against us. In the event that a court or jury ultimately rules against us, we may be subject to adverse consequences, including, without limitation, substantial damages, which may include treble damages, fines, penalties, compensatory damages and/or other equitable or injunctive relief that could require us to materially modify our business operations or certain products or services that we offer to our consumers.

Elbit

On January 23, 2015, Elbit Systems Land and C4I LTD and Elbit Systems of America Ltd. (together referred to as “Elbit”) filed a complaint against our subsidiary Hughes Network Systems, L.L.C. (“HNS”), as well as against Black Elk Energy Offshore Operations, LLC, Bluetide Communications, Inc. and Helm Hotels Group, in the U.S. District Court for the Eastern District of Texas, alleging infringement of U.S. Patent Nos. 6,240,073 (the “073 patent”) and 7,245,874 (“874 patent”). The 073 patent is entitled “Reverse Link for a Satellite Communication Network” and the 874 patent is entitled “Infrastructure for Telephony Network.” Elbit alleges that the 073 patent is infringed by broadband satellite systems that practice the Internet Protocol Over Satellite standard. Elbit alleges that the 874 patent is infringed by the manufacture and sale of broadband satellite systems that provide cellular backhaul service via connections to E1 or T1 interfaces at cellular backhaul base stations. On April 2, 2015, Elbit filed an amended complaint removing Helm

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Hotels Group as a defendant, but making similar allegations against a new defendant, Country Home Investments, Inc. On November 3 and 4, 2015 and January 22, 2016, the defendants filed petitions before the United States Patent and Trademark Office (“USPTO”) challenging the validity of the patents in suit, which the USPTO subsequently declined to institute. On April 13, 2016, the defendants answered Elbit’s complaint. At Elbit’s request, on June 26, 2017, the court dismissed Elbit’s claims of infringement against all parties other than HNS. Trial commenced on July 31, 2017. On August 7, 2017, the jury returned a verdict that the 073 patent was valid and infringed, and awarded Elbit approximately \$21 million. The jury also found that such infringement of the 073 patent was not willful and that the 874 patent was not infringed. On March 30, 2018, the court ruled on post-trial motions, upholding the jury’s findings and awarding Elbit attorneys’ fees in an amount that has not yet been specified. As a result of pre-judgment interest, costs and unit sales through the 073 patent’s expiration in November 2017, the jury verdict would result in a payment of approximately \$29 million plus post-judgment interest if not overturned or modified on appeal. Elbit has requested an award of approximately \$14 million of attorneys’ fees. HNS is contesting Elbit’s claims as inappropriate and unreasonable in light of the court’s decision and prevailing law. On April 27, 2018, HNS filed a notice of appeal to the U.S. Court of Appeals for the Federal Circuit. The parties have briefed the appeal and are awaiting a date for oral arguments. We cannot predict with certainty the outcome of the appeal. As of December 31, 2018 and 2017, we have recorded an accrual of approximately \$3 million and \$3 million, respectively, with respect to this liability. Any eventual payments made with respect to the ultimate outcome of this matter may be different from our accruals and such differences could be significant.

Realtime Data LLC

On May 8, 2015, Realtime Data LLC (“Realtime”) filed suit against EchoStar Corporation and our subsidiary HNS in the U.S. District Court for the Eastern District of Texas alleging infringement of U.S. Patent Nos. 7,378,992 (the “992 patent”), entitled “Content Independent Data Compression Method and System;” 7,415,530 (the “530 patent”), entitled “System and Methods for Accelerated Data Storage and Retrieval,” and 8,643,513 (the “513 patent”), entitled “Data Compression System and Methods.” On September 14, 2015, Realtime amended its complaint, additionally alleging infringement of U.S. Patent No. 9,116,908 (the “908 patent”), entitled “System and Methods for Accelerated Data Storage and Retrieval.” On February 14, 2017, Realtime filed a second suit against EchoStar Corporation and our subsidiary HNS in the same District Court, alleging infringement of four additional U.S. Patents, Nos. 7,358,867 (the “867 patent”), entitled “Content Independent Data Compression Method and System;” 8,502,707 (the “707 patent”), entitled “Data Compression Systems and Methods;” 8,717,204 (the “204 patent”), entitled “Methods for Encoding and Decoding Data;” and 9,054,728 (the “728 patent”), entitled “Data Compression System and Methods.” On February 13, 2018, we filed petitions before the USPTO challenging the validity of all claims asserted against us from the 707 patent, as well as one of the asserted claims of the 728 patent. On September 5, 2018, the USPTO declined to institute proceedings for the petition that we had filed against the 728 patent. On September 12, 2018, the USPTO instituted proceedings to review the validity of the asserted claims of the 707 patent. In a stipulation filed on October 24, 2018, Realtime voluntarily elected not to pursue any previously asserted claims from the 992, 530, 513, 908, 867 and 204 patents. Realtime is an entity that seeks to license an acquired patent portfolio without itself practicing any of the claims recited therein. In February 2019, we entered into a settlement agreement with Realtime and the case was dismissed with prejudice.

Other

In addition to the above actions, we are subject to various other legal proceedings and claims, which arise in the ordinary course of business. As part of our ongoing operations, we are subject to various inspections, audits, inquiries,

investigations and similar actions by third parties, as well as by governmental/regulatory authorities responsible for enforcing the laws and regulations to which we may be subject. Further, under the federal False Claims Act, private parties have the right to bring qui tam, or “whistleblower,” suits against companies that submit false claims for payments to, or improperly retain overpayments from, the federal government. Some states have adopted similar state whistleblower and false claims provisions. In addition, we from time to time receive inquiries from federal, state and foreign agencies regarding compliance with various laws and regulations.

In our opinion, the amount of ultimate liability with respect to any of these other actions is unlikely to materially affect our financial position, results of operations or cash flows, though the resolutions and outcomes, individually or in the aggregate, could be material to our financial position, operating results or cash flows for any particular period, depending, in part, upon the operating results for such period.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

We also indemnify our directors, officers and employees for certain liabilities that might arise from the performance of their responsibilities for us. Additionally, in the normal course of its business, we enter into contracts pursuant to which we may make a variety of representations and warranties and indemnify the counterparty for certain losses. Our possible exposure under these arrangements cannot be reasonably estimated as this involves the resolution of claims made, or future claims that may be made, against us or our officers, directors or employees, the outcomes of which are unknown and not currently predictable or estimable.

NOTE 18. SEGMENT REPORTING

Operating segments are business components of an enterprise for which separate financial information is available and regularly evaluated by our chief operating decision maker (“CODM”), who is our Chief Executive Officer. We primarily operate in two business segments, Hughes and ESS, as described in Note 1.

The primary measure of segment profitability that is reported regularly to our CODM is earnings before interest, taxes, depreciation and amortization, or EBITDA. Our operations also include various corporate departments (primarily Executive, Treasury, Strategic Development, Human Resources, IT, Finance, Real Estate, Accounting and Legal) and other activities that have not been assigned to our operating segments such as costs incurred in certain satellite development programs and other business development activities, and gains or losses from certain of our investments. These activities, costs and income, as well as eliminations of intersegment transactions, are accounted for in Corporate and Other in the tables below or in the reconciliation of EBITDA below.

Total assets by segment have not been reported herein because the information is not provided to our CODM on a regular basis.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

The following table presents revenue, EBITDA and capital expenditures for each of our operating segments. Capital expenditures are net of refunds and other receipts related to property and equipment and exclude capital expenditures from discontinued operations of \$12 million and \$70 million for the years ended December 31, 2017 and 2016, respectively.

	Hughes	ESS	Corporate and Other	Consolidated Total
	(In thousands)			
For the year ended December 31, 2018				
External revenue	\$1,716,169	\$355,734	\$19,460	\$2,091,363
Intersegment revenue	\$359	\$2,324	\$(2,683)	\$—
Total revenue	\$1,716,528	\$358,058	\$16,777	\$2,091,363
EBITDA	\$601,319	\$308,058	\$(152,708)	\$756,669
Capital expenditures	\$390,108	\$(76,582)	\$164,091	\$477,617
For the year ended December 31, 2017				
External revenue	\$1,476,131	\$390,831	\$18,546	\$1,885,508
Intersegment revenue	\$1,787	\$1,413	\$(3,200)	\$—
Total revenue	\$1,477,918	\$392,244	\$15,346	\$1,885,508
EBITDA	\$475,222	\$315,285	\$4,070	\$794,577
Capital expenditures	\$376,502	\$20,725	\$169,157	\$566,384
For the year ended December 31, 2016				
External revenue	\$1,389,152	\$406,970	\$14,344	\$1,810,466
Intersegment revenue	\$3,209	\$690	\$(3,899)	\$—
Total revenue	\$1,392,361	\$407,660	\$10,445	\$1,810,466
EBITDA	\$477,165	\$341,516	\$(67,676)	\$751,005
Capital expenditures	\$322,362	\$58,925	\$247,223	\$628,510

The following table reconciles total consolidated EBITDA to reported Income (loss) from continuing operations before income taxes in our Consolidated Statements of Operations:

	For the Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
EBITDA	\$756,669	\$794,577	\$751,005
Interest income and expense, net	(168,293)	(172,621)	(102,237)
Depreciation and amortization	(598,178)	(522,190)	(432,904)
Net income attributable to noncontrolling interests	1,842	928	762
Income (loss) from continuing operations before income taxes	\$(7,960)	\$100,694	\$216,626

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Geographic Information and Transactions with Major Customers

Geographic Information. Revenue is attributed to geographic regions based upon the location where the goods and services are provided. North America revenue includes transactions with customers in the U.S. and its territories, Mexico and Canada. Central and South America revenue includes transactions with customers in Brazil, Colombia, Peru, Ecuador and other countries in this region. All other revenue includes transactions with customers in Asia, Africa, Australia, Europe, and the Middle East. The following table summarizes total long-lived assets and revenue attributed to the North America, South and Central America and other foreign locations.

Long-lived assets:	As of December 31,		
	2018	2017	
	(In thousands)		
North America	\$4,114,087	\$4,221,793	
Central and South America	226,232	213,890	
All other	118,647	129,852	
Total long-lived assets	\$4,458,966	\$4,565,535	

Revenue:	For the Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
North America	\$1,819,463	\$1,612,349	\$1,566,576
Central and South America	101,632	90,000	50,952
All other	170,268	183,159	192,938
Total revenue	\$2,091,363	\$1,885,508	\$1,810,466

Transactions with Major Customers

For the years ended December 31, 2018, 2017 and 2016, our revenue included sales to one major customer. The following table summarizes sales to this customer and its percentage of total revenue.

	For the Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
Total revenue:			
DISH Network:			
Hughes segment	\$50,275	\$82,625	\$107,300
EchoStar Satellite Services segment	309,815	344,841	349,549
Corporate and Other	19,075	18,522	15,433
Total DISH Network	379,165	445,988	472,282
All other	1,712,198	1,439,520	1,338,184
Total revenue	\$2,091,363	\$1,885,508	\$1,810,466

Percentage of total revenue:				
DISH Network	18.1	% 23.7	% 26.1	%
All other	81.9	% 76.3	% 73.9	%

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 19. QUARTERLY FINANCIAL DATA (UNAUDITED)

Our quarterly results of operations are summarized as follows:

	For the Three Months Ended			
	March 31	June 30	September 30	December 31 (2)
	(In thousands, except per share amounts)			
Year Ended December 31, 2018				
Total revenue	\$501,792	\$525,957	\$ 532,953	\$ 530,661
Operating income	\$58,010	\$74,765	\$ 70,035	\$(19,567)
Net income (loss)	\$(21,171)	\$77,684	\$ 16,502	\$(111,648)
Net income (loss) attributable to EchoStar common stock	\$(21,551)	\$77,222	\$ 16,052	\$(112,198)
Basic earnings (loss) per share	\$(0.22)	\$0.80	\$ 0.17	\$(1.17)
Diluted earnings (loss) per share	\$(0.22)	\$0.80	\$ 0.17	\$(1.17)
Year Ended December 31, 2017				
Total revenue (1)	\$433,151	\$465,076	\$ 481,233	\$ 506,048
Operating income (1)	\$51,651	\$45,890	\$ 56,414	\$42,352
Net income	\$37,352	\$7,122	\$ 35,201	\$ 313,814
Net income attributable to EchoStar common stock	\$38,924	\$6,940	\$ 34,669	\$ 313,237
Basic earnings per share	\$0.41	\$0.07	\$ 0.36	\$ 3.29
Diluted earnings per share	\$0.41	\$0.07	\$ 0.36	\$ 3.23

(1) As a result of the Share Exchange, the consolidated financial statements of the EchoStar Technologies businesses have been presented as discontinued operations and, as such, have been excluded from the quarterly financial data presented above for all periods presented. See Note 4 in the notes to our accompanying Consolidated Financial Statements for further discussion of our discontinued operations.

(2) Net income and related per share amounts for the three months ended December 31, 2018 include an impairment charge of \$65 million related to certain long-lived assets in Brazil. See Note 10 for additional information related to the impairment charge. Net income and related per share amounts for the three months ended December 31, 2017 include a discrete income tax benefit of \$304 million related to the enactment of federal tax legislation in December 2017, a gain of \$23 on our trading securities, and an impairment loss of \$11 million relating to our regulatory authorizations with indefinite lives and certain projects in construction in progress. See Note 13 for additional information relating to the income tax benefit.

NOTE 20. RELATED PARTY TRANSACTIONS

DISH Network

EchoStar Corporation and DISH have operated as separate publicly-traded companies since 2008. In addition, prior to the consummation of the Share Exchange in February 2017, DISH Network owned the Tracking Stock, which represented an aggregate 80.0% economic interest in the residential retail satellite broadband business of our Hughes segment. Following the consummation of the Share Exchange, the Tracking Stock was retired. A substantial majority of the voting power of the shares of each of EchoStar Corporation and DISH is owned beneficially by Charles W. Ergen, our Chairman, and by certain entities established by Mr. Ergen for the benefit of his family.

In connection with and following both the Spin-off and the Share Exchange, we and DISH Network entered into certain agreements pursuant to which we obtain certain products, services and rights from DISH Network; DISH Network obtains certain products, services and rights from us; and we and DISH Network indemnify each other against certain liabilities arising from our respective businesses. We also may enter into additional agreements with DISH Network in the future. Generally, the amounts we or DISH Network pay for products and services provided under the agreements are based on cost plus a fixed margin (unless noted differently below), which varies depending on the nature of the products and services provided.

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The following is a summary of the terms of our principal agreements with DISH Network that may have an impact on our financial condition and results of operations.

Services and Other Revenue — DISH Network

Satellite Capacity Leased to DISH Network. We have entered into certain agreements to lease satellite capacity pursuant to which we provide satellite services to DISH Network on certain satellites owned or leased by us. The fees for the services provided under these agreements depend, among other things, upon the orbital location of the applicable satellite, the number of transponders that are providing services on the applicable satellite and the length of the service arrangements. The terms of each service arrangement is set forth below:

EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV. In March 2014, as part of the Satellite and Tracking Stock Transaction, described below in Other Agreements - DISH Network, we began leasing certain satellite capacity to DISH Network on the EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV satellites. These agreements to lease satellite capacity generally terminate upon the earlier of: (i) the end of life of the satellite; (ii) the date the satellite fails; or (iii) a certain date, which depends upon, among other things, the estimated useful life of the satellite. DISH Network generally has the option to renew each agreement to lease satellite capacity on a year-to-year basis through the end of the respective satellite's life. There can be no assurance that any options to renew such agreements will be exercised. The agreement to lease satellite capacity on the EchoStar VII satellite expired at the end of June 2018.

EchoStar IX. Effective January 2008, DISH Network began leasing satellite capacity from us on the EchoStar IX satellite. Subject to availability, DISH Network generally has the right to continue leasing satellite capacity from us on the EchoStar IX satellite on a month-to-month basis.

EchoStar XII. DISH Network leased satellite capacity from us on the EchoStar XII satellite. The agreement to lease satellite capacity expired at the end of September 2017.

EchoStar XVI. In December 2009, we entered into an initial ten-year agreement to lease satellite capacity to DISH Network, pursuant to which DISH Network has leased satellite capacity from us on the EchoStar XVI satellite since January 2013. Effective December 2012, we and DISH Network amended the agreement to, among other things, change the initial term to generally expire upon the earlier of: (i) the end-of-life or replacement of the satellite; (ii) the date the satellite fails; (iii) the date the transponder(s) on which service is being provided under the agreement fails; or (iv) four years following the actual service commencement date. In July 2016, we and DISH Network further amended the agreement to, among other things, extend the initial term by one additional year through January 2018 and to reduce the term of the first renewal option by one year. In May 2017, DISH Network renewed the agreement through January 2023. DISH Network has the option to renew for an additional five-year period prior to expiration of the current term. There can be no assurance that such option to renew this agreement will be exercised. In the event that DISH Network does not exercise its five-year renewal option, DISH Network has the option to purchase the EchoStar XVI satellite for a certain price. If DISH Network does not elect to purchase the EchoStar XVI satellite at that time, we may sell the EchoStar XVI satellite to a third party and DISH Network is required to pay us a certain amount in the event we are not able to sell the EchoStar XVI satellite for more than a certain amount. We and DISH Network have amended the agreement to allow DISH Network to place and use certain satellites at the 61.5 degree west longitude orbital location.

Nimiq 5 Agreement. In September 2009, we entered into a fifteen-year agreement with Telesat Canada to lease satellite capacity from Telesat Canada on all 32 direct broadcast satellite (“DBS”) transponders on the Nimiq 5 satellite at the 72.7 degree west longitude orbital location (the “Telesat Transponder Agreement”). In September 2009, we also entered into an agreement with DISH Network, pursuant to which DISH Network leases satellite capacity from us on all 32 of the DBS transponders covered by the Telesat Transponder Agreement (the “DISH Nimiq 5 Agreement”).

Under the terms of the DISH Nimiq 5 Agreement, DISH Network makes certain monthly payments to us that commenced in September 2009, when the Nimiq 5 satellite was placed into service, and continue through the service term. Unless earlier terminated under the terms and conditions of the DISH Nimiq 5 Agreement, the service term will expire in October 2019. Upon expiration of the initial term, DISH Network has the option to renew the

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DISH Nimiq 5 Agreement on a year-to-year basis through the end of life of the Nimiq 5 satellite. Upon in-orbit failure or end of life of the Nimiq 5 satellite, and in certain other circumstances, DISH Network has certain rights to lease satellite capacity from us on a replacement satellite. There can be no assurance that any options to renew the DISH Nimiq 5 Agreement will be exercised or that DISH Network will exercise its option to lease satellite capacity on a replacement satellite.

QuetzSat-1 Agreement. In November 2008, we entered into a ten-year agreement to lease satellite capacity from SES Latin America, which provides, among other things, for the provision by SES Latin America to us of leased satellite capacity on 32 DBS transponders on the QuetzSat-1 satellite. Concurrently, in 2008, we entered into an agreement pursuant to which DISH Network leases from us satellite capacity on 24 of the DBS transponders on the QuetzSat-1 satellite. The QuetzSat-1 satellite was launched in September 2011 and was placed into service in November 2011 at the 67.1 degree west longitude orbital location. In January 2013, the QuetzSat-1 satellite was moved to the 77 degree west longitude orbital location. In February 2013, we and DISH Network entered into an agreement pursuant to which we lease back from DISH Network certain satellite capacity on five DBS transponders on the QuetzSat-1 satellite through November 2021, unless extended or earlier terminated under the terms and conditions of our agreement.

Under the terms of our contractual arrangements with DISH Network, we began leasing satellite capacity to DISH Network on the QuetzSat-1 satellite in February 2013 and will continue leasing such capacity through November 2021, unless extended or earlier terminated under the terms and conditions of our agreement with DISH Network for the QuetzSat-1 satellite. Upon expiration of the initial service term, DISH Network has the option to renew the agreement for the QuetzSat-1 satellite on a year-to-year basis through the end of life of the QuetzSat-1 satellite. Upon an in-orbit failure or end of life of the QuetzSat-1 satellite, and in certain other circumstances, DISH Network has certain rights to lease satellite capacity from us on a replacement satellite. There can be no assurance that any options to renew this agreement will be exercised or that DISH Network will exercise its option to lease satellite capacity on a replacement satellite.

103 Degree Orbital Location/SES-3. In May 2012, we entered into a spectrum development agreement (the “103 Spectrum Development Agreement”) with Ciel Satellite Holdings Inc. (“Ciel”) to develop certain spectrum rights at the 103 degree west longitude orbital location (the “103 Spectrum Rights”). In June 2013, we and DISH Network entered into a spectrum development agreement (the “DISH 103 Spectrum Development Agreement”) pursuant to which DISH Network may use and develop the 103 Spectrum Rights. Effective in March 2018, DISH Network exercised its right to terminate the DISH 103 Spectrum Development Agreement and we exercised our right to terminate the 103 Spectrum Development Agreement.

In connection with the 103 Spectrum Development Agreement, in May 2012, we also entered into a ten-year agreement with Ciel pursuant to which we leased certain satellite capacity from Ciel on the SES-3 satellite at the 103 degree west longitude orbital location (the “Ciel 103 Agreement”). In June 2013, we and DISH Network entered into an agreement pursuant to which DISH Network leased certain satellite capacity from us on the SES-3 satellite (the “DISH 103 Agreement”). Under the terms of the DISH 103 Agreement, DISH Network made certain monthly payments to us through the service term. Effective in March 2018, DISH Network exercised its right to terminate the DISH 103 Agreement and we exercised our right to terminate the Ciel 103 Agreement.

TT&C Agreement. Effective January 2012, we entered into a TT&C agreement pursuant to which we provided TT&C services to DISH Network for a period ending in December 2016 (the “TT&C Agreement”). We and DISH Network have amended the TT&C Agreement over time to, among other things, extend the term through February 2023. The

fees for services provided under the TT&C Agreement are calculated at either: (i) a fixed fee or (ii) cost plus a fixed margin, which will vary depending on the nature of the services provided. DISH Network is able to terminate the TT&C Agreement for any reason upon 12 months' notice.

Effective March 2014, we provide TT&C services for the D-1 and EchoStar XV satellites; however, for the period that we received satellite services on the EchoStar XV satellite from DISH Network, we waived the fees for the TT&C services on the EchoStar XV satellite. Effective August 2016, we provide TT&C services to DISH Network for the EchoStar XVIII satellite.

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Real Estate Leases to DISH Network. We have entered into lease agreements pursuant to which DISH Network leases certain real estate from us. The rent on a per square foot basis for each of the leases is comparable to per square foot rental rates of similar commercial property in the same geographic area at the time of the lease, and DISH Network is responsible for its portion of the taxes, insurance, utilities and maintenance of the premises. The term of each of the leases is set forth below:

100 Inverness Agreement. Effective March 2017, DISH Network is licensed to use certain of our space at 100 Inverness Terrace East, Englewood, Colorado for a period ending in December 2020. This agreement may be terminated by either party upon 180 days' prior notice. This agreement may be extended by mutual consent, in which case this agreement will be converted to a month-to-month lease agreement. Upon extension, either party has the right to terminate this agreement upon 30 days' notice.

90 Inverness Lease Agreement. The lease for certain space at 90 Inverness Circle East, Englewood, Colorado was for a period ending in December 2016. In February 2016, DISH Network terminated this lease effective in August 2016.

Meridian Lease Agreement. The lease for all of 9601 S. Meridian Blvd., Englewood, Colorado was for a period ending in December 2016. We and DISH Network have amended this lease over time to, among other things, extend the term through December 2019. After December 2019, this agreement may be converted by mutual consent to a month-to-month lease agreement with either party having the right to terminate upon 30 days' notice.

Santa Fe Lease Agreement. The lease for all of 5701 S. Santa Fe Dr., Littleton, Colorado was for a period ending in December 2016. We and DISH Network have amended this lease over time to, among other things, extend the term through December 2019. After December 2019, this agreement may be converted by mutual consent to a month-to-month lease agreement with either party having the right to terminate upon 30 days' notice.

Atlanta Sublease Agreement. The sublease for certain space at 211 Perimeter Center, Atlanta, Georgia terminated in October 2016.

Cheyenne Lease Agreement. Prior to the Share Exchange, we leased to DISH Network certain space at 530 EchoStar Drive, Cheyenne, Wyoming. In connection with the Share Exchange, we transferred ownership of a portion of this property to DISH Network and we and DISH Network amended this agreement to (i) terminate the lease for the transferred space and (ii) provide for a continued lease to DISH Network of the portion of the property we retained for a period ending in December 2031. After December 2031, this agreement may be converted by mutual consent to a month-to-month lease agreement with either party having the right to terminate upon 30 days' notice.

TerreStar Agreement. In March 2012, DISH Network completed its acquisition of substantially all the assets of TerreStar Networks Inc. ("TerreStar"). Prior to DISH Network's acquisition of substantially all the assets of TerreStar and our completion of the Hughes Acquisition, TerreStar and HNS entered into various agreements pursuant to which we provide, among other things, warranty, operations and maintenance and hosting services for TerreStar's ground-based communications equipment. In December 2017, we and DISH Network amended these agreements, effective as of January 1, 2018, to reduce certain pricing terms through December 31, 2023 and to modify certain termination provisions. DISH Network generally has the right to continue to receive warranty services from us for our products on a month-to-month basis unless terminated by DISH Network upon at least 21 days' written notice to us. DISH Network generally has the right to continue to receive operations and maintenance services from us on a quarter-to-quarter basis unless operations and maintenance services are terminated by DISH Network upon at least 90

days' written notice to us. The provision of hosting services will continue until May 2022. In addition, DISH Network generally may terminate any and all services for convenience subject to providing us with prior notice and/or payment of termination charges.

Hughes Broadband Distribution Agreement. Effective October 2012, we and DISH Network, entered into a distribution agreement (the "Distribution Agreement") pursuant to which DISH Network has the right, but not the obligation, to market, sell and distribute our HughesNet satellite internet service (the "HughesNet service"). DISH Network pays us a monthly per subscriber wholesale service fee for the HughesNet service based upon a subscriber's service level and based upon certain volume subscription thresholds. The Distribution Agreement also provides that

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DISH Network has the right, but not the obligation, to purchase certain broadband equipment from us to support the sale of the HughesNet service. The Distribution Agreement had an initial term of five years with automatic renewal for successive one year terms unless terminated by either party with a written notice at least 180 days before the expiration of the then-current term. In February 2014, we and DISH Network entered into an amendment to the Distribution Agreement which, among other things, extended the initial term of the Distribution Agreement until March 2024. Upon expiration or termination of the Distribution Agreement, we and DISH Network will continue to provide our HughesNet service to the then-current DISH Network subscribers pursuant to the terms and conditions of the Distribution Agreement.

DBSD North America Agreement. In March 2012, DISH Network completed its acquisition of 100% of the equity of reorganized DBSD North America, Inc. (“DBSD North America”). Prior to DISH Network’s acquisition of DBSD North America and our completion of the Hughes Acquisition, DBSD North America and HNS entered into various agreements pursuant to which we provide, among other things, warranty, operations and maintenance and hosting services of DBSD North America’s gateway and ground-based communications equipment. In December 2017, we and DBSD North America amended these agreements, effective as of January 1, 2018, to reduce certain pricing terms through December 31, 2023 and to modify certain termination provisions. DBSD North America has the right to continue to receive operations and maintenance services from us on a quarter-to-quarter basis, unless terminated by DBSD North America upon at least 120 days’ written notice to us. In February 2019, we further amended these agreements to provide DBSD North America with the right to continue to receive warranty services from us on a month-to-month basis until December 2023, unless terminated by DBSD North America upon at least 21 days’ written notice to us. The provision of hosting services will continue until February 2022 and will automatically renew for an additional five-year period until February 2027 unless terminated by DBSD North America upon at least 180 days’ written notice to us. In addition, DBSD North America generally may terminate any and all such services for convenience, subject to providing us with prior notice and/or payment of termination charges.

RUS Implementation Agreement. In September 2010, DISH Network was selected by the Rural Utilities Service (“RUS”) of the U.S. Department of Agriculture to receive up to approximately \$14 million in broadband stimulus grant funds. Effective November 2011, we and DISH Network entered into a RUS Implementation Agreement (the “RUS Agreement”) pursuant to which we provided certain portions of the equipment and broadband service used to implement DISH Network’s RUS program. While the RUS Agreement expired in June 2013 when the broadband stimulus grant funds were exhausted, we are required to continue providing services to DISH Network’s customers activated prior to the expiration of the RUS Agreement in accordance with the terms and conditions of the RUS Agreement.

Hughes Equipment and Services Agreement. In February 2019, we and DISH Network entered into an agreement pursuant to which we will sell to DISH Network our HughesNet Service and HughesNet equipment that has been modified to meet DISH Network’s internet-of-things specifications for the transfer of data to DISH Network’s network operations centers. This agreement has an initial term of five years expiring February 2024 with automatic renewal for successive one-year terms unless terminated by DISH Network with at least 180 days’ written notice to us or by us with at least 365 days’ written notice to DISH Network.

General and Administrative Expenses — DISH Network

Amended and Restated Professional Services Agreement. In connection with the Spin-off, we entered into various agreements with DISH Network including a transition services agreement, satellite procurement agreement and

services agreement, which all expired in January 2010 and were replaced by a professional services agreement (the “Professional Services Agreement”). In January 2010, we and DISH Network agreed that we continue to have the right, but not the obligation, to receive the following services from DISH Network, among others, certain of which were previously provided under a transition services agreement: information technology, travel and event coordination, internal audit, legal, accounting and tax, benefits administration, program acquisition services and other support services. Mr. Vivek Khemka, who was then employed as DISH Network’s Executive Vice President and Chief Technology Officer, provided services to us during portions of 2016 and through February 2017 pursuant to the Professional Services Agreement as President -- EchoStar Technologies L.L.C. Additionally, we and DISH Network agreed that DISH Network would continue to have the right, but not the obligation, to engage us to manage the process of procuring new satellite capacity for DISH Network (previously provided under a satellite procurement agreement), receive logistics, procurement and quality assurance services from us (previously provided under a services agreement) and provide other support services. In connection with the consummation of the Share Exchange, we and DISH

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amended and restated the Professional Services Agreement (the “Amended and Restated Professional Services Agreement”) to provide that we and DISH Network shall have the right to receive additional services that either we or DISH Network may require as a result of the Share Exchange, including access to antennas owned by DISH Network for our use in performing TT&C services and maintenance and support services for our antennas. The term of the Amended and Restated Professional Services Agreement is through January 2020 and renews automatically for successive one-year periods thereafter, unless the agreement is terminated earlier by either party upon at least 60 days’ notice. We or DISH Network may generally terminate the Amended and Restated Professional Services Agreement in part with respect to any particular service it receives for any reason upon at least 30 days’ notice, unless the statement of work for particular services states otherwise. Certain services being provided for under the Amended and Restated Professional Services Agreement may survive the termination of the agreement.

Real Estate Leases from DISH Network. We have entered into lease agreements pursuant to which we lease certain real estate from DISH Network. The rent on a per square foot basis is comparable to per square foot rental rates of similar commercial property in the same geographic area at the time of the leases, and for certain properties, we are responsible for our portion of the taxes, insurance, utilities and maintenance of the premises.

Cheyenne Lease Agreement. Effective March 2017 we lease from DISH Network certain space at 530 EchoStar Drive in Cheyenne, Wyoming for a period ending in February 2019. In August 2018, we exercised our option to renew this lease for a one year period ending in February 2020. We have the option to renew this lease for twelve one-year periods.

Gilbert Lease Agreement. Effective March 2017 we lease from DISH Network certain space at 801 N. DISH Dr. in Gilbert, Arizona for a period ending in February 2019. In August 2018, we exercised our option to renew this lease for a one year period ending in February 2020. We have the option to renew this lease for twelve one-year periods.

American Fork Occupancy License Agreement. In connection with the Share Exchange, effective March 2017, we subleased from DISH Network certain space at 796 East Utah Valley Drive in American Fork, Utah for a period ending in August 2017. We exercised our option to renew this sublease for a five-year period ending in August 2022.

Employee Matters Agreement. Effective March 2017 in connection with the Share Exchange, we and DISH Network entered into an employee matters agreement that addressed the transfer of employees from EchoStar to DISH Network, including certain benefit and compensation matters and the allocation of responsibility for employee related liabilities relating to current and past employees of the transferred businesses. DISH Network assumed employee-related liabilities relating to the transferred businesses as part of the Share Exchange, except that we are responsible for certain existing employee related litigation as well as certain pre-Share Exchange compensation and benefits for employees transferring to DISH Network in connection with the Share Exchange.

Collocation and Antenna Space Agreements. We and DISH Network have entered into an agreement pursuant to which DISH Network provides us with collocation space in El Paso, Texas. This agreement was for an initial period ending in August 2015, and provides us with renewal options for four consecutive years. Effective August 2015, we exercised our first renewal option for a period ending in August 2018, and in April 2018 we exercised our second renewal option for a period ending in August 2021. In connection with the Share Exchange, effective March 2017, we also entered into certain agreements pursuant to which DISH Network provides collocation and antenna space to EchoStar through February 2022 at the following locations: Cheyenne, Wyoming; Gilbert, Arizona; New Braunfels, Texas; Monee, Illinois; Spokane, Washington; and Englewood, Colorado. In August 2017, we and DISH Network

also entered into certain other agreements pursuant to which DISH Network provides additional collocation and antenna space to EchoStar in Monee, Illinois and Spokane, Washington through August 2022. We generally may renew our collocation and antenna space agreements for three-year periods by providing DISH Network with prior written notice no more than 120 days but no less than 90 days prior to the end of the then-current term. We may terminate certain of these agreements with 180 days' prior written notice. The fees for the services provided under these agreements depend on the number of racks leased at the location.

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Other Agreements — DISH Network

Satellite and Tracking Stock Transaction. In February 2014, we entered into agreements with DISH Network to implement a transaction pursuant to which, among other things: (i) in March 2014, EchoStar and HSS issued the Tracking Stock to DISH Network in exchange for five satellites owned by DISH Network (EchoStar I, EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV) (including assumption of related in-orbit incentive obligations) and approximately \$11 million in cash; and (ii) in March 2014, DISH Network began receiving certain satellite services from us as discussed above on these five satellites (collectively, the “Satellite and Tracking Stock Transaction.”) The Tracking Stock was retired in March 2017 and is no longer outstanding and all agreements, arrangements and policy statements with respect to such Tracking Stock terminated and are of no further effect.

Share Exchange Agreement. On January 31, 2017, EchoStar Corporation and certain of our subsidiaries entered into a share exchange agreement (the “Share Exchange Agreement”) with DISH and certain of its subsidiaries pursuant to which, on February 28, 2017, we received all of the shares of the Tracking Stock in exchange for 100% of the equity interests of certain EchoStar subsidiaries that held substantially all of our EchoStar Technologies businesses and certain other assets. Following consummation of the Share Exchange on February 28, 2017, we no longer operate the transferred EchoStar Technologies businesses and the Tracking Stock was retired and is no longer outstanding and all agreements, arrangements and policy statements with respect to such Tracking Stock terminated and are of no further effect. Pursuant to the Share Exchange Agreement, we transferred certain assets, investments in joint ventures, spectrum licenses and real estate properties and DISH Network assumed certain liabilities relating to the transferred assets and businesses. The Share Exchange Agreement contained customary representations and warranties by the parties, including representations by us related to the transferred assets, assumed liabilities and the financial condition of the transferred businesses. We and DISH Network also agreed to customary indemnification provisions whereby each party indemnifies the other against certain losses with respect to breaches of representations, warranties or covenants and certain liabilities and if certain actions undertaken by us or DISH causes the transaction to be taxable to the other party after closing. See Notes 1 and 4 for further information.

Hughes Broadband Master Services Agreement. In March 2017, we and DISH Network entered into a master service agreement (the “Hughes Broadband MSA”) pursuant to which DISH Network, among other things: (i) has the right, but not the obligation, to market, promote and solicit orders and upgrades for our HughesNet service and related equipment and other telecommunication services and (ii) installs HughesNet service equipment with respect to activations generated by DISH Network. Under the Hughes Broadband MSA, we and DISH Network make certain payments to each other relating to sales, upgrades, purchases and installation services. The Hughes Broadband MSA has an initial term of five years until March 2022 with automatic renewal for successive one-year terms. Upon expiration or termination of the Hughes Broadband MSA, we will continue to provide our HughesNet service to subscribers and make certain payments to DISH Network pursuant to the terms and conditions of the Hughes Broadband MSA. We incurred sales incentives and other costs under the Hughes Broadband MSA totaling \$33 million and \$29 million for the year ended December 31, 2018 and 2017, respectively.

Intellectual Property and Technology License Agreement. Effective March 2017 in connection with the Share Exchange, we and DISH Network entered into an Intellectual Property and Technology License Agreement (“IPTLA”) pursuant to which we and DISH Network license to each other certain intellectual property and technology. The IPTLA will continue in perpetuity, unless mutually terminated by the parties. Pursuant to the IPTLA, we granted to DISH Network a license to our intellectual property and technology for use by DISH Network, among other things, in connection with its continued operation of the businesses acquired pursuant to the Share Exchange, including a limited

license to use the “EHOSTAR” trademark during a transition period. EchoStar retains full ownership of the “EHOSTAR” trademark. In addition, DISH Network granted a license back to us, among other things, for the continued use of all intellectual property and technology that is used in our retained businesses but the ownership of which was transferred to DISH Network pursuant to the Share Exchange.

Tax Matters Agreement. Effective March 2017, in connection with the Share Exchange, we and DISH entered into a tax matters agreement. This agreement governs certain of our rights, responsibilities and obligations with respect to taxes of the transferred businesses pursuant to the Share Exchange. Generally, we are responsible for all tax returns and tax liabilities for the transferred businesses and assets for periods prior to the Share Exchange and DISH Network is responsible for all tax returns and tax liabilities for the transferred businesses and assets from and after the Share Exchange. Both we and DISH Network made certain tax-related representations and are subject to various tax-related

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covenants after the consummation of the Share Exchange. Both we and DISH Network have agreed to indemnify each other if there is a breach of any such tax representation or violation of any such tax covenant and that breach or violation results in the Share Exchange not qualifying for tax free treatment for the other party. In addition, DISH Network has agreed to indemnify us if the transferred businesses are acquired, either directly or indirectly (e.g., via an acquisition of DISH Network), by one or more persons and such acquisition results in the Share Exchange not qualifying for tax free treatment. The tax matters agreement supplements the Tax Sharing Agreement outlined below, which continues in full force and effect.

Tax Sharing Agreement. Effective December 2007, we and DISH Network entered into a tax sharing agreement (the “Tax Sharing Agreement”) in connection with the Spin-off. This agreement governs our and DISH Network’s respective rights, responsibilities and obligations after the Spin-off with respect to taxes for the periods ending on or before the Spin-off. Generally, all pre-Spin-off taxes, including any taxes that are incurred as a result of restructuring activities undertaken to implement the Spin-off, are borne by DISH Network, and DISH Network indemnifies us for such taxes. However, DISH Network is not liable for and does not indemnify us for any taxes that are incurred as a result of the Spin-off or certain related transactions failing to qualify as tax-free distributions pursuant to any provision of Section 355 or Section 361 of the Code, because of: (i) a direct or indirect acquisition of any of our stock, stock options or assets; (ii) any action that we take or fail to take; or (iii) any action that we take that is inconsistent with the information and representations furnished to the IRS in connection with the request for the private letter ruling, or to counsel in connection with any opinion being delivered by counsel with respect to the Spin-off or certain related transactions. In such case, we will be solely liable for, and will indemnify DISH Network for, any resulting taxes, as well as any losses, claims and expenses. The Tax Sharing Agreement will terminate after the later of the full period of all applicable statutes of limitations, including extensions, or once all rights and obligations are fully effectuated or performed.

In light of the Tax Sharing Agreement, among other things, and in connection with our consolidated federal income tax returns for certain tax years prior to and for the year of the Spin-off, in September 2013, we and DISH Network agreed upon a supplemental allocation of the tax benefits arising from certain tax items resolved in the course of the IRS’s examination of our consolidated tax returns. Prior to the agreement with DISH Network in 2013, the federal tax benefits were reflected as a deferred tax asset for depreciation and amortization, which was netted in our noncurrent deferred tax liabilities. The agreement with DISH Network in 2013 requires DISH Network to pay us the federal tax benefit it receives at such time as we would have otherwise been able to realize such tax benefit. We recorded a noncurrent receivable from DISH Network in Other receivables - DISH Network and a corresponding increase in our Deferred tax liabilities, net to reflect the effects of this agreement in September 2013. In addition, in September 2013, we and DISH Network agreed upon a tax sharing arrangement for filing certain combined state income tax returns and a method of allocating the respective tax liabilities between us and DISH Network for such combined returns, through the taxable period ending on December 31, 2017 (the “State Tax Arrangement”).

In August 2018, we and DISH Network amended the Tax Sharing Agreement and the 2013 agreements (the “Tax Sharing Amendment”). Under the Tax Sharing Amendment, to the extent permitted by applicable tax law, DISH Network is entitled to apply the benefit of our 2009 net operating losses (the “SATS 2009 NOLs”) to DISH Network’s federal tax return for the year ended December 31, 2008, in exchange for DISH Network paying us over time the value of the net annual federal income taxes paid by us that would have been otherwise offset by the SATS 2009 NOLs. The Tax Sharing Amendment also requires us and DISH Network to pay the other for the benefits of certain past and future federal research and development tax credits that we or DISH Network receive or received as a result of being part of a controlled group under the Code, and requires DISH Network to compensate us for certain past tax

losses utilized by DISH Network and for certain past and future excess California research and development tax credits generated by us and used by DISH Network. In addition, the Tax Sharing Amendment extends the term of the State Tax Arrangement to the earlier to occur of termination of the Tax Sharing Agreement, a change in control of either us or DISH Network or, for any particular state, if we and DISH Network no longer file a combined tax return for such state.

We and DISH Network file combined income tax returns in certain states. We have earned and recognized tax benefits for certain state income tax credits that we would be unable to utilize currently if we had filed separately from DISH Network. We have charged Additional paid-in capital in prior periods when DISH Network has utilized such tax benefits. We expect to increase Additional paid-in capital upon receipt of any consideration that DISH Network pays to us in exchange for these tax credits.

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gTLD Bidding Agreement. In April 2015, we and DISH Network entered into a generic top level domain (“gTLD”) Bidding Agreement whereby, among other things: (i) DISH Network obtained rights from us to participate in a gTLD auction, assuming all rights and obligations from us related to our application with the Internet Corporation for Assigned Names and Numbers for a particular gTLD; (ii) DISH Network agreed to reimburse us for our Internet Corporation for Assigned Names and Numbers application fee and certain out-of-pocket expenses related to the application and the auction; and (iii) we and DISH Network agreed to split equally the net proceeds obtained by DISH Network as the losing bidder in the auction, less such fee reimbursement and out-of-pocket expenses.

Patent Cross-License Agreements. In December 2011, we and DISH Network entered into separate patent cross-license agreements with the same third party whereby: (i) we and such third party licensed our respective patents to each other subject to certain conditions; and (ii) DISH Network and such third party licensed their respective patents to each other subject to certain conditions (each, a “Cross-License Agreement”). Each Cross-License Agreement covers patents acquired by the respective party prior to January 2017 and aggregate payments under both Cross-License Agreements were less than \$10 million. Each Cross-License Agreement contained an option to extend each Cross-License Agreement to include patents acquired by the respective party prior to January 2022. In December 2016, both we and DISH Network exercised our respective renewal options, resulting in aggregate additional payments to such third party totaling less than \$3 million. Since the aggregate payments under both Cross-License Agreements were based on the combined annual revenue of us and DISH Network, we and DISH Network agreed to allocate our respective payments to such third party based on our respective percentage of combined total revenue.

Caltech. On October 1, 2013, Caltech Institute of Technology (“Caltech”) filed complaints against us and DISH Network, in the U.S. District Court for the Central District of California alleging infringement of U.S. Patent Nos. 7,116,710; 7,421,032; 7,916,781; and 8,284,833, each of which is entitled “Serial Concatenation of Interleaved Convolutional Codes forming Turbo-Like Codes.” Caltech asserted that encoding data as specified by the DVB-S2 standard infringed each of the asserted patents. Caltech claimed that certain of our satellite broadband products and services, infringed the asserted patents by implementing the DVB-S2 standard. Pursuant to a settlement agreement among us, DISH Network and Caltech, Caltech dismissed with prejudice all of its claims in these actions in May 2016.

Orange, NJ. In October 2016, we and DISH Network sold two parcels of real estate owned separately by us and DISH Network in Orange, NJ to a third party pursuant to a purchase and sale agreement. Pursuant to the agreement, we and DISH Network separately received our respective payments from the buyer.

Invidi. In November 2010 and April 2011, we made investments in Invidi in exchange for shares of Invidi’s Series D Preferred Stock. In November 2016, DIRECTV, LLC, a wholly owned indirect subsidiary of AT&T Inc., DISH Network and Cavendish Square Holding B.V., an affiliate of WPP plc, entered into a series of agreements to acquire Invidi. As a result of the transaction, we sold our ownership interest in Invidi on the same terms offered to the other shareholders of Invidi. The transaction closed in January 2017.

Other Agreements

Hughes Systique Corporation (“Hughes Systique”)

We contract with Hughes Systique for software development services. In addition to our approximately 43.4% ownership in Hughes Systique, Mr. Pradman Kaul, the President of Hughes Communications, Inc. and a member of our board of directors, and his brother, who is the Chief Executive Officer and President of Hughes Systique, in the aggregate, own approximately 25.5%, on an undiluted basis, of Hughes Systique's outstanding shares as of December 31, 2018. Furthermore, Mr. Pradman Kaul serves on the board of directors of Hughes Systique. Hughes Systique is a variable interest entity and we are considered the primary beneficiary of Hughes Systique due to, among other factors, our ability to direct the activities that most significantly impact the economic performance of Hughes Systique. As a result, we consolidate Hughes Systique's financial statements in our accompanying Consolidated Financial Statements.

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Dish Mexico

We own 49.0% of Dish Mexico, an entity that provides direct-to-home satellite services in Mexico. We provide certain satellite services to Dish Mexico. We recognized revenue from sales of services we provided to Dish Mexico of approximately \$23 million for each of the years ended December 31, 2018, 2017 and 2016. As of December 31, 2018 and 2017, we had trade accounts receivable from Dish Mexico of approximately \$6 million and \$8 million, respectively.

Deluxe/EchoStar LLC

We own 50.0% of Deluxe/EchoStar LLC (“Deluxe”), a joint venture that we entered into in 2010 to build an advanced digital cinema satellite distribution network targeting delivery to digitally equipped theaters in the U.S. and Canada. We account for our investment in Deluxe using the equity method. We recognized revenue from Deluxe for transponder services and the sale of broadband equipment of approximately \$4 million, \$5 million and \$3 million for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018 and 2017, we had trade accounts receivable from Deluxe of approximately \$1 million and \$1 million, respectively.

AsiaSat

We contract with AsiaSat Telecommunications Inc. (“AsiaSat”) for the use of transponder capacity on one of AsiaSat's satellites. Mr. William David Wade, who joined our board of directors in February 2017, served as the Chief Executive Officer of AsiaSat in 2016 and as a senior advisor to the Chief Executive Officer of AsiaSat through March 2017. We incurred expenses payable to AsiaSat under this agreement of approximately \$0.1 million for the year ended December 31, 2017.

Global IP

In May 2017, we entered into an agreement with Global-IP Cayman (“Global IP”) providing for the sale of certain equipment and services to Global IP. Mr. William David Wade, a member of our board of directors, serves as a member of the board of directors of Global IP and as an executive advisor to the Chief Executive Officer of Global IP. In August 2018, we and Global IP amended the agreement to (i) change certain of the equipment and services to be provided to Global IP; (ii) modify certain payment terms; (iii) provide Global IP an option to use one of our test lab facilities; and (iv) effectuate the assignment of the agreement from Global IP to one of its wholly-owned subsidiaries. In February 2019, we terminated the agreement as a result of Global IP's defaults resulting from its failure to make payments to us as required under the terms of the agreement and we reserved our rights and remedies against Global IP under the agreement. We recognized revenue under this agreement of approximately \$9 million and \$0.3 million for the years ended December 31, 2018 and 2017, respectively. As of December 31, 2018 and 2017, we had trade accounts receivable from Global IP of approximately \$7.5 million and nil, respectively.

TerreStar Solutions

DISH Network owns more than 15% of TerreStar Solutions, Inc. (“TSI”). In May 2018, we and TSI entered into an equipment and services agreement pursuant to which we design, manufacture and install upgraded ground communications network equipment for TSI's network and provides, among other things, warranty and support services. We recognized revenue of approximately \$6 million for the year ended December 31, 2018. As of

December 31, 2018, we had \$2 million trade accounts receivable from TSI.

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Broadband Connectivity Solutions

In August 2018, we entered into an agreement with Al Yah Satellite Communications Company PrJSC (“Yahsat”) to establish a new entity, Broadband Connectivity Solutions (Restricted) Limited (together with its subsidiaries, “BCS”), to provide commercial Ka-band satellite broadband services across Africa, the Middle East and southwest Asia operating over Yahsat's Al Yah 2 and Al Yah 3 Ka-band satellites. The transaction was consummated in December 2018 when we invested \$100 million in cash in exchange for a 20% interest in BCS. Under the terms of the agreement, we may also acquire, for further cash investments, additional ownership interests in BCS in the future provided certain conditions are met. We supply network operations and management services and equipment to BCS. We recognized revenue from BCS for such services and equipment of approximately \$0.7 million for the year ended December 31, 2018. As of December 31, 2018, we had \$3 million trade accounts receivable from BCS.

Discontinued Operations

The following agreements or investments were terminated or transferred to DISH Network as part of the Share Exchange. We have no further obligations, have earned no additional revenue and incurred no additional expense, as applicable, under such agreements and investments after February 2017. Historical transactions under such agreements and investments are reported in Net income from discontinued operations in our Consolidated Statements of Operations (see Notes 1 and 4).

Set-Top Box Application Development Agreement. In November 2012, one of our former subsidiaries and DISH Network entered into a set-top box application development agreement (the “Application Development Agreement”) pursuant to which we provided DISH Network with certain services relating to the development of web-based applications for set-top boxes. The fees for services provided under the Application Development Agreement were calculated at our cost of providing the relevant service plus a fixed margin, which depended on the nature of the services provided.

Receiver Agreement. Effective January 2012, one of our former subsidiaries and DISH Network entered into a receiver agreement (the “2012 Receiver Agreement”), pursuant to which DISH Network had the right, but not the obligation, to purchase digital set-top boxes, related accessories, and other equipment from us. The 2012 Receiver Agreement replaced the receiver agreement one of our former subsidiaries entered into with DISH Network in connection with the Spin-off. The 2012 Receiver Agreement allowed DISH Network to purchase digital set-top boxes, related accessories, and other equipment from us either: (i) at cost (decreasing as we reduced costs and increasing as costs increased) plus a dollar mark-up which depended upon the cost of the product subject to a collar on our mark-up; or (ii) at cost plus a fixed margin, which depended on the nature of the equipment purchased. Under the 2012 Receiver Agreement, our margins would have increased if we were able to reduce the costs of our digital set-top boxes and our margins would have reduced if these costs increased. One of our former subsidiaries provided DISH Network with standard manufacturer warranties for the goods sold under the 2012 Receiver Agreement. Additionally, the 2012 Receiver Agreement included an indemnification provision, whereby the parties agreed to indemnify each other for certain intellectual property matters.

Broadcast Agreement. Effective January 2012, one of our former subsidiaries and DISH Network entered into a broadcast agreement (the “2012 Broadcast Agreement”), pursuant to which we provided certain broadcast services to DISH Network, including teleport services such as transmission and downlinking, channel origination services, and channel management services. The fees for the services provided under the 2012 Broadcast Agreement were

calculated at either: (a) our cost of providing the relevant service plus a fixed dollar fee, which was subject to certain adjustments; or (b) our cost of providing the relevant service plus a fixed margin, depending on the nature of the services provided.

Broadcast Agreement for Certain Sports Related Programming. In May 2010, one of our former subsidiaries and DISH Network entered into a broadcast agreement pursuant to which we provided certain broadcast services to DISH Network in connection with its carriage of certain sports related programming. The fees for the broadcast services provided under this agreement depended, among other things, upon the cost to develop and provide such services.

Gilbert Lease Agreement. DISH Network leased certain space from us at 801 N. DISH Drive, Gilbert, Arizona. The rent on a per square foot basis for this lease was comparable to per square foot rental rates of similar commercial

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property in the same geographic area at the time of the lease, and DISH Network was responsible for its portion of the taxes, insurance, utilities and maintenance of the premises.

Product Support Agreement. In connection with the Spin-off, one of our former subsidiaries entered into a product support agreement pursuant to which DISH Network had the right, but not the obligation, to receive product support from us (including certain engineering and technical support services) for all set-top boxes and related accessories that we had previously sold to DISH Network. The fees for the services provided under the product support agreement were calculated at cost plus a fixed margin, which varied depending on the nature of the services provided. The term of the product support agreement was the economic life of such set-top boxes and related accessories, unless terminated earlier.

DISHOnline.com Services Agreement. Effective January 2010, DISH Network entered into a two-year agreement with one of our former subsidiaries pursuant to which DISH Network received certain services associated with an online video portal. The fees for the services provided under this services agreement depended, among other things, upon the cost to develop and operate such services.

DISH Remote Access Services Agreement. Effective February 2010, one of our former subsidiaries entered into an agreement with DISH Network pursuant to which DISH Network received, among other things, certain remote digital video recorder (“DVR”) management services. The fees for the services provided under this services agreement depended, among other things, upon the cost to develop and operate such services.

SlingService Services Agreement. Effective February 2010, one of our former subsidiaries entered into an agreement with DISH Network pursuant to which DISH Network received certain services related to placeshifting. The fees for the services provided under this services agreement depended, among other things, upon the cost to develop and operate such services.

XiP Encryption Agreement. In July 2012, we entered into an encryption agreement with DISH Network for our whole-home high definition (“HD”) DVR line of set-top boxes (the “XiP Encryption Agreement”) pursuant to which we provided certain security measures on our whole-home HD DVR line of set-top boxes to encrypt the content delivered to the set-top box via a smart card and secure the content between set-top boxes. The XiP Encryption Agreement’s term ended on the same day as the 2012 Receiver Agreement. The fees for the services provided under the XiP Encryption Agreement were calculated on a monthly basis based on the number of receivers utilizing such security measures each month.

Sling TV Holding. Effective July 2012, we and DISH Network formed Sling TV Holding, which was owned two-thirds by DISH Network and one-third by us. Sling TV Holding was formed to develop and commercialize certain advanced technologies. At that time, we, DISH Network and Sling TV Holding entered into the following agreements with respect to Sling TV Holding: (i) a contribution agreement pursuant to which we and DISH Network contributed certain assets in exchange for our respective ownership interests in Sling TV Holding; (ii) a limited liability company operating agreement (“Operating Agreement”), which provided for the governance of Sling TV Holding; and (iii) a commercial agreement (“Commercial Agreement”) pursuant to which, among other things, Sling TV Holding had: (a) certain rights and corresponding obligations with respect to its business; and (b) the right, but not the obligation, to receive certain services from us and DISH Network, respectively. Additionally, the spouse of Mr. Vivek Khemka, who was the President - EchoStar Technologies L.L.C. during portions of 2016 and through February 2017, was employed during 2016 as Vice President of Business Development and Operations of Sling TV Holding.

Effective August 2014, we and Sling TV Holding entered into an exchange agreement (“Exchange Agreement”) pursuant to which, among other things, Sling TV Holding distributed certain assets to us and we reduced our interest in Sling TV Holding to a 10.0% non-voting interest. As a result, DISH Network had a 90.0% equity interest and a 100% voting interest in Sling TV Holding. In addition, we, DISH Network and Sling TV Holding amended and restated the Operating Agreement, primarily to reflect the changes implemented by the Exchange Agreement. Finally, we, DISH Network and Sling TV Holding amended and restated the Commercial Agreement, pursuant to which, among other things, Sling TV Holding: (1) had certain rights and corresponding obligations with respect to its business; (2) had the right, but not the obligation, to receive certain services from us and DISH Network; and (3) had a license from us to use certain of the assets distributed to us as part of the Exchange Agreement.

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ECHOSTAR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Remanufactured Receiver and Services Agreement. In connection with the Spin-off, one of our former subsidiaries entered into a remanufactured receiver and services agreement with DISH Network pursuant to which we had the right, but not the obligation, to purchase remanufactured receivers and related components from DISH Network at cost plus a fixed margin, which varied depending on the nature of the equipment purchased.

Intellectual Property Matters Agreement. We entered into an intellectual property matters agreement (the “Intellectual Property Matters Agreement”) with DISH Network in connection with the Spin-off. The Intellectual Property Matters Agreement governed our relationship with DISH Network with respect to patents, trademarks and other intellectual property. Pursuant to the Intellectual Property Matters Agreement, DISH Network irrevocably assigned to us all right, title and interest in certain patents, trademarks and other intellectual property necessary for the operation of our set-top box business. In addition, the agreement permitted us to use, in the operation of our set-top box business, certain other intellectual property currently owned or licensed by DISH Network. In addition, DISH Network was prohibited from using the “EchoStar” name as a trademark, except in certain limited circumstances. Similarly, the Intellectual Property Matters Agreement provided that we would not make any use of the name or trademark “DISH Network” or any other trademark owned by DISH Network, except in certain circumstances.

TiVo. In April 2011, we and DISH Network entered into a settlement agreement with TiVo, Inc. (“TiVo”). The settlement resolved all pending litigation between us and DISH Network, on the one hand, and TiVo, on the other hand, including litigation relating to alleged patent infringement involving certain DISH Network DVRs. Under the settlement agreement, all pending litigation was dismissed with prejudice and all injunctions that permanently restrain, enjoin or compel any action by us or DISH Network were dissolved. We and DISH Network were jointly responsible for making payments to TiVo in the aggregate amount of \$500 million, including an initial payment of \$300 million and the remaining \$200 million in six equal annual installments between 2012 and 2017. Pursuant to the terms and conditions of the agreements entered into in connection with the Spin-off, DISH Network made the initial payment to TiVo in May 2011, except for the contribution from us totaling approximately \$10 million, representing an allocation of liability relating to our sales of DVR-enabled receivers to an international customer. Subsequent payments were allocated between us and DISH Network based on historical sales of certain licensed products, with EchoStar being responsible for 5% of each annual payment.

Sling Trademark License Agreement. In December 2014, Sling TV Holding entered into an agreement with Sling Media, Inc., our former subsidiary, pursuant to which Sling TV Holding had the right, for a fixed fee, to use certain trademarks, domain names and other intellectual property related to the “Sling” trademark.

NagraStar L.L.C. Prior to March 2017, we owned 50.0% of NagraStar, a joint venture that was the primary provider of encryption and related security technology used in the set-top boxes produced by our former EchoStar Technologies segment. We accounted for our investment in NagraStar using the equity method.

SmarDTV. Prior to March 2017, we owned a 22.5% interest in SmarDTV, which we accounted for using the equity method. Pursuant to our agreements with SmarDTV and its subsidiaries, our former EchoStar Technologies segment purchased engineering services from and paid royalties to SmarDTV and its subsidiaries.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

NOTE 21. SUPPLEMENTAL FINANCIAL INFORMATION

Noncash Investing and Financing Activities

	For the years ended December 31,		
	2018	2017	2016
	(In thousands)		
Employee benefits paid in Class A common stock	\$ 7,605	\$ 11,200	\$ 11,126
Property and equipment financed under capital lease obligations	\$ 364	\$ 8,484	\$ 7,652
Increase (decrease) in capital expenditures included in accounts payable, net	\$ 7,318	\$ (3,831)	\$ 3,054
Capitalized in-orbit incentive obligations	\$ —	\$ 43,890	\$ —
Noncash net assets exchanged for Tracking Stock (Note 1)	\$ —	\$ 299,888	\$ —

Restricted Cash and Cash Equivalents

The beginning and ending balances of cash and cash equivalents presented in our Consolidated Statements of Cash Flows included restricted cash and cash equivalents of \$1 million and \$1 million, respectively, for the year ended December 31, 2018, and \$1 million and \$1 million, respectively, for the year ended December 31, 2017. These amounts are included in Other noncurrent assets, net in our Consolidated Balance Sheets.

Foreign Currency

We recognized net foreign currency transaction losses of \$16 million, gains of \$1 million and losses of \$0.5 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Fair Value of In-Orbit Incentives

As of December 31, 2018 and 2017, the fair values of our in-orbit incentive obligations, based on measurements categorized within Level 2 of the fair value hierarchy, approximated their carrying amounts of \$107 million and \$112 million, respectively.

Contract Acquisition and Fulfillment Costs

Unamortized contract acquisition costs totaled \$104 million as of December 31, 2018 and related amortization expense totaled \$83 million for the year ended December 31, 2018, respectively.

Unamortized contract fulfillment costs totaled \$3 million as of December 31, 2018 and related amortization expense was de minimis for the year ended December 31, 2018.

Research and Development

The table below summarizes the research and development costs incurred in connection with customers' orders included in cost of sales and other expenses we incurred for research and development.

For the years ended December 31,		
2018	2017	2016
(In thousands)		

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Cost of sales	\$ 23,422	\$ 27,899	\$ 23,663
Research and development	\$ 27,570	\$ 31,745	\$ 31,170

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ECHOSTAR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Capitalized Software Costs

As of December 31, 2018 and 2017, the net carrying amount of externally marketed software was \$97 million and \$88 million, respectively, of which \$29 million and \$20 million, respectively, is under development and not yet placed in service. We capitalized costs related to the development of externally marketed software of \$32 million, \$31 million and \$23 million for the years ended December 31, 2018, 2017 and 2016, respectively. We recorded amortization expense relating to the development of externally marketed software of \$23 million, \$20 million and \$10 million for the years ended December 31, 2018, 2017 and 2016, respectively. The weighted average useful life of our externally marketed software was approximately three years as of December 31, 2018.

Advertising Costs

We incurred advertising expense of \$76 million, \$64 million and \$44 million for the years ended December 31, 2018, 2017 and 2016, respectively.

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ECHOSTAR CORPORATION
 SCHEDULE II
 VALUATION AND QUALIFYING ACCOUNTS

Our valuation and qualifying accounts as of December 31, 2018, 2017 and 2016 were as follows:

Allowance for doubtful accounts	Balance at Beginning of Year	Charged to Costs and Expenses	Deductions	Balance at End of Year
	(In thousands)			
For the years ended:				
December 31, 2018	\$12,027	\$ 22,184	\$(17,607)	\$ 16,604
December 31, 2017	\$12,955	\$ 9,551	\$(10,479)	\$ 12,027
December 31, 2016	\$11,687	\$ 14,393	\$(13,125)	\$ 12,955