MICROSTRATEGY INC
Form 10-K
February 07, 2018

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017

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 000-24435

MICROSTRATEGY INCORPORATED

(Exact Name of Registrant as Specified in Its Charter)

Delaware	1850 Towers Crescent Plaza, Tysons Corner, VA	22182	51-0323571
(State of Incorporation)	(Address of Principal Executive Offices)	(Zip Code)	(I.R.S. Employer Identification No.)

Registrant’s Telephone Number, Including Area Code: (703) 848-8600

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, par value $0.001 per share	The NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: Not applicable

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 and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K 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	(Do not check if a smaller reporting company)	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 Act). Yes No

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant (based on the last reported sale price of the registrant's class A common stock on June 30, 2017 on the NASDAQ Global Select Market) was approximately $1,807.9 million.

The number of shares of the registrant's class A common stock and class B common stock outstanding on January 26, 2018 was 9,411,810 and 2,035,184, respectively.

Documents incorporated by reference: Portions of the definitive proxy statement for the 2018 Annual Meeting of Stockholders of the Registrant to be filed subsequently with the SEC are incorporated by reference into Part III of this Annual Report on Form 10-K to the extent indicated herein.

MICROSTRATEGY INCORPORATED

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PART IV

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The trademarks and registered trademarks of MicroStrategy Incorporated and its subsidiaries referred to herein include, but are not limited to, MicroStrategy, MicroStrategy 10, MicroStrategy 10.9, MicroStrategy Cloud, MicroStrategy Analytics, MicroStrategy Mobile, MicroStrategy Desktop, MicroStrategy Web, MicroStrategy Server, MicroStrategy Distribution Services, MicroStrategy Data Mining Services, MicroStrategy Library, MicroStrategy Services, MicroStrategy Consulting, MicroStrategy Education, Usher, Usher Professional, Usher Analytics, Usher Network Manager, Usher Security, Dossier, Intelligent Enterprise and Global Delivery Center. Third-party product and company names mentioned herein may be the trademarks of their respective owners.

CERTAIN DEFINITIONS

All references in this Annual Report on Form 10-K to "MicroStrategy," the "Company," "we," "us," and "our" refer to MicroStrategy Incorporated and its consolidated subsidiaries (unless the context otherwise indicates).

FORWARD-LOOKING INFORMATION

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). For this purpose, any statements contained herein that are not statements of historical fact, including without limitation, certain statements under "Item 1. Business," "Item 1A. Risk Factors," and "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" and located elsewhere herein regarding industry prospects and our results of operations or financial position, may be deemed to be forward-looking statements. Without limiting the foregoing, the words "believes," "anticipates," "plans," "expects," and similar expressions are intended to identify forward-looking statements. The important factors discussed under "Item 1A. Risk Factors," among others, could cause actual results to differ materially from those indicated by forward-looking statements made herein and presented elsewhere by management from time to time. Such forward-looking statements represent management's current expectations and are inherently uncertain. Investors are warned that actual results may differ from management's expectations.

PART I

Item 1. Business

Overview

MicroStrategy® is a leading worldwide provider of enterprise analytics and mobility software. Our mission is to provide enterprise customers with a world-class software platform and expert services so they can deploy unique intelligence applications.

MicroStrategy 10™, our flagship platform offering, consolidates analytics and mobility in a single unified platform. The MicroStrategy 10 platform is available on Windows®, Linux and Amazon Web Services ("AWS"), and as a hosted service offering through MicroStrategy Cloud™. Our platform offers a comprehensive suite of business intelligence functionality, from data discovery to mobile analytics, data mining, Big Data analytics, enterprise reporting and powerful identity intelligence generated by digital credentials. MicroStrategy 10 builds on proven enterprise capabilities to make sophisticated, high-performance analytics more accessible, easier to use, and faster. MicroStrategy 10 consists of MicroStrategy Analytics™, MicroStrategy Mobile™, and Usher®.

MicroStrategy Analytics empowers large organizations to analyze vast amounts of data and securely distribute actionable business insight throughout an enterprise, while also being able to cater to smaller workgroups and departmental use via MicroStrategy Desktop™. MicroStrategy Analytics delivers reports and dashboards, and enables users to conduct ad hoc analysis and share insights anywhere, anytime, via mobile devices (via MicroStrategy Mobile) or the web (via MicroStrategy Web™). It also combines the agility and productivity of self-service visual data discovery with the security, scalability, and governance features of enterprise-grade business intelligence. Additionally, MicroStrategy Analytics delivers powerful identity intelligence on user behavior and resource utilization (via Usher).

MicroStrategy Web is the primary interface for analysts, data scientists, consumers and developers, offering interactive reporting, dashboarding, and ad-hoc data discovery capabilities through a web browser. With MicroStrategy Web, users can design and deliver reports and dashboards across various styles of business intelligence, including scorecards, pixel-perfect documents and invoices, and interactive reports and dashboards, as well as for visual data discovery. MicroStrategy Web can also connect to a wide range of data sources, and be used to build sophisticated advanced analytical models that may be inserted within reports and dashboards. MicroStrategy reports and dashboards can be personalized and automatically delivered to thousands of users with MicroStrategy Server™'s advanced distribution capabilities. Web applications can also be extensively customized and embedded into other applications using MicroStrategy Web SDK for a branded experience.

MicroStrategy Desktop is a free, standalone, on-premise, single-user tool for fast, powerful, and easy-to-use self-service visual data discovery. It enables business users to analyze and gain valuable insight and understanding into their organizations' data by quickly creating stunning and useful visualizations, without assistance from the IT department. MicroStrategy Desktop can be readily downloaded and installed on a PC or Mac, making the power of MicroStrategy 10 easily available. MicroStrategy Desktop can be used while offline and while not connected to MicroStrategy Server. MicroStrategy Desktop connects to MicroStrategy Server when needed, allowing for governance workflows that deliver data discovery capabilities to the enterprise at scale.

MicroStrategy Mobile is fully integrated into the MicroStrategy Analytics platform, so it is easy to leverage existing reports and dashboards to instantly deploy mobile business intelligence. In addition, MicroStrategy Mobile extends beyond analytics to enable organizations to rapidly build custom enterprise mobility applications that deliver analytics

combined with transactions, multimedia, and mapping to support business workflows. The robust code-free application development platform is designed to reduce development costs and accelerate the deployment of native mobile business apps optimized for both iOS® and Android™. Companies can build fully native iOS and Android apps that take advantage of the unique device and operating system capabilities (e.g., GPS/location, calendar, and camera) on those devices. MicroStrategy Mobile is an easy, fast, and cost-effective vehicle for mobilizing an organization's information systems, including its data warehouses, business intelligence, ERP, CRM, and web applications that are currently accessible only on the desktop. With MicroStrategy Mobile, businesses can transform their entire workforce into a connected and more productive mobile workforce. With mobile access to

critical corporate data and systems that drive the business, employees can have a virtual office in their hands at all times. MicroStrategy Mobile also enables companies to deploy customized, white-labeled mobile apps to business partners and customers. These apps can serve as new or enhanced offerings that differentiate an organization's product or service to business partners or customers.

Usher delivers to its users unique mobile identity badges, each cryptographically linked to its owner's smartphone and dynamically linked to the enterprise's existing identity repositories, that are highly secure and convenient for organizations to deploy. Usher badges work on standard smartphones running on iOS or the Android platform and include an Apple Watch® integration. Through the use of Bluetooth®, QR codes, biometrics, push notifications, time-limited PIN codes, and other authentication methods, Usher badge users can log into applications, VPNs, and workstations, unlock doors and other physical gateways, and validate each other's identities. Usher badge users are also able to scan barcodes for asset tracking applications. Usher can additionally serve as a powerful enterprise productivity tool with Usher Professional™, a dynamic and searchable employee directory that facilitates communication among users, and gives managers insight into the location and activity of their distributed workforce. Usher Professional users can view badge user activity on a nearly real-time map and manage or direct their workforce by engaging in two-way communication with badge users. In the Enterprise Internet of Things ("EIoT") paradigm, interactions between Usher users and enterprise resources generate real-time telemetry, which can be efficiently harnessed in Usher Analytics™, creating actionable intelligence. By delivering strong yet convenient authentication that can be extended to nearly every corporate system, Usher can uncover insights, reduce infrastructure complexity, and secure assets -- all to help businesses flourish in the age of connected devices and connected people. Usher addresses some of the biggest challenges facing corporations today, including authentication, identity and access management, and resource authorization, while applying industry-leading business intelligence and analytics to an enterprise's infrastructure.

MicroStrategy on AWS allows organizations to harness the power of data through our enterprise solutions via the cloud. Compared to traditional on-premise approaches, MicroStrategy on AWS is architected to deliver best-of-breed MicroStrategy software via the cloud, with pre-configured, ready-to-go servers, coupled with the required supporting infrastructure. With MicroStrategy on AWS, customers can launch enterprise analytics environments within minutes via a web-based provisioning tool, and use the full MicroStrategy 10 offering. MicroStrategy on AWS deploys MicroStrategy directly into the customer's AWS account where the customer maintains and manages the environment.

For customers looking for a Platform-as-a-Service (PaaS) experience, MicroStrategy Cloud offers managed services that deliver the full breadth of platform capabilities along with a dedicated cloud operations team to deploy the platform in the cloud. MicroStrategy Cloud is well suited for organizations without extensive IT resources to maintain and manage the cloud infrastructure on their own. MicroStrategy Cloud offers a 99.9% Service Level Agreement for availability, and is backed by a team of experts and dedicated tech support staff that provides continuous monitoring and alerting. MicroStrategy Cloud maintains and keeps up to date on compliance and security certifications to help ensure the environments adhere to the Service Organization Control 2, ISO 27001, Payment Card Industry, Health Insurance Portability and Accountability Act ("HIPAA"), and Privacy Shield standards.

System integrators, value-added resellers, and original equipment manufacturers ("OEMs") around the world rely on the capabilities of the MicroStrategy platform, including its functionality, workflows, report presentation, user management, security, administration, system configuration, and monitoring, to build branded and custom applications of their own. Our platform's open architecture and APIs make it especially suitable for developing custom functionality or integrating with other applications. Organizations seeking to add analytics features to their own offerings can easily and directly embed the platform into their business applications or portals with white labeling and single sign-on options.

We were incorporated as a Delaware corporation on November 17, 1989. Today, with operations in 28 countries worldwide, we are one of the largest independent publicly-traded analytics vendors as measured by annual revenue.

MicroStrategy 10

MicroStrategy 10 transforms data into business insights through highly visual, interactive reports and dashboards that can be securely distributed to hundreds of thousands of users throughout an enterprise. In MicroStrategy 10.9™, MicroStrategy introduced the Dossier™ feature, which enables users to consolidate reports and dashboards into an easy-to-consume and intuitive analytics book referred to as a dossier. With dossiers, users can utilize built-in collaboration capabilities, tables of contents, powerful filtering options, and proactive alerts and push notifications on top of existing reports and dashboards.

Five key business needs have driven demand for powerful analytics solutions:

- Increased consumption of analytics. In the past, dissemination of information was limited to a few power-users or analysts. Now, a wide range of information users – from customer service representatives to the CEO within a company, and from customers to suppliers outside the organization – can benefit from the insight that analytics provides. The wide acceptance of the Internet as an information source also has fueled demand for enterprise data to be accessible over the web to tens of thousands of users across an enterprise. In addition, demand for analytics on mobile devices is being driven by the growth of the mobile Internet and by the accelerating proliferation of mobile devices.
- Increased data scalability. Increasing information generation, and in particular, the ability to capture and store electronically every business transaction and interaction, have made terabyte-size data warehouses commonplace. Due to very large data volumes at some organizations, such as data volumes generated by social media, data warehouses can now reach sizes in excess of tens of petabytes (1,000 terabytes). While transaction- and interaction-level information is now routinely captured, organizations often struggle to make productive use of such massive data stores. Organizations need to view data within its operational context – making even the most detailed information meaningful to business users. As a result, users want the ability to easily discover trends hidden in these very large databases and to verify these trends by reviewing the underlying detail.
- Improved analytics system performance. The increase in user population sizes and data volumes puts a strain on analytics infrastructures. Business users expect to retrieve the information they are requesting within seconds of making the request. Mobile devices have set this expectation even higher by increasing demand for near instantaneous responses to requests. Analytics administrators need to systematically monitor and tune the analytics environment to provide the expected service levels.
- Improved data comprehension and visualization. As data volumes have increased, the growing work demands placed on business users have meant progressively less time available to users to monitor and improve their businesses and make informed decisions. As a result, business users need to view the data in a summarized, easy-to-grasp format and navigate to areas of concern for additional insight. Presenting the data in a highly visual, accessible, and interactive format to collate, view, and explore information with agility and ease of use improves the overall comprehension of the business and speeds up the decision-making process.
- Increased demand for personalized, one-to-one customer and/or supplier experience. Many companies have implemented strategies that establish personalized relationships with each customer and/or supplier based on individual needs and preferences. They earn loyalty by providing superior service, security, and convenience. In order to successfully acquire, retain, and upgrade customers, these organizations need to understand their customers' profiles, transaction histories, past responses to marketing campaigns, and interactions with customer service. This information is often stored in widely dispersed and complex data sources, and obtaining a holistic view of the customer can be challenging.

The volume of data available to enterprises is growing at a very high rate, being driven by greater transaction detail, more sensors, more external data, and more data from mobile and social media platforms. MicroStrategy 10 helps organizations worldwide take advantage of this explosive growth in enterprise data by equipping managers and employees with timely, actionable information to make data-driven business decisions.

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Solutions built on MicroStrategy 10 can give analysts, managers, and executives the critical insight they need to reduce costs, better allocate resources, improve efficiencies, and optimize operations. MicroStrategy 10 can also be used to build stronger relationships with business partners and suppliers by providing insights for managing inventory levels, analyzing supply chains, and tracking vendor performance. MicroStrategy 10 also includes predictive capabilities that enable organizations to leverage their historical data to project future business outcomes.

MicroStrategy 10 provides IT professionals with a powerful, highly automated mechanism for delivering insightful reports and dashboards to employees throughout an organization. In addition, MicroStrategy 10 offers self-service capabilities, which enable business users to upload, prepare, and explore enterprise data on their own, without any coding or IT expertise. With these self-service capabilities, business users can spot trends and outliers in a completely visual and interactive way, thereby eliminating much of the need for IT to create reports and dashboards for them.

MicroStrategy 10 is available in two distinct end user products: MicroStrategy Analytics and MicroStrategy Desktop. MicroStrategy Analytics is designed for enterprise-scale business intelligence, supporting high performance analytics on gigabytes, terabytes, or petabytes of data. Organizations can deploy MicroStrategy Analytics on-premise or access the same functionality within the MicroStrategy on AWS or MicroStrategy Cloud offerings. MicroStrategy Desktop puts the power of MicroStrategy 10 into the hands of individual users for self-service visual analytics and data discovery. The two products share a common user experience — making it easy to start small with self-service analytics and grow into the production-grade features of MicroStrategy Analytics.

MicroStrategy Analytics

MicroStrategy Analytics is our flagship analytics software. It is a comprehensive, enterprise-grade solution featuring sophisticated analytics, scalable performance, multi-level security, and rigorous data governance. It also combines the agility and productivity of self-service data visualization (also known as visual data discovery), which bridges the gap between fast, elegant, interactive visual analytics and powerful, large-scale enterprise business intelligence.

Key benefits of MicroStrategy Analytics include:

- Flexibility to report, analyze, and monitor. MicroStrategy Analytics unifies reporting, analysis, and real-time business monitoring into one seamless experience for the business user, one efficient and scalable architecture for the IT professional, and one economical and extensible utility for the CIO.
- Single platform for enterprise data discovery and analytics. MicroStrategy Analytics supports both business user and traditional IT user needs by offering various styles of BI bundled into a single comprehensive analytics platform. Business users have access to the data discovery toolset via MicroStrategy Web, MicroStrategy Desktop and MicroStrategy Mobile, and these user interfaces also allow them to consume other styles of analytics that their IT organizations have deployed, including pixel-perfect dashboards, enterprise reports and statements, scorecards, and more. Organizations do not need to resort to other point data discovery tools to gain access to agile data discovery capabilities, as they are available as an integrated part of MicroStrategy Analytics.
- Industrial-strength analytics. MicroStrategy Analytics enables industrial-strength analytics with enterprise-caliber technology and high user- and data-scalability. It enables centralized administration, operations, and maintenance in a unified interface and from within a unified hardware environment. Users can connect through their mobile devices, a zero-footprint web offering, a desktop-based client for offline analysis and by directly injecting analytics into Microsoft® Office products — expanding the reach of business intelligence across the enterprise.
- Data discovery at scale. MicroStrategy Analytics offers data discovery capabilities and is available to the end user across all standard user interfaces. With its HTML5 interface, users are able to connect to most data sources, ranging from personal spreadsheets to enterprise warehouses and cloud hosted sources, and can blend and prepare the data on their own without any IT support. This fully self-service work flow also allows the extension of the software to integrate with other third-party capabilities. For instance, although MicroStrategy Analytics includes a variety of

out-of-the-box visualizations, it also provides the ability to include other third-party visualizations like D3 and high charts, as well as the

ability to include native and third-party advanced analytics into native workflows. The dashboards that include all of these components can also be personalized and shared with thousands of users across the organization using our powerful MicroStrategy Distribution Services™.

- Data to insight in minutes without IT involvement. MicroStrategy Analytics gives business users a simple, powerful, and fast way to analyze data with minimal set-up requirements. It is designed to allow business users to answer business questions on their own, avoiding the lengthy process of report specification and design. By using a variety of graphical visualizations to represent the entire analysis, users can easily and rapidly spot trends and outliers in large data sets, creating a user experience that seems to unfold in real time. In addition to this, MicroStrategy Analytics also supports traditional centralized BI through its metadata based architecture, from which MicroStrategy Analytics gains its ability to design highly reusable objects that deliver both high performance and scale. The combination of enterprise scalability along with data discovery features brings the power of enterprise analytics to the personal level, making it easy to extend the power of the entire MicroStrategy Analytics platform to everyone in the organization.
- Actionable insight. MicroStrategy Analytics helps organizations accelerate the speed and productivity of their businesses by building mobile apps and web reports and dashboards that connect to back-end transactional systems and databases to include data entry and action-taking features, including: submitting orders, one-click approvals and denials, notes for tracking and directing business activity, and write-back to data sources.
- Governed data discovery. MicroStrategy Analytics enables organizations to achieve data consistency and governance across every report, dashboard, and user within the system through a trusted and centralized metadata store. By leveraging our reusable metadata to define, manage, and maintain common definitions for metrics, attributes, data sets, and other objects through governed data discovery, organizations can lower the overall cost of developing new analytical outputs (such as reports or dashboards), while helping to ensure that the information delivered in those outputs is accurate, governed, and timely. MicroStrategy Analytics not only provides governance via centralized IT deployments where the reports and dashboards are based around a centralized metadata store, but also offers the ability to promote desktop-based reports and dashboards created by business users to MicroStrategy Server, and to map external data assets to certified data systems.
- Heterogeneous access, joining and preparation of data from across the enterprise. MicroStrategy Analytics enables organizations to create integrated views of data across heterogeneous data stores. By mapping conforming dimensions from multiple sources within the MicroStrategy object model, the platform automatically joins data from multiple sources in the same table, chart, or visualization. Additionally, MicroStrategy Analytics also offers self-service data connect options to business users, who do not need to rely on data modeling or architecting to access any data source. Data can come from any source including most relational and columnar data warehouses, data marts, Apache™ Hadoop® SAP® Business Information Warehouse (SAP BW), Microsoft SQL Server® Analysis Services, IBM® Cognos® TM1®, Oracle® Essbase, Salesforce®, social media sources such as Twitter and Facebook, and many other operational system databases. In addition to allowing users to connect to these data sources, MicroStrategy Analytics offers data preparation and wrangling capabilities that allow business users to transform their data for improved analysis.
- Integration of advanced analytics into mainstream reporting and dashboarding. MicroStrategy Analytics' analytic engine includes predictive capabilities in MicroStrategy reports and dashboards. The analytic engine can train and calculate many of the primary data mining functions, including time-series, association rules, clustering, regression, and decision-tree algorithms. Hand-in-hand with this calculation capability, MicroStrategy Analytics also includes the ability to import data mining models directly from data mining products from vendors like IBM SPSS®, Teradata®, and SAS® using the predictive modeling mark-up language (PMML) standard, and by embedding R statistical packages in the platform. With this capability, data mining models, such as neural network algorithms, rule set algorithms, and support vector machines, as well as ensembles of models, can be imported through a single click and automatically converted into a standard MicroStrategy metric. After that, the MicroStrategy Data Mining Services™ extension enables these metrics to be used freely and calculated quickly in reports, dashboards, and alerts. A key capability of MicroStrategy Analytics is that business

users can now readily tap into over 350 advanced analytics and statistical functions for data discovery purposes, and these functions are included within an easily accessible library.

- Support for large data volumes and all major relational database/hardware combinations. MicroStrategy Analytics supports systems with very large data volumes and is specifically optimized to support all major relational database platforms, Hadoop distributions, and data appliances commonly used for business intelligence systems, as well as multi-dimensional databases, such as SAP BW. Important features of our solution in this area include:
  - Native connectors to HDFS, in addition to the hive options to connect to Cloudera®, Hortonworks®, and MapR®, among other Big Data sources;
  - Available with MicroStrategy 10, and included as an integrated part of the MicroStrategy Server product are highly scalable, in-memory cubes that can now be partitioned and support parallel processing. This new advancement in in-memory architecture allows organizations to store a greater volume of data in memory and offers faster processing;
  - Dynamically generated SQL, multidimensional expressions (MDX), and Hadoop queries that optimize the performance of each major database;
  - Very Large Database (VLDB) parameters that allow individual reports or dashboards to be tuned for performance;
  - Support for hand-written SQL, Hadoop, and XQuery queries;
  - Ability to support very large user populations; and
  - Highly reliable up-time, even in high volume applications.
- Powerful distribution engine for information delivery. Our technology offers a high performance, personalized distribution engine for delivering periodic and alert-based information to users via email, web, and mobile devices. The distribution engine is able to deliver report and dashboard applications in a highly automated and personalized manner to all major device types used in both domestic and international markets, enabling the delivery of information to users when and where it is needed.
- Customizable applications and Embedded BI. MicroStrategy Analytics applications can be customized extensively using proprietary SDK capabilities. This allows organizations to brand web and mobile-based applications, and embed these applications directly into other corporate applications. White labeling for portal integration, single sign-on, and direct integration into other software increase the deployment options of MicroStrategy Analytics and allow IT groups to roll out analytics to the entire organization in a customizable manner, while still being able to leverage investments made in other technologies.

MicroStrategy’s Metadata Architecture

The core differentiator of our platform stems from its metadata-based centralized architecture, which has been built and refined over many years and provides access to enterprise data using familiar business terms, rules, and logic. The portable, flexible, reusable, object-oriented and dynamic nature of the metadata provides an efficient BI application and mobile app development platform while maximizing maintainability and enforcing enterprise-wide consistency. The dynamic behavior of metadata in our platform helps ensure consistency across business definitions, and minimizes the number of objects created, stored, and managed. Other BI technologies are limited in their reuse capabilities, forcing developers to create the same components over and over again for use in each individual report or dashboard.

MicroStrategy Server

MicroStrategy Server is the architectural foundation of MicroStrategy 10. It provides the core analytical processing and job management for all reporting, analysis, and monitoring applications. It provides a powerful, comprehensive set of features necessary for a scalable, fault-tolerant, enterprise-wide business intelligence system.

As the central contact point to metadata, MicroStrategy Server dynamically assembles the metadata objects to create optimized, multi-pass SQL queries for every major relational database, HiveQL queries for Hadoop distributions like Cloudera, MapR, Hortonworks, and Amazon EMR, interactive queries for real-time distributed SQL processing, optimized connectivity for NoSQL sources like Apache Cassandra™, HBase™, and MongoDB®, native connectivity to HDFS via MicroStrategy Hadoop Gateway, and MDX queries for multidimensional data sources. MicroStrategy Server retrieves the data, performs any additional analytical calculations not available in the databases, formats the report, and delivers the reports to business users via the MicroStrategy Web, Mobile, Office, or Desktop interfaces.

MicroStrategy Server is a highly scalable, parallel-processing, self-tuning analytic server. It manages high performance interactions involving terabytes of data accessed by tens of thousands of users using in-memory intelligent cubes, caching, load balancing, resource prioritization, and connection pooling. It accesses and joins data from multiple data sources, such as data warehouses, operational databases, multidimensional (cube) databases, and even web services and flat files. MicroStrategy Server also manages users, system security, data security, and user functionality access. A clustering option is available with MicroStrategy Server that increases scalability, and provides fault tolerance with automatic failover.

MicroStrategy Web

MicroStrategy Web is great for business users or consumers looking to interact with data, or to even simply view a static overview report. At the same time, MicroStrategy Web is where savvy analysts put all of the pieces together to design highly formatted and customized reports and dashboards.

MicroStrategy Web is the primary reporting interface for analysts, offering interactive reporting, dashboarding, and analysis through a web browser. It provides enterprise analytical functionality with access to extensive report and dashboard creation, manipulation, and formatting capabilities in an easy-to-use web interface.

MicroStrategy Web architecture provides a single, consistent interface to users whether the BI application is departmental and internal, or an extranet application deployed to hundreds of thousands of users. MicroStrategy Web allows business users of any skill level to move fluidly between various styles of BI to satisfy their reporting, analysis, and monitoring needs.

MicroStrategy Desktop

MicroStrategy Desktop is a free, standalone, on-premise, single-user tool for fast, powerful, and easy-to-use self-service visual data discovery. It enables business users to analyze and gain valuable insight and understanding into their organizations' data by quickly creating stunning and useful visualizations, without assistance from the IT department. MicroStrategy Desktop can be readily downloaded and installed on a PC or Mac, making the power of MicroStrategy 10 easily available. MicroStrategy Desktop can be used while offline and while not connected to MicroStrategy Server, and can connect to MicroStrategy Server when needed. This user interface can help introduce MicroStrategy 10 to smaller departments that are looking for quick and easy deployment options. It offers easy migration options to the Enterprise edition of MicroStrategy Analytics, and all analytical content developed with MicroStrategy Desktop may be promoted to MicroStrategy Server and can be consumed by the other user interfaces offered with MicroStrategy, such as MicroStrategy Web and MicroStrategy Mobile.

MicroStrategy Analytics Releases in 2017

MicroStrategy Analytics includes the following significant functional enhancements made during 2017:

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Dossier. A new way of consuming analytics in the form of interactive books with built-in collaboration capabilities, tables of contents, powerful filtering options, and proactive alerts and push notifications. Dossiers are organized in chapters and pages, making it easy to navigate and find insight from analytics across the enterprise.

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- MicroStrategy Library™. A personalized portal for users to access their reports, dashboards, and dossiers. Each dossier is represented by a customized thumbnail image within MicroStrategy Library, making it easy to visually identify content.
- Expanded filters within dossiers. Use any visualization, chart, or graph within the filter panel of a dossier for more intuitive and modern filtering options. In addition, dossiers can include filters and target other visualizations within the main interface.
- Embedding API for dossiers. A new API that leverages JavaScript to easily embed interactive dossiers into third-party applications.
- Data Connector SDK. Developers and analysts can build almost any data connector with the Data Connector SDK by leveraging HTML and JavaScript, thus getting access to data sources without waiting for them to be certified by the platform.
- Gallery for custom data connectors. Customers and business partners can access a public gallery of custom data connectors on MicroStrategy Community, where they can download the connectors for their own use or enhance them further prior to integration. The available connectors include Fitbit, SurveyMonkey, Jethro, Solr, Elasticsearch, and more.
- Revamped MicroStrategy Desktop. Redesigned and overhauled with a new, modern interface for data access, data preparation, visualization, sharing, and authoring and designing reports and dashboards with responsive design options.
- MicroStrategy Workstation. A unified product that makes it faster to build and maintain scalable enterprise content, manage users and groups, assign security roles, create data models, and much more.
- Intelligent narratives for analytics with NLG integration. Through technology partnerships with NLG platform providers, Automated Insights and Narrative Science, MicroStrategy Analytics supports the use of artificial intelligence to interpret charts and graphs into clear, meaningful, and intelligent narratives that explain the context of the data.
- Enhanced native Hadoop Gateway. A new and re-architected Hadoop Gateway that leverages Spark to increase scalability and performance, and can access data file types such as CSV, Text, JSON, AVRO, and Parquet directly from HDFS.
- R Analytics bundled and installed with platform. Customers can leverage R capabilities without having to go through a separate installation process.
- Hierarchy reporting. Analysts can view and interact with ragged hierarchies with data sourced from MDX sources like MSAS and Essbase, with the ability to apply dynamic filters, create custom MDX queries, apply advanced sorting, and optimize performance.
- Support for more data sources. MicroStrategy Analytics allows business users to readily connect to Microsoft Azure Cosmos DB. MicroStrategy Analytics also offers certifications for new data sources such as Maria DB 10.x, Apache Hive 2.x, SparkSQL 2.0, MapR 5.2, Druid, Amazon Athena, Oracle 12c R2, Azure SQL Database, and SAP Hana 2.x.
- Improved PDF export. Analysts have more options to customize PDF versions of reports and dashboards prior to exporting them, such as selecting the page orientation, paper size, and header/footer details. Analysts can also export large grid reports, charts, and graphs that have data expanding over a page into highly formatted PDFs, ensuring no information is cut off.

MicroStrategy Analytics Technology Strategy

Our technology strategy is focused on delivering comprehensive platform-based solutions to enable any organization to create immediate value from analytics and then quickly grow its analytics effort to encompass more advanced capabilities as well as larger user and data scale. This strategy includes: expanding support for large information stores, improving performance and administration, enhancing our analysis capabilities, and enhancing report and dashboard delivery via the web and mobile devices. We continue to enhance our products for use with a broad range of operating systems and databases to enable our customers to leverage their existing technology investments to

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achieve faster query times with fewer required resources. We continue to enhance usability and visual data exploration to increase ease of use and functionality, and thus further decrease the need for IT intervention. We are working to further differentiate our products by increasing:

- Visual analysis and user self-service. Ease of use and visual exploration and analysis capabilities on small to extremely large data sets, in conjunction with the enterprise capabilities also offered by our platforms;
- Data capacity. The volume of information that can be efficiently analyzed and utilized;
- User concurrency. The number of users that can be supported simultaneously;
- Analytic sophistication. The range of analytical methods available to the application designer;
- Performance. The throughput and response time of the system, measured in seconds;
- Database flexibility. The range of data sources, data warehouses, and online transaction processing databases that the software is capable of efficiently querying without modification;
- Robustness. The reliability and availability of the software in mission-critical environments;
- Deployability. The ease with which applications can be securely deployed, modified, upgraded, and tuned;
- Personalization. The quality and sophistication of a one-to-one user experience;
- Content flexibility. The range of content, both structured and unstructured, that can be efficiently utilized;
- Media channel and interface flexibility. The range of media channels (including mobile devices), interface options, and display features supported; and
- Transaction capabilities. The ability to efficiently initiate actions and transactions from mobile devices and web-based reports and dashboards.

MicroStrategy Mobile

Our consistently highly-rated mobile offering extends beyond basic mobile analytics to deliver an innovative mobile app platform that makes building a variety of mobile business apps easier and faster.

MicroStrategy Mobile is fully integrated into the MicroStrategy Analytics platform, so it is easy to leverage existing reports and dashboards to instantly deploy mobile business intelligence. In addition, MicroStrategy Mobile extends beyond analytics to enable organizations to rapidly build custom mobile applications that deliver analytics combined with transactions, multimedia, and mapping to support business workflows. The robust code-free application development platform is designed to reduce development costs and accelerate the deployment of native mobile business apps—optimized for both iOS and Android. Companies can build fully native iOS and Android apps that take advantage of the unique device and operating system capabilities (e.g., GPS/location, calendar, and camera) on those devices. MicroStrategy Mobile is an easy, fast, and cost-effective vehicle for mobilizing an organization’s information systems, including its data warehouses, business intelligence, ERP, CRM, and web applications that are currently accessible only on the desktop. With MicroStrategy Mobile, businesses can transform their entire workforce into a connected and more productive mobile workforce using information-driven mobile apps that are significantly more robust and secure than their web-only counterparts. With mobile access to critical corporate data and systems that drive the business, employees can have a virtual office in their hands at all times.

MicroStrategy Mobile is available both as on-premise software and as a hosted service offering in MicroStrategy Cloud.

Key benefits of MicroStrategy Mobile include:

- Increased employee productivity by gaining new efficiencies and cutting decision times. MicroStrategy Mobile computing can dramatically improve personal productivity, changing how people work today. MicroStrategy Mobile puts materials, information, and system access on devices that can be always on, always connected, and always in reach. MicroStrategy Mobile enables write-back to systems of record (e.g., ERP and CRM), providing users with an interactive two-way mobile experience. Users can change data on the fly, insert new information, and view updated reports and dashboards. Users can access transactional inputs and forms regardless of internet connectivity. When offline, transactions are queued for submission and executed when the user next connects.
- Extending information throughout an organization. MicroStrategy Mobile can help run a business more effectively by extending the reach of critical enterprise systems to all constituents in all locations. It can provide real-time access to the latest information and data-driven reports and dashboards that fuel spontaneous conversations and more effective decision making.
    - Enabling field workforces with multimedia materials and training. Mobile workforces can access anything from product brochures and sales presentations to instructional videos and training manuals, when and where they're needed. MicroStrategy Mobile supports in-app viewing of multimedia content, such as videos, PDFs, images, presentations, spreadsheets, documents, email, and web content—all seamlessly embedded within a mobile app. As with other app content, multimedia content can be pre-cached or stored for convenient, offline access. When the mobile device is offline, users can still view files that have been previously downloaded and stored on their mobile device.
- Proactive alerting of potential business problems. MicroStrategy Mobile supports personalized mobile alerts—informing users of potential business problems so they can take timely corrective action. The 24/7 alerting engine is based on a robust distribution server that can be set up to monitor multiple data sources in near real time, creating personalized alerts—distributed through the mobile device's native push notification system—when a preset condition (threshold) has been met.
- Conducting business in newer and faster ways. MicroStrategy Mobile context-aware apps that leverage native mobile device functionality (e.g., GPS, camera, etc.) allow users to complete tasks significantly faster or in more efficient ways than web or desktop-bound apps.
- Fast app development. MicroStrategy Mobile is one of the fastest ways to create new mobile apps and mobile front-ends to existing analytics applications. Its click-to-configure features allow the development of mobile apps in a code free environment without requiring an organization's IT resources. It also allows for the deployment of native apps across multiple operating systems with a single design and lets a user make an app multi-lingual with a few configuration clicks.
- High performance mobilization. MicroStrategy Mobile provides compelling and high-performance MicroStrategy Mobile powered apps that can help maximize impact, durability, and adoption.

MicroStrategy Mobile Releases in 2017

MicroStrategy Mobile includes the following significant functional enhancements made during 2017:

- Support for .SHP files for custom shapes on iOS. Previously, MicroStrategy Mobile allowed users to add custom shapes using .KML shapes in the map widget. Users can now also use .SHP files to deploy custom shapes and areas maps. This parity with MicroStrategy Web provides consistent user experience and behavior across different web and iOS interfaces.
- Best-fit image auto-selected based on device resolution on Android. Android app designers can now define multiple resolutions for images in their dashboards and allow the Android device to auto-select the best-fit image depending on its own resolution. With so many different Android devices in the market, this responsive design capability makes it easier for Android app developers to optimize user experience.
- Enterprise Mobility Management (EMM) support via AppConfig (formerly known as ACE) on Android. In addition to our native integration support with AirWatch, MicroStrategy Mobile now

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provides native integration to configure and help secure Android apps based on AppConfig guidelines. The integration with AppConfig provides more consistent, open and simple ways to configure and help secure mobile apps.

- App Transport Security (ATS) on iOS. Apple's new ATS policy improves user security and privacy by requiring apps to use secure network connections over HTTPS instead of HTTP. MicroStrategy Mobile developers can enable Apple's ATS policy when Apple requires it to help ensure connections from the app adhere to the HTTPS standard. This feature helps app developers secure data in transit through additional encryption.
- MicroStrategy Mobile SDK for Blackberry Dynamics Library. Following Blackberry's integration of Good Dynamics into its EMM platform, the MicroStrategy Mobile iOS SDK for Blackberry Dynamics now reflects Blackberry's branding changes, including color schemes, icons, and much more. These changes improve user experience and enhance integration of the Good Dynamics and Blackberry libraries. Through the new SDK, MicroStrategy Mobile customers can continue to natively integrate with the former Good Dynamics.
- Custom properties for D3 visualizations on Android. Custom properties are now supported in D3 visualizations. This feature provides greater parity with iOS and web report and dashboard functionality. App designers have the flexibility to add different properties to attribute elements and metrics. For example, app designers can use shape or text color to differentiate various components of their visualizations.
- Embedded images during Android app compilation. The Android framework supports bundling images as part of the app resources to boost performance. Bundling images during app compilation eliminates requests for downloading images that are not expected to change in the short term. This feature accelerates app performance through better image loading. This is especially helpful when users are located in a remote area with weak network conditions.
- MicroStrategy Library for iPad and Android tablet. Users can consume reports, dashboards, and dossiers via native mobile clients for iPad and Android tablets.
    - Quickly toggle between different MicroStrategy Library environments. Instead of re-configuring the app each time, users can store multiple environment configurations in the MicroStrategy Library app. With two quick taps, users can easily switch between the different environments. For users that regularly access reports, dashboards, and dossiers in separate libraries, this feature provides significant convenience and time savings. The MicroStrategy Library app also includes folders to access downloaded .mstr files and PDF exports. Instead of saving these files outside of the app, the folders provide a convenient place to store and view downloaded reports, dashboards, and dossiers within the app.
    - Export to PDF. Users can export entire dossiers or single chapters of dossiers to PDF.
    - Share via native extensions. Users can share links to dossiers, .mstr files and PDFs from the Dossier app using native OS extensions. iOS and Android users can share by emailing, printing, copying, using communicators such as Slack and AirDrop (only iOS users), or importing to other apps (e.g., iBook, Dropbox).
    - Enhance workflows with native touch-optimized controls. Users can take advantage of native touch-optimized gestures to manipulate content within their dossiers. Using long swipes, users can sort charts in ascending or descending order. Long and/or double taps display a filtering menu with "keep only," "exclude," or "drill" options. Users can also use free form lasso options to multi-select elements in visualizations. Native touch-optimized controls provide users with more advanced options to interact with dossiers.
    - Search within maps. Users can search for attribute elements on maps directly from their iPads or Android tablets. The searched element is highlighted on the map and provides users with location and other information instantly. If the searched element is within a cluster, the whole cluster is highlighted and the number of elements found within the cluster is specified. This feature—

previously available only on MicroStrategy Web—adds parity between MicroStrategy Web and MicroStrategy Mobile applications, providing users with a seamless map search interface.

- Automatically align to various form factors with enhanced responsive design capabilities. The Dossier mobile app provides significantly enhanced responsive design capabilities, making the experience seamless when switching between interfaces, devices and form factors. Dossier components, such as visualizations, filters, images, and notification panels are automatically resized and arranged for optimal display on iPads and Android tablets. Though there are several form factors and aspect ratios, MicroStrategy Mobile prioritizes the visualizations view by adjusting spacing and padding and object alignment.
- Leverage AppConfig on iOS and Android. The MicroStrategy Library apps for iOS and Android have been compiled using AppConfig guidelines. Without employing an SDK, customers can deploy the application to their users securely as well as configure it remotely via any of the leading EMM vendors compatible with AppConfig standards.

MicroStrategy Mobile Technology Strategy

We continue to invest in enhancing MicroStrategy Mobile to empower our customers with the ability to build apps that drive their businesses forward and deliver revolutionary applications to their employees, business partners, prospects, and customers. We continue to invest in enhancing MicroStrategy Mobile's overall performance and security as well as its three core capability areas: analytics, transactions, and multimedia. We remain focused on delivering the most compelling native end user experience on devices that are adopted by enterprises. New features specific to supported operating systems will take advantage of the native API's and incorporate new OS capabilities into apps built by our customers.

We also continue to invest in bringing to life mobile apps in an easy, fast, and flexible way. We will continue to enhance our MicroStrategy Mobile technology to deliver an experience that is philosophically "user first" by combining a powerful user experience on top of a dynamic and accessible development infrastructure.

Usher

Usher is a digital credential and identity intelligence offering that provides a highly secure, convenient way for organizations to dematerialize traditional forms of identity verification (such as passwords, tokens, and physical badges) and replace them with unique mobile identity badges, each cryptographically linked to its owner's smartphone and dynamically linked to the enterprise's existing identity repositories. Usher can be used as a powerful enterprise productivity and workforce management resource because it is designed to enable managers to gain an almost real-time window into the location and activity of their distributed workforces, while providing powerful interactive features to manage or direct them. With the addition of Usher Professional, administrators can track user activity on a nearly real-time map using access telemetry. They can also engage in two-way communications with users from the Usher application. Usher badges work on standard smartphones running on iOS or the Android platform and include an Apple Watch integration. Through the use of Bluetooth, QR codes, biometrics, push notifications, time-limited PIN codes, and other authentication methods, Usher users can log into applications, VPNs, and workstations, unlock doors and other physical gateways, and validate each other's identities. By delivering strong, multi-factor authentication that can be extended to nearly every corporate system, Usher's digital credential solution addresses some of the biggest challenges facing corporations today, including authentication, identity and access management, and resource authorization, while applying industry leading business intelligence and analytics to an enterprise's infrastructure. Usher is available both as on-premise software and as a hosted service offering in MicroStrategy Cloud.

Usher can appeal to businesses, universities, associations, governments, and other organizations because it adds a layer of security to their systems, physical spaces, and transactions that would otherwise be technically difficult or

cost-prohibitive. Usher is designed to secure an enterprise by offering an alternative to existing forms of identification and authentication. Usher is designed to provide a more secure alternative to passwords, which can be stolen or cracked. Usher is also designed to help reduce identity-related fraud by replacing physical ID cards that can be counterfeited and stolen.

Key benefits of Usher include:

- Identity protection. Usher mobile identities are designed to be more secure than traditional physical forms of identity, which can be stolen and counterfeited.
- Authentication. Usher is designed to provide a more secure alternative to passwords — which can be the weak link exploited by cybercrime attacks — with secure mobile identities.
- Physical access control. Usher users can unlock doors by tapping on a "digital key" or by scanning a QR code. If a device is Bluetooth-enabled, a user can unlock a door simply by approaching it.
- Workforce management. Usher can collect data about the locations of users' Usher activity, enabling managers to remotely monitor and direct distributed workforces.
- Activity analysis. Usher uses MicroStrategy 10 to monitor and analyze Usher user activity.
- Convenience and cost-effectiveness. Usher allows users to carry their business credentials in digital form on their smartphones. Enterprises can reduce costs associated with the distribution and management of physical badges, cards, and keys, as well as the costs associated with identity-related fraud and cybercrime.

Usher Releases in 2017

Usher includes the following significant functional enhancements made during 2017:

- Usher privacy controls. Administrators can tailor their deployments to protect their users' privacy, giving organizations the flexibility to balance desired functionality with required data collection. Usher privacy controls include transaction location information, Bluetooth discovery, and the Usher telemetry feed to Usher Analytics.
- Shared kiosk capability for multi-user authentication. Usher now enables rapid authentication of multiple users in a shared workstation (terminal) or tablet environment. Multiple users can be paired with a single browser or web application for use cases as diverse as reception areas, retail stores, healthcare providers, and utility workers.
- NFC for iOS devices. Now both Android and iOS device owners can enjoy the security and convenience of using NFC tags to access resources, which has the advantage of explicitly signaling the user's intent to access the resource due to its very short range. Usher supports NFC tags on iPhone 7, iPhone 7 Plus, and iPhone 8 devices running iOS 11. Type 1, 2, 3, 4, and 5 NFC tags are supported.
    - Usher master administrator role. Usher Network Manager™ adds a new master administrator role, supporting separation of duties and improved user administrator capabilities.
- Search and filter on directory attribute groups. Increase the value of Usher Professional as an enterprise directory and communications tool, while leveraging existing directories. All directory gateway attributes mapped in Usher Network Manager are searchable, including directory groups and distribution lists.
- Universal scanner. The Usher Security™ badge client's integrated QR scanner can now read non-Usher barcodes and QR codes (e.g., Aztec codes). The scanning transaction can be stored in the Usher server and linked to the user performing the scan, the time of the scan, and the location at which the scan took place (if location services are enabled). This barcode data can be used in Usher Analytics to parse barcode data, create derived attributes from the parsed barcode data, and link to third-party and legacy-backend logical systems to generate custom reports and dashboards.
- Usher Network Manager: Okta Universal Directory support. Usher now supports Okta Universal Directory as an identity management source. This is in addition to existing support for Microsoft Active Directory, OpenLDAP, AWS Directory Services, Novell NDS (NetIQ eDirectory), Apple Open Directory, and Apache Directory.
- Usher Analytics: Badge properties reporting. With a new out-of-the-box dashboard and schema, badge properties set by Usher Network Manager can require and report on end-user action or compliance, such

as location services and Bluetooth enablement, photo uploads, multiple device installations, and acceptance of the Terms of Use.

- Usher inbox. With the debut of the Usher inbox, communications sent from managers and administrators via Usher Professional are accessible to recipients in an inbox within the app, so users can read and respond to queries at their leisure. Users can even review messages that they have already replied to in the past. The Usher inbox enhances user convenience and the overall communications usability of Usher Professional messaging for purposes such as safety and productivity.
- Usher Analytics: New out-of-the-box dashboard. Visualize Usher badge-generated telemetry through a set of KPI intensive grids. As users move about and interact with a corporate environment using their Usher badges, data flows into the dashboard sorted under categories such as users, historical telemetry log, timesheet, floors, spaces, beacons, actions, applications, cities, and devices. These grids can be used as a basis for creating custom visualizations based on business questions surrounding user access and presence.
- Nearby user auto-discovery. Usher Professional users can control the manner in which lists of nearby Usher badge users are discovered and/or refreshed. Usher Professional may be configured to display location-based lists of Usher badge users that are either dynamic or static. When configured for dynamic display, Usher Professional provides a list of nearby Usher users (based on selected filter criteria) and automatically updates this list over time.
- Usher Network Manager: Approver role for badge issuance / reactivation. Enterprises require separation of duties across many roles to mitigate the danger of a single employee taking unauthorized actions. Badge issuance approvers are responsible for reviewing badges that are ready to be issued prior to their issuance. Before approving or rejecting a badge issuance, they can review the identity record, including biographic and biometric data, and enter notes (e.g., a case number, background check results, etc.) to explain their decision.

Usher Technology Strategy

Our technology strategy for Usher is focused on taking advantage of developments in mobile and cloud technology to provide more flexible and powerful user identity-based security and analytics solutions. This involves continued development in the following areas:

- Logical access. We continue to explore new techniques with which Usher can provide identity to applications and systems and provide alternatives to passwords, keys, and fobs. Our focus is on seamless, zero-click access based on proximity. Additionally, we continue to monitor the market and test new biometric measurement systems that can be integrated into Usher, such as Apple's Touch ID, voice authentication, and facial recognition.
- Physical access. We continue to expand on the integration of Usher with physical access control systems and hardware, so that users with adequate credentials and digital keys can unlock secure doorways.
- Action-oriented intelligence. We are focusing on enhancing Usher's ability to determine Usher member location and activities so that trends and anomalies can be used to provide better security or better workforce management.

MicroStrategy on AWS

MicroStrategy on AWS is a self-service, customer-managed solution that offers customers instant access to a comprehensive enterprise cloud platform. Organizations can launch fully configured and ready-to-use MicroStrategy analytics and mobility projects on their own. Administrators have total control of their environments, making it easy to start, stop, resize, and terminate as needed. MicroStrategy on AWS provides access to the latest features and capabilities, while delivering a low total cost of ownership.

Key benefits of MicroStrategy on AWS include:

- Simplified enterprise deployment. With just a few clicks, organizations can deploy fully configured enterprise environments. Most instances can be up and running in just 30 minutes. This saves users time and money by eliminating the need to download, install, and configure environments themselves. Users can choose from different instance types and sizes based on their budget and usage requirements.
- Centralized administration. Customers that deploy a project using MicroStrategy on AWS can dynamically start, stop, restart, and resize their environments. Organizations can reduce costs by stopping their environments during non-peak hours.
- Scalability. Scaling MicroStrategy on AWS environments is quick and easy. Customers can choose from six different instance size options ranging from 4 vCPU and 15.25 GiB to 64 vCPU and 488 GiB of memory. Environments can be scaled on demand or on a preset schedule based on usage patterns or data size. Organizations can add new users at any time, deploy multiple environments and projects as they see fit, and pay only for what they use.
- API-enabled operations. APIs are available with MicroStrategy on AWS to provide broad flexibility for organizations to create customized workflows. Developers can build personalized user interfaces for deploying, managing, and automating their cloud environments. The APIs also easily integrate with other automation tools and work with any programming language. With the APIs, it is possible to launch multiple MicroStrategy instances with a single line of code, resize them as needed, and terminate them when they are no longer required.
- Global availability. Leveraging AWS, MicroStrategy Analytics is now available in all AWS data centers.

MicroStrategy on AWS Releases in 2017

MicroStrategy on AWS includes the following significant functional enhancements made during 2017:

- Web-based provisioning console. New to MicroStrategy on AWS, a web-based provisioning console allows administrators to quickly and easily deploy and manage a fully configured MicroStrategy project using a simple and intuitive web-based deployment manager.
    - Seamless hotfix upgrades. With the general availability of any hotfix release, the hotfix will be automatically available on the MicroStrategy on AWS provisioning tool. An upgrade button will appear on the main administrative page, and clicking on it will automatically validate the upgrade process and administrators can then choose to upgrade at that time or schedule the upgrade at an off-peak time.
- Deploy MicroStrategy on AWS into existing Virtual Private Cloud (VPC). Customers can deploy, manage, upgrade and resize their MicroStrategy on AWS environments within their own VPC and still leverage the powerful deployment and management tool. Deploying MicroStrategy on AWS into existing VPC accounts gives customers full control of their own AWS security settings.
- Deploy applications directly into data centers around the world. MicroStrategy on AWS now allows organizations to deploy the application directly into data centers in North America, Europe, Australia, and Asia. The availability of data centers in these new regions allows organizations to deploy in a data center close to home, so they can deliver faster response times for mission-critical KPIs.
- Available in nine languages. In addition to expanding the list of data centers around the world, the MicroStrategy on AWS provisioning tool is now available in nine different languages: English, French, Italian, Portuguese, Spanish, Dutch, Japanese, Korean, and Chinese.
- Automatic architecture updates. Each time MicroStrategy pushes out a new architectural design, we automatically upgrade the underlying AWS CloudFormation template so the next time an organization deploys a new environment, it’s on the latest MicroStrategy architecture.
- Now deployed on Amazon Linux. MicroStrategy on AWS is now deployed on Amazon Linux. Amazon Linux offers better support, costs less and is highly integrated within the AWS ecosystem.

- Center for Internet Security (CIS) baselines. MicroStrategy follows CIS best practices to help mitigate cyber risks and protect customer data.

MicroStrategy Cloud

MicroStrategy Cloud offers an integrated and optimized cloud business analytics platform that combines infrastructure, technology, people, and processes to offer analytics as a service to our customers. MicroStrategy Cloud builds on MicroStrategy 10, and adds class-leading ETL and database technology to provide an agile, high performance, elastic, and cost-effective analytics platform.

MicroStrategy Cloud provides our customers MicroStrategy 10 offerings through a Platform-as-a-Service (PaaS) solution hosted in the cloud. In addition to MicroStrategy Analytics and MicroStrategy Mobile, MicroStrategy Cloud also offers data integration ETL and data hosting services. The MicroStrategy Cloud PaaS provides customers with infrastructure (data center space, rack space, power, cooling, and servers), technology platforms (analytics, mobile data integration, and data hosting), operations, support, and expert analytics practitioners for a subscription fee with no upfront capital investment. MicroStrategy Cloud can offer improved time to market, higher performance, and lower overall total cost of ownership compared to traditional on-premise deployments.

Key benefits of MicroStrategy Cloud include:

- Agile rapid application development and secure deployment. MicroStrategy Cloud provides the infrastructure, technology, processes, and experts that a customer needs to develop and securely deploy applications quickly. The entire service has been pre-packaged and optimized, and is supported by expert analytics practitioners. This solution allows our customers to get to market much more quickly than traditional approaches and react to business changes as they happen.
- High performance analytics applications. MicroStrategy Cloud combines the high performance characteristics of MicroStrategy Analytics and MicroStrategy Mobile with high performance servers and network infrastructure. This integration allows our customers to deploy analytics and mobile applications on demand, allowing them to serve their customers more quickly and efficiently.
- Elastic capacity with no capital investment. MicroStrategy Cloud allows customers to get started with no upfront capital investment in infrastructure. Customers can start small and increase their capacity on demand.
- Low overall total cost of ownership. IT application costs are driven by capital investments and the personnel cost associated with hiring a staff of experts to build, maintain, and tune a large-scale environment. MicroStrategy Cloud delivers this high performance, tuned, and monitored environment as a service, lowering overall total cost of ownership.

MicroStrategy on AWS and MicroStrategy Cloud Technology Strategy

MicroStrategy on AWS and MicroStrategy Cloud each offers organizations an alternate purchase and deployment model for business analytics, compared to traditional on-premise deployments. Instead of making large upfront capital investments and building large support teams, MicroStrategy on AWS and MicroStrategy Cloud allow organizations to purchase analytics as a service with no upfront capital investments and offer payment structures that scale with business requirements.

Our MicroStrategy on AWS and MicroStrategy Cloud technology strategy is focused on continuing to enhance the reliability, self-service, performance, and scalability of our offerings. We also seek to differentiate our offerings by investing in enhancing the security process and infrastructure around our services, monitoring existing security and compliance certifications, and obtaining new certifications.

MicroStrategy Services™

MicroStrategy Services consists of MicroStrategy Consulting™, MicroStrategy Education™, and MicroStrategy Technical Support. MicroStrategy Services advises, assists and supports our customers in successfully leveraging

the MicroStrategy platform to achieve enterprise intelligence. Through this three-pronged combination, we help our customers realize the vision of the Intelligent Enterprise™ and the creation of an intelligence platform.

MicroStrategy Consulting

MicroStrategy Consulting provides our customers with assessment, advisory, architecture, and deployment expertise to help drive critical analytics and mobile solutions across key industries. We utilize our deep expertise, thought leadership, and extensive MicroStrategy resources to guide our customers in defining, developing, and delivering core business analytics solutions for their enterprises. These solutions provide our customers with greater access to critical business information and help them make better business decisions faster. MicroStrategy consultants work with the backing of the MicroStrategy product engineering, technical support and account teams to continue to partner with customers to help ensure a high adoption rate, positive ROI, and increased BI maturity. Our team is rigorously trained and certified on capabilities of the MicroStrategy platform.

MicroStrategy Consulting is a worldwide organization with operations in North America, South America, Europe, Middle East, Africa and Asia Pacific, delivering projects to customers across all major industries. Our Global Delivery Center™ ("GDC"), located in Warsaw, Poland, is a hub of several hundred consultants who support analytics and mobile projects directly at customer sites around the world or remotely. With functional and business management practices, the appropriate experts can transition on and off projects as needed. The GDC can quickly scale up or down to meet unique technical and industry requirements. Integrating the GDC with on-site project resources is a flexible and cost-efficient way to receive highly specialized services.

MicroStrategy Education

MicroStrategy Education offers users a personalized plan to expand their knowledge and skill sets and help them build and optimize their organization's intelligence center. Key Education initiatives include:

Free education. We offer free education through our Jump Start program. 30,000 registrations later, the program continues to attract users interested in learning about business intelligence and MicroStrategy. Each day of the five-day program is structured to stand on its own, allowing users to attend any one or all five days. Currently, the program is available in nine languages in over 40 cities worldwide and online.

Quarterly updated educational content. We update educational content to reflect our quarterly software releases, customer feedback and best practices to help ensure users are learning how to leverage the latest MicroStrategy features and functionalities. As our platform evolves, we continuously improve our suite of courses and certifications so users have access to the latest information.

Certifying intelligence centers. We provide role-specific project certifications for employees within an organization's intelligence center so they can serve as trusted MicroStrategy advisors. We offer the following options to help users get trained and certified:

- Certify at your own pace: Our course schedule delivers the most popular certifications and certification projects on a frequent basis, enabling organizations to build a training and certification schedule that works for their specific enterprise requirements.
- Fast track: An efficient and expedited certification program that compresses a lot of knowledge into a short amount of time. Depending on a user's role, level and certification need, a user can expect to become certified in five to ten days.

Self-paced E-courseware learning. For organizations wanting to get a large number of analysts up and running within a few hours of training, we offer E-courseware modules. Our E-courseware modules are the most cost-effective and

efficient option to get users proficient on MicroStrategy. We have made significant investments in our portfolio of E-courseware modules with 10 of our most popular courses now available as self-paced modules.

Course customization. We can customize course content around an organization's data and how it uses the data to make decisions. Content can be personalized to reflect a customer's brand and its datasets, and tie it into real-world applications and benefits. Customized courses offer users the information and specific skill sets they need to boost their performance and help ensure their organization is making the most of its training.

MicroStrategy Technical Support

MicroStrategy Technical Support is focused on improving the overall customer experience through proactive technical product support for customers and business partners across MicroStrategy's software products. Additionally, it is responsible for negotiating and maintaining support contracts with our customers and business partners alike, including support services for MicroStrategy Cloud customers. MicroStrategy Technical Support includes the following groups:

Customer Support Group (CSG). CSG is a team of Technical Support Engineers responsible for providing first level technical support to customers, business partners, and prospects.

Premium Support. Premium Support is a team of Premium Support Engineers that provides dedicated technical support to our elite customers and business partners.

Customer Success Management (CSM). CSM manages our support renewal business and our process for renewing software maintenance contracts with customers worldwide. It also helps answer questions from customers while working with those customers on renewing their maintenance contracts. The team also works with customers quarterly to ascertain the customer's on-going satisfaction level.

Sales and Services Strategy

We primarily sell through our dedicated sales force, as well as through channel partners in order to increase market coverage in both domestic and international markets. We provide financial incentives for our channel partners to market and distribute our products and services. We also offer a comprehensive set of educational programs that enhance our potential customers' and channel partners' understanding of our software. Furthermore, we offer a wide range of services that provide support in the discovery, planning, development, and deployment stages of a MicroStrategy product or service.

Dedicated sales force. We market our software and services chiefly through our direct sales force. We have sales offices in locations throughout the world. We use distributors in several countries where we do not have sales offices.

Channel partners. We have established strategic alliances with third party vendors to help ensure the success of our customers' business intelligence initiatives. Our channel partners are system integrators, consulting firms, resellers, solution providers, managed service providers, OEMs, and technology companies. These firms utilize MicroStrategy platforms for a variety of commercial purposes and our agreements with them generally provide non-exclusive rights to market our products and services and allow access to our marketing materials, product training, and direct sales force for field-level assistance.

We make significant commitments to our channel partners, including investments in joint development including technical training and certifications, pre-sales and sales enablement, and marketing programs. Through our joint efforts, we believe customers are able to minimize their risk and maximize the return on their business intelligence projects. We believe that our channel partners allow us to leverage sales and service resources, as well as marketing and industry-specific expertise, to expand our user base and increase our market coverage.

Marketing Strategy

Our marketing programs target the following principal constituencies:

- Our historical base of corporate technology buyers and departmental technology buyers across FORTUNE™ Global 2000 enterprises. We also target senior executives and other leaders in these companies for MicroStrategy Mobile and Usher;
- Corporate and departmental technology buyers in mid-sized enterprises;

- Government technology buyers and the vendors to the government community;
- Independent software vendors that want to embed our technology tools in their solutions; and
- System integrators that have technology relationships with the largest enterprises, governments, and information-intensive businesses.

We continually seek to increase our brand awareness by focusing our messaging on the possibilities for value creation and the benefits of using our platforms, and competitive differentiators. The channels we use to communicate with these constituencies include:

- User conferences;
- Advertising;
- Direct email;
- Free and evaluation software;
- Industry awards;
- Industry events;
- Media coverage;
- Mobile application downloads;
- Our website;
- Social media;
- Channel partners; and
- Word of mouth and peer references.

Each quarter in 2017, we hosted symposia events in cities across North America, Europe, the Middle East, Asia, Africa, and South America. These events offered IT and business users an opportunity to network, attend workshops, and learn about real-world MicroStrategy 10 applications from our customers. These events also featured topics on analytics and mobile applications in retail, banking, higher education, healthcare and other sectors being transformed by Big Data. We will continue to host symposia events where we will highlight opportunities to drive the adoption of business intelligence across organizations, reduce costs through tool consolidation, and empower the workforce to be more productive – all of which can help attendees plan and achieve their analytics goals.

Customers

Our customers include leading companies from a wide range of industries, as well as the public sector. These industries include retail, consulting, technology, manufacturing, finance, banking, insurance, healthcare, education, telecommunications, and many more.

Competition

MicroStrategy Analytics, MicroStrategy on AWS and MicroStrategy Cloud Competitors

The analytics market is highly competitive and subject to rapidly changing technology paradigms. Within the analytics space, we compete with many different vendors, including (i) large software vendors, such as IBM (Cognos), SAP (BO), Microsoft (Power BI™), and Oracle (OBIEE), that provide one or more products that directly compete with our products, (ii) open source analytics vendors such as OpenText™ Analytics and Hitachi (Pentaho®), (iii) various other analytics software providers, such as Qlik™, Tableau Software, TIBCO®, Information Builders®, and the SAS Institute, and (iv) other vendors offering cloud-based offerings, such as GoodData and Birst, an Infor Company. Our future success depends on the effectiveness with which we can differentiate and compete with these vendors and other potential competitors across analytics implementation projects of varying sizes. Failure to maintain adequate technology differentiation from these competitors could materially adversely affect our revenue from both existing and prospective customers.

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MicroStrategy Mobile Competitors

The market for mobile analytics is rapidly evolving. New mobile devices are being introduced in the market at a rapid pace, and enhancements to mobile operating systems are being made at an even faster rate. The rapidly changing technology landscape creates opportunities for both existing competitors and new vendors to introduce innovative new products. Within the mobile analytics space, we predominantly compete with the same set of analytics vendors that we compete with in the analytics market. Our competitiveness in this market will depend on how quickly we can adapt to the changing technology landscape and how effectively we sell, market, and differentiate our offering.

Usher Competitors

Usher competes with companies with technologies categorized as user authentication products. These competitors focus primarily on traditional forms of identity verification such as smart cards, tokens, and password managers. These companies have significant name recognition and offer solutions with security architectures that are familiar to IT buyers. Usher also competes with companies with newer solutions, often involving mobile technology.

Employees

As of December 31, 2017, we had a total of 2,216 employees, of whom 1,100 were based in the United States and 1,116 were based internationally. Of our 2,216 employees, 652 were engaged in sales and marketing, 559 in research and development, 707 in subscription, product support, consulting, and education services, and 298 in finance, administration, and corporate operations. None of our employees in the United States is represented by a labor union; however, in certain foreign subsidiaries, some employees are members of trade or local unions. In France, our employees are represented by a works council as required by local law. We have not experienced any work stoppages and consider our relations with our employees to be good.

The following table summarizes employee headcount as of the dates indicated:

	December 31, 2015	December 31, 2016	December 31, 2017
Subscription services	37	48	53
Product support	131	171	172
Consulting	467	453	441
Education	28	39	41
Sales and marketing	513	587	652
Research and development	461	512	559
General and administrative	310	323	298
Total headcount	1,947	2,133	2,216

Research and Product Development

We maintain a dedicated performance engineering team and conduct research and development focused on providing our customers with the highest levels of performance for analytics applications of all sizes and security solutions. The description of research and development expenses in “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” includes a breakdown of such expenses. We believe that our future performance will depend in large part on our ability to maintain and enhance our current product line, develop new products that

achieve market acceptance, maintain technological competitiveness, and meet an expanding range of customer requirements.

Available Information

Our website is located at www.microstrategy.com. We make available free of charge, on or through the Investor Relations section of our website (http://ir.microstrategy.com), our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports, as soon as reasonably practicable after electronically filing such reports with the Securities and Exchange Commission ("SEC"). Information found on our website is not part of this Annual Report or any other report filed with the SEC. The public may read and copy any materials filed by the Company with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov.

Item 1A. Risk Factors

You should carefully consider the risks described below before making an investment decision. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations.

If any of the following risks occurs, our business, financial condition, or results of operations could be materially adversely affected. In such case, the market price of our class A common stock could decline and you may lose all or part of your investment.

Our quarterly operating results, revenues, and expenses may fluctuate significantly, which could have an adverse effect on the market price of our stock

For many reasons, including those described below, our operating results, revenues, and expenses have varied in the past and may vary significantly in the future from quarter to quarter. These fluctuations could have an adverse effect on the market price of our class A common stock.

Fluctuations in Quarterly Operating Results. Our quarterly operating results may fluctuate, in part, as a result of:

- the size, timing, volume, and execution of significant orders and shipments;
- the mix of products and services ordered by customers, including product licenses and subscription offerings, which can affect the extent to which revenue is recognized immediately or over future quarterly periods;
- the timing of the release or delivery of new or enhanced offerings, which may affect the period in which we can recognize revenue;
- the timing of announcements of new offerings by us or our competitors;
- changes in our pricing policies or those of our competitors;
- market acceptance of new and enhanced versions of our products and services;
- the length of our sales cycles;
- seasonal or other buying patterns of our customers;
- changes in our operating expenses;
- planned major maintenance activities related to our corporate aircraft;
- the timing of research and development projects and the capitalization of software development costs;
- personnel changes;
- our use of channel partners;
- utilization of our consulting and education services, which can be affected by delays or deferrals of customer implementation of our software products;
- changes in foreign currency exchange rates;
- our profitability and expectations for future profitability and their effect on our deferred tax assets and net income for the period in which any adjustment to our net deferred tax asset valuation allowance may be made;
- increases or decreases in our liability for unrecognized tax benefits; and
- changes in customer decision making processes or customer budgets.

Limited Ability to Adjust Expenses. We base our operating expense budgets on expected revenue trends and strategic objectives. Many of our expenses, such as office leases and certain personnel costs, are relatively fixed. We may be unable to adjust spending quickly enough to offset any unexpected revenue shortfall. Accordingly, any shortfall in revenue may cause significant variation in operating results in any quarter. For example, if our revenues in the future are not sufficient to offset our operating expenses, or we are unable to adjust our operating expenses in a timely manner in response to any shortfall in anticipated revenue, we may incur operating losses.

Based on the above factors, we believe that quarter-to-quarter comparisons of our operating results are not a good indication of our future performance. It is possible that in one or more future quarters, our operating results may be below the expectations of public market analysts and investors. In that event, the market price of our class A common stock may fall.

The market price of our class A common stock has been and may continue to be volatile

The market price of our class A common stock historically has been volatile and may continue to be volatile. The market price of our class A common stock may fluctuate widely in response to various factors, some of which are beyond our control. These factors include, but are not limited to:

- quarterly variations in our results of operations or those of our competitors;
- announcements about our earnings that are not in line with analyst expectations, the likelihood of which may be enhanced because it is our policy not to give guidance relating to our anticipated financial performance in future periods;
- announcements by us or our competitors of acquisitions, dispositions, new offerings, significant contracts, commercial relationships, or capital commitments;
- the emergence of new sales channels in which we are unable to compete effectively;
- our ability to develop, market, and deliver new and enhanced offerings on a timely basis;
- commencement of, or our involvement in, litigation;
- any major change in our Board of Directors, management, or governing documents;
- changes in government regulations or in the status of our regulatory approvals;
- recommendations by securities analysts or changes in earnings estimates and our ability to meet those estimates;
- investor perception of our Company;
- announcements by our competitors of their earnings that are not in line with analyst expectations;
- the volume of shares of our class A common stock available for public sale;
- sales or purchases of stock by us or by our stockholders, and issuances of awards under our stock incentive plan;
- short sales, hedging, and other derivative transactions involving shares of our class A common stock; and
- general economic conditions and slow or negative growth of related markets.

In addition, the stock market in general, and the market for technology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of companies in those markets. These broad market and industry factors may seriously harm the market price of our class A common stock, regardless of our actual operating performance.

We may not be able to sustain or increase profitability in the future

We generated net income for each of the fiscal years ended December 31, 2017, 2016, and 2015; however, we may not be able to sustain or increase profitability on a quarterly or annual basis in the future. If our revenues are not sufficient to offset our operating expenses, or we are unable to adjust our operating expenses in a timely manner in response to any shortfall in anticipated revenue, our profitability may decrease, we may cease to be profitable, or we may incur operating losses. As a result, our business, results of operations, and financial condition may be materially adversely affected.

As of December 31, 2017, we had $13.4 million of deferred tax assets, net of a $1.0 million valuation allowance. If we are unable to sustain profitability in the future, we may be required to increase the valuation allowance against these deferred tax assets, which could result in a charge that would materially adversely affect net income in the period in which the charge is incurred.

Economic uncertainty and increased competition for our customers, particularly in the retail industry, could materially adversely affect our business and results of operations

The U.S. and other significant markets have experienced cyclical downturns and worldwide economic conditions remain uncertain. Economic uncertainty and associated macroeconomic conditions make it extremely difficult for our customers and us to accurately forecast and plan future business activities, and could cause our customers to slow spending on our products and services, which could delay and lengthen sales cycles. Furthermore, during uncertain economic times, our customers may face issues gaining timely access to sufficient credit, which could result in an impairment of their ability to make timely payments to us. If that were to occur, we may be required to increase our allowance for doubtful accounts and our results would be negatively impacted.

Furthermore, we have a significant number of customers in the retail industry, which has recently experienced intense competition and structural changes. A significant downturn or the intensification of competition in this industry may cause organizations to reduce their capital expenditures in general or specifically reduce their spending on information technology. In addition, customers in this industry may delay or cancel information technology projects or seek to lower their costs by renegotiating vendor contracts. Customers with excess information technology resources may choose to develop in-house software solutions rather than obtain those solutions from us. In recent years, consumers have increasingly migrated toward large e-commerce platforms and other online applications. As a result, the retail industry has experienced consolidation and other ownership changes. In the future, retailers may further consolidate, undergo restructurings or reorganizations, or realign their affiliations, any of which could decrease the number of competitors within the retail industry, reducing the number of potential customers for our offerings. Moreover, our competitors may respond to challenging market conditions by lowering prices and attempting to lure away our customers.

We cannot predict the timing, strength, or duration of any economic slowdown or any subsequent recovery generally, or competitive and structural changes in the retail industry. If the conditions in the general economy and the markets in which we operate worsen from present levels, our business, financial condition, and results of operations could be materially adversely affected.

We may have exposure to greater than anticipated tax liabilities

We are subject to income taxes and non-income taxes in a variety of domestic and foreign jurisdictions. Our future income taxes could be materially adversely affected by earnings that are lower than anticipated in jurisdictions where we have lower statutory rates, earnings that are higher than anticipated in jurisdictions where we have higher statutory rates, changes in the valuation of our deferred tax assets and liabilities, changes in the amount of unrecognized tax

benefits, or changes in tax laws, regulations, accounting principles, or interpretations thereof.

Further changes in the tax laws of foreign jurisdictions could arise, including as a result of the base erosion and profit shifting ("BEPS") project undertaken by the Organisation for Economic Co-operation and Development ("OECD"). The OECD, which represents a coalition of member countries, has issued recommendations that, in some cases, make substantial changes to numerous long-standing tax positions and principles. These changes, many of which have been adopted or are under active consideration by OECD members and/or other countries, could

increase tax uncertainty and may adversely affect our provision for income taxes. In addition, in the United States, legislation bringing about broad changes in the existing corporate tax system was recently enacted, with some retroactive effects. For example, during the fourth quarter of 2017, we estimated and recorded a one-time transition tax expense of $40.3 million due to the recently enacted U.S. corporate tax reform legislation that effected a deemed repatriation of certain foreign earnings and profits.

Our determination of our tax liability is subject to review by applicable domestic and foreign tax authorities. Any adverse outcome of such reviews could have an adverse effect on our operating results and financial condition. The determination of our worldwide provision for income taxes and other tax liabilities requires significant judgment and, in the ordinary course of business, there are many transactions and calculations where the ultimate tax determination is uncertain. Moreover, as a multinational business, we have subsidiaries that engage in many intercompany transactions in a variety of tax jurisdictions where the ultimate tax determination is uncertain.

We also have contingent tax liabilities that, in management's judgment, are not probable of assertion. If such unasserted contingent liabilities were to be asserted, or become probable of assertion, we may be required to record significant expenses and liabilities in the period in which these liabilities are asserted or become probable of assertion.

As a result of these and other factors, the ultimate amount of tax obligations owed may differ from the amounts recorded in our financial statements and any such difference may materially affect our financial results in future periods in which we change our estimates of our tax obligations or in which the ultimate tax outcome is determined.

If the market for analytics products fails to grow as we expect or if businesses fail to adopt our offerings, our business, operating results, and financial condition could be materially adversely affected

Nearly all of our revenues to date have come from sales of analytics products and related technical support, consulting, and education services. We expect these sales to account for a large portion of our revenues for the foreseeable future. Although demand for analytics products has grown in recent years, the market for analytics offerings continues to evolve. Resistance from consumer and privacy groups to increased commercial collection and use of data on spending patterns and other personal behavior, government restrictions on the collection, use, and transfer of personal data, and other developments may impair the further growth of this market. We cannot be sure that this market will continue to grow or, even if it does grow, that businesses will adopt our solutions.

We have spent, and intend to keep spending, considerable resources to educate potential customers about analytics offerings in general and our offerings in particular. However, we cannot be sure that these expenditures will help any of our offerings achieve any additional market acceptance. If the market fails to grow or grows more slowly than we currently expect or businesses fail to adopt our offerings, our business, operating results, and financial condition could be materially adversely affected.

Our products face intense competition, which may lead to lower prices for our products and services, reduced gross margins, loss of market share, and reduced revenue

The analytics market is highly competitive and subject to rapidly changing technology paradigms. Within the analytics space, we compete with many different types of vendors, including (i) large software vendors, such as IBM (Cognos), SAP (BO), Microsoft (Power BI), and Oracle (OBIEE), that provide one or more products that directly compete with our products, (ii) open source analytics vendors, such as OpenText Analytics and Hitachi (Pentaho), (iii) various other analytics software providers, such as Qlik, Tableau Software, TIBCO, Information Builders, and the SAS Institute, (iv) other vendors offering cloud-based offerings, such as GoodData and Birst, an Infor Company, and (v) companies with EIoT technologies or technologies categorized as user authentication products that are primarily focused on traditional forms of identity verification such as smart cards, tokens, and password managers. Our future

success depends on the effectiveness with which we can differentiate and compete with these vendors and other potential competitors across analytics implementation projects of varying sizes. Failure to maintain adequate technology differentiation from these competitors could materially adversely affect our revenue from both existing and prospective customers.

Some of our competitors have longer operating histories and significantly greater financial, technical, and marketing resources than we do. As a result, they may be able to respond more quickly to new or emerging technologies and changes in customer requirements or devote greater resources to the development, promotion, sale, and marketing of their offerings than we can, such as offering certain analytics products free of charge when bundled with other software offerings. In addition, many of our competitors have strong relationships with current and potential customers, extensive industry and specialized business knowledge, as well as corresponding proprietary technologies that they can leverage, such as multidimensional databases and ERP repositories. As a result, they may be able to prevent us from penetrating new accounts or expanding within existing accounts.

Increased competition may lead to price cuts, reduced gross margins, and loss of market share. We may not be able to compete successfully against current and future competitors, and the failure to meet the competitive pressures we face may have a material adverse effect on our business, operating results, and financial condition.

Current and future competitors may also make strategic acquisitions or establish cooperative relationships among themselves or with others. By doing so, these competitors may increase their ability to meet the needs of our potential customers by their expanded offerings. Our current or prospective channel partners may establish cooperative relationships with our current or future competitors. These relationships may limit our ability to sell our analytics offerings through specific distribution channels. Accordingly, new competitors or alliances among current and future competitors may emerge and rapidly gain significant market share. These developments could limit our ability to obtain revenues from new customers and to sustain software maintenance revenues from our installed customer base. In addition, basic office productivity software suites, such as Microsoft Office, could evolve to offer advanced analysis and reporting capabilities that may reduce the demand for our analytics offerings.

We depend on revenue from a single suite of products and related services as well as revenue from our installed customer base

Our MicroStrategy 10 platform and related services account for a substantial portion of our revenue. Because of this revenue concentration, our business could be harmed by a decline in demand for, or in the adoption or prices of, these products and related services as a result of, among other factors, any change in our pricing or packaging model, increased competition, maturation in the markets for these products, or other risks described in this Annual Report.

We also depend on our installed customer base for a substantial portion of our revenue. We have contracts with our license customers for ongoing support and maintenance, as well as contracts for cloud-based subscription services that provide recurring revenues to us. In addition, our installed customer base has historically generated additional new license and services revenues for us. If our existing customers cancel or fail to renew their service contracts or fail to purchase additional products or services, our revenue could decrease and our operating results could be materially adversely affected.

If we are unable to develop and release product enhancements and new offerings to respond to rapid technological change in a timely and cost-effective manner, our business, operating results, and financial condition could be materially adversely affected

The market for our offerings is characterized by rapid technological change, frequent new product introductions and enhancements, changing customer demands, and evolving industry standards. The introduction of offerings embodying new technologies can quickly make existing offerings obsolete and unmarketable. We believe that our future success depends largely on our ability to:

- continue to support a number of popular operating systems and databases;
- maintain and improve our current offerings;

- rapidly develop new offerings and product enhancements that achieve market acceptance;
- maintain technological competitiveness; and
- meet an expanding range of customer requirements.

Analytics applications are inherently complex, and it can take a long time and require significant research and development expenditures to develop and test new offerings and product enhancements. In addition, customers may delay their purchasing decisions because they anticipate that new or enhanced versions of our offerings will soon become available. We cannot be sure that we will succeed in developing, marketing, and delivering, on a timely and cost-effective basis, new or enhanced offerings that respond to technological change or new customer requirements, nor can we be sure that any new or enhanced offerings will achieve market acceptance. Moreover, even if we introduce a new offering, we may experience a decline in revenues of our existing offerings that is not fully matched by the new offering's revenue. For example, customers may delay making purchases of a new offering to permit them to make a more thorough evaluation of the offering, or until industry and marketplace reviews become widely available. Some customers may hesitate migrating to a new offering due to concerns regarding the complexity of migration and product infancy issues on performance. In addition, we may lose existing customers who choose a competitor's offering rather than migrate to our new offering. This could result in a temporary or permanent revenue shortfall and materially adversely affect our business.

A substantial customer shift in the deployment of MicroStrategy Analytics from a perpetual software license model to our cloud services model could affect the timing of revenue recognition and materially adversely affect our operating results

We offer our analytics platform in the form of a perpetual software license and a cloud-based subscription. The payment streams and revenue recognition timing for our perpetual software licenses are different from those for our cloud-based subscriptions. For perpetual software licenses, customers typically pay us a lump sum soon after entering into a software license agreement and revenue is typically recognized upon delivery of the software to the customer. For cloud-based subscriptions, customers typically make periodic payments over the subscription period and revenue is typically recognized ratably over the subscription period. As a result, if a substantial number of current or new customers shift to subscribing to our cloud services offerings instead of purchasing perpetual software licenses for MicroStrategy Analytics, the resulting change in payment terms and revenue recognition may materially adversely affect our operating results and cash flows for the reporting periods during which such a shift occurs.

Our investment in new business strategies and initiatives could disrupt the operations of our ongoing business and present risks that we have not adequately anticipated

We have invested, and in the future may invest, in new business strategies and initiatives. For example, in recent years we have introduced a number of innovative technologies designed to enable companies to capitalize on Big Data, mobile applications, cloud-based services, security, and Internet of Things trends in the marketplace. These endeavors may involve significant risks and uncertainties, including distraction of management from other business operations, the dedication of significant research and development, sales and marketing, and other resources to these new initiatives at the expense of our other business operations, generation of insufficient revenue to offset expenses associated with new initiatives, incompatibility of our new technologies with third-party platforms, inadequate return of capital, and other risks that we may not have adequately anticipated. Because new strategies and initiatives are inherently risky, these strategies and initiatives may not be successful and could materially adversely affect our financial condition and operating results.

Business disruptions, including interruptions, delays, or failures of our systems, third-party data center hosting facilities or other third-party services, could materially adversely affect our operating results or result in a material weakness in our internal controls that could adversely affect the market price of our stock

A significant portion of our research and development activities or certain other critical business operations are concentrated in facilities in Northern Virginia, China, and Poland. In addition, we serve our customers, and manage certain critical internal processes, using third-party data center hosting facilities located in the United States and

England and other third-party services, including AWS and other cloud services. We could experience a disruption or failure of our systems, or the third-party hosting facilities or other services that we use. Such disruptions or failures could include a natural disaster, fire, cyber-attack, act of terrorism, geopolitical conflict, or other catastrophic event, as well as power outages or telecommunications infrastructure outages, or a decision by one of our third-party service providers to close facilities that we use without adequate notice or to materially change the

pricing or terms of their services, or other unanticipated problems with the third-party services that we use, including a failure to meet service standards.

We are a highly automated business and any such disruptions or failures could (i) result in the destruction or disruption of any of our critical business operations, controls or procedures, or information technology systems, (ii) severely affect our ability to conduct normal business operations, including delaying completion of sales and provision of services, (iii) result in a material weakness in our internal control over financial reporting, (iv) cause our customers to terminate their subscriptions, (v) result in our issuing credits to customers or paying penalties or fines, (vi) harm our reputation, (vii) adversely affect our attrition rates or our ability to attract new customers, or (viii) cause our offerings to be perceived as not being secure, any of which could materially adversely affect our future operating results.

We use channel partners and if we are unable to maintain successful relationships with them, our business, operating results, and financial condition could be materially adversely affected

In addition to our direct sales force, we use channel partners such as resellers, value-added resellers, system integrators, consulting firms, OEMs, and technology partners to license and support our products. For the year ended December 31, 2017, transactions by channel partners for which we recognized revenues accounted for 21.7% of our total product licenses revenues. Our channel partners may offer customers the products and services of several different companies, including offerings that compete with ours. Because our channel partners generally do not have exclusive relationships with us, we cannot be certain that they will prioritize or devote adequate resources to selling our products. Moreover, divergence in strategy or contract defaults by any of these channel partners may materially adversely affect our ability to develop, market, sell, or support our offerings.

Although we believe that direct sales will continue to account for a majority of our product licenses revenues, we seek to maintain a significant level of sales activities through our channel partners. There can be no assurance that our channel partners will continue to cooperate with us. In addition, actions taken or not taken by such parties may materially adversely affect us. Our ability to achieve revenue growth in the future will depend in part on our ability to maintain successful relationships with our channel partners. If we are unable to maintain our relationships with these channel partners, our business, operating results, and financial condition could be materially adversely affected.

In addition, we rely on our channel partners to operate in accordance with the terms of their contractual agreements with us. For example, some of our agreements with our channel partners prescribe the terms and conditions pursuant to which they are authorized to resell or distribute our software and offer technical support and related services. If our channel partners do not comply with their contractual obligations to us, our business, operating results, and financial condition may be materially adversely affected.

Our recognition of deferred revenue and advance payments is subject to future performance obligations and may not be representative of revenues for succeeding periods

Our gross current and non-current deferred revenue and advance payments totaled $218.7 million as of December 31, 2017. We offset our accounts receivable and deferred revenue for any unpaid items, which totaled $95.9 million, resulting in net current and non-current deferred revenue and advance payments of $122.8 million as of December 31, 2017. The timing and ultimate recognition of our deferred revenue and advance payments depend on various factors, including our performance of various service obligations.

Because of the possibility of customer changes or delays in customer development or implementation schedules or budgets, and the need for us to satisfactorily perform product support and other services, deferred revenue and advance payments at any particular date may not be representative of actual revenue for any succeeding period.

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Our international operations are complex and expose us to risks that could have a material adverse effect on our business, operating results, and financial condition

We receive a significant portion of our total revenues from international sales, and conduct our business activities in various foreign countries, including some emerging markets where we have limited experience, where the challenges of conducting our business can be significantly different from those we have faced in more developed markets, and where business practices may create internal control risks. International revenues accounted for 41.9%, 39.3%, and 38.3% of our total revenues for the years ended December 31, 2017, 2016, and 2015, respectively. Our international operations require significant management attention and financial resources.

There are certain risks inherent in our international business activities, including:

- fluctuations in foreign currency exchange rates;
- new, or changes in, regulatory requirements;
- tariffs, export and import restrictions, restrictions on foreign investments, sanctions, and other trade barriers or protection measures;
- costs of localizing offerings;
- lack of acceptance of localized offerings;
- difficulties in and costs of staffing, managing, and operating our international operations;
- tax issues, including restrictions on repatriating earnings;
- weaker intellectual property protection;
- economic weakness or currency related crises;
- the burden of complying with a wide variety of laws, including those relating to labor matters, consumer and data protection, privacy, network security, and encryption;
- generally longer payment cycles and greater difficulty in collecting accounts receivable;
- our ability to adapt to sales practices and customer requirements in different cultures;
- corporate espionage; and
- political instability and security risks in the countries where we are doing business.

We may face heightened risks in connection with our international operations as a result of the impending withdrawal of the United Kingdom from the European Union, commonly referred to as “Brexit.” The future effects of Brexit are uncertain and will depend on any agreements the United Kingdom makes to retain access to E.U. markets either during a transitional period or more permanently. Brexit could, among other outcomes, disrupt the free movement of goods, services and people between the United Kingdom and the European Union, and significantly disrupt trade between the United Kingdom and the European Union. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations, including tax laws and regulations, as the United Kingdom determines which E.U. laws to replace or replicate. Disruptions to trade, weakening of economic conditions, economic and legal uncertainties, or changes in currency rates may adversely affect our business, financial condition, operating results and cash flows.

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Tax Act”), with some retroactive effects. This legislation brings about, among other items, corporate income tax rate changes, the modification or elimination of certain tax incentives, changes to the existing regime for taxing overseas earnings (including modifications to the current regime for repatriating such earnings), and measures to prevent BEPS. Although the overall impact that the legislation may have on our future effective tax rate is unclear at this time, the changes to the U.S. taxation of our international income could have a material effect on our future operating results.

From time to time, we may undertake various potential intercompany transactions and legal entity restructurings that involve our international subsidiaries. We consider various factors in evaluating these potential transactions and restructurings, including the alignment of our corporate structure with our organizational objectives, the operational and tax efficiency of our corporate structure, and the long-term cash flows and cash needs of our business. Such transactions and restructurings could negatively impact our overall tax rate and result in additional tax liabilities.

In addition, compliance with foreign and U.S. laws and regulations that are applicable to our international operations is complex and may increase our cost of doing business in international jurisdictions, and our international operations could expose us to fines and penalties if we fail to comply with these regulations. These laws and regulations include anti-bribery laws, such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and local laws prohibiting corrupt payments to government officials. These laws and regulations also include import and export requirements and economic and trade sanctions administered by the Office of Foreign Assets Control and the U.S. Commerce Department based on U.S. foreign policy and national security goals against targeted foreign states, organizations, and individuals. Although we have implemented policies and procedures designed to help ensure compliance with these laws, there can be no assurance that our employees, channel partners, and other persons with whom we do business will not take actions in violation of our policies or these laws. Any violations of these laws could subject us to civil or criminal penalties, including substantial fines or prohibitions on our ability to offer our products and services to one or more countries, and could also materially damage our reputation and our brand.

These factors may have a material adverse effect on our future sales and, consequently, on our business, operating results, and financial condition.

We may lose sales, or sales may be delayed, due to the long sales and implementation cycles of certain of our products and services, which could reduce our revenues

To date, our customers have typically invested substantial time, money, and other resources, and involved many people in the decision to license our software products and purchase our related services. As a result, we may wait nine months or more after the first contact with a customer for that customer to place an order while it seeks internal approval for the purchase of our products or services. During this long sales cycle, events may occur that affect the size and/or timing of the order or even cause it to be canceled. For example, our competitors may introduce new offerings, or the customer’s own budget and purchasing priorities may change.

Even after an order is placed, the time it takes to deploy our products and complete services engagements can vary widely. Implementing some of our offerings can take several months, depending on the customer’s needs, and may begin only with a pilot program. It may be difficult to deploy our products if the customer has complicated deployment requirements, which typically involve integrating databases, hardware, and software from different vendors. If a customer hires a third party to deploy our products, we cannot be sure that our products will be deployed successfully.

Our results in any particular period may depend on the number and volume of large transactions in that period and these transactions may involve lengthier, more complex, and more unpredictable sales cycles than other transactions

As existing and potential customers seek to standardize on a single analytics vendor or require greater vendor capacity to meet their growing analytics needs, our business may experience larger transactions at the enterprise level and larger transactions may account for a greater proportion of our business. The presence or absence of one or more large transactions in a particular period may have a material positive or negative effect on our revenue and operating results for that period. For the years ended December 31, 2017, 2016, and 2015, our top three product licenses transactions with recognized revenue totaled $4.5 million, $9.2 million, and $7.4 million, respectively, or 4.8%, 8.1%, and 6.2% of total product licenses revenues, respectively. These transactions represent significant business and financial decisions

for our customers, require considerable effort on the part of customers to assess alternative products, and often require additional levels of management approval. In addition, large transactions are often more complex than smaller transactions. These factors generally lengthen the typical sales cycle and increase the risk that customers may postpone or delay purchasing decisions from one period to another subsequent or later period, or that customers will alter their purchasing requirements. We may also encounter greater competition and pricing pressure in larger transactions, and the sales effort and service delivery scope for larger transactions may

require us to use additional resources to execute the transaction. These factors could result in lower than anticipated revenue and earnings for a particular period or in lower estimated revenue and earnings in future periods.

We face a variety of risks in doing business with U.S., foreign, state, and local governments and government agencies, including risks related to the procurement process, budget constraints and cycles, termination of contracts, and compliance with government contracting requirements

Our customers include the U.S. government and a number of state and local governments and government agencies. There are a variety of risks in doing business with government entities, including:

Procurement. Contracting with public sector customers is highly competitive and can be time-consuming and expensive, requiring us to incur significant up-front time and expense without any assurance that we will win a contract.

Budgetary Constraints and Cycles. Demand and payment for our products and services are impacted by public sector budgetary cycles and funding availability, with funding reductions or delays adversely impacting public sector demand for our products and services.

Termination of Contracts. Public sector customers often have contractual or other legal rights to terminate current contracts for convenience or due to a default. If a contract is terminated for convenience, which can occur if the customer's needs change, we may only be able to collect fees for products or services delivered prior to termination and settlement expenses. If a contract is terminated due to a default, we may not recover even those amounts, and we may be liable for excess costs incurred by the customer for procuring alternative products or services.

Compliance with Government Contracting Requirements. Government contractors are required to comply with a variety of complex laws, regulations, and contractual provisions relating to the formation, administration, or performance of government contracts that give public sector customers substantial rights and remedies, many of which are not typically found in commercial contracts. These may include rights with respect to price protection, the accuracy of information provided to the government, contractor compliance with socio-economic policies, and other terms that are particular to government contracts. Federal, state, and local governments and government agencies routinely investigate and audit contractors for compliance with these requirements. If, as a result of an audit or review, it is determined that we have failed to comply with these requirements, we may be subject to civil and criminal penalties and administrative sanctions, including termination of contracts, forfeiture of profits, cost associated with the triggering of price reduction clauses, fines, and suspensions or debarment from future government business, and we may suffer harm to our reputation.

Our customers also include a number of foreign governments and government agencies. Similar procurement, budgetary, contract, and audit risks also apply to our doing business with these entities. In addition, compliance with complex regulations and contracting provisions in a variety of jurisdictions can be expensive and consume significant management resources. In certain jurisdictions, our ability to win business may be constrained by political and other factors unrelated to our competitive position in the market. Each of these difficulties could materially adversely affect our business and results of operations.

We depend on technology licensed to us by third parties, and the loss of this technology could impair our software, delay implementation of our offerings, or force us to pay higher license fees

We license third-party technologies that are incorporated into or utilized by our existing offerings. There can be no assurance that the licenses for such third-party technologies will not be terminated or that we will be able to license third-party software for future offerings. In addition, we may be unable to renegotiate acceptable third-party license

terms, or we may be subject to infringement liability if third-party software that we license is found to infringe intellectual property rights of others. Changes in or the loss of third-party licenses could lead to a material increase in our costs, or to our software offerings becoming inoperable or their performance being materially reduced. As a result, we may need to incur additional development costs to help ensure continued performance of our offerings, and we may experience a decreased demand for our offerings.

If we are unable to recruit or retain skilled personnel, or if we lose the services of our Chairman of the Board of Directors, President & Chief Executive Officer, our business, operating results, and financial condition could be materially adversely affected

Our future success depends on our continuing ability to attract, train, assimilate, and retain highly skilled personnel. Competition for these employees is intense, and competition may be amplified by evolving restrictions on immigration, travel, or availability of visas for skilled technology workers. We may not be able to retain our current key employees, or attract, train, assimilate, and retain other highly skilled personnel in the future. Our future success also depends in large part on the continued service of Michael J. Saylor, our Chairman of the Board of Directors, President & Chief Executive Officer. If we lose the services of Mr. Saylor, or if we are unable to attract, train, assimilate, and retain the highly skilled personnel we need, our business, operating results, and financial condition could be materially adversely affected.

The emergence of new industry standards may materially adversely affect the demand for our existing offerings

The emergence of new industry standards in related fields may materially adversely affect the demand for our existing offerings. This could happen if new web standards and technologies or new standards in the field of operating system support emerge that are incompatible with customer deployments of our software offerings. For example, if we are unable to adapt our software offerings on a timely basis to new standards in database access technology, the ability of our software offerings to access customer databases could be impaired.

The nature of our software offerings makes them particularly susceptible to undetected errors, bugs, or security vulnerabilities, which could cause problems with how the offerings perform and which could, in turn, reduce demand for our offerings, reduce our revenue, and lead to product liability claims against us

Software as complex as ours may contain undetected errors, bugs, or security vulnerabilities. Although we test our software offerings extensively, we have in the past discovered software errors, bugs, or security vulnerabilities in our offerings after their introduction. Despite testing by us and our current and potential customers, errors, bugs, or security vulnerabilities may be found in new offerings or releases after commercial shipments begin. This could result in lost revenue, damage to our reputation, or delays in market acceptance, which could have a material adverse effect on our business, operating results, and financial condition. We may also need to expend resources and capital to correct these defects.

Our agreements with customers typically contain provisions designed to limit our exposure to product liability, warranty, and other claims. It is possible, however, that these provisions may not be effective under the laws of certain domestic or international jurisdictions and we may be exposed to product liability, warranty, and other claims. A successful product liability claim against us could have a material adverse effect on our business, operating results, and financial condition.

Changes in laws or regulations relating to privacy or the collection, processing, disclosure, storage, or transmission of personal data, or any actual or perceived failure by us or our third-party service providers to comply with such laws and regulations or applicable privacy policies, could materially adversely affect our business

Aspects of our business, including our cloud services offerings and Usher, involve collecting, processing, disclosing, storing, and transmitting personal data, which are subject to certain privacy policies and certain federal, state, and foreign laws, regulations, and directives relating to privacy and data protection. The amount of customer and employee data that we store through our cloud services offerings, networks, and other systems, including personal data, is increasing. In addition, the types of data subject to protection as personal data in the European Union, the United States, and elsewhere have been expanding. In recent years, the collection and use of personal data by

companies have come under increased regulatory and public scrutiny, especially in relation to the collection and processing of sensitive data, such as healthcare, financial services, and government data. For example, in the United States, protected health information is subject to HIPAA. HIPAA has been supplemented by the Health Information Technology for Economic and Clinical Health Act with the result of increased civil and criminal penalties for noncompliance. Entities performing certain functions that engage in creating, receiving, maintaining, or

transmitting protected health information provided by covered entities and other business associates are directly subject to enforcement under HIPAA. Our access to protected health information through our cloud services offerings triggers obligations to comply with certain privacy rules and data security requirements under HIPAA.

Any systems failure or security breach that results in the release of, or unauthorized access to, personal data, or any failure or perceived failure by us or our third-party service providers to comply with applicable privacy policies or any applicable laws or regulations relating to privacy or data protection, could result in proceedings against us by domestic or foreign government entities or others, including private plaintiffs in litigation. Such proceedings could result in the imposition of sanctions, fines, penalties, liabilities, and/or government orders requiring that we change our data practices, any of which could have a material adverse effect on our business, operating results, reputation, and financial condition.

Various federal, state, and foreign legislative, regulatory, or other government bodies may enact new or additional laws or regulations, or issue rulings that invalidate prior laws or regulations, concerning privacy, data storage, data protection, and cross-border transfer of data that could materially adversely impact our business. For example, in October 2015, the Court of Justice of the European Union issued a ruling that declared the U.S.-EU Safe Harbor Framework invalid. Following this ruling, U.S. and European authorities agreed to, and in July 2016 the European Commission formally adopted, a new mechanism for lawfully transferring personal data from the European Union to the United States, referred to as the "Privacy Shield." In addition, in April 2016, the European Parliament and the Council of the European Union formally adopted a comprehensive general data protection regulation, which will take effect in May 2018. The new law governs data practices and privacy, and establishes new requirements regarding the handling of personal data. Furthermore, a new ePrivacy regulation, regulating electronic communications, is also slated to take effect in the European Union in 2018. Complying with these and other changing requirements could cause us or our customers to incur substantial costs, require us to change our business practices, require us to take on more onerous obligations in our contracts, or limit our ability to provide certain products and services in certain jurisdictions, any of which could materially adversely affect our business and operating results. In addition, the Privacy Shield, as well as other mechanisms for lawfully transferring personal data from the European Union to the United States and certain other countries, are being challenged in European courts, which could lead to uncertainty about the legality of such transfers, or burdensome or inconsistent legal requirements. The Privacy Shield is also subject to annual review by the European Commission and the U.S. Department of Commerce, which could result in modifications to the Privacy Shield or its enforcement, or even its invalidation. In addition, we may be subject to a cybersecurity law that went into effect in China on June 1, 2017 that has uncertain but broad application and imposes a number of new privacy and data security obligations. New laws or regulations restricting or limiting the collection or use of mobile data could also reduce demand for certain of our services or require changes to our business practices, which could materially adversely affect our business and operating results.

If we or our third-party service providers experience a security breach and unauthorized parties obtain access to our customers', prospects', vendors', or channel partners' data, our data, or our cloud services offerings, networks, or other systems, our offerings may be perceived as not being secure, our reputation may be harmed, demand for our offerings may be reduced, our operations may be disrupted, we may incur significant legal and financial liabilities, and our business could be materially adversely affected

As part of our business, we process, store, and transmit our customers', prospects', vendors', and channel partners' information and data as well as our own, including in our cloud services offerings, networks, and other systems. There can be no assurance that any security measures that we or our third-party service providers have implemented will be effective against all current or future security threats. For example, security measures may be breached as a result of technological error, computer viruses, or third-party action, including intentional misconduct by computer hackers, physical break-ins, the actions of state actors, industrial espionage, fraudulent inducement of employees, customers, or channel partners to disclose sensitive information such as user names or passwords, and

employee, customer, or channel partner error or malfeasance. High-profile security breaches at other companies have increased in recent years. A security breach could result in unauthorized access to or disclosure, modification, misuse, loss, or destruction of our customers', prospects', vendors', or channel partners' data, our data (including our proprietary information, intellectual property, or trade secrets), or our cloud services offerings, networks, or other systems. Because there are many different security breach techniques and such techniques continue to evolve, we may be unable to anticipate attempted security breaches and implement adequate preventative measures. Third parties may

also conduct attacks designed to temporarily deny customers access to our cloud services. Any security breach or successful denial of service attack could result in a loss of customer confidence in the security of our offerings and damage to our brand, reduce the demand for our offerings, disrupt our normal business operations, require us to spend material resources to investigate or correct the breach, expose us to legal liabilities, including litigation, regulatory enforcement, and indemnity obligations, and materially adversely affect our revenue and operating results. These risks will increase as we continue to grow the number and scale of our cloud-based offerings, and process, store, and transmit increasingly large amounts of our customers', prospects', vendors', channel partners', and our own information and data, which may include proprietary or confidential data or personal or identifying information.

Our intellectual property is valuable, and any inability to protect it could reduce the value of our products, services, and brand

We rely on a combination of copyrights, patents, trademarks, trade secrets, confidentiality procedures, and contractual commitments to protect our intellectual property. Despite our efforts, these measures can only provide limited protection. Unauthorized third parties may try to copy or reverse engineer portions of our products or otherwise obtain and use our intellectual property. Any patents owned by us may be invalidated, circumvented, or challenged. Any of our pending or future patent applications, whether or not currently being challenged, may not be issued with the scope of the claims we seek, if at all. Moreover, amendments to and developing jurisprudence regarding U.S. patent law may affect our ability to protect our intellectual property and defend against claims of patent infringement. In addition, although we generally enter into confidentiality agreements with our employees, our former employees may seek employment with our business partners, customers, or competitors, and there can be no assurance that the confidential nature of our intellectual property will be maintained. Furthermore, the laws of some countries do not provide the same level of protection of our intellectual property as do the laws of the United States. If we cannot protect our intellectual property against unauthorized copying or use, we may not remain competitive.

Third parties may claim we infringe their intellectual property rights

We periodically receive notices from third parties claiming we are infringing their intellectual property rights, principally patent and trademark rights. We expect the number of such claims will increase as we continue to expand our offerings and branding, the number of offerings and level of competition in our industry segments grow, the functionality of offerings overlaps, and the volume of issued patents, patent applications, and trademark registrations continues to increase. Responding to any infringement claim, regardless of its validity, could:

- be time-consuming, costly, and/or result in litigation;
- divert management's time and attention from developing our business;
- require us to pay monetary damages or enter into royalty and licensing agreements that we would not normally find acceptable;
- require us to stop selling certain of our offerings;
- require us to redesign certain of our offerings using alternative non-infringing technology or practices, which could require significant effort and expense;
- require us to rename certain of our offerings or entities; or
- require us to satisfy indemnification obligations to our customers and channel partners.

Additionally, while we monitor our use of third-party software, including open source software, we cannot assure you that our processes for controlling such use in our products will be effective. If we inadvertently embed certain types of open source software into one or more of our products, or if third-party software that we license is found to infringe intellectual property rights of others, we could subject ourselves to infringement liability and be required to re-engineer our products, discontinue the sale of our products if re-engineering could not be accomplished on a timely or cost-effective basis, or make available to certain third parties or generally available, in source code form, our proprietary code, any of which could materially adversely affect our business, operating results, and financial

condition.

If a successful infringement claim is made against us and we fail to develop or license a substitute technology or brand name, as applicable, our business, results of operations, financial condition, or cash flows could be materially adversely affected.

Because of the rights of our two classes of common stock and because we are controlled by Michael J. Saylor, who beneficially owns the majority of our class B common stock, Mr. Saylor could transfer control of MicroStrategy to a third party without the approval of our Board of Directors or our other stockholders, prevent a third party from acquiring us, or limit your ability to influence corporate matters

We have two classes of common stock: class A common stock and class B common stock. Holders of our class A common stock generally have the same rights as holders of our class B common stock, except that holders of class A common stock have one vote per share while holders of class B common stock have ten votes per share. As of January 26, 2018, holders of our class B common stock owned 2,035,184 shares of class B common stock, or 68.4% of the total voting power. As of January 26, 2018, Mr. Saylor, our Chairman of the Board of Directors, President & Chief Executive Officer, beneficially owned 2,011,668 shares of class B common stock, or 67.6% of the total voting power. Accordingly, Mr. Saylor can control MicroStrategy through his ability to determine the outcome of elections of our directors, amend our certificate of incorporation and by-laws, and take other actions requiring the vote or consent of stockholders, including mergers, going-private transactions, and other extraordinary transactions and their terms.

Our certificate of incorporation allows holders of class B common stock to transfer shares of class B common stock, subject to the approval of stockholders holding a majority of the outstanding class B common stock. Mr. Saylor or a group of stockholders holding a majority of the outstanding class B common stock could, without the approval of our Board of Directors or our other stockholders, transfer voting control of MicroStrategy to a third party. Such a transfer of control could have a material adverse effect on our business, operating results, and financial condition. Mr. Saylor or a group of stockholders holding a majority of the outstanding class B common stock could also prevent a change of control of MicroStrategy, regardless of whether holders of class A common stock might otherwise receive a premium for their shares over the then current market price. In addition, this concentrated control limits stockholders' ability to influence corporate matters and, as a result, we may take actions that our non-controlling stockholders do not view as beneficial or that conflict with their interests. As a result, the market price of our class A common stock could be materially adversely affected.

Our status as a "controlled company" could make our class A common stock less attractive to some investors or otherwise materially adversely affect our stock price

Because we qualify as a "controlled company" under the corporate governance rules for NASDAQ-listed companies, we are not required to have independent directors comprise a majority of our Board of Directors. Additionally, our Board of Directors is not required to have an independent compensation or nominating committee, or to have the independent directors exercise the nominating function. We are also not required to have the compensation of our executive officers be determined by a compensation committee of independent directors. In addition, we are not required to empower our Compensation Committee with the authority to engage the services of any compensation consultants, legal counsel, or other advisors, or to have the Compensation Committee assess the independence of compensation consultants, legal counsel, and other advisors that it engages.

In light of our status as a controlled company, our Board of Directors has determined not to establish an independent nominating committee or have its independent directors exercise the nominating function, and has elected instead to have the Board of Directors be directly responsible for nominating members of the Board. A majority of our Board of Directors is currently comprised of independent directors, and our Board of Directors has established a Compensation Committee comprised entirely of independent directors. The Compensation Committee determines the compensation

of our Chief Executive Officer. However, our Board of Directors has authorized our Chief Executive Officer to determine the compensation of executive officers other than himself, rather than having such compensation determined by the Compensation Committee, except that certain executive officer compensation that is intended to qualify as performance-based compensation for purposes of Section 162(m) of the Internal Revenue Code is determined by the Compensation Committee pursuant to the requirements of Section 162(m). Awards under our 2013 Stock Incentive Plan (as amended, the "2013 Equity Plan") are also approved by the Compensation Committee. Additionally, while our Compensation Committee is empowered with the authority to retain and terminate outside counsel, compensation consultants, and other experts or consultants, it is not required to assess their independence.

Although currently a majority of our Board of Directors is comprised of independent directors and the Compensation Committee is comprised entirely of independent directors, we may elect in the future not to have independent directors constitute a majority of the Board of Directors or the Compensation Committee, have our Chief Executive Officer's compensation determined by a compensation committee of independent directors, or have a compensation committee of the Board of Directors at all.

Accordingly, should the interests of our controlling stockholder differ from those of other stockholders, the other stockholders may not have the same protections that are afforded to stockholders of companies that are required to follow all of the corporate governance rules for NASDAQ-listed companies. Our status as a controlled company could make our class A common stock less attractive to some investors or otherwise materially adversely affect our stock price.

Revenue recognition accounting pronouncements may materially adversely affect our reported results of operations

We continuously review our compliance with all new and existing revenue recognition accounting pronouncements. In May 2014, the Financial Accounting Standards Board issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU 2014-09"), which supersedes nearly all existing revenue recognition guidance. We will adopt this guidance and its subsequent amendments effective as of January 1, 2018 and will adjust prior period consolidated financial statements to reflect full retrospective adoption, beginning with our Quarterly Report on Form 10-Q for the first quarter of 2018. We currently estimate that the adoption of this guidance will result in earlier recognition of revenue from term license sales and sales to channel partners and will result in the capitalization of certain variable costs (such as sales commissions) that we had previously expensed as incurred. See Note 3, Recent Accounting Standards, to the Consolidated Financial Statements for further information regarding ASU 2014-09.

Item 1B. Unresolved Staff Comments
None.

Item 2. Properties
As of December 31, 2017, we leased approximately 214,000 square feet of office space at a location in Northern Virginia that began serving as our corporate headquarters in October 2010 and was to expire in December 2020. In January 2018, we amended the lease to extend the lease term through December 2030. See Note 17, Subsequent Events, to the Consolidated Financial Statements for further information.

In addition, we lease offices in U.S. and foreign locations for our services and support, sales and marketing, research and development, and administrative personnel. As of December 31, 2017, we leased approximately 28,000 square feet of office space in the United States, in addition to our corporate headquarters, and approximately 181,000 square feet of office space in various foreign locations.

Item 3. Legal Proceedings

In December 2011, DataTern, Inc. (“DataTern”) filed a complaint for patent infringement against the Company in the United States District Court for the District of Massachusetts (the “District Court”). The complaint alleged that the Company infringes U.S. Patent No. 6,101,502 (the “’502 Patent”), allegedly owned by DataTern, by making, selling, or offering for sale several of the Company’s products and services, including MicroStrategy 9™, MicroStrategy Intelligence Server™, MicroStrategy Business Intelligence Platform™, MicroStrategy Cloud Personal, and other MicroStrategy applications for creating or using data mining, dashboards, business analytics, data storage and warehousing, and web hosting support. The complaint accused the Company of willful infringement and sought an unspecified amount of damages, an award of attorneys’ fees, and preliminary and permanent injunctive relief. In light of a judgment in a separate action involving DataTern in another jurisdiction, in February 2013, MicroStrategy and DataTern filed motions for summary judgment of non-infringement and the District Court entered summary judgment against DataTern. In March 2013, DataTern filed a notice of appeal with

the United States Court of Appeals for the Federal Circuit (the "Federal Circuit"). In December 2014, the Federal Circuit issued an opinion vacating the District Court's summary judgment, stating that the claim construction on which the summary judgment was based was incorrect. In January 2015, the case was remanded to the District Court for further proceedings. A claim construction ruling was issued in February 2017. In August 2017, counsel for DataTern filed a motion to withdraw from the lawsuit. The District Court initially gave DataTern a deadline of September 18, 2017 to find replacement counsel, which was later extended to October 20, 2017. On October 20, 2017, the District Court dismissed the case for failure to prosecute when DataTern failed to identify substitute counsel. We have received indemnification requests from certain of our channel partners and customers who were sued by DataTern in the District Court in lawsuits alleging infringement of the '502 Patent. The proceedings against these channel partners and customers were stayed pending the resolution of DataTern's lawsuit against the Company. On October 30, 2017, the District Court dismissed with prejudice these channel partner and customer proceedings.

We are also involved in various other legal proceedings arising in the normal course of business. Although the outcomes of these other legal proceedings are inherently difficult to predict, we do not expect the resolution of these other legal proceedings to have a material adverse effect on our financial position, results of operations, or cash flows.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Our class A common stock is traded on the NASDAQ Global Select Market under the symbol "MSTR." The following table sets forth the high and low sales prices for the class A common stock for the periods indicated as reported by the NASDAQ Global Select Market:

	High	Low
Year ended December 31, 2017		
First Quarter	$205.96	$182.22
Second Quarter	194.58	177.50
Third Quarter	196.35	122.91
Fourth Quarter	143.37	128.00
Year ended December 31, 2016		
First Quarter	$182.30	$141.01
Second Quarter	195.99	165.02
Third Quarter	191.76	161.90
Fourth Quarter	207.28	162.72

There is no established public trading market for our class B common stock. As of January 26, 2018, there were approximately 1,426 stockholders of record of our class A common stock and three stockholders of record of our class B common stock.

Holders of our class A common stock generally have the same rights as holders of our class B common stock, except that holders of class A common stock have one vote per share while holders of class B common stock have ten votes per share.

We have never declared or paid any cash dividends on either our class A or class B common stock and have no current plans to declare or pay any such dividends.

Information regarding our equity compensation plans and the securities authorized for issuance thereunder is incorporated by reference in "Part III. Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters."

The following table provides information about our repurchases of equity securities that are registered by us pursuant to Section 12 of the Exchange Act during the periods indicated:

Period	(a) Total Number of	(b) Average Price Paid	(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced	(d) Maximum Number (or Approximate Dollar Value) of Shares (or

	Shares (or Units) Purchased	per Share (or Unit) (1)	Plans or Programs (1)	Units) that May Yet Be Purchased Under the Plans or Programs (1)
October 1, 2017 – October 31, 2017	0	N/A	0	$ 454,708,615
November 1, 2017 – November 30, 2017	0	N/A	0	$ 454,708,615
December 1, 2017 – December 31, 2017	0	N/A	0	$ 454,708,615
Total:	0	N/A	0	$ 454,708,615

(1) On July 28, 2005, we announced that the Board of Directors authorized us to repurchase up to an aggregate of $300.0 million of our class A common stock from time to time on the open market (the "2005 Share Repurchase Program"). On April 29, 2008, the Board of Directors amended the 2005 Share Repurchase Program to increase the amount of class A common stock that we are authorized to repurchase from $300.0 million to $800.0 million and extended the term of the 2005 Share Repurchase Program to April 29, 2013. On

April 25, 2013, the Board of Directors extended the term of the 2005 Share Repurchase Program through April 29, 2018, although the program may be suspended or discontinued by us at any time. The timing and amount of any shares repurchased will be determined by management based on its evaluation of market conditions and other factors. The 2005 Share Repurchase Program may be funded using our working capital, as well as proceeds from any other funding arrangements that we may enter into in the future. As of December 31, 2017, pursuant to the 2005 Share Repurchase Program, we had repurchased an aggregate of 3,826,947 shares of our class A common stock at an average price per share of $90.23 and an aggregate cost of $345.3 million. As of December 31, 2017, $454.7 million of our class A common stock remained available for repurchase pursuant to the 2005 Share Repurchase Program. The average price per share and aggregate cost amounts disclosed above include broker commissions.

Performance Graph

The following graph compares the cumulative total stockholder return on our class A common stock from December 31, 2012 (the last trading day before the beginning of our fifth preceding fiscal year) to December 29, 2017 (the last trading day of the fiscal year ended December 31, 2017) with the cumulative total return of (i) the Total Return Index for The NASDAQ Stock Market (U.S. Companies) (the "NASDAQ Composite Index") and (ii) the NASDAQ Computer Index. The graph assumes the investment of $100.00 on December 31, 2012 in our class A common stock, the NASDAQ Composite Index, and the NASDAQ Computer Index, and assumes that any dividends are reinvested. Measurement points are December 31, 2012, December 31, 2013, December 31, 2014, December 31, 2015, December 30, 2016, and December 29, 2017.

	12/31/12	12/31/13	12/31/14	12/31/15	12/30/16	12/29/17
MicroStrategy Incorporated	$100.00	$133.05	$173.91	$192.00	$211.39	$140.61
NASDAQ Composite Index	$100.00	$140.12	$160.78	$171.97	$187.22	$242.71
NASDAQ Computer Index	$100.00	$134.07	$163.15	$175.66	$200.32	$281.21

Item 6. Selected Financial Data

The following selected consolidated financial data should be read in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations," the Consolidated Financial Statements and notes thereto, and other financial information appearing elsewhere in this Annual Report on Form 10-K.

We previously operated Angel.com, a provider of cloud-based Customer Experience Management solutions for Interactive Voice Response and contact centers. In 2013, we completed the sale of our equity interest in Angel.com and have classified the gain on sale and preceding operations of the Angel.com business as discontinued operations in the following selected consolidated financial data.

	Years Ended December 31,				
	2017	2016	2015	2014	2013
	(in thousands, except per share data)				
Statements of Operations Data					
Total revenues	$504,543	$512,161	$529,869	$579,830	$575,888
Income from continuing operations, net of tax	$17,643	$90,908	$105,931	$5,035	$26,550
Discontinued operations, net of tax	$0	$0	$0	$0	$56,782
Net income	$17,643	$90,908	$105,931	$5,035	$83,332
Earnings per share (1)(2):					
Basic, from continuing operations	$1.54	$7.96	$9.33	$0.45	$2.35
Basic, from discontinued operations	0.00	0.00	0.00	0.00	5.02
Basic earnings per share	$1.54	$7.96	$9.33	$0.45	$7.37
Diluted, from continuing operations	$1.53	$7.89	$9.18	$0.44	$2.35
Diluted, from discontinued operations	0.00	0.00	0.00	0.00	5.02
Diluted earnings per share	$1.53	$7.89	$9.18	$0.44	$7.37

	As of December 31,				
	2017	2016	2015	2014	2013
	(in thousands)				
Balance Sheet Data					
Total assets, excluding held-for-sale	$835,728	$768,319	$656,894	$558,797	$585,514
Long-term liabilities, excluding deferred revenue, advance payments, and held-for-sale	$50,150	$16,741	$19,960	$26,208	$32,699
Total stockholders' equity	$590,539	$552,177	$455,281	$324,471	$310,326

(1) Basic and fully diluted earnings per share for class A and class B common stock are the same.
(2) We have never declared or paid any cash dividends on either class A or class B common stock.

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

Forward-Looking Information

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Exchange Act. For this purpose, any statements contained herein that are not statements of historical fact, including without limitation, certain statements regarding industry prospects and our results of operations or financial position, may be deemed to be forward-looking statements. Without limiting the foregoing, the words "believes," "anticipates," "plans," "expects," and similar expressions are intended to identify forward-looking statements. The important factors discussed under "Part I. Item 1A. Risk Factors," among others, could cause actual results to differ materially from those indicated by forward-looking statements made herein and presented elsewhere by management from time to time. Such forward-looking statements represent management's current expectations and are inherently uncertain. Investors are warned that actual results may differ from management's expectations.

Overview

MicroStrategy is a leading worldwide provider of enterprise analytics and mobility software. Our mission is to provide enterprise customers with a world-class software platform and expert services so they can deploy unique intelligence applications.

MicroStrategy 10, our flagship platform offering, consolidates analytics and mobility in a single unified platform. The MicroStrategy 10 platform is available on Windows, Linux and AWS, and as a hosted service offering through MicroStrategy Cloud. Our platform offers a comprehensive suite of business intelligence functionality, from data discovery to mobile analytics, data mining, Big Data analytics, enterprise reporting and powerful identity intelligence generated by digital credentials. MicroStrategy 10 builds on proven enterprise capabilities to make sophisticated, high-performance analytics more accessible, easier to use, and faster. MicroStrategy 10 consists of MicroStrategy Analytics, MicroStrategy Mobile, and Usher.

MicroStrategy Analytics empowers large organizations to analyze vast amounts of data and securely distribute actionable business insight throughout an enterprise, while also being able to cater to smaller workgroups and departmental use via MicroStrategy Desktop. MicroStrategy Analytics delivers reports and dashboards, and enables users to conduct ad hoc analysis and share insights anywhere, anytime, via mobile devices (via MicroStrategy Mobile) or the web (via MicroStrategy Web). It also combines the agility and productivity of self-service visual data discovery with the security, scalability, and governance features of enterprise-grade business intelligence. Additionally, MicroStrategy Analytics delivers powerful identity intelligence on user behavior and resource utilization (via Usher).

MicroStrategy Web is the primary interface for analysts, data scientists, consumers and developers, offering interactive reporting, dashboarding, and ad-hoc data discovery capabilities through a web browser. With MicroStrategy Web, users can design and deliver reports and dashboards across various styles of business intelligence, including scorecards, pixel-perfect documents and invoices, and interactive reports and dashboards, as well as for visual data discovery. MicroStrategy Web can also connect to a wide range of data sources, and be used to build sophisticated advanced analytical models that may be inserted within reports and dashboards. MicroStrategy reports and dashboards can be personalized and automatically delivered to thousands of users with MicroStrategy Server's advanced distribution capabilities. Web applications can also be extensively customized and embedded into other applications using MicroStrategy Web SDK for a branded experience.

MicroStrategy Desktop is a free, standalone, on-premise, single-user tool for fast, powerful, and easy-to-use self-service visual data discovery. It enables business users to analyze and gain valuable insight and understanding into their organizations' data by quickly creating stunning and useful visualizations, without assistance from the IT

department. MicroStrategy Desktop can be readily downloaded and installed on a PC or Mac, making the power of MicroStrategy 10 easily available. MicroStrategy Desktop can be used while offline and while not connected to MicroStrategy Server. MicroStrategy Desktop connects to MicroStrategy Server when needed, allowing for governance workflows that deliver data discovery capabilities to the enterprise at scale.

MicroStrategy Mobile is fully integrated into the MicroStrategy Analytics platform, so it is easy to leverage existing reports and dashboards to instantly deploy mobile business intelligence. In addition, MicroStrategy Mobile extends beyond analytics to enable organizations to rapidly build custom enterprise mobility applications that deliver analytics combined with transactions, multimedia, and mapping to support business workflows. The robust code-free application development platform is designed to reduce development costs and accelerate the deployment of native mobile business apps optimized for both iOS and Android. Companies can build fully native iOS and Android apps that take advantage of the unique device and operating system capabilities (e.g., GPS/location, calendar, and camera) on those devices. MicroStrategy Mobile is an easy, fast, and cost-effective vehicle for mobilizing an organization's information systems, including its data warehouses, business intelligence, ERP, CRM, and web applications that are currently accessible only on the desktop. With MicroStrategy Mobile, businesses can transform their entire workforce into a connected and more productive mobile workforce. With mobile access to critical corporate data and systems that drive the business, employees can have a virtual office in their hands at all times. MicroStrategy Mobile also enables companies to deploy customized, white-labeled mobile apps to business partners and customers. These apps can serve as new or enhanced offerings that differentiate an organization's product or service to business partners or customers.

Usher delivers to its users unique mobile identity badges, each cryptographically linked to its owner's smartphone and dynamically linked to the enterprise's existing identity repositories, that are highly secure and convenient for organizations to deploy. Usher badges work on standard smartphones running on iOS or the Android platform and include an Apple Watch integration. Through the use of Bluetooth, QR codes, biometrics, push notifications, time-limited PIN codes, and other authentication methods, Usher badge users can log into applications, VPNs, and workstations, unlock doors and other physical gateways, and validate each other's identities. Usher badge users are also able to scan barcodes for asset tracking applications. Usher can additionally serve as a powerful enterprise productivity tool with Usher Professional, a dynamic and searchable employee directory that facilitates communication among users, and gives managers insight into the location and activity of their distributed workforce. Usher Professional users can view badge user activity on a nearly real-time map and manage or direct their workforce by engaging in two-way communication with badge users. In the EIoT paradigm, interactions between Usher users and enterprise resources generate real-time telemetry, which can be efficiently harnessed in Usher Analytics, creating actionable intelligence. By delivering strong yet convenient authentication that can be extended to nearly every corporate system, Usher can uncover insights, reduce infrastructure complexity, and secure assets -- all to help businesses flourish in the age of connected devices and connected people. Usher addresses some of the biggest challenges facing corporations today, including authentication, identity and access management, and resource authorization, while applying industry-leading business intelligence and analytics to an enterprise's infrastructure.

MicroStrategy on AWS allows organizations to harness the power of data through our enterprise solutions via the cloud. Compared to traditional on-premise approaches, MicroStrategy on AWS is architected to deliver best-of-breed MicroStrategy software via the cloud, with pre-configured, ready-to-go servers, coupled with the required supporting infrastructure. With MicroStrategy on AWS, customers can launch enterprise analytics environments within minutes via a web-based provisioning tool, and use the full MicroStrategy 10 offering. MicroStrategy on AWS deploys MicroStrategy directly into the customer's AWS account where the customer maintains and manages the environment.

For customers looking for a Platform-as-a-Service (PaaS) experience, MicroStrategy Cloud offers managed services that deliver the full breadth of platform capabilities along with a dedicated cloud operations team to deploy the platform in the cloud. MicroStrategy Cloud is well suited for organizations without extensive IT resources to maintain and manage the cloud infrastructure on their own. MicroStrategy Cloud offers a 99.9% Service Level Agreement for availability, and is backed by a team of experts and dedicated tech support staff that provides continuous monitoring and alerting. MicroStrategy Cloud maintains and keeps up to date on compliance and security certifications to help ensure the environments adhere to the Service Organization Control 2, ISO 27001, Payment Card Industry, HIPAA, and Privacy Shield standards.

System integrators, value-added resellers, and OEMs around the world rely on the capabilities of the MicroStrategy platform, including its functionality, workflows, report presentation, user management, security, administration, system configuration, and monitoring, to build branded and custom applications of their own. Our platform's open architecture and APIs make it especially suitable for developing custom functionality or integrating with other applications. Organizations seeking to add analytics features to their own offerings can easily and directly embed the platform into their business applications or portals with white labeling and single sign-on options.

The following table sets forth certain operating highlights (in thousands) for the years ended December 31, 2017, 2016, and 2015:

	Years Ended December 31,		
	2017	2016	2015
Revenues			
Product licenses	$93,969	$113,503	$119,143
Subscription services	32,368	30,574	27,839
Total product licenses and subscription services	126,337	144,077	146,982
Product support	289,174	285,079	281,740
Other services	89,032	83,005	101,147
Total revenues	504,543	512,161	529,869
Cost of revenues			
Product licenses	7,176	8,573	8,118
Subscription services	13,435	12,765	13,051
Total product licenses and subscription services	20,611	21,338	21,169
Product support	17,481	15,001	12,748
Other services	58,557	56,808	67,191
Total cost of revenues	96,649	93,147	101,108
Gross profit	407,894	419,014	428,761
Operating expenses			
Sales and marketing	174,612	158,740	148,522
Research and development	78,766	73,142	65,206
General and administrative	80,161	79,462	80,732
Restructuring costs	0	45	279
Total operating expenses	333,539	311,389	294,739
Income from operations	$74,355	$107,625	$134,022

The analytics market is highly competitive and our results of operations depend on our ability to market and sell offerings that provide customers with greater value than those offered by our competitors. Our success depends on the effectiveness with which we can differentiate our products from both large software vendors that provide products across multiple lines of business, including one or more products that directly compete with our products, and other analytics vendors across large, mid-sized, and small opportunities. A key differentiator that we believe distinguishes our offerings is that we offer a single platform with comprehensive analytics that supports both the needs of IT and business users, by delivering easy-to-use data discovery combined with enterprise governance.

Organizations recently have sought, and we expect may continue to seek, to standardize their various analytics applications around a single software platform. This trend presents both opportunities and challenges for our business. It offers us the opportunity to increase the size of transactions with new customers and to expand the size of our analytics installations with existing customers. On the other hand, it presents the challenge that we may not be able to penetrate accounts that a competitor has penetrated or in which a competitor is the incumbent analytics provider.

In addition, there is increased market demand for analysis of a wider variety of data sources, including sensor data, social data, web log data, and other data types. These new data sources are driving massive increases in the volume of data that can potentially be analyzed (these large-scale data sets are known as “Big Data”), which in turn is accelerating

development of new storage technologies like Hadoop and NoSQL databases. The demand for analytics on Big Data represents an opportunity for us, as it opens up new potential applications and use cases for our technology. It also creates a challenge as we will need to continually enhance our technology to support emerging data sources, deliver faster performance necessary to support analysis of Big Data, and support analysis of a wider variety of data types, such as unstructured, semi-structured, and streaming data.

The market for enterprise mobility apps is rapidly changing, highly competitive, and complex with many competitors and different offerings ranging from fully custom-coded applications to plug-and-play solutions. While organizations vary greatly in their approach to, and pace of adoption of, mobile solutions, they are increasingly accelerating the transition of their businesses onto mobile devices, such as tablets and smartphones. Over the next few years, we expect that organizations will continue to construct their information and systems to take advantage of the efficiencies and cost savings of mobile computing. Ultimately, we expect that the majority of routine business tasks and workflows will become available as mobile-optimized touch-enabled apps.

We have undertaken multiple initiatives to address these opportunities and challenges, including:

- introducing Dossier, a new way to consume analytics on MicroStrategy 10 using an interactive book of reports and dashboards that combines relevant analytics into a single place, with a new streamlined interface that goes beyond reports and dashboards and brings key data into a format that users can understand and use to make better, actionable decisions and identify new opportunities (available on MicroStrategy Web and tablets via native apps for both iOS and Android);
- releasing MicroStrategy on AWS, which allows customers to spin up their own instance of the full MicroStrategy platform in the cloud, and expanding support for MicroStrategy on AWS in more locations (such as London, Sydney, Frankfurt, Tokyo, Ireland, Ohio, Oregon, and Northern Virginia) and in nine different languages (English, French, Italian, Portuguese, Spanish, Dutch, Japanese, Korean, and Chinese);
- improving access to MicroStrategy 10 via easy-to-access trial and evaluation versions of products on our website, including a free 30-day trial to MicroStrategy on AWS that lets prospects experience our enterprise capabilities and allows existing customers to try new features;
- making our MicroStrategy Desktop product freely available to new and existing users, which helps to (i) increase public awareness, (ii) increase the adoption of the product into existing accounts by empowering MicroStrategy Web users to seamlessly connect MicroStrategy Desktop to their existing projects, upload and download reports and dashboards from the server, work offline, and try new functionality such as data blending and wrangling, and (iii) generate upsell opportunities for us by seeding the need for bigger enterprise capabilities like pixel-perfect dashboards, automated distribution, governance and security, all of which are available with our platform;
- offering new collaboration tools that allow more users to interact and collaborate on analytics content, which can ultimately drive adoption to more users across the enterprise; and
- delivering new out-of-the-box connectors that help analysts visualize log files and semi-structured data, such as Solr, Box, One Drive, Elasticsearch and others, introducing greater flexibility to visualize and interact with multi-level or ragged hierarchy reports against MDX (Multidimensional Expressions) sources such as Essbase and MSAS, and delivering enhancements such as dynamic filtering and support for derived attributes and metrics.

As part of our efforts to take greater advantage of the opportunities in the market and grow our market share, we expect to increase our sales and marketing expenditures and increase our research and development expenditures as we invest in our technology products and personnel in future periods.

As discussed in Note 11, Share-based Compensation, to the Consolidated Financial Statements, we have outstanding stock options to purchase shares of our class A common stock under our 2013 Equity Plan. Share-based compensation expense (in thousands) from these stock option awards was recognized in the following operating expense line items in our Consolidated Statements of Operations for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Sales and marketing	$2,294	$2,971	$2,842
Research and development	1,650	1,000	1,112

General and administrative	10,323	7,846	13,345
Total share-based compensation expense	$14,267	$11,817	$17,299

As of December 31, 2017, we estimated that approximately $19.8 million of additional share-based compensation expense for options granted under the 2013 Equity Plan will be recognized over a remaining weighted average period of 2.3 years.

We base our internal operating expense forecasts on expected revenue trends and strategic objectives. Many of our expenses, such as office leases and certain personnel costs, are relatively fixed. Accordingly, any shortfall in revenue may cause significant variation in our operating results. We therefore believe that quarter-to-quarter comparisons of our operating results may not be a good indication of our future performance.

Non-GAAP Financial Measures

We are providing supplemental financial measures for income from operations that excludes the impact of our share-based compensation arrangements and restructuring activities, and for net income and diluted earnings per share that exclude the impact from the Tax Act. These supplemental financial measures are not measurements of financial performance under generally accepted accounting principles in the United States ("GAAP") and, as a result, these supplemental financial measures may not be comparable to similarly titled measures of other companies. Management uses these non-GAAP financial measures internally to help understand, manage, and evaluate our business performance and to help make operating decisions. We believe that these non-GAAP financial measures are also useful to investors and analysts in comparing our performance across reporting periods on a consistent basis because in the case of the supplemental measure for income from continuing operations, it excludes a significant non-cash expense that we believe is not reflective of our general business performance and restructuring charges that we believe are not reflective of ongoing operating results, and in the case of the supplemental measures for net income and diluted earnings per share, they exclude one-time tax charges resulting from the Tax Act. In addition, accounting for share-based compensation arrangements requires significant management judgment and the resulting expense could vary significantly in comparison to other companies. Therefore, we believe the use of these non-GAAP financial measures can also facilitate comparison of our operating results to those of our competitors.

Non-GAAP financial measures are subject to material limitations as they are not in accordance with, or a substitute for, measurements prepared in accordance with GAAP. For example, we expect that share-based compensation expense, which is excluded from our non-GAAP financial measure, will continue to be a significant recurring expense over the coming years and is an important part of the compensation provided to certain employees, officers, and directors. Our non-GAAP financial measures are not meant to be considered in isolation and should be read only in conjunction with our Consolidated Financial Statements, which have been prepared in accordance with GAAP. We rely primarily on such Consolidated Financial Statements to understand, manage, and evaluate our business performance, and use the non-GAAP financial measures only supplementally.

The following is a reconciliation of our non-GAAP financial measures to their most directly comparable GAAP measures (in thousands, except per share data) for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Reconciliation of non-GAAP income from operations:			
Income from operations	$74,355	$107,625	$134,022
Share-based compensation expense	14,267	11,817	17,299
Restructuring costs	0	45	279
Non-GAAP income from operations	$88,622	$119,487	$151,600
Reconciliation of non-GAAP net income:			
Net income	$17,643	$90,908	$105,931
Tax charge due to the U.S. corporate tax reform legislation	44,018	0	0
Non-GAAP net income	$61,661	$90,908	$105,931
Reconciliation of non-GAAP diluted earnings per share:			
Diluted earnings per share	$1.53	$7.89	$9.18
Impact of tax charge due to the U.S. corporate tax reform legislation (per diluted share)	3.81	0.00	0.00
Non-GAAP diluted earnings per share	$5.34	$7.89	$9.18

Critical Accounting Policies

Our discussion and analysis of our financial condition and results of operations are based on our Consolidated Financial Statements, which have been prepared in accordance with GAAP.

The preparation of our Consolidated Financial Statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, and equity, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. In particular, estimates relating to revenue recognition have a material impact on our financial statements. Actual results and outcomes could differ from these estimates and assumptions.

Revenue Recognition. Under existing revenue recognition guidance applicable to the financial statements set forth in this Annual Report on Form 10-K, we recognize revenue from sales of software licenses to end users upon:

1) persuasive evidence of an arrangement, as provided by agreements, contracts, purchase orders or other arrangements, generally executed by both parties;
2) existence of a fixed or determinable fee;
3) delivery of the software; and
4) determination that collection is reasonably assured.

When the fees for software upgrades and enhancements, technical support, consulting, and education are bundled with the license fee, they are unbundled for revenue recognition purposes using vendor specific objective evidence (“VSOE”) of fair value of the elements.

Product support or post-contract support ("PCS") revenue is derived from providing technical software support and software updates and upgrades to customers. PCS revenue is recognized ratably over the term of the contract, which in most cases is one year. Our VSOE for PCS, which includes updates, upgrades, and enhancements, is determined based on the optional stated renewal fee for PCS in the contract, which is the price the customer is required to pay when PCS is renewed. Additionally, the optional stated renewal fee used to establish VSOE for PCS in a software

transaction must be above our minimum substantive VSOE rate for PCS. If a stated renewal rate is considered non-substantive, VSOE of PCS has not been established, and we recognize all revenue under the arrangement ratably over the PCS period. A minimum substantive VSOE rate is determined based on an analysis of historical sales of PCS. For a renewal rate to be non-substantive, we believe it must be significantly lower than our minimum VSOE rate. We consider a 10% variance below our minimum VSOE rate to be significant. It is rare for us to have an arrangement that includes a renewal rate that is below the minimum VSOE rate.

Revenue from consulting, education, and subscription services is recognized as the services are performed. Our VSOE for services other than PCS is determined based on an analysis of our historical sales of each element when sold separately from software.

For new offerings of services other than PCS or service offerings that have not had a sufficient history of sales activity, we initially establish VSOE based on the list price as determined by management with the relevant authority. Each service offering has a single list price in each country where sold.

If VSOE exists for all undelivered elements and there is no such evidence of fair value established for delivered elements, the arrangement fee is first allocated to the elements where evidence of fair value has been established and the residual amount is allocated to the delivered elements. If evidence of fair value for any undelivered element of an arrangement does not exist, all revenue from the arrangement is deferred until such time that evidence of fair value exists for undelivered elements or until all elements of the arrangement are delivered, subject to certain limited exceptions.

If an arrangement includes acceptance criteria, revenue is not recognized until we can objectively demonstrate that the software or service can meet the acceptance criteria or the acceptance period lapses, whichever occurs earlier. If a software license arrangement obligates us to deliver specified future products or upgrades, revenue is recognized when the specified future product or upgrades are delivered or when the obligation to deliver specified future products expires, whichever occurs earlier. If a software license arrangement obligates us to deliver unspecified future products, then revenue is recognized on a subscription basis, ratably over the term of the contract.

License revenue derived from sales to resellers or OEMs who purchase our products for resale is recognized upon sufficient evidence that the products have been sold to the end user, provided all other revenue recognition criteria have been met. Our standard software license and reseller agreements do not include any return rights other than the right to return non-conforming products for repair or replacement under our standard product warranties. During the last three fiscal years, we have not experienced any product returns related to warranty claims.

We generally offer either commercial discounts or referral fees to our channel partners, depending on the nature of services performed. Revenue recognized from transactions with channel partners involved in resale or distribution activities is recorded net of any commercial discounts provided to them. Referral fees paid to channel partners not involved in resale or distribution activities are expensed as cost of revenues and, during the last three fiscal years, were not significant.

Our standard software license agreements do not include any price protection provisions. However, transactions under our General Services Administration Federal Supply Schedule contract must comply with the Price Reductions clause. In addition, certain government agencies have the right to cancel contracts for “convenience.” During the last three fiscal years, there were no material amounts refunded under the Price Reductions clause and there were no material contracts cancelled for convenience.

Amounts collected prior to satisfying our revenue recognition criteria are included in net deferred revenue and advance payments in the accompanying Consolidated Balance Sheets.

Software revenue recognition requires judgment, including determinations about whether collectability is reasonably assured, the fee is fixed and determinable, a software arrangement includes multiple elements, and if so, whether VSOE exists for those elements. Judgment is also required to assess whether future releases of certain software represent new products or upgrades and enhancements to existing products.

We also generate subscription services revenues primarily from our cloud services offerings. Subscription services revenues include subscription fees from customers for access to the full breadth of MicroStrategy Analytics and MicroStrategy Mobile capabilities, database services, and data integration services. Our standard arrangements with customers generally do not provide the customer with the right to take possession of the software supporting the cloud-based application service at any time. As such, these arrangements are considered service contracts and revenue is recognized ratably over the service period of the contract, following completion of the set-up service. Any related set-up service fees are recognized ratably over the longer of the contract period or the estimated average life of the customer relationship.

Our subscription services are generally offered as standalone arrangements or as part of arrangements that include professional services. If deliverables in a multiple-element arrangement have standalone value upon delivery, we account for each such deliverable separately. We have concluded that our subscription services and our professional services each have standalone value. When we enter into multiple-element arrangements that include subscription services and professional services, the total arrangement consideration is allocated to each of the deliverables based on the relative selling price hierarchy. We determine the relative selling price for each deliverable using VSOE of selling price, if available, or our best estimate of selling price ("BESP"), if VSOE is not available. We have determined that third-party evidence of selling price is not a practical alternative due to differences in our services offerings as compared to other companies and the lack of availability of third-party pricing information. For professional services, we have established VSOE because a consistent number of standalone sales of this deliverable have been priced within a reasonably narrow range. For subscription services, we have not established VSOE because, among other factors, the offering is relatively new and our pricing model continues to evolve. Accordingly, we use BESP to determine the relative selling price of our subscription services.

We determine BESP by reviewing historical transactions and by considering the service's pricing models and objectives that take into account factors such as gross margin, the size and volume of the transactions, perceived pricing sensitivity, and growth strategies. The determination of BESP is made through consultation with, and approval by, our management team, taking into consideration our go-to-market strategy. As our pricing and go-to-market strategies evolve, we may modify our pricing practices in the future, which could result in changes to the determination of VSOE and BESP.

Amounts, upon invoicing, are recorded in accounts receivable and either gross deferred revenue or revenue, depending on whether the applicable revenue recognition criteria have been met.

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU 2014-09"), which supersedes nearly all existing revenue recognition guidance under GAAP. The standard's core principle is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. ASU 2014-09 defines a five-step process to implement this core principle. In implementing this new principle, it is possible more judgment and estimates may be required within the revenue recognition process than are required under existing revenue recognition guidance. We plan to adopt ASU 2014-09 with full retrospective adoption effective January 1, 2018. See Note 3, Recent Accounting Standards, to the Consolidated Financial Statements for further information.

Impact of Foreign Currency Exchange Rate Fluctuations on Results of Operations

We conduct a significant portion of our business in currencies other than the U.S. dollar, the currency in which we report our Consolidated Financial Statements. As currency rates change from quarter over quarter and year over year, our results of operations may be impacted. The table below summarizes the impact (in thousands) of fluctuations in foreign currency exchange rates on certain components of our Consolidated Statements of Operations by showing the increase (decrease) in revenues or expenses, as applicable, from the prior year. The term "international" refers to operations outside of the United States and Canada.

	Years Ended December 31,		
	2017	2016	2015
International product licenses revenues	$1,129	$(1,588)	$(8,008)
International subscription services revenues	(120)	(325)	(408)
International product support revenues	1,089	(4,513)	(19,606)
International other services revenues	372	(1,113)	(7,357)
Cost of product support revenues	(41)	(327)	(543)
Cost of other services revenues	664	(950)	(6,420)
Sales and marketing expenses	621	(2,021)	(9,817)
Research and development expenses	(220)	(944)	(218)
General and administrative expenses	5	(1,396)	(2,458)

For example, if there had been no change to foreign currency exchange rates from 2016 to 2017, international product licenses revenues would have been $46.5 million rather than $47.6 million for the year ended December 31, 2017. If there had been no change to foreign currency exchange rates from 2016 to 2017, international product support revenues would have been $113.8 million rather than $114.9 million for the year ended December 31, 2017. If there had been no change to foreign currency exchange rates from 2016 to 2017, sales and marketing expenses would have been $174.0 million rather than $174.6 million for the year ended December 31, 2017.

Results of Operations

Comparison of the years ended December 31, 2017, 2016, and 2015

Revenues

Except as otherwise indicated herein, the term "domestic" refers to operations in the United States and Canada, and the term "international" refers to operations outside of the United States and Canada.

Product licenses and subscription services revenues. The following table sets forth product licenses and subscription services revenues (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change		% Change	
	2017	2016	2015	in 2017		in 2016	
Product Licenses and Subscription Services Revenues:							
Product Licenses							
Domestic	$46,329	$69,307	$70,127	-33.2	%	-1.2	%
International	47,640	44,196	49,016	7.8	%	-9.8	%
Total product licenses revenues	93,969	113,503	119,143	-17.2	%	-4.7	%
Subscription Services							
Domestic	25,848	26,359	24,332	-1.9	%	8.3	%
International	6,520	4,215	3,507	54.7	%	20.2	%
Total subscription services revenues	32,368	30,574	27,839	5.9	%	9.8	%
Total product licenses and subscription services revenues	$126,337	$144,077	$146,982	-12.3	%	-2.0	%

The following table sets forth a summary, grouped by size, of the number of recognized product licenses transactions for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Product Licenses Transactions with Recognized Licenses Revenue in the Applicable Period:			
More than $1.0 million in licenses revenue recognized	10	13	15
Between $0.5 million and $1.0 million in licenses revenue recognized	17	23	34
Total	27	36	49
Domestic:			
More than $1.0 million in licenses revenue recognized	6	10	12
Between $0.5 million and $1.0 million in licenses revenue recognized	7	14	17
Total	13	24	29
International:			
More than $1.0 million in licenses revenue recognized	4	3	3
Between $0.5 million and $1.0 million in licenses revenue recognized	10	9	17
Total	14	12	20

The following table sets forth the recognized revenue (in thousands) attributable to product licenses transactions, grouped by size, and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change	% Change
	2017	2016	2015	in 2017	in 2016
Product Licenses Revenue Recognized in the Applicable Period:					
More than $1.0 million in licenses revenue recognized	$12,860	$22,963	$25,462	-44.0 %	-9.8 %
Between $0.5 million and $1.0 million in licenses revenue recognized	11,478	14,317	23,296	-19.8 %	-38.5 %
Less than $0.5 million in licenses revenue recognized	69,631	76,223	70,385	-8.6 %	8.3 %
Total	93,969	113,503	119,143	-17.2 %	-4.7 %
Domestic:					
More than $1.0 million in licenses revenue recognized	7,824	19,314	20,350	-59.5 %	-5.1 %
Between $0.5 million and $1.0 million in licenses revenue recognized	4,846	8,627	12,503	-43.8 %	-31.0 %
Less than $0.5 million in licenses revenue recognized	33,659	41,366	37,274	-18.6 %	11.0 %
Total	46,329	69,307	70,127	-33.2 %	-1.2 %
International:					
More than $1.0 million in licenses revenue recognized	5,036	3,649	5,112	38.0 %	-28.6 %
Between $0.5 million and $1.0 million in licenses revenue recognized	6,632	5,690	10,793	16.6 %	-47.3 %
Less than $0.5 million in licenses revenue recognized	35,972	34,857	33,111	3.2 %	5.3 %

Total	$47,640	$44,196	$49,016	7.8 %	-9.8 %

Product licenses revenues decreased $19.5 million and $5.6 million during 2017 and 2016, respectively, as compared to the prior year. For the years ended December 31, 2017, 2016, and 2015, product licenses transactions with more than $0.5 million in recognized revenue represented 25.9%, 32.8%, and 40.9%, respectively, of our product licenses revenues. During 2017, our top three product licenses transactions totaled $4.5 million in recognized revenue, or 4.8% of total product licenses revenues, compared to $9.2 million and $7.4 million, or 8.1% and 6.2% of total product licenses revenues, during 2016 and 2015, respectively.

Domestic product licenses revenues. Domestic product licenses revenues decreased $23.0 million during 2017, as compared to the prior year, primarily due to a decrease in the number and average deal size of transactions with more than $1.0 million in recognized revenue, and a decrease in the number of transactions with less than $1.0 million in recognized revenue.

Domestic product licenses revenues decreased $0.8 million during 2016, as compared to the prior year, primarily due to a decrease in the number and average deal size of transactions with recognized revenue between $0.5 million and $1.0 million, and a decrease in the number of transactions with more than $1.0 million in recognized revenue, partially offset by an increase in the number of transactions with less than $0.5 million in recognized revenue.

International product licenses revenues. International product licenses revenues increased $3.4 million during 2017, as compared to the prior year, primarily due to an increase in the number of transactions with more than $0.5 million in recognized revenue and a $1.1 million favorable foreign currency exchange impact.

International product licenses revenues decreased $4.8 million during 2016, as compared to the prior year, primarily due to a decrease in the number of transactions with recognized revenue between $0.5 million and $1.0 million and a $1.6 million unfavorable foreign currency exchange impact, partially offset by an increase in the number of transactions with less than $0.5 million in recognized revenue.

Subscription services revenues. Subscription services revenues are primarily derived from our cloud services offerings that are recognized on a subscription basis over the service period of the contract. Subscription services revenues increased $1.8 million and $2.7 million during 2017 and 2016, respectively, as compared to the prior year, primarily due to new subscription services customers and an increase in the use of subscription services by existing customers.

Product support revenues. The following table sets forth product support revenues (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
Product Support Revenues:					
Domestic	$174,316	$172,695	$171,832	0.9 %	0.5 %
International	114,858	112,384	109,908	2.2 %	2.3 %
Total product support revenues	$289,174	$285,079	$281,740	1.4 %	1.2 %

Product support revenues are derived from providing technical software support and software updates and upgrades to customers. Product support revenues are recognized ratably over the term of the contract, which is generally one year. Product support revenues increased $4.1 million during 2017, as compared to the prior year, primarily due to new product and premium support contracts and a $1.1 million favorable foreign currency exchange impact. Product support revenues increased $3.3 million during 2016, as compared to the prior year, primarily due to new product and premium support contracts, partially offset by a $4.5 million unfavorable foreign currency exchange impact.

Other services revenues. The following table sets forth other services revenues (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
Other Services Revenues:					
Consulting					
Domestic	$40,561	$35,935	$54,159	12.9 %	-33.6 %
International	39,257	37,465	37,906	4.8 %	-1.2 %
Total consulting revenues	79,818	73,400	92,065	8.7 %	-20.3 %
Education	9,214	9,605	9,082	-4.1 %	5.8 %
Total other services revenues	$89,032	$83,005	$101,147	7.3 %	-17.9 %

Consulting revenues. Consulting revenues are derived from helping customers plan and execute the deployment of our software. Consulting revenues increased $6.4 million during 2017, as compared to the prior year, primarily due to an increase in the average bill rate and a $0.4 million favorable foreign currency exchange impact. Consulting revenues decreased $18.7 million during 2016, as compared to the prior year, primarily due to a decrease in billable hours worldwide and a $1.0 million unfavorable foreign currency exchange impact, partially offset by an increase in the average bill rate.

Education revenues. Education revenues are derived from the education and training that we provide to our customers to enhance their ability to fully utilize the features and functionality of our software. These offerings include self-tutorials, custom course development, joint training with customers' internal staff, and standard course offerings, with pricing dependent on the specific offering delivered. Education revenues decreased $0.4 million during 2017, as compared to the prior year, primarily due to lower overall contract values and a decrease in onsite course delivery. Education revenues increased $0.5 million during 2016, as compared to the prior year, primarily due to higher overall contract values and an increase in onsite and online course delivery.

Costs and Expenses

Cost of revenues. The following table sets forth cost of revenues (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
Cost of Revenues:					
Product licenses and subscription services:					
Product licenses	$7,176	$8,573	$8,118	-16.3 %	5.6 %
Subscription services	13,435	12,765	13,051	5.2 %	-2.2 %
Total product licenses and subscription services	20,611	21,338	21,169	-3.4 %	0.8 %

Product support	17,481	15,001	12,748	16.5	%	17.7	%
Other services:							
Consulting	52,018	50,866	63,344	2.3	%	-19.7	%
Education	6,539	5,942	3,847	10.0	%	54.5	%
Total other services	58,557	56,808	67,191	3.1	%	-15.5	%
Total cost of revenues	$96,649	$93,147	$101,108	3.8	%	-7.9	%

Cost of product licenses revenues. Cost of product licenses revenues consists of amortization of capitalized software development costs, referral fees paid to channel partners, the costs of product manuals and media, and royalties paid to third-party software vendors. Capitalized software development costs are generally amortized over a useful life of three years.

Cost of product licenses revenues decreased $1.4 million during 2017, as compared to the prior year, primarily due to a $1.4 million decrease in amortization of capitalized software development costs related to MicroStrategy 9.4, which became fully amortized in September 2016, and a $0.3 million decrease in referral fees related to channel partners. We expect to amortize the remaining balance of our products' capitalized software development costs as of December 31, 2017 ratably over the applicable remaining amortization periods as follows:

	Capitalized Software Development Costs, Net, as of December 31, 2017 (in thousands)	Remaining Amortization Period (in months)
MicroStrategy 10	2,499	5
Total capitalized software development costs, net	$ 2,499	

Cost of product licenses revenues increased $0.5 million during 2016, as compared to the prior year, primarily due to a $2.5 million increase in amortization of capitalized software development costs related to MicroStrategy 10, which was made generally available in June 2015, and a $0.2 million increase in referral fees related to channel partners, partially offset by a $1.9 million decrease in amortization of capitalized software development costs related to MicroStrategy 9.3, which became fully amortized in September 2015, and a $0.5 million decrease in amortization of capitalized software development costs related to MicroStrategy 9.4, which became fully amortized in September 2016.

Cost of subscription services revenues. Cost of subscription services revenues consists of equipment, facility and other related support costs, and personnel and related overhead costs. Cost of subscription services revenues increased $0.7 million during 2017, as compared to the prior year, primarily due to a $1.9 million increase in third-party hosting service provider fees, partially offset by a $0.6 million decrease in compensation and related costs, and a $0.4 million decrease in equipment, facility, and other related support costs. Subscription services headcount increased 10.4% to 53 at December 31, 2017 from 48 at December 31, 2016.

Cost of subscription services revenues decreased $0.3 million during 2016, as compared to the prior year, primarily due to a $2.1 million decrease in equipment, facility, and other related support costs, a $0.3 million decrease in compensation and related costs, and a $0.3 million decrease in consulting and advisory costs, partially offset by a $2.3 million increase in third-party hosting service provider fees. Subscription services headcount increased 29.7% to 48 at December 31, 2016 from 37 at December 31, 2015.

Cost of product support revenues. Cost of product support revenues consists of product support personnel and related overhead costs. Cost of product support revenues increased $2.5 million during 2017, as compared to the prior year, primarily due to a $2.4 million increase in compensation and related costs due to an increase in average staffing levels, a $0.2 million increase in travel and entertainment expenditures, and a $0.2 million increase in facility and other related support costs, partially offset by a $0.3 million decrease in subcontractor costs. Product support headcount increased 0.6% to 172 at December 31, 2017 from 171 at December 31, 2016.

Cost of product support revenues increased $2.3 million during 2016, as compared to the prior year, primarily due to a $1.8 million increase in compensation and related costs due to an increase in staffing levels, a $0.3 million increase in subcontractor costs, and a $0.2 million increase in recruiting costs. Product support headcount increased 30.5% to 171 at December 31, 2016 from 131 at December 31, 2015.

Cost of consulting revenues. Cost of consulting revenues consists of personnel and related overhead costs. Cost of consulting revenues increased $1.2 million during 2017, as compared to the prior year, primarily due to a $1.5 million increase in compensation and related costs and a $0.9 million increase in travel and entertainment expenditures, partially offset by a $1.4 million decrease in subcontractor costs. Included in the above components is an aggregate $0.6 million unfavorable foreign currency exchange impact. Consulting headcount decreased 2.6% to 441 at December 31, 2017 from 453 at December 31, 2016.

Cost of consulting revenues decreased $12.5 million during 2016, as compared to the prior year, primarily due to a $6.8 million decrease in compensation and related costs due to a decrease in average staffing levels, a $3.7 million decrease in subcontractor costs, a $1.4 million decrease in travel and entertainment expenditures, a $1.1 million decrease in facility and other related support costs, partially offset by a $0.4 million increase in recruiting costs. Included in the above components is an aggregate $0.9 million favorable foreign currency exchange impact. Consulting headcount decreased 3.0% to 453 at December 31, 2016 from 467 at December 31, 2015.

Cost of education revenues. Cost of education revenues consists of personnel and related overhead costs. Cost of education revenues increased $0.6 million during 2017, as compared to the prior year, primarily due to a $0.7 million increase in compensation and related costs due to an increase in average staffing levels and a $0.2 million increase in dues and subscriptions, partially offset by a $0.3 million decrease in facility and other related support costs. Education headcount increased 5.1% to 41 at December 31, 2017 from 39 at December 31, 2016.

Cost of education revenues increased $2.1 million during 2016, as compared to the prior year, primarily due to a $0.9 million increase in compensation and related costs due to an increase in staffing levels, a $0.7 million increase in facility and other related support costs, and a $0.3 million increase in subcontractor costs. Education headcount increased 39.3% to 39 at December 31, 2016 from 28 at December 31, 2015.

Sales and marketing expenses. Sales and marketing expenses consist of personnel costs, commissions, office facilities, travel, advertising, public relations programs, and promotional events, such as trade shows, seminars, and technical conferences. The following table sets forth sales and marketing expenses (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
Sales and marketing expenses	$174,612	$158,740	$148,522	10.0 %	6.9 %

Sales and marketing expenses increased $15.9 million during 2017, as compared to the prior year, primarily due to an $8.4 million increase in marketing and advertising costs, a $4.4 million increase in compensation and related costs due to an increase in staffing levels, a $2.7 million increase in travel and entertainment expenditures, a $0.7 million increase in recruiting costs, and a $0.5 million increase in facility and other related support costs, partially offset by a $0.7 million net decrease in share-based compensation expense related primarily to the departure of an executive employee in the first quarter of 2017, and a $0.2 million decrease in consulting and advisory costs. Included in the above components is an aggregate $0.6 million unfavorable foreign currency exchange impact. Sales and marketing headcount increased 11.1% to 652 at December 31, 2017 from 587 at December 31, 2016. We expect to increase our sales and marketing expenses in future periods as described in the “Overview” section above.

As a result of the grant of stock options under the 2013 Equity Plan, we expect that share-based compensation expense, a portion of which is recognized as sales and marketing expense, will continue to be a significant recurring expense. As of December 31, 2017, we estimated that approximately $6.6 million of additional share-based compensation expense will be recognized as sales and marketing expense over a remaining weighted average period of 2.8 years. See “Overview” and Note 11, Share-based Compensation, to the Consolidated Financial Statements for further information regarding the 2013 Equity Plan and related share-based compensation expense.

Sales and marketing expenses increased $10.2 million during 2016, as compared to the prior year, primarily due to a $4.5 million increase in compensation and related costs due to an increase in staffing levels, a $1.8 million increase in marketing and advertising costs, a $1.0 million increase in recruiting costs, a $0.9 million increase in travel and entertainment expenditures, a $0.9 million increase in facility and other related support costs, a $0.7 million increase in consulting and advisory costs, and a $0.2 million increase in non-income taxes. Included in the above components is an aggregate $2.0 million favorable foreign currency exchange impact. Sales and marketing headcount increased 14.4% to 587 at December 31, 2016 from 513 at December 31, 2015.

General and administrative expenses. General and administrative expenses consist of personnel and related overhead costs, and other costs of our executive, finance, human resources, information systems, and administrative departments, as well as third-party consulting, legal, and other professional fees. The following table sets forth general and administrative expenses (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
General and administrative expenses	$80,161	$79,462	$80,732	0.9 %	-1.6 %

General and administrative expenses increased $0.7 million during 2017, as compared to the prior year, primarily due to a $2.5 million net increase in share-based compensation expense, a $0.6 million increase in other aircraft-related operating costs, a $0.5 million increase in recruiting costs, and a $0.3 million increase in travel and entertainment expenditures, partially offset by a $1.9 million decrease in severance costs associated with the streamlining of our finance organization, a $0.8 million decrease in compensation and related costs due to a decrease in staffing levels, a $0.4 million decrease in legal, consulting, and other advisory costs, and a $0.3 million decrease in facility and other related support costs. The $2.5 million net increase in share-based compensation expense is primarily due to the inclusion, in the share-based compensation expense in the first quarter of 2016, of a reversal of $1.6 million of previously recorded share-based compensation expense due to pre-vesting forfeitures of certain stock options of two executives who departed during the 2016 executive management reorganization, and the grant of stock options in 2017 under the 2013 Equity Plan. General and administrative headcount decreased 7.7% to 298 at December 31, 2017 from 323 at December 31, 2016.

As a result of the grant of stock options under the 2013 Equity Plan, we expect that share-based compensation expense, a portion of which is recognized as general and administrative expense, will continue to be a significant recurring expense. As of December 31, 2017, we estimated that approximately $9.8 million of additional share-based compensation expense will be recognized as general and administrative expense over a remaining weighted average period of 2.0 years. See “Overview” and Note 11, Share-based Compensation, to the Consolidated Financial Statements for further information regarding the 2013 Equity Plan and related share-based compensation expense.

General and administrative expenses decreased $1.3 million during 2016, as compared to the prior year, primarily due to a $5.5 million net decrease in share-based compensation expense, a $1.2 million decrease in compensation and related costs primarily due to a reduction in compensation expenses associated with two executives who departed during the 2016 executive management reorganization, a $0.7 million decrease in facility and other related support costs, and a $0.2 million decrease in non-income taxes, partially offset by a $1.9 million increase in severance costs associated with the streamlining of our finance organization, a $1.7 million increase in legal, consulting, and other advisory costs, a $1.2 million increase in travel and entertainment expenditures, a $1.0 million increase in other aircraft-related operating costs, and a $0.6 million increase in recruiting costs. The $5.5 million net decrease in share-based compensation expense is primarily due to a $1.6 million reversal of previously recorded share-based compensation expense due to pre-vesting forfeitures of certain stock options of two executives who departed during the 2016 executive management reorganization, and a decrease of $4.3 million in share-based compensation no longer being recognized due to their departures. Included in the above components is an aggregate $1.4 million favorable foreign currency exchange impact. General and administrative headcount increased 4.2% to 323 at December 31, 2016 from 310 at December 31, 2015.

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Research and development expenses. Research and development expenses consist of the personnel costs for our software engineering personnel, depreciation of equipment, and other related costs. The following table summarizes research and development expenses and amortization of capitalized software development costs (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
Gross research and development expenses before capitalized software development costs	$78,766	$73,142	$74,804	7.7 %	-2.2 %
Capitalized software development costs	0	0	(9,598)	0.0 %	-100.0 %
Total research and development expenses	$78,766	$73,142	$65,206	7.7 %	12.2 %
Amortization of capitalized software development costs included in cost of product licenses revenues	$5,998	$7,357	$7,212	-18.5 %	2.0 %

Research and development expenses, before capitalization of software development costs, increased $5.6 million during 2017, as compared to the prior year, primarily due to a $2.5 million increase in compensation and related costs due to an increase in staffing levels, a $1.0 million increase in facility and other related support costs, a $0.8 million increase in consulting and advisory costs, a $0.6 million net increase in share-based compensation expense related to the grant of stock options under the 2013 Equity Plan, a $0.2 million increase in employee relations expenses, and a $0.2 million increase in travel and entertainment expenditures. Research and development headcount increased 9.2% to 559 at December 31, 2017 from 512 at December 31, 2016. We expect to increase our investment in our technology products and personnel in future periods as described in the “Overview” section above. We have significantly accelerated the pace of our software development efforts and increased the frequency of our software releases subsequent to the release of MicroStrategy 10, which has resulted in our software development costs in recent periods being expensed as incurred. We do not expect to capitalize a material amount of software development costs in the near term.

As a result of the grant of stock options under the 2013 Equity Plan, we expect that share-based compensation expense, a portion of which is recognized as research and development expense, will continue to be a significant recurring expense. As of December 31, 2017, we estimated that approximately $3.4 million of additional share-based compensation expense will be recognized as research and development expense over a remaining weighted average period of 2.3 years. See “Overview” and Note 11, Share-based Compensation, to the Consolidated Financial Statements for further information regarding the 2013 Equity Plan and related share-based compensation expense.

Research and development expenses, before capitalization of software development costs, decreased $1.7 million during 2016, as compared to the prior year, primarily due to a $0.8 million decrease in compensation and related costs, a $0.6 million decrease in facility and other related support costs, and a $0.3 million decrease in consulting and advisory costs, partially offset by a $0.2 million increase in travel and entertainment expenditures. Research and development headcount increased 11.1% to 512 at December 31, 2016 from 461 at December 31, 2015.

Other (Expense) Income, Net

Other (expense) income, net is comprised primarily of foreign currency transaction gains and losses and gains and losses on our foreign currency forward contracts. During 2017, other expense, net, of $7.0 million was comprised primarily of foreign currency transaction net losses, arising mainly from the revaluation of U.S. dollar denominated cash balances held at international locations. During 2016, other income, net, of $3.2 million was comprised primarily of foreign currency transaction net gains, arising mainly from the revaluation of U.S. dollar denominated cash balances held at international locations, in addition to outstanding balances denominated in the British Pound, which had declined in value as compared to the U.S. dollar. During 2015, other income, net, of $3.6 million was comprised primarily of $2.4 million in foreign currency transaction net gains, arising mainly from the revaluation of U.S. dollar denominated cash balances held at international locations, $0.5 million in net gains from the settlement of certain foreign currency forward contracts, and the reclassification of a $0.3 million foreign currency translation gain from other comprehensive income as a result of the completion of the liquidation of one of our foreign subsidiaries.

Provision for Income Taxes

During 2017, we recorded a provision for income taxes of $55.0 million that resulted in an effective tax rate of 75.7%, as compared to a provision for income taxes of $22.1 million that resulted in an effective tax rate of 19.6% during 2016. The change in our effective tax rate in 2017, as compared to the prior year, was primarily due to an estimated one-time tax provision of $44.0 million as a result of the Tax Act. This tax provision is comprised of a $40.3 million tax expense related to the mandatory deemed repatriation transition tax ("Transition Tax") and a $3.7 million charge related to the re-measurement of net deferred tax assets arising from the new lower corporate tax rate effected by the Tax Act.

The Tax Act imposes a Transition Tax on previously untaxed accumulated and current earnings and profits ("E&P") of certain of our foreign subsidiaries. To determine the amount of the Transition Tax, we must determine, among other things, the amount of post-1986 E&P of the relevant subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings. We made a reasonable estimate of the Transition Tax and recorded a provisional Transition Tax obligation of $40.3 million, of which $36.8 million is recorded in "other long-term liabilities" in our Consolidated Balance Sheets. However, we continue to gather additional information to compute more precisely the post-1986 E&P and related non-U.S. income taxes paid.

The Tax Act also reduced the U.S. corporate tax rate from 35% to 21%, effective January 1, 2018. Consequently, we have recorded a decrease related to our U.S. deferred tax assets and liabilities, with a corresponding net deferred income tax expense of $3.7 million for the year ended December 31, 2017 as a result of re-measuring net deferred tax assets at the new lower corporate tax rate of 21%.

Additionally, the Tax Act requires certain Global Intangible Low Taxed Income ("GILTI") earned by controlled foreign corporations ("CFCs") to be included in the gross income of the CFCs' U.S. shareholder. GAAP allows us to either: (i) treat taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the "period cost method"); or (ii) factor such amounts into our measurement of deferred taxes (the "deferred method"). We elected the period cost method. The GILTI tax rules will become effective for the 2018 tax year and therefore we have not made any adjustments related to the potential GILTI tax in our financial statements for the year ended December 31, 2017. We continue to evaluate the impact of the new GILTI tax rules and the application of ASC 740 on our financial statements.

As of December 31, 2017, we had no U.S. federal NOL carryforwards and had foreign NOL carryforwards of $2.5 million. As of December 31, 2017, foreign NOL carryforwards, other temporary differences and carryforwards, and credits resulted in deferred tax assets, net of valuation allowances and deferred tax liabilities, of $13.4 million.

As of December 31, 2017, we had a valuation allowance of $1.0 million primarily related to certain foreign tax credit carryforwards that, in our present estimation, more likely than not will not be realized. We assessed whether our valuation allowance analyses are affected by various aspects of the Tax Act (e.g., deemed repatriation of deferred foreign income, GILTI inclusions, new categories of foreign tax credits) and concluded that they were not significantly affected by the Tax Act.

If we are unable to sustain profitability in future periods, we may be required to increase the valuation allowance against our deferred tax assets, which could result in a charge that would materially adversely affect net income in the period in which the charge is incurred. We will continue to regularly assess the realizability of deferred tax assets.

Except as discussed below, we intend to indefinitely reinvest our undistributed earnings of all of our foreign subsidiaries. However, under the Tax Act, those undistributed earnings (as computed for U.S. federal income tax purposes, and with due regard to the discussion below regarding Subpart F deemed dividends) are subject to the

Transition Tax, which was recorded at a provisional amount of $40.3 million during the year ended December 31, 2017.

In addition, U.S. federal tax laws require us to include in our U.S. taxable income certain investment income earned outside of the United States in excess of certain limits ("Subpart F deemed dividends"). Because Subpart F deemed dividends are already required to be recognized in our U.S. federal income tax return, we regularly repatriate

Subpart F deemed dividends to the United States and no additional tax is incurred on the distribution. We repatriated Subpart F deemed dividends of $1.8 million and $1.9 million in 2017 and 2016, respectively, with no additional tax. We did not repatriate any Subpart F deemed dividends in 2015 because we did not report any Subpart F income on our 2014 U.S. tax return.

During 2015, we recorded a provision for income taxes of $31.9 million, resulting in an effective tax rate of 23.2%. The change in our effective tax rate in 2016, as compared to the prior year, was primarily due to the 2016 change in the proportion of U.S. versus foreign income and certain discrete tax benefits recorded in 2016.

Deferred Revenue and Advance Payments

Deferred revenue and advance payments represent subscription services, product support, and other services fees that are collected in advance and recognized over the contract service period, and product licenses revenues relating to multiple-element software arrangements that include future deliverables.

The following table summarizes deferred revenue and advance payments (in thousands), as of:

	December 31,		
	2017	2016	2015
Current:			
Deferred product licenses revenue	$11,113	$13,023	$13,506
Deferred subscription services revenue	17,324	18,303	15,763
Deferred product support revenue	168,043	162,781	158,738
Deferred other services revenue	9,465	10,015	9,149
Gross current deferred revenue and advance payments	205,945	204,122	197,156
Less: unpaid deferred revenue	(93,296)	(98,587)	(96,461)
Net current deferred revenue and advance payments	$112,649	$105,535	$100,695
Non-current:			
Deferred product licenses revenue	$7,169	$9,118	$5,397
Deferred subscription services revenue	126	1,307	2,138
Deferred product support revenue	4,826	5,751	7,607
Deferred other services revenue	628	690	795
Gross non-current deferred revenue and advance payments	12,749	16,866	15,937
Less: unpaid deferred revenue	(2,568)	(2,951)	(6,942)
Net non-current deferred revenue and advance payments	$10,181	$13,915	$8,995
Total current and non-current:			
Deferred product licenses revenue	$18,282	$22,141	$18,903
Deferred subscription services revenue	17,450	19,610	17,901
Deferred product support revenue	172,869	168,532	166,345
Deferred other services revenue	10,093	10,705	9,944
Gross current and non-current deferred revenue and advance payments	218,694	220,988	213,093
Less: unpaid deferred revenue	(95,864)	(101,538)	(103,403)
Net current and non-current deferred revenue and advance payments	$122,830	$119,450	$109,690

We offset our accounts receivable and deferred revenue for any unpaid items included in deferred revenue and advance payments.

Total gross deferred revenue and advance payments decreased $2.3 million in 2017, as compared to the prior year, primarily due to the recognition of previously deferred product licenses, subscription services, and other services revenues, partially offset by an increase in product support contracts. Total gross deferred revenue and advance

payments increased $7.9 million in 2016, as compared to the prior year, primarily due to an increase in deferred revenue from new product licenses, product support, subscription services, and other services contracts.

We expect to recognize approximately $205.9 million of deferred revenue and advance payments over the next 12 months. However, the timing and ultimate recognition of our deferred revenue and advance payments depend on our performance of various service obligations, and the amount of deferred revenue and advance payments at any date should not be considered indicative of revenues for any succeeding period.

Liquidity and Capital Resources

Liquidity. Our principal sources of liquidity are cash and cash equivalents and on-going collection of our accounts receivable. Cash and cash equivalents include holdings in bank demand deposits, money market instruments, certificates of deposit, and U.S. Treasury securities. We also periodically invest a portion of our excess cash in short-term investments with stated maturity dates between three months and one year from the purchase date.

As of December 31, 2017 and 2016, the amount of cash and cash equivalents and short-term investments held by our U.S. entities was $293.8 million and $279.8 million, respectively, and by our non-U.S. entities was $381.4 million and $309.6 million, respectively. We earn a significant amount of our revenues outside the United States and, except for Subpart F deemed dividends, we intend to indefinitely reinvest undistributed earnings of all of our non-U.S. entities. We do not anticipate needing to repatriate the cash or cash equivalents held by non-U.S. entities to the United States to finance our U.S. operations. However, under the Tax Act, those undistributed earnings (as computed for U.S. federal income tax purposes) are subject to the Transition Tax, which was recorded at a provisional amount of $40.3 million during the year ended December 31, 2017. We intend to elect to pay this tax over an eight-year period beginning in 2018. If we were to elect to actually repatriate these amounts, after taking into account the Transition Tax described above, we do not expect such repatriation to generate any additional U.S. federal taxable income to us.

We believe that existing cash and cash equivalents and short-term investments held by us and cash and cash equivalents anticipated to be generated by us are sufficient to meet working capital requirements, anticipated capital expenditures, and contractual obligations for at least the next 12 months.

The following table sets forth a summary of our cash flows (in thousands) and related percentage changes for the periods indicated:

	Years Ended December 31,			% Change in 2017	% Change in 2016
	2017	2016	2015		
Net cash provided by operating activities	$78,322	$110,589	$149,699	-29.2 %	-26.1 %
Net cash (used in) provided by investing activities	$(69,730)	$4,344	$(7,661)	-1705.2%	-156.7 %
Net cash provided by (used in) financing activities	$1,656	$(1,004)	$9,178	-264.9 %	-110.9 %

Net cash provided by operating activities. The primary source of our cash provided by operating activities is cash collections of our accounts receivable from customers following the sales and renewals of our software licenses, technical software support, software updates and upgrades, as well as consulting, education, and subscription services.

Our primary uses of cash in operating activities are for personnel related expenditures for software development, personnel related expenditures for providing consulting, education, and subscription services, and for sales and marketing costs, general and administrative costs, and income taxes.

Net cash provided by operating activities was $78.3 million, $110.6 million, and $149.7 million during 2017, 2016, and 2015, respectively. The decrease in net cash provided by operating activities during 2017, as compared to the prior year, was due to a $73.3 million decrease in net income, offset by a $36.5 million increase from changes in operating assets and liabilities and a $4.5 million increase from changes in non-cash items. The decrease in net cash provided by operating activities during 2016, as compared to the prior year, was due to a $25.7 million decrease from changes in non-cash items and a $15.0 million decrease in net income, offset by a $1.6 million increase from changes in operating assets and liabilities. Non-cash items generally consist of depreciation and amortization, bad

debt expense, deferred taxes, release of liabilities for unrecognized tax benefits, share-based compensation expense, and, in prior periods only, excess tax benefits from share-based compensation arrangements.

Net cash (used in) provided by investing activities. The changes in net cash (used in) provided by investing activities primarily relate to purchases and redemptions of short-term investments, expenditures on property and equipment, and capitalized software development costs. Net cash used in investing activities was $69.7 million and $7.7 million during 2017 and 2015, respectively. Net cash provided by investing activities was $4.3 million during 2016. The increase in net cash used in investing activities during 2017, as compared to the prior year, was due to a $101.5 million increase in purchases of short-term investments and a $1.6 million increase in purchases of property and equipment, offset by a $29.0 million increase in proceeds from the redemption of short-term investments. The increase in net cash provided by investing activities during 2016, as compared to the prior year, was due to a $118.8 million decrease in purchases of short-term investments, a $9.6 million decrease in capitalized software development costs, and a $1.1 million decrease in purchases of property and equipment, offset by a $117.5 million decrease in proceeds from the redemption of short-term investments.

Net cash provided by (used in) financing activities. The changes in net cash provided by (used in) financing activities primarily relate to the exercise of stock options under the 2013 Equity Plan, payments on capital lease and other financing arrangements, and, in prior periods only, excess tax benefits from share-based compensation arrangements. Net cash provided by financing activities was $1.7 million and $9.2 million during 2017 and 2015, respectively. Net cash used in financing activities was $1.0 million during 2016. The increase in net cash provided by financing activities during 2017, as compared to the prior year, was primarily due to a $3.7 million payment in 2016 to tax authorities for shares withheld for taxes related to the net exercise of a stock option under the 2013 Equity Plan and a $0.2 million decrease in payments on capital lease and other financing arrangements, partially offset by a $1.2 million decrease in excess tax benefits from share-based compensation arrangements. The increase in net cash used in financing activities during 2016, as compared to the prior year, was primarily due to a $7.9 million decrease in proceeds from the exercise of stock options under the 2013 Equity Plan, and a $3.7 million payment to tax authorities for shares withheld for taxes related to the net exercise of a stock option under the 2013 Equity Plan, partially offset by a $1.3 million decrease in payments on capital lease and other financing arrangements.

Share repurchases. Our Board of Directors has authorized us to repurchase up to an aggregate of $800.0 million of our class A common stock from time to time on the open market through April 29, 2018 (the “2005 Share Repurchase Program”), although the program may be suspended or discontinued by us at any time. The timing and amount of any shares repurchased will be determined by management based on its evaluation of market conditions and other factors. The 2005 Share Repurchase Program may be funded using working capital, as well as proceeds from any other funding arrangements that we may enter into in the future. During the years ended December 31, 2017, 2016, and 2015, we did not repurchase any shares of our class A common stock pursuant to the 2005 Share Repurchase Program.

Contractual obligations. As disclosed in Note 9, Commitments and Contingencies, to the Consolidated Financial Statements, we lease office space and computer and other equipment under operating lease agreements. Under the lease agreements, in addition to base rent, we are generally responsible for certain taxes, utilities and maintenance costs, and other fees. Several of these leases include options for renewal or purchase. We do not have any material capital leases.

As a result of the Tax Act, we estimated and recorded a one-time Transition Tax of $40.3 million during the year ended December 31, 2017, and intend to elect to pay this tax over an eight-year period beginning in 2018. See Note 10, Income Taxes, to the Consolidated Financial Statements for further information.

The following table shows future minimum rent payments under noncancellable operating leases and agreements with initial terms of greater than one year, net of total future minimum rent payments to be received under noncancellable sublease agreements, and anticipated payments related to the one-time Transition Tax resulting from the Tax Act, based on the expected due dates of the various installments as of December 31, 2017 (in thousands):

	Payments due by period ended December 31,				
	Total	2018	2019-2020	2021-2022	Thereafter
Contractual Obligations:					
Operating leases	$71,990	$24,508	$ 38,838	$ 4,368	$ 4,276
Transition tax	40,250	3,450	6,400	6,400	24,000
Total	$112,240	$27,958	$ 45,238	$ 10,768	$ 28,276

The above table does not include estimated payments related to the renewal of our corporate headquarters office lease in January 2018. See Note 17, Subsequent Events, to the Consolidated Financial Statements for further information about our corporate headquarters office lease.

Unrecognized tax benefits. As of December 31, 2017, we had $4.0 million of total gross unrecognized tax benefits, including interest accrued, recorded in other long-term liabilities. The timing of any payments that could result from these unrecognized tax benefits will depend on a number of factors, and accordingly the amount and period of any future payments cannot be estimated. We do not expect any significant tax payments related to these obligations during 2018.

Off-balance sheet arrangements. As of December 31, 2017, we did not have any off-balance sheet arrangements that had or were reasonably likely to have a current or future material impact on our financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources.

Recent Accounting Standards

Share-based compensation accounting

In March 2016, the FASB issued Accounting Standards Update No. 2016-09, Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting (“ASU 2016-09”), to simplify certain aspects of accounting for share-based payment transactions. Under ASU 2016-09, all excess tax benefits should be recognized as income tax expense or benefit in the income statement, regardless of whether the benefit reduces taxes payable in the current period. The excess tax benefits will be combined with other income tax cash flows within operating activities in the statement of cash flows. In addition, excess tax benefits or tax deficiencies will no longer be included in the calculation of assumed proceeds under the treasury stock method of computing diluted earnings per share. ASU 2016-09 also allows companies to make an accounting policy election to either estimate the number of awards expected to vest or to account for forfeitures as they occur, when accruing share-based compensation expense. Lastly, ASU 2016-09 permits employers to withhold up to the employee’s maximum statutory tax rate in applicable jurisdictions and still qualify for the exception to liability classification. Cash paid by an employer when directly withholding shares for tax-withholding purposes should be classified as a financing activity in the statement of cash flows. We adopted this guidance on January 1, 2017 and have:

(i) recognized excess tax benefits as part of the "Provision for income taxes" line item in our Consolidated Statements of Operations, on a prospective basis.

(ii) combined the impact of excess tax benefits with the "Deferred taxes" line item within operating activities in our Consolidated Statements of Cash Flows, on a prospective basis.

(iii) excluded excess tax benefits or tax deficiencies in the calculation of our diluted earnings per share, on a prospective basis; and

(iv) made an accounting policy election to account for forfeitures as they occur, on a modified retrospective basis, the impact of which is generally consistent with our previous method of estimating forfeitures.

No prior periods have been adjusted in connection with our adoption of ASU 2016-09. In addition, no cumulative-effect adjustments to retained earnings have been recorded as of January 1, 2017 because there were no unrecognized excess tax benefits or tax deficiencies outstanding and no expected forfeitures applied to our share-

based compensation expense as of the end of the preceding year. The remaining amendments under ASU 2016-09 did not have a material impact on our consolidated financial position, results of operations, and cash flows.

Statement of cash flows

In November 2016, the FASB issued Accounting Standards Update No. 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash (a consensus of the FASB Emerging Issues Task Force) ("ASU 2016-18"), to address the diversity in practice that currently exists regarding the classification and presentation of changes in restricted cash on the statement of cash flows. Under ASU 2016-18, entities will be required to include restricted cash and restricted cash equivalents with total cash and cash equivalents when reconciling the beginning and end of period amounts on the statement of cash flows. Entities will also be required to disclose information about the nature of their restricted cash and restricted cash equivalents. Additionally, if cash, cash equivalents, restricted cash and restricted cash equivalents are presented in more than one line item in the statement of financial position, entities will be required to present a reconciliation, either on the face of the statement of cash flows or disclosed in the notes, of the totals in the statement of cash flows to the related line item captions in the statement of financial position. We adopted this guidance on January 1, 2017 and retrospectively applied the required updates to our Consolidated Statements of Cash Flows for all periods presented. We do not consider our restricted cash balances to be material for further disclosure or reconciliation. The adoption of this guidance did not impact our consolidated financial position, results of operations, or footnote disclosures.

Revenue from contracts with customers

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU 2014-09"), which supersedes nearly all existing revenue recognition guidance. The standard's core principle is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard also requires disclosure of additional information to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers.

We will adopt this guidance and its subsequent amendments effective as of January 1, 2018 and will adjust prior period consolidated financial statements to reflect full retrospective adoption, beginning with the Quarterly Report on Form 10-Q for the first quarter of 2018. We have substantially completed the implementation of key system changes and changes to internal controls over financial reporting to allow us to timely compile the information needed to account for transactions under this new guidance and to adjust our prior periods' consolidated financial statements.

In adopting ASU 2014-09, we expect the following significant changes in accounting principles:

(i) Timing of revenue recognition for term license sales. Under ASU 2014-09, we will recognize product license revenue from term licenses upon delivery of the software. Previously, this revenue was recognized over the term of the arrangement.

(ii) Timing of revenue recognition for sales to channel partners. Under ASU 2014-09, we will recognize revenue from sales made to resellers and OEMs when control of the products transfers to the reseller or OEM, less adjustments for returns or price protection. Previously, this revenue was not recognized until the product was sold by the reseller or OEM to the end user.

(iii) Allocating the transaction price to the performance obligations in the contract. Under ASU 2014-09, we will allocate the transaction price to the various performance obligations in the contract based on their relative standalone selling price ("SSP"). Except for SSP of product support, our methodologies for estimating SSP of our various performance obligations will be generally consistent with our previous methodologies used to establish

VSOE of fair value on multiple element arrangements. The SSP of product support will result in a difference in the allocation of the transaction price between product support and product license performance obligations. We expect the impact from SSP-based allocations to be immaterial to the financial statements.

(iv) Material rights. Our contracts with customers may include options to acquire additional goods and services at a discount. Under ASU 2014-09, certain of these options may be considered material rights if sold below SSP and would be treated as separate performance obligations and included in the allocation of the transaction price. Previously, none of our options were considered material rights. We expect the impact from material rights to be immaterial to the financial statements.

(v) Presentation of accounts receivable, contract assets, and contract liabilities (deferred revenue). Under ASU 2014-09, our rights to consideration are presented separately depending on whether those rights are conditional or unconditional. We will present our unconditional rights to consideration as "accounts receivable" in our Consolidated Balance Sheets. In contrast, separate "contract assets" will represent rights to consideration that are subject to a condition other than the passage of time, and will be comprised primarily of accrued sales- and usage-based royalty revenue. Previously, this revenue was not recognized until quarterly royalty reporting had been received from the OEM. Under ASU 2014-09, once quarterly royalty reporting has been received, the related contract assets will be transferred to accounts receivable. Current and non-current contract assets will be included under "Prepaid expenses and other current assets" and "Deposits and other assets," respectively, on our Consolidated Balance Sheets. Further, contract assets will be netted against "contract liabilities" at the contract level. Contract liabilities will be presented as "deferred revenue" on our Consolidated Balance Sheets and will be comprised of consideration received, or accounts receivable recorded, prior to the transfer of goods or services to the customer. Under ASU 2014-09, we cannot net accounts receivable with deferred revenue and we will no longer offset our accounts receivable and deferred revenue balances for unpaid items that are included in the deferred revenue balance. Previously, this offsetting of accounts receivable and deferred revenue balances for unpaid amounts was applied in our financial statements.

(vi) Deferral of incremental direct costs to obtaining a contract with a customer. Under ASU 2014-09, we will capitalize certain variable compensation (i.e., sales commissions) payable to our sales force and subsequently amortize the capitalized costs over a period of time that is consistent with the transfer of the related good or service to the customer, which we have determined to be three years. Capitalized costs, net of accumulated amortization, will be included in "Deposits and other assets" on our Consolidated Balance Sheets. Previously, we elected to expense these incremental direct costs as incurred.

We currently estimate the adoption of ASU 2014-09 will increase our 2016 beginning retained earnings balance by approximately $13.0 million, offset by a $13.0 million decrease in gross deferred revenues, a $5.0 million decrease in deferred tax assets, net of deferred tax liabilities, a $4.0 million increase in other non-current assets, and a $1.0 million increase in other current assets. In addition, net accounts receivable and net deferred revenues as of December 31, 2017 and 2016 will each further increase by approximately $95.9 million and $101.5 million, respectively, due to no longer offsetting these balances for unpaid amounts included in the gross deferred revenue balances. For the years ended December 31, 2017 and 2016, we estimate $2.5 million and $3.0 million, respectively, of previously expensed variable compensation will be capitalized and amortized over a three-year period. We estimate that product licenses revenues will decrease by approximately $0.5 million and increase by approximately $1.5 million for the years ended December 31, 2017 and 2016, respectively. We also estimate our provision for income taxes will decrease by approximately $1.5 million and increase by approximately $0.5 million for the years ended December 31, 2017 and 2016, respectively.

Intra-entity asset transfers

In October 2016, the FASB issued Accounting Standards Update No. 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory ("ASU 2016-16"), to improve the accounting for income tax effects of intra-entity transfers of assets other than inventory. Under ASU 2016-16, the deferral of the income tax consequences of intra-entity transfers of assets other than inventory is eliminated. Entities will be required to recognize the income tax consequences of intra-entity transfers of assets other than inventory when the transfers occur. The standard requires a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption using a modified retrospective approach. We will adopt this guidance effective as of January 1,

2018. The adoption of this guidance is not expected to have a material impact on our consolidated financial position, results of operations, or cash flows.

Lease accounting

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, Leases (Topic 842) ("ASU 2016-02"), which requires lease assets and lease liabilities be recognized for all leases, in addition to the disclosure of key information to enable users of financial statements to assess the amount, timing, and uncertainty of cash flows arising from an entity's leasing arrangements. ASU 2016-02 defines a lease as a contract, or part of a contract, that conveys both (i) the right to obtain economic benefits from and (ii) direct the use of an identified asset for a period of time in exchange for consideration. Under ASU 2016-02, leases are classified as either finance or operating leases. For finance leases, a lessee shall recognize in profit or loss the amortization of the lease asset and interest on the lease liability. For operating leases, a lessee shall recognize in profit or loss a single lease cost, calculated so that the remaining cost of the lease is allocated over the remaining lease term, generally on a straight-line basis. ASU 2016-02 requires the recognition and measurement of leases at the beginning of the earliest period presented using a modified retrospective approach and is effective for interim and annual periods beginning January 1, 2019. Early adoption is permitted. We are currently evaluating the impact of this guidance on our consolidated financial position, results of operations, and cash flows.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The following discussion about our market risk exposures involves forward-looking statements. Actual results could differ materially from those projected in the forward-looking statements.

We are exposed to the impact of both interest rate changes and foreign currency fluctuations.

Interest Rate Risk. We face exposure to changes in interest rates primarily relating to our investments. We generally invest our excess cash in short-term, highly-rated, fixed-rate financial instruments. These fixed-rate instruments are subject to interest rate risk and may fall in value if interest rates increase. We do not hold or invest in these fixed-rate instruments for trading purposes or speculation. As of December 31, 2017, we held approximately $254.9 million of investments in U.S. Treasury securities and certificates of deposit with stated maturity dates between three months and one year from the purchase date, and we intend to hold these investments until maturity.

Foreign Currency Risk. We conduct a significant portion of our business in currencies other than the U.S. dollar, the currency in which we report our Consolidated Financial Statements. International revenues accounted for 41.9%, 39.3%, and 38.3% of our total revenues for the years ended December 31, 2017, 2016, and 2015, respectively. We anticipate that international revenues will continue to account for a significant portion of our total revenues. The functional currency of each of our foreign subsidiaries is the local currency.

Assets and liabilities of our foreign subsidiaries are translated into U.S. dollars at exchange rates in effect as of the applicable balance sheet date and any resulting translation adjustments are included as an adjustment to stockholders' equity. Revenues and expenses generated from these subsidiaries are translated at average monthly exchange rates during the quarter in which the transactions occur. Gains and losses from transactions in local currencies are included in net income.

As a result of transacting in multiple currencies and reporting our financial statements in U.S. dollars, our operating results may be adversely impacted by currency exchange rate fluctuations in the future. The impact of foreign currency exchange rate fluctuations on current and comparable periods is described in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

We cannot predict the effect of exchange rate fluctuations upon our future results. We attempt to minimize our foreign currency risk by converting our excess foreign currency held in foreign jurisdictions to U.S. dollar denominated cash and investment accounts. Although we were not party to any foreign currency forward contracts as of December 31, 2017, from time to time we have entered into foreign currency forward contracts to hedge certain risks associated with foreign currency exchange rate exposure, and may do so again in the future. We manage the use of foreign exchange derivative instruments centrally, and we do not hold or enter into derivative financial instruments for trading purposes or speculation. See Note 4, Fair Value Measurements, to the Consolidated Financial Statements for further information on foreign currency forward contracts. We cannot be

certain that any future hedging techniques will be successful or that our business, results of operations, financial condition, and cash flows will not be materially adversely affected by exchange rate fluctuations.

As of December 31, 2017, a 10% adverse change in foreign currency exchange rates versus the U.S. dollar would have decreased our aggregate reported cash and cash equivalents and short-term investments by 0.3%. If average exchange rates during the year ended December 31, 2017 had changed unfavorably by 10%, our revenues for the year ended December 31, 2017 would have decreased by 3.9%. During the year ended December 31, 2017, our revenues were higher by 0.5% as a result of a 1.0% favorable change in weighted average exchange rates, as compared to the prior year.

Item 8. Financial Statements and Supplementary Data

Our Consolidated Financial Statements, together with the related notes and the associated Reports of Independent Registered Public Accounting Firm, are set forth on the pages indicated in Item 15.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their control objectives. Based on the evaluation of our disclosure controls and procedures as of the end of the period covered by this Annual Report, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management’s Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the Company’s principal executive and principal financial officers and effected by the Company’s Board of Directors, management, and other personnel, 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. Such internal control includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- 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
- 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. Projections of any evaluation of effectiveness to future periods are subject to the risk that the control may become

inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2017. In making this assessment, our management used the criteria set forth in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on its assessment, our management has determined that, as of December 31, 2017, our internal control over financial reporting is effective based on those criteria.

KPMG LLP has issued an attestation report on our internal control over financial reporting. This report is included in the Reports of Independent Registered Public Accounting Firm in Item 15.

Changes in Internal Control Over Financial Reporting

During the third quarter of 2016, we began implementing a plan to transform our worldwide finance and accounting organization. Previously, our finance and accounting activities relating to each of the countries where we operate were decentralized, and conducted by personnel based within each respective country. As of the end of the second quarter of 2017, we had completed this transformation. The transformation resulted in the consolidation of our worldwide finance and accounting functions into three geographically based centers of excellence. While the nature and operation of our key transaction-level controls did not materially change as a result of the transformation, the personnel executing the controls and the locations where the controls are performed have changed. Additionally, during the second quarter of 2017, we implemented a new professional service automation system to track billable time used to invoice customers, as well as process internal business travel and entertainment expenses. The implementation of this new system did not change the underlying internal controls.

Throughout 2017, in order to facilitate our adoption of the new revenue recognition accounting standard on January 1, 2018, we implemented internal controls to help ensure we properly evaluated our customer contracts, executed key system changes, and assessed the impact to our consolidated financial statements. We expect to continue to implement additional internal controls related to the adoption of this standard in the first quarter of 2018.

We also continue to evaluate the impact of the Tax Act on our internal controls over financial reporting, but do not currently expect this new legislation will require us to make significant changes to our existing internal controls related to income taxes.

We believe that we have maintained appropriate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the fiscal year ended December 31, 2017.

Item 9B. Other Information
None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item is incorporated herein by reference to the information provided under the headings “Executive Officers of the Company,” “Election of Directors – Nominees,” and “Corporate Governance and the Board of Directors and its Committees” in our definitive proxy statement to be filed with the SEC not later than 120 days after the fiscal year ended December 31, 2017 (the “2018 Proxy Statement”).

Item 11. Executive Compensation

The information required by this Item is incorporated herein by reference to the information provided under the headings “Executive and Director Compensation,” “Compensation Committee Report,” and “Corporate Governance and the Board of Directors and its Committees – Compensation Committee” in the 2018 Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item is incorporated herein by reference to the information provided under the headings “Security Ownership of Certain Beneficial Owners and Management,” and “Executive and Director Compensation” in the 2018 Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item is incorporated herein by reference to the information provided under the heading “Corporate Governance and the Board of Directors and its Committees” in the 2018 Proxy Statement.

Item 14. Principal Accountant Fees and Services

The information required by this Item is incorporated herein by reference to the information provided under the heading “Independent Registered Public Accounting Firm Fees and Services” in the 2018 Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

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Reports of Independent Registered Public Accounting Firm	72
Consolidated Financial Statements:	
Balance Sheets	75
Statements of Operations	76
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(b) Exhibits

We hereby file as part of this Annual Report on Form 10 K the exhibits listed in the Index to Exhibits.

(c) Financial Statement Schedule

The following financial statement schedule is filed herewith:

Schedule II—Valuation and Qualifying Accounts

All other items included in an Annual Report on Form 10 K are omitted because they are not applicable or the answers thereto are none.

Report of Independent Registered Public Accounting Firm

To the stockholders and board of directors

MicroStrategy Incorporated:

Opinion on Internal Control Over Financial Reporting

We have audited MicroStrategy Incorporated and subsidiaries' (the "Company") internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2017, the related notes, and the financial statement schedule listed in the index appearing under Item 15(a)(3) (collectively, the "consolidated financial statements"), and our report dated February 7, 2018 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit 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 audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding

prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

McLean, Virginia

February 7, 2018

Report of Independent Registered Public Accounting Firm

To the stockholders and board of directors

MicroStrategy Incorporated:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of MicroStrategy Incorporated and subsidiaries (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the years in the three year period ended December 31, 2017, the related notes, and the financial statement schedule listed in the index appearing under Item 15(a)(3) (collectively, the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 7, 2018 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2013.

McLean, Virginia

February 7, 2018

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MICROSTRATEGY INCORPORATED

CONSOLIDATED BALANCE SHEETS

(in thousands, except per share data)

	December 31, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 420,244	$ 401,975
Restricted cash	938	737
Short-term investments	254,927	187,408
Accounts receivable, net	69,500	83,319
Prepaid expenses and other current assets	18,002	11,548
Total current assets	763,611	684,987
Property and equipment, net	53,359	57,436
Capitalized software development costs, net	2,499	8,497
Deposits and other assets	2,868	5,695
Deferred tax assets, net	13,391	11,704
Total assets	$ 835,728	$ 768,319
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 30,711	$ 36,628
Accrued compensation and employee benefits	41,498	43,323
Deferred revenue and advance payments, net	112,649	105,535
Total current liabilities	184,858	185,486
Deferred revenue and advance payments, net	10,181	13,915
Other long-term liabilities	50,146	16,447
Deferred tax liabilities	4	294
Total liabilities	245,189	216,142
Commitments and Contingencies		
Stockholders' Equity		
Preferred stock undesignated, $0.001 par value; 5,000 shares authorized; no shares issued or outstanding	0	0
Class A common stock, $0.001 par value; 330,000 shares authorized; 15,817 shares issued and 9,412 shares outstanding, and 15,805 shares issued and 9,400 shares outstanding, respectively	16	16
Class B convertible common stock, $0.001 par value; 165,000 shares authorized; 2,035 shares issued and outstanding, and 2,035 shares issued and outstanding, respectively	2	2
Additional paid-in capital	559,918	543,974
Treasury stock, at cost; 6,405 shares	(475,184)	(475,184)
Accumulated other comprehensive loss	(5,968)	(10,743)
Retained earnings	511,755	494,112
Total stockholders' equity	590,539	552,177
Total liabilities and stockholders' equity	$ 835,728	$ 768,319

The accompanying notes are an integral part of these Consolidated Financial Statements.

MICROSTRATEGY INCORPORATED

CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except per share data)

	Years Ended December 31,		
	2017	2016	2015
Revenues:			
Product licenses	$93,969	$113,503	$119,143
Subscription services	32,368	30,574	27,839
Total product licenses and subscription services	126,337	144,077	146,982
Product support	289,174	285,079	281,740
Other services	89,032	83,005	101,147
Total revenues	504,543	512,161	529,869
Cost of revenues:			
Product licenses	7,176	8,573	8,118
Subscription services	13,435	12,765	13,051
Total product licenses and subscription services	20,611	21,338	21,169
Product support	17,481	15,001	12,748
Other services	58,557	56,808	67,191
Total cost of revenues	96,649	93,147	101,108
Gross profit	407,894	419,014	428,761
Operating expenses:			
Sales and marketing	174,612	158,740	148,522
Research and development	78,766	73,142	65,206
General and administrative	80,161	79,462	80,732
Restructuring costs	0	45	279
Total operating expenses	333,539	311,389	294,739
Income from operations	74,355	107,625	134,022
Interest income, net	5,205	2,203	284
Other (expense) income, net	(6,953)	3,218	3,558
Income before income taxes	72,607	113,046	137,864
Provision for income taxes	54,964	22,138	31,933
Net income	17,643	90,908	105,931
Basic earnings per share (1)	$1.54	$7.96	$9.33
Weighted average shares outstanding used in computing basic earnings per share	11,444	11,425	11,355
Diluted earnings per share (1)	$1.53	$7.89	$9.18
Weighted average shares outstanding used in computing diluted earnings per share	11,547	11,516	11,539

(1) Basic and fully diluted earnings per share for class A and class B common stock are the same.
The accompanying notes are an integral part of these Consolidated Financial Statements.

MICROSTRATEGY INCORPORATED

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in thousands)

	Years Ended December 31,		
	2017	2016	2015
Net income	$ 17,643	$ 90,908	$ 105,931
Other comprehensive gain (loss), net of applicable taxes:			
Foreign currency translation adjustment	4,805	(3,347)	(3,018)
Less: reclassification adjustment for translation gain included in other income	0	0	280
Foreign currency translation adjustment, net	4,805	(3,347)	(2,738)
Unrealized (loss) gain on short-term investments	(30)	12	(27)
Total other comprehensive gain (loss)	4,775	(3,335)	(2,765)
Comprehensive income	$ 22,418	$ 87,573	$ 103,166

The accompanying notes are an integral part of these Consolidated Financial Statements.

MICROSTRATEGY INCORPORATED

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in thousands)

	Total	Class A Common Stock		Class B Convertible Common Stock		Additional Paid-in Capital	Treasury Stock		Accumulated Other Comprehensive Income (Loss)	Retained Earnings
		Shares	Amount	Shares	Amount		Shares	Amount		
Balance at January 1, 2015	$324,471	15,660	$ 16	2,055	$ 2	$506,727	(6,405)	$(475,184)	$ (4,363)	$297,273
Net income	105,931	0	0	0	0	0	0	0	0	105,931
Other comprehensive loss	(2,765)	0	0	0	0	0	0	0	(2,765)	0
Translation gain reclassified to other income	(280)	0	0	0	0	0	0	0	(280)	0
Conversion of class B to class A common stock	0	20	0	(20)	0	0	0	0	0	0
Issuance of class A common stock under stock option plans	9,529	91	0	0	0	9,529	0	0	0	0
Tax effect of stock option exercises	1,096	0	0	0	0	1,096	0	0	0	0
Share-based compensation expense	17,299	0	0	0	0	17,299	0	0	0	0
Balance at December 31, 2015	$455,281	15,771	$ 16	2,035	$ 2	$534,651	(6,405)	$(475,184)	$ (7,408)	$403,204
Net income	90,908	0	0	0	0	0	0	0	0	90,908
Other comprehensive loss	(3,335)	0	0	0	0	0	0	0	(3,335)	0
Issuance of class A common stock under stock option plans	1,663	34	0	0	0	1,663	0	0	0	0
Tax effect of stock option	1,244	0	0	0	0	1,244	0	0	0	0

exercises										
Share-based compensation expense	11,817	0	0	0	0	11,817	0	0	0	0
Payment of taxes relating to net exercise of employee stock options	(3,739)	0	0	0	0	(3,739)	0	0	0	0
Write-off of deferred tax assets relating to vested employee stock options that are no longer exercisable	(1,662)	0	0	0	0	(1,662)	0	0	0	0
Balance at December 31, 2016	$552,177	15,805	$ 16	2,035	$ 2	$543,974	(6,405)	$(475,184)	$ (10,743)	$494,112
Net income	17,643	0	0	0	0	0	0	0	0	17,643
Other comprehensive gain	4,775	0	0	0	0	0	0	0	4,775	0
Issuance of class A common stock under stock option plans	1,677	12	0	0	0	1,677	0	0	0	0
Share-based compensation expense	14,267	0	0	0	0	14,267	0	0	0	0
Balance at December 31, 2017	$590,539	15,817	$ 16	2,035	$ 2	$559,918	(6,405)	$(475,184)	$ (5,968)	$511,755

The accompanying notes are an integral part of these Consolidated Financial Statements.

MICROSTRATEGY INCORPORATED

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Years Ended December 31,		
	2017	2016	2015
Operating activities:			
Net income	$17,643	$90,908	$105,931
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	12,572	17,195	21,214
Bad debt expense	2,269	224	884
Unrealized net loss on foreign currency forward contracts	0	0	1,641
Non-cash restructuring costs and adjustments	0	0	(136)
Deferred taxes	(2,011)	(4,983)	9,666
Release of liabilities for unrecognized tax benefits	0	(394)	(899)
Share-based compensation expense	14,267	11,817	17,299
Excess tax benefits from share-based compensation arrangements	0	(1,244)	(1,096)
Reclassification of foreign currency translation adjustment from other comprehensive income	0	0	(280)
Changes in operating assets and liabilities:			
Accounts receivable	15,348	(16,878)	5,003
Prepaid expenses and other current assets	(4,279)	(880)	4,446
Deposits and other assets	2,981	(4,059)	1,631
Accounts payable and accrued expenses	(9,093)	6,981	1,904
Accrued compensation and employee benefits	(3,683)	3,787	(8,387)
Accrued restructuring costs	0	(58)	(1,922)
Deferred revenue and advance payments, net	(1,609)	11,238	(4,176)
Other long-term liabilities	33,917	(3,065)	(3,024)
Net cash provided by operating activities	78,322	110,589	149,699
Investing activities:			
Proceeds from redemption of short-term investments	390,720	361,680	479,200
Purchases of property and equipment	(3,982)	(2,337)	(3,484)
Purchases of short-term investments	(456,468)	(354,999)	(473,779)
Capitalized software development costs	0	0	(9,598)
Net cash (used in) provided by investing activities	(69,730)	4,344	(7,661)
Financing activities:			
Proceeds from sale of class A common stock under exercise of employee stock options	1,677	1,663	9,529
Payment of taxes relating to net exercise of employee stock options	0	(3,739)	0
Excess tax benefits from share-based compensation arrangements	0	1,244	1,096
Payments on capital lease obligations and other financing arrangements	(21)	(172)	(1,447)
Net cash provided by (used in) financing activities	1,656	(1,004)	9,178
Effect of foreign exchange rate changes on cash, cash equivalents, and restricted cash	8,222	(4,176)	(5,837)
Net increase in cash, cash equivalents, and restricted cash	18,470	109,753	145,379

Cash, cash equivalents, and restricted cash, beginning of year	402,712	292,959	147,580
Cash, cash equivalents, and restricted cash, end of year	$421,182	$402,712	$292,959
Supplemental disclosure of cash flow information:			
Cash paid during the year for interest	$0	$2	$34
Cash paid during the year for income taxes, net of tax refunds	$29,279	$24,332	$13,346
Supplemental disclosure of noncash investing and financing activities:			
Assets acquired under capital lease obligations and other financing arrangements	$0	$0	$14

The accompanying notes are an integral part of these Consolidated Financial Statements.

MICROSTRATEGY INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(1) Organization

MicroStrategy is a worldwide provider of enterprise analytics and mobility software. The Company's mission is to provide enterprise customers with world-class software and expert services so they can deploy unique intelligence applications.

(2) Summary of Significant Accounting Policies

(a) Basis of Presentation

The accompanying Consolidated Financial Statements include the accounts of the Company and its subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation.

As discussed in Note 3, Recent Accounting Standards, to the Consolidated Financial Statements, the Company adopted ASU 2016-18 effective January 1, 2017 and has retroactively applied the required updates to its Consolidated Statements of Cash Flows for all periods presented. As a result of the adoption of ASU 2016-18, changes in restricted cash have been removed from investing activities in the Consolidated Statements of Cash Flows; instead, restricted cash has been included with total cash and cash equivalents when reconciling the beginning and end of period amounts.

(b) Use of Estimates

The preparation of the Consolidated Financial Statements, in conformity with accounting principles generally accepted in the United States of America, requires management to make estimates and judgments that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. On an on-going basis, the Company evaluates its estimates, including, but not limited to, those related to revenue recognition, allowance for doubtful accounts, investments, derivative financial instruments, software development costs, fixed assets, intangible assets, variable compensation, share-based compensation, income taxes, including the carrying value of deferred tax assets, and litigation and contingencies, including liabilities that the Company deems not probable of assertion. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets, liabilities, and equity that are not readily apparent from other sources. Actual results and outcomes could differ from these estimates and assumptions.

(c) Fair Value Measurements

The Company measures certain assets and liabilities at fair value on a recurring basis. Fair value is defined as the price that is expected to be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company uses a three-level hierarchy that prioritizes fair value measurements based on the types of inputs used for the various valuation techniques. The three levels of the fair value hierarchy are described below:

Level 1:	Quoted (unadjusted) prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
Level 2:	Inputs other than quoted prices that are either directly or indirectly observable, such as quoted prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
Level 3:	Inputs that are generally unobservable, supported by little or no market activity, and typically reflect management’s estimates of assumptions that market participants would use in pricing the asset or liability.

MICROSTRATEGY INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The categorization of an asset or liability within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. The valuation techniques used by the Company when measuring fair value maximize the use of observable inputs and minimize the use of unobservable inputs.

The Company also estimates the fair value of cash and cash equivalents, restricted cash, accounts receivable, accounts payable and accrued expenses, and accrued compensation and employee benefits. The Company considers the carrying value of these instruments in the financial statements to approximate fair value due to their short maturities.

(d) Cash and Cash Equivalents and Restricted Cash

Cash equivalents include bank demand deposits, money market instruments, certificates of deposit, U.S. Treasury securities, and equivalent funds. The Company generally considers all highly liquid investments with an original maturity of three months or less to be cash equivalents. Restricted cash consists of cash balances restricted in use by contractual obligations with third parties.

(e) Short-term Investments

The Company periodically invests a portion of its excess cash in short-term investment instruments. All highly liquid investments with stated maturity dates between three months and one year from the purchase date are classified as short-term investments. The Company determines the appropriate classification of its short-term investments at the time of purchase.

Substantially all of the Company’s short-term investments are in U.S. Treasury securities and certificates of deposit, and the Company has the ability and intent to hold these investments to maturity. Therefore, these short-term investments are classified and accounted for as held-to-maturity and are reported at amortized cost. Each reporting period, the Company determines whether a decline in fair value below the amortized cost for each individual security is other-than-temporary and if it would be required to sell the security before recovery of its amortized cost basis. Upon recognition of an other-than-temporary impairment, the previous amortized cost basis less the other-than-temporary impairment recognized in earnings becomes the new amortized cost basis of the investment.

(f) Derivative Financial Instruments

The Company is exposed to certain risks related to its ongoing business operations, including the effect of changes in foreign exchange rates on the Company’s monetary assets and liabilities denominated in foreign currency. The Company may use foreign currency forward contracts as part of its strategy to manage these risks, but does not hold or issue derivative instruments for trading purposes or speculation. The Company executes these instruments with financial institutions that hold an investment grade credit rating. These foreign currency forward contracts do not meet the requirements for hedge accounting and are recorded on the balance sheet as either an asset or liability measured at their fair value as of the reporting date. Changes in the fair value of derivative instruments, as measured using the three-level hierarchy described above, are recognized in “Other (expense) income, net” in the Company’s Consolidated Statements of Operations.

(g) Property and Equipment

Property and equipment are stated at cost, net of accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, as follows: three years for computer equipment and purchased software; five years for office equipment and automobiles; and ten years for office furniture and owned corporate aircraft, which has an estimated salvage value of 70%. Leasehold improvements are amortized using the straight-line method over the estimated useful lives of the improvements or the term of the lease, whichever is shorter. The Company periodically evaluates the appropriateness of the estimated useful lives and salvage value of all property and equipment. Any change in the estimated useful life or salvage value is treated as a change in estimate and accounted for prospectively in the period of change.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Expenditures for maintenance and repairs are charged to expense as incurred, except for certain costs related to the aircraft. The costs of normal, recurring, or periodic repairs and maintenance activities related to the aircraft are expensed as incurred. The cost of planned major maintenance activities ("PMMA") may be treated differently because those activities may involve the acquisition of additional aircraft components or the replacement of existing aircraft components. PMMA are performed periodically based on passage of time and the use of the aircraft. The classification of a maintenance activity as part of PMMA requires judgment and can affect the amount of expense recognized in any particular period. The cost of each PMMA is expected to be capitalized and amortized over the period until the next scheduled PMMA. There have been no PMMA to date.

When assets are retired or sold, the capitalized cost and related accumulated depreciation are removed from the property and equipment accounts and any resulting gain or loss is recognized in the results of operations.

Eligible internal-use software development costs are capitalized subsequent to the completion of the preliminary project stage. Such costs include external direct material and service costs, employee payroll, and payroll-related costs. After all substantial testing and deployment is completed and the software is ready for its intended use, capitalization ceases and internal-use software development costs are amortized using the straight-line method over the estimated useful life of the software, generally three years.

The Company reviews long-lived assets, including intangible assets, for impairment annually or whenever events or changes in business circumstances indicate that the carrying value of the assets may not be fully recoverable or that the useful lives of these assets are no longer appropriate. Each impairment test is based on a comparison of the undiscounted cash flows to the recorded value of the asset. If an asset is impaired, the asset is written down by the amount by which the carrying value of the asset exceeds the related fair value of the asset.

(h) Software Development Costs

Software development costs are expensed as incurred until technological feasibility has been established, at which time such costs are capitalized until the product is available for general release to customers. Capitalized software development costs include direct labor costs and fringe benefit costs attributed to programmers, software engineers, and quality control and field certifiers working on products after they reach technological feasibility, but before they are generally available to customers for sale. Technological feasibility is considered to be achieved when a product design and working model of the software product have been completed. Capitalized software development costs are typically amortized over the estimated product life of three years, on a straight-line basis. The Company has significantly accelerated the pace of its software development efforts and increased the frequency of its software releases subsequent to the release of MicroStrategy 10, which has resulted in the Company's software development costs in recent periods being expensed as incurred.

Capitalized software development costs, net of accumulated amortization, were $2.5 million and $8.5 million as of December 31, 2017 and 2016, respectively. Amortization expense related to software development costs was $6.0 million, $7.4 million, and $7.2 million for the years ended December 31, 2017, 2016, and 2015, respectively, and is included in cost of product licenses and subscription services revenues. The Company did not capitalize any software development costs during the years ended December 31, 2017 and 2016, respectively. During the year ended December 31, 2015, the Company capitalized software development costs of $9.6 million. The Company analyzes the net realizable value of capitalized software development costs on at least an annual basis and has determined that there is no indication of impairment of the capitalized software development costs as forecasted future sales are adequate to

support amortization costs.

(i) Loss Contingencies and Legal Costs

The Company accrues loss contingencies that are believed to be probable and can be reasonably estimated. As events evolve during the administration and litigation process and additional information becomes known, the Company reassesses its estimates related to loss contingencies. Legal costs are expensed in the period in which the costs are incurred.

MICROSTRATEGY INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(j) Deferred Revenue and Advance Payments

Deferred revenue and advance payments related to product support, subscription services, and other services result from payments received prior to the performance of services for technical support, subscription, consulting, and education. Deferred revenue and advance payments related to product licenses result primarily from multiple-element arrangements that include future deliverables. Deferred revenue is comprised of deferred product licenses and subscription services, deferred product support, or other services revenue based on the objective fair value of the multiple elements of the arrangement, except for software licenses for which the Company does not have an objective measure of fair value. The Company offsets its accounts receivable and deferred revenue for any billed and unpaid items included in deferred revenue and advance payments.

(k) Revenue Recognition

The Company recognizes revenue from sales of software licenses to end users upon:

1) persuasive evidence of an arrangement, as provided by agreements, contracts, purchase orders, or other arrangements, generally executed by both parties;
2) existence of a fixed or determinable fee;
3) delivery of the software; and
4) determination that collection is reasonably assured.

When the fees for software upgrades and enhancements, technical support, consulting, and education are bundled with the license fee, they are unbundled for revenue recognition purposes, using vendor specific objective evidence (“VSOE”) of fair value of the elements.

Product support or post-contract support (“PCS”) revenue is derived from providing technical software support and software updates and upgrades to customers. PCS revenue is recognized ratably over the term of the contract, which in most cases is one year. The Company’s VSOE for PCS, which includes updates, upgrades, and enhancements, is determined based on the optional stated renewal fee for PCS in the contract, which is the price the customer is required to pay when PCS is renewed. Additionally, the optional stated renewal fee used to establish VSOE for PCS in a software transaction must be above the Company’s minimum substantive VSOE rate for PCS. If a stated renewal rate is considered non-substantive, VSOE of PCS has not been established and the Company recognizes all revenue under the arrangement ratably over the PCS period. A minimum substantive VSOE rate is determined based on an analysis of historical sales of PCS. For a renewal rate to be non-substantive, the Company believes it must be significantly lower than its minimum VSOE rate. The Company considers a 10% variance below its minimum VSOE rate to be significant. It is rare for the Company to have an arrangement that includes a renewal rate that is below the minimum VSOE rate.

Revenue from consulting, education, and subscription services is recognized as the services are performed. The Company’s VSOE for services other than PCS is determined based on an analysis of its historical sales of each element when sold separately from software.

For new offerings of services other than PCS or service offerings that have not had a sufficient history of sales activity, the Company initially establishes VSOE based on the list price as determined by management with the relevant authority. Each service offering has a single list price in each country where sold.

If VSOE exists for all undelivered elements and there is no such evidence of fair value established for delivered elements, the arrangement fee is first allocated to the elements where evidence of fair value has been established and the residual amount is allocated to the delivered elements. If evidence of fair value for any undelivered element of an arrangement does not exist, all revenue from the arrangement is deferred until such time that evidence of fair value exists for undelivered elements or until all elements of the arrangement are delivered, subject to certain limited exceptions.

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If an arrangement includes acceptance criteria, revenue is not recognized until the Company can objectively demonstrate that the software or service can meet the acceptance criteria, or the acceptance period lapses, whichever occurs earlier. If a software license arrangement obligates the Company to deliver specified future products or upgrades, revenue is recognized when the specified future product or upgrades are delivered, or when the obligation to deliver specified future products expires, whichever occurs earlier. If a software license arrangement obligates the Company to deliver unspecified future products, then revenue is recognized on a subscription basis, ratably over the term of the contract.

License revenue derived from sales to resellers or original equipment manufacturers (“OEMs”) who purchase the Company’s products for resale is recognized upon sufficient evidence that the products have been sold to the end user, provided all other revenue recognition criteria have been met. The Company’s standard software license and reseller agreements do not include any return rights other than the right to return non-conforming products for repair or replacement under standard product warranties. During the last three fiscal years, the Company has not experienced any product returns related to warranty claims.

The Company generally offers either commercial discounts or referral fees to its channel partners, depending on the nature of services performed. Revenue recognized from transactions with channel partners involved in resale or distribution activities is recorded net of any commercial discounts provided to them. Referral fees paid to channel partners not involved in resale or distribution activities are expensed as cost of revenues and, during the last three fiscal years, were not significant.

The Company’s standard software license agreements do not include any price protection provisions. However, transactions under the General Services Administration Federal Supply Schedule contract must comply with the Price Reductions clause. In addition, certain government agencies have the right to cancel contracts for “convenience.” During the last three fiscal years, there were no material amounts refunded under the Price Reductions clause and there were no material contracts cancelled for convenience.

Amounts collected prior to satisfying the above revenue recognition criteria are included in net deferred revenue and advance payments in the accompanying Consolidated Balance Sheets.

Software revenue recognition requires judgment, including determinations about whether collectability is reasonably assured, the fee is fixed and determinable, a software arrangement includes multiple elements, and if so, whether VSOE exists for those elements. Judgment is also required to assess whether future releases of certain software represent new products or upgrades and enhancements to existing products.

The Company also generates subscription services revenues primarily from its cloud services offerings. Subscription services revenues include subscription fees from customers for access to the full breadth of MicroStrategy Analytics and MicroStrategy Mobile capabilities, database services, and data integration services. The Company’s standard arrangements with customers generally do not provide the customer with the right to take possession of the software supporting the cloud-based application service at any time. As such, these arrangements are considered service contracts and revenue is recognized ratably over the service period of the contract, following completion of the set-up service. Any related set-up service fees are recognized ratably over the longer of the contract period or the estimated average life of the customer relationship.

The Company's subscription services are generally offered as standalone arrangements or as part of arrangements that include professional services. If deliverables in a multiple-element arrangement have standalone value upon delivery, the Company accounts for each such deliverable separately. The Company has concluded that its subscription services and its professional services each have standalone value. When the Company enters into multiple-element arrangements that include subscription services and professional services, the total arrangement consideration is allocated to each of the deliverables based on the relative selling price hierarchy. The Company determines the relative selling price for each deliverable using VSOE of selling price, if available, or its best estimate of selling price ("BESP"), if VSOE is not available. The Company has determined that third-party evidence of selling price is not a practical alternative due to differences in its services offerings as compared to other companies and the lack of availability of third-party pricing information. For professional services, the Company has established VSOE because a consistent number of standalone sales of this deliverable have been priced within a

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reasonably narrow range. For subscription services, the Company has not established VSOE because, among other factors, the offering is relatively new and its pricing model continues to evolve. Accordingly, the Company uses BESP to determine the relative selling price of its subscription services.

The Company determines BESP by reviewing historical transactions and by considering the service's pricing models and objectives that take into account factors such as gross margin, the size and volume of the transactions, perceived pricing sensitivity, and growth strategies. The determination of BESP is made through consultation with, and approval by, the Company's management team, taking into consideration the go-to-market strategy. As the Company's pricing and go-to-market strategies evolve, the Company may modify its pricing practices in the future, which could result in changes to the determination of VSOE and BESP.

Amounts, upon invoicing, are recorded in accounts receivable and either gross deferred revenue or revenue, depending on whether the applicable revenue recognition criteria have been met.

(l) Advertising Costs

Advertising costs include production costs, which are expensed the first time the advertisement takes place, and media placement costs, which are expensed in the month the advertising appears. Total advertising costs were $5.7 million, $1.3 million, and $0.5 million for the years ended December 31, 2017, 2016, and 2015, respectively. As of December 31, 2017 and 2016, the Company had no prepaid advertising costs.

(m) Share-based Compensation

The Company maintains its 2013 Stock Incentive Plan (as amended, the "2013 Equity Plan"), under which the Company's employees, officers, directors, and other eligible participants may be awarded various types of share-based compensation, including options to purchase shares of the Company's class A common stock. The Company recognizes share-based compensation expense associated with such stock option awards on a straight-line basis over the award's requisite service period (generally, the vesting period). The share-based compensation expense is based on the fair value of such awards on the date of grant, as estimated using the Black-Scholes option pricing model. See Note 11, Share-based Compensation, to the Consolidated Financial Statements for further information regarding the 2013 Equity Plan, related share-based compensation expense, and assumptions used in the Black-Scholes option pricing model.

(n) Income Taxes

The Company is subject to federal, state, and local income taxes in the United States and many foreign countries. Deferred income taxes are provided based on enacted tax laws and rates applicable to the periods in which the taxes become payable. For uncertain income tax positions, the Company uses a more-likely-than-not recognition threshold based on the technical merits of the income tax position taken. Income tax positions that meet the more-likely-than-not recognition threshold are measured in order to determine the tax benefit recognized in the financial statements. The Company recognizes accrued interest related to unrecognized tax benefits as part of income tax expense. Penalties, if incurred, are recognized as a component of income tax expense.

The Company provides a valuation allowance to reduce deferred tax assets to their estimated realizable value, when appropriate.

(o) Basic and Diluted Earnings Per Share

Basic earnings per share is determined by dividing the net income attributable to common stockholders by the weighted average number of common shares and participating securities outstanding during the period. Participating securities are included in the basic earnings per share calculation when dilutive. Diluted earnings per share is determined by dividing the net income attributable to common stockholders by the weighted average number of common shares and potential common shares outstanding during the period. Potential common shares are included in the diluted earnings per share calculation when dilutive. Potential common shares consisting of common stock issuable upon exercise of outstanding employee stock options and warrants are computed using the

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treasury stock method. Potential common shares also consist of common stock issuable upon the conversion of preferred stock. Beginning January 1, 2017, excess tax benefits are no longer included in the calculation of diluted earnings per share, on a prospective basis.

The Company has two classes of common stock: class A common stock and class B common stock. Holders of class A common stock generally have the same rights, including rights to dividends, as holders of class B common stock, except that holders of class A common stock have one vote per share while holders of class B common stock have ten votes per share. Each share of class B common stock is convertible at any time, at the option of the holder, into one share of class A common stock. As such, basic and fully diluted earnings per share for class A and class B common stock are the same. The Company has never declared or paid any cash dividends on either class A or class B common stock. As of December 31, 2017 and 2016, there were no shares of preferred stock outstanding.

(p) Foreign Currency Translation

The functional currency of the Company's international operations is the local currency. Accordingly, all assets and liabilities of international subsidiaries are translated using exchange rates in effect at the end of the period, and revenue and expenses are translated using weighted average exchange rates for the period. The related translation adjustments are reported in "Accumulated other comprehensive income (loss)" in stockholders' equity. In general, upon complete or substantially complete liquidation of an investment in an international subsidiary, the amount of accumulated translation adjustments attributable to that subsidiary is reclassified from stockholders' equity to the statement of operations. Transaction gains and losses arising from transactions denominated in a currency other than the functional currency of the entity involved are included in the results of operations.

In 2015, as a result of the completion of the liquidation of one of the Company's foreign subsidiaries, a $0.3 million foreign currency translation gain was reclassified from "Accumulated other comprehensive loss" in the accompanying Consolidated Balance Sheets to "Other (expense) income, net" in the accompanying Consolidated Statements of Operations. No reclassifications were recorded in 2017 or 2016. As of December 31, 2017, 2016, and 2015, the cumulative foreign currency translation balances were $(6.0) million, $(10.8) million, and $(7.4) million, respectively. Since the Company intends to indefinitely reinvest its undistributed earnings of all of its subsidiaries, no taxes were recognized on the temporary differences resulting from foreign currency translation adjustments for the years ended December 31, 2017, 2016, and 2015.

Transaction gains and losses arising from transactions denominated in foreign currencies resulted in a net loss of $7.0 million in 2017 and net gains of $3.0 million and $2.4 million in 2016 and 2015, respectively, and are included in "Other (expense) income, net" in the accompanying Consolidated Statements of Operations.

(q) Concentrations of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents, restricted cash, short-term investments, foreign currency forward contracts, and accounts receivable. The Company places its cash equivalents and enters into foreign currency forward contracts with high credit-quality financial institutions and invests its excess cash primarily in short-term investments. The Company has established guidelines relative to credit ratings and maturities that seek to maintain safety and liquidity.

The Company sells products and services to various companies across several industries throughout the world in the ordinary course of business. The Company routinely assesses the financial strength of its customers and maintains allowances for anticipated losses. As of December 31, 2017 and 2016, no individual customer accounted for 10% or more of net accounts receivable, and for the years ended December 31, 2017, 2016, and 2015, no individual customer accounted for 10% or more of revenue.

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(3) Recent Accounting Standards

Share-based compensation accounting

In March 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2016-09, Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09"), to simplify certain aspects of accounting for share-based payment transactions. Under ASU 2016-09, all excess tax benefits should be recognized as income tax expense or benefit in the income statement, regardless of whether the benefit reduces taxes payable in the current period. The excess tax benefits will be combined with other income tax cash flows within operating activities in the statement of cash flows. In addition, excess tax benefits or tax deficiencies will no longer be included in the calculation of assumed proceeds under the treasury stock method of computing diluted earnings per share. ASU 2016-09 also allows companies to make an accounting policy election to either estimate the number of awards expected to vest or to account for forfeitures as they occur, when accruing share-based compensation expense. Lastly, ASU 2016-09 permits employers to withhold up to the employee's maximum statutory tax rate in applicable jurisdictions and still qualify for the exception to liability classification. Cash paid by an employer when directly withholding shares for tax-withholding purposes should be classified as a financing activity in the statement of cash flows. The Company adopted this guidance on January 1, 2017 and has:

(i) recognized excess tax benefits as part of the "Provision for income taxes" line item in the Consolidated Statements of Operations, on a prospective basis.
(ii) combined the impact of excess tax benefits with the "Deferred taxes" line item within operating activities in the Consolidated Statements of Cash Flows, on a prospective basis.
(iii) excluded excess tax benefits or tax deficiencies in the calculation of the Company's diluted earnings per share, on a prospective basis; and
(iv) made an accounting policy election to account for forfeitures as they occur, on a modified retrospective basis, the impact of which is generally consistent with the Company's previous method of estimating forfeitures.

No prior periods have been adjusted in connection with the Company's adoption of ASU 2016-09. In addition, no cumulative-effect adjustments to retained earnings have been recorded as of January 1, 2017 because there were no unrecognized excess tax benefits or tax deficiencies outstanding and no expected forfeitures applied to the Company's share-based compensation expense as of the end of the preceding year. The remaining amendments under ASU 2016-09 did not have a material impact on the Company's consolidated financial position, results of operations, and cash flows.

Statement of cash flows

In November 2016, the FASB issued Accounting Standards Update No. 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash (a consensus of the FASB Emerging Issues Task Force) ("ASU 2016-18"), to address the diversity in practice that currently exists regarding the classification and presentation of changes in restricted cash on the statement of cash flows. Under ASU 2016-18, entities will be required to include restricted cash and restricted cash equivalents with total cash and cash equivalents when reconciling the beginning and end of period amounts on the statement of cash flows. Entities will also be required to disclose information about the nature of their restricted cash and restricted cash equivalents. Additionally, if cash, cash equivalents, restricted cash and restricted cash equivalents are presented in more than one line item in the statement of financial position, entities will be required to present a reconciliation, either on the face of the statement of cash flows or disclosed in the notes, of the totals in the statement of cash flows to the related line item captions in the statement of financial position. The Company adopted this

guidance on January 1, 2017 and retrospectively applied the required updates to its Consolidated Statements of Cash Flows for all periods presented. The Company does not consider its restricted cash balances to be material for further disclosure or reconciliation. The adoption of this guidance did not impact the Company's consolidated financial position, results of operations, or footnote disclosures.

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Revenue from contracts with customers

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU 2014-09"), which supersedes nearly all existing revenue recognition guidance. The standard's core principle is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard also requires disclosure of additional information to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers.

The Company will adopt this guidance and its subsequent amendments effective as of January 1, 2018 and will adjust prior period consolidated financial statements to reflect full retrospective adoption, beginning with the Quarterly Report on Form 10-Q for the first quarter of 2018. The Company has substantially completed the implementation of key system changes and changes to internal controls over financial reporting to allow the Company to timely compile the information needed to account for transactions under this new guidance and to adjust its prior periods' consolidated financial statements.

In adopting ASU 2014-09, the Company expects the following significant changes in accounting principles:

(i) Timing of revenue recognition for term license sales. Under ASU 2014-09, the Company will recognize product license revenue from term licenses upon delivery of the software. Previously, this revenue was recognized over the term of the arrangement.

(ii) Timing of revenue recognition for sales to channel partners. Under ASU 2014-09, the Company will recognize revenue from sales made to resellers and OEMs when control of the products transfers to the reseller or OEM, less adjustments for returns or price protection. Previously, this revenue was not recognized until the product was sold by the reseller or OEM to the end user.

(iii) Allocating the transaction price to the performance obligations in the contract. Under ASU 2014-09, the Company will allocate the transaction price to the various performance obligations in the contract based on their relative standalone selling price ("SSP"). Except for SSP of product support, the Company's methodologies for estimating SSP of its various performance obligations will be generally consistent with the Company's previous methodologies used to establish VSOE of fair value on multiple element arrangements. The SSP of product support will result in a difference in the allocation of the transaction price between product support and product license performance obligations. The Company expects the impact from SSP-based allocations to be immaterial to the financial statements.

(iv) Material rights. The Company's contracts with customers may include options to acquire additional goods and services at a discount. Under ASU 2014-09, certain of these options may be considered material rights if sold below SSP and would be treated as separate performance obligations and included in the allocation of the transaction price. Previously, none of the Company's options were considered material rights. The Company expects the impact from material rights to be immaterial to the financial statements.

(v) Presentation of accounts receivable, contract assets, and contract liabilities (deferred revenue). Under ASU 2014-09, the Company's rights to consideration are presented separately depending on whether those rights are conditional or unconditional. The Company will present its unconditional rights to consideration as "accounts receivable" in its Consolidated Balance Sheets. In contrast, separate "contract assets" will represent rights to consideration that are subject to a condition other than the passage of time, and will be comprised primarily of accrued sales- and usage-based royalty revenue. Previously, this revenue was not recognized until quarterly

royalty reporting had been received from the OEM. Under ASU 2014-09, once quarterly royalty reporting has been received, the related contract assets will be transferred to accounts receivable. Current and non-current contract assets will be included under "Prepaid expenses and other current assets" and "Deposits and other assets," respectively, on the Company's Consolidated Balance Sheets. Further, contract assets will be netted against "contract liabilities" at the contract level. Contract liabilities will be presented as "deferred revenue" on the Company's Consolidated Balance Sheets and will be comprised of consideration received, or accounts receivable recorded, prior to the transfer of goods or services to the customer. Under ASU 2014-09, the Company cannot net accounts receivable with deferred revenue and the

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Company will no longer offset its accounts receivable and deferred revenue balances for unpaid items that are included in the deferred revenue balance. Previously, this offsetting of accounts receivable and deferred revenue balances for unpaid amounts was applied in the Company's financial statements.

(vi) Deferral of incremental direct costs to obtaining a contract with a customer. Under ASU 2014-09, the Company will capitalize certain variable compensation (i.e., sales commissions) payable to its sales force and subsequently amortize the capitalized costs over a period of time that is consistent with the transfer of the related good or service to the customer, which the Company has determined to be three years. Capitalized costs, net of accumulated amortization, will be included in "Deposits and other assets" on the Company's Consolidated Balance Sheets. Previously, the Company elected to expense these incremental direct costs as incurred.

The Company currently estimates the adoption of ASU 2014-09 will increase its 2016 beginning retained earnings balance by approximately $13.0 million, offset by a $13.0 million decrease in gross deferred revenues, a $5.0 million decrease in deferred tax assets, net of deferred tax liabilities, a $4.0 million increase in other non-current assets, and a $1.0 million increase in other current assets. In addition, net accounts receivable and net deferred revenues as of December 31, 2017 and 2016 will each further increase by approximately $95.9 million and $101.5 million, respectively, due to the Company no longer offsetting these balances for unpaid amounts included in the gross deferred revenue balances. For the years ended December 31, 2017 and 2016, the Company estimates $2.5 million and $3.0 million, respectively, of previously expensed variable compensation will be capitalized and amortized over a three-year period. The Company estimates that product licenses revenues will decrease by approximately $0.5 million and increase by approximately $1.5 million for the years ended December 31, 2017 and 2016, respectively. The Company also estimates its provision for income taxes will decrease by approximately $1.5 million and increase by approximately $0.5 million for the years ended December 31, 2017 and 2016, respectively.

Intra-entity asset transfers

In October 2016, the FASB issued Accounting Standards Update No. 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory ("ASU 2016-16"), to improve the accounting for income tax effects of intra-entity transfers of assets other than inventory. Under ASU 2016-16, the deferral of the income tax consequences of intra-entity transfers of assets other than inventory is eliminated. Entities will be required to recognize the income tax consequences of intra-entity transfers of assets other than inventory when the transfers occur. The standard requires a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption using a modified retrospective approach. The Company will adopt this guidance effective as of January 1, 2018. The adoption of this guidance is not expected to have a material impact on the Company's consolidated financial position, results of operations, or cash flows.

Lease accounting

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, Leases (Topic 842) ("ASU 2016-02"), which requires lease assets and lease liabilities be recognized for all leases, in addition to the disclosure of key information to enable users of financial statements to assess the amount, timing, and uncertainty of cash flows arising from an entity's leasing arrangements. ASU 2016-02 defines a lease as a contract, or part of a contract, that conveys both (i) the right to obtain economic benefits from and (ii) direct the use of an identified asset for a period of time in

exchange for consideration. Under ASU 2016-02, leases are classified as either finance or operating leases. For finance leases, a lessee shall recognize in profit or loss the amortization of the lease asset and interest on the lease liability. For operating leases, a lessee shall recognize in profit or loss a single lease cost, calculated so that the remaining cost of the lease is allocated over the remaining lease term, generally on a straight-line basis. ASU 2016-02 requires the recognition and measurement of leases at the beginning of the earliest period presented using a modified retrospective approach and is effective for interim and annual periods beginning January 1, 2019. Early adoption is permitted. The Company is currently evaluating the impact of this guidance on its consolidated financial position, results of operations, and cash flows.

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(4) Fair Value Measurements

As of December 31, 2017 and 2016, there were no financial assets or liabilities measured at fair value on a recurring basis. All of the Company's foreign currency forward contracts (designated as Level 2, non-hedging derivative instruments) were settled by December 31, 2015. Changes in the fair value of the Company's foreign currency forward contracts during the year ended December 31, 2015 resulted in a net gain of $0.5 million recorded to "Other income, net."

There were no transfers among the levels within the fair value hierarchy during the years ended December 31, 2017, 2016, and 2015. As of December 31, 2017 and 2016, the Company had no assets or liabilities that were required to be measured at fair value on a non-recurring basis.

(5) Short-term Investments

The Company periodically invests a portion of its excess cash in short-term investment instruments. Substantially all of the Company's short-term investments are in U.S. Treasury securities and certificates of deposit, and the Company has the ability and intent to hold these investments to maturity. The stated maturity dates of these investments are between three months and one year from the purchase date. These held-to-maturity investments are recorded at amortized cost and included within "Short-term investments" on the accompanying Consolidated Balance Sheets. The fair value of held-to-maturity investments in U.S. Treasury securities and certificates of deposit is determined based on quoted market prices in active markets for identical securities (Level 1 inputs).

The amortized cost, carrying value, and fair value of held-to-maturity investments at December 31, 2017 were $254.9 million, $254.9 million, and $254.8 million, respectively. The amortized cost, carrying value, and fair value of held-to-maturity investments at December 31, 2016 were $187.3 million, $187.3 million, and $187.3 million, respectively. The gross unrecognized holding gains and losses were not material for 2017, 2016, and 2015. No other-than-temporary impairments related to these investments have been recognized as of December 31, 2017 and 2016. As of December 31, 2017 and 2016, the Company's available-for-sale investments were not material.

(6) Accounts Receivable

Accounts receivable (in thousands) consisted of the following, as of:

	December 31,	
	2017	2016

Billed and billable	$169,554	$188,038
Less: unpaid deferred revenue	(95,864)	(101,538)
Accounts receivable, gross	73,690	86,500
Less: allowance for doubtful accounts	(4,190)	(3,181)
Accounts receivable, net	$69,500	$83,319

The Company offsets its accounts receivable and deferred revenue for any unpaid items included in deferred revenue and advance payments.

The Company maintains an allowance for doubtful accounts which represents its best estimate of probable losses inherent in the accounts receivable balances. The Company evaluates specific accounts when it becomes aware that a customer may not be able to meet its financial obligations due to deterioration of its liquidity or financial viability, credit ratings, or bankruptcy. In addition, the Company periodically adjusts this allowance based on its review and assessment of the aging of receivables.

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(7) Property and Equipment

Property and equipment (in thousands) consisted of the following, as of:

	December 31,	
	2017	2016
Transportation equipment	$48,645	$48,835
Computer equipment and purchased software	57,515	60,692
Furniture and equipment	10,425	10,871
Leasehold improvements	28,511	27,737
Internally developed software	9,643	9,655
Property and equipment, gross	154,739	157,790
Less: accumulated depreciation and amortization	(101,380)	(100,354)
Property and equipment, net	$53,359	$57,436

Included in transportation equipment is the Company's owned corporate aircraft, including capitalizable costs related to the repairs to the aircraft, and aircraft-related equipment. As of December 31, 2017, the net asset value of the aircraft and aircraft-related equipment was $36.9 million, net of $11.7 million of accumulated depreciation. As of December 31, 2016, the net asset value of the aircraft and aircraft-related equipment was $38.4 million, net of $10.2 million of accumulated depreciation.

Included in computer equipment at December 31, 2017 and 2016 is $0.6 million and $2.2 million, respectively, acquired under capital lease arrangements. At December 31, 2017 and 2016, accumulated amortization relating to computer equipment under capital lease arrangements totaled $0.6 million and $2.2 million, respectively.

Depreciation and amortization expense related to property and equipment, including assets under capital leases, was $8.4 million, $10.6 million, and $14.0 million for the years ended December 31, 2017, 2016, and 2015, respectively.

(8) Deferred Revenue and Advance Payments

Deferred revenue and advance payments (in thousands) from customers consisted of the following, as of:

	December 31,	
	2017	2016
Current:		
Deferred product licenses revenue	$11,113	$13,023

Deferred subscription services revenue	17,324	18,303
Deferred product support revenue	168,043	162,781
Deferred other services revenue	9,465	10,015
Gross current deferred revenue and advance payments	205,945	204,122
Less: unpaid deferred revenue	(93,296)	(98,587)
Net current deferred revenue and advance payments	$112,649	$105,535
Non-current:		
Deferred product licenses revenue	$7,169	$9,118
Deferred subscription services revenue	126	1,307
Deferred product support revenue	4,826	5,751
Deferred other services revenue	628	690
Gross non-current deferred revenue and advance payments	12,749	16,866
Less: unpaid deferred revenue	(2,568)	(2,951)
Net non-current deferred revenue and advance payments	$10,181	$13,915

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The Company offsets its accounts receivable and deferred revenue for any unpaid items included in deferred revenue and advance payments.

(9) Commitments and Contingencies

(a) Commitments

From time to time, the Company enters into certain types of contracts that require it to indemnify parties against third-party claims. These contracts primarily relate to agreements under which the Company assumes indemnity obligations for intellectual property infringement, as well as other obligations from time to time depending on arrangements negotiated with customers and other third parties. The conditions of these obligations vary. Thus, the overall maximum amount of the Company's indemnification obligations cannot be reasonably estimated. Historically, the Company has not been obligated to make significant payments for these obligations and does not currently expect to incur any material obligations in the future. Accordingly, the Company has not recorded an indemnification liability on its balance sheets as of December 31, 2017 or December 31, 2016.

The Company leases office space and computer and other equipment under operating lease agreements. Under the lease agreements, in addition to base rent, the Company is generally responsible for certain taxes, utilities and maintenance costs, and other fees. Several of these leases include options for renewal or purchase. The Company does not have any material capital leases. As of December 31, 2017, the Company leased approximately 214,000 square feet of office space at a location in Northern Virginia that began serving as its corporate headquarters in October 2010 and was to expire in December 2020. In January 2018, the Company amended the lease to extend the lease term through December 2030. See Note 17, Subsequent Events, to the Consolidated Financial Statements for further information.

At December 31, 2017 and 2016, deferred rent of $8.5 million and $12.3 million, respectively, was included in other long-term liabilities and $3.8 million and $3.5 million, respectively, was included in current accrued expenses.

As a result of the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"), the Company estimated and recorded a one-time $40.3 million tax expense related to the mandatory deemed repatriation transition tax ("Transition Tax") during the year ended December 31, 2017. See Note 10, Income Taxes, to the Consolidated Financial Statement for further information. At December 31, 2017, $36.8 million of the Transition Tax was included in "other long-term liabilities" and $3.5 million was netted against "prepaid expenses and other current assets" in the Company's Consolidated Balance Sheets.

The following table shows future minimum rent payments under noncancellable operating leases and agreements with initial terms of greater than one year, net of total future minimum rent payments to be received under noncancellable sublease agreements, and anticipated payments related to the one-time Transition Tax resulting from the Tax Act, based on the expected due dates of the various installments as of December 31, 2017 (in thousands):

Year	Operating Leases Amount	Transition Tax Amount
2018	$ 24,508	$ 3,450
2019	20,059	3,200
2020	18,779	3,200
2021	2,610	3,200
2022	1,758	3,200
Thereafter	4,276	24,000
	$ 71,990	$ 40,250

The above table does not include estimated payments related to the renewal of our corporate headquarters office lease in January 2018. See Note 17, Subsequent Events, to the Consolidated Financial Statements for further information about our corporate headquarters office lease.

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Total rental expenses under operating lease agreements for the years ended December 31, 2017, 2016, and 2015 were $19.8 million, $20.3 million, and $22.6 million, respectively.

(b) Contingencies

In December 2011, DataTern, Inc. (“DataTern”) filed a complaint for patent infringement against the Company in the United States District Court for the District of Massachusetts (the “District Court”). The complaint alleged that the Company infringes U.S. Patent No. 6,101,502 (the “’502 Patent”), allegedly owned by DataTern, by making, selling, or offering for sale several of the Company’s products and services, including MicroStrategy 9, MicroStrategy Intelligence Server, MicroStrategy Business Intelligence Platform, MicroStrategy Cloud Personal, and other MicroStrategy applications for creating or using data mining, dashboards, business analytics, data storage and warehousing, and web hosting support. The complaint accused the Company of willful infringement and sought an unspecified amount of damages, an award of attorneys’ fees, and preliminary and permanent injunctive relief. In light of a judgment in a separate action involving DataTern in another jurisdiction, in February 2013, MicroStrategy and DataTern filed motions for summary judgment of non-infringement and the District Court entered summary judgment against DataTern. In March 2013, DataTern filed a notice of appeal with the United States Court of Appeals for the Federal Circuit (the “Federal Circuit”). In December 2014, the Federal Circuit issued an opinion vacating the District Court’s summary judgment, stating that the claim construction on which the summary judgment was based was incorrect. In January 2015, the case was remanded to the District Court for further proceedings. A claim construction ruling was issued in February 2017. In August 2017, counsel for DataTern filed a motion to withdraw from the lawsuit. The District Court initially gave DataTern a deadline of September 18, 2017 to find replacement counsel, which was later extended to October 20, 2017. On October 20, 2017, the District Court dismissed the case for failure to prosecute when DataTern failed to identify substitute counsel. The Company has received indemnification requests from certain of its channel partners and customers who were sued by DataTern in the District Court in lawsuits alleging infringement of the ‘502 Patent. The proceedings against these channel partners and customers were stayed pending the resolution of DataTern’s lawsuit against the Company. On October 30, 2017, the District Court dismissed with prejudice these channel partner and customer proceedings. No estimated liability for these matters has been accrued in the accompanying Consolidated Financial Statements.

The Company is also involved in various other legal proceedings arising in the normal course of business. Although the outcomes of these other legal proceedings are inherently difficult to predict, management does not expect the resolution of these other legal proceedings to have a material adverse effect on the Company’s financial position, results of operations, or cash flows.

The Company has contingent liabilities that, in management’s judgment, are not probable of assertion. If such unasserted contingent liabilities were to be asserted, or become probable of assertion, the Company may be required to record significant expenses and liabilities in the period in which these liabilities are asserted or become probable of assertion.

(10) Income Taxes

U.S. and international components of income before income taxes (in thousands) were comprised of the following for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
U.S.	$19,166	$51,145	$68,555
Foreign	53,441	61,901	69,309
Total	$72,607	$113,046	$137,864

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The provision for income taxes (in thousands) consisted of the following for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Current:			
Federal	$48,794	$18,453	$11,748
State	4,077	3,681	2,997
Foreign	4,074	4,941	7,565
	$56,945	$27,075	$22,310
Deferred:			
Federal	$88	$(4,742)	$9,215
State	(1,342)	(890)	693
Foreign	(727)	695	(285)
	$(1,981)	$(4,937)	$9,623
Total provision	$54,964	$22,138	$31,933

The provision for income taxes differs from the amount computed by applying the federal statutory income tax rate to the Company's income before income taxes as follows for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Income tax expense at federal statutory rate	35.0 %	35.0 %	35.0 %
State taxes, net of federal tax effect	2.5 %	1.6 %	1.7 %
Foreign earnings taxed at different rates	(24.2)%	(15.5)%	(14.0)%
Withholding tax	1.9 %	1.4 %	1.1 %
Foreign tax credit	(1.1)%	(1.0)%	(0.3)%
Other international components	0.0 %	(0.1)%	0.8 %
Change in valuation allowance	0.2 %	(0.8)%	(0.1)%
Deferred tax adjustments and rate changes	5.2 %	0.1 %	(0.1)%
Deemed repatriation transition tax	55.5 %	0.0 %	0.0 %
Subpart F income	1.5 %	0.6 %	0.5 %
Research and development tax credit	(1.1)%	(0.8)%	(0.6)%
Section 199 Deduction	(1.4)%	(1.8)%	(1.5)%
Other permanent differences	1.7 %	0.9 %	0.7 %
Total	75.7 %	19.6 %	23.2 %

The Company’s U.S. and foreign effective tax rates for income before income taxes were as follows for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
U.S.	269.3%	32.3%	36.0%
Foreign	6.3 %	9.1 %	10.5%
Combined	75.7 %	19.6%	23.2%

The change in the Company’s effective tax rate in 2017, as compared to the prior year, was primarily due to an estimated one-time tax provision of $44.0 million as a result of the Tax Act. This tax provision is comprised of a $40.3 million Transition Tax and a $3.7 million charge related to the re-measurement of net deferred tax assets arising from the new lower corporate tax rate effected by the Tax Act.

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The Tax Act imposes a Transition Tax on previously untaxed accumulated and current earnings and profits ("E&P") of certain foreign subsidiaries of the Company. To determine the amount of the Transition Tax, the Company must determine, among other things, the amount of post-1986 E&P of the relevant subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings. The Company made a reasonable estimate of the Transition Tax and recorded a provisional Transition Tax obligation of $40.3 million, of which $36.8 million is recorded in "other long-term liabilities" in the Company's Consolidated Balance Sheets. However, the Company continues to gather additional information to compute more precisely the post-1986 E&P and related non-U.S. income taxes paid.

The Tax Act also reduced the U.S. corporate tax rate from 35% to 21%, effective January 1, 2018. Consequently, the Company has recorded a decrease related to its U.S. deferred tax assets and liabilities, with a corresponding net deferred income tax expense of $3.7 million for the year ended December 31, 2017 as a result of re-measuring net deferred tax assets at the new lower corporate tax rate of 21%.

Additionally, the Tax Act requires certain Global Intangible Low Taxed Income ("GILTI") earned by controlled foreign corporations ("CFCs") to be included in the gross income of the CFCs' U.S. shareholder. GAAP allows the Company to either: (i) treat taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the "period cost method"); or (ii) factor such amounts into its measurement of deferred taxes (the "deferred method"). The Company elected the period cost method. The GILTI tax rules will become effective for the 2018 tax year and therefore the Company has not made any adjustments related to the potential GILTI tax in its financial statements for the year ended December 31, 2017. The Company continues to evaluate the impact of the new GILTI tax rules and the application of ASC 740 on its financial statements.

Except as discussed below, the Company intends to indefinitely reinvest its undistributed earnings of all of its foreign subsidiaries. However, under the Tax Act, those undistributed earnings (as computed for U.S. federal income tax purposes, and with due regard to the discussion below regarding Subpart F deemed dividends) are subject to the Transition Tax, which was recorded at a provisional amount of $40.3 million during the year ended December 31, 2017.

In addition, U.S. federal tax laws require the Company to include in its U.S. taxable income certain investment income earned outside of the United States in excess of certain limits ("Subpart F deemed dividends"). Because Subpart F deemed dividends are already required to be recognized in the Company's U.S. federal income tax return, the Company regularly repatriates Subpart F deemed dividends to the United States and no additional tax is incurred on the distribution. The Company repatriated Subpart F deemed dividends of $1.8 million and $1.9 million in 2017 and 2016, respectively, with no additional tax. The Company did not repatriate any Subpart F deemed dividends in 2015 because it did not report any Subpart F income on its 2014 U.S. tax return.

As of December 31, 2017 and 2016, the amount of cash and cash equivalents and short-term investments held by the Company's U.S. entities was $293.8 million and $279.8 million, respectively, and by the Company's non-U.S. entities was $381.4 million and $309.6 million, respectively. If the cash and cash equivalents and short-term investments held by the Company's non-U.S. entities were to be actually repatriated to the United States, after taking into account the Transition Tax described above, the Company does not expect such repatriation to generate any additional U.S. federal taxable income to the Company.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Deferred income taxes reflect the net tax effects of the temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred tax assets and liabilities (in thousands) were as follows for the periods indicated:

	December 31,	
	2017	2016
Deferred tax assets, net:		
Net operating loss carryforwards	$761	$214
Tax credits	1,520	1,372
Intangible assets	10	11
Deferred revenue adjustment	3,351	3,305
Accrued compensation	2,863	7,866
Share-based compensation expense	11,597	11,440
Deferred rent	0	1,281
Other	2,457	2,002
Deferred tax assets before valuation allowance	22,559	27,491
Valuation allowance	(1,015)	(832)
Deferred tax assets, net of valuation allowance	21,544	26,659
Deferred tax liabilities:		
Prepaid expenses and other	684	1,098
Property and equipment	6,778	10,821
Capitalized software development costs	695	3,330
Total deferred tax liabilities	8,157	15,249
Total net deferred tax asset	$13,387	$11,410
Reported as:		
Non-current deferred tax assets, net	13,391	11,704
Non-current deferred tax liabilities	(4)	(294)
Total net deferred tax asset	$13,387	$11,410

As of December 31, 2017 and 2016, the Company had income taxes payable of $0.4 million and $10.5 million, respectively, recorded in "accounts payable and accrued expenses" in the Company's Consolidated Balance Sheets.

As of December 31, 2017, the Company had unrecognized tax benefits of $4.0 million, recorded in "Other long-term liabilities" in the Company's Consolidated Balance Sheets. The change in unrecognized tax benefits (in thousands) is presented in the table below:

Unrecognized tax benefits at January 1, 2017	$3,121
Increase related to positions taken in prior period	771

Increase related to positions taken in current period	294
Decrease related to expiration of statute of limitations	(741)
Unrecognized tax benefits at December 31, 2017	3,445
Accrued interest	569
Unrecognized tax benefits recorded in other long-term liabilities at December 31, 2017	$4,014

If recognized, $3.5 million of the gross unrecognized tax benefits would impact the Company's effective tax rate. Over the next 12 months, the amount of the Company's liability for unrecognized tax benefits shown above is not expected to change by a material amount. The Company recognizes estimated accrued interest related to unrecognized tax benefits in the provision for income tax accounts. During the years ended December 31, 2017,

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2016, and 2015, the Company released or recognized an immaterial amount of accrued interest. The amount of accrued interest related to the above unrecognized tax benefits was approximately $0.6 million and $0.4 million as of December 31, 2017 and 2016, respectively.

The Company files tax returns in numerous foreign countries as well as the United States and its tax returns may be subject to audit by tax authorities in all countries in which it files. Each country has its own statute of limitations for making assessment of additional tax liabilities. In 2017, the Company settled the tax examination in Germany for tax years 2013, 2014, and 2015 without any material audit assessments. The Company's U.S. tax returns for tax years from 2014 forward are subject to potential examination by the Internal Revenue Service.

The Company's major foreign tax jurisdictions and the tax years that remain subject to potential examination are Germany for tax years 2016 forward, Poland and China for tax years 2013 forward, Spain for tax years 2014 forward, and the United Kingdom for tax years 2016 forward. To date there have been no material audit assessments related to audits in the United States or any of the applicable foreign jurisdictions.

The Company had no U.S. net operating loss ("NOL") carryforwards as of December 31, 2017 and 2016. The Company had $2.5 million and $0.7 million of foreign NOL carryforwards as of December 31, 2017 and 2016, respectively.

The Company's valuation allowances of $1.0 million and $0.8 million at December 31, 2017 and 2016, respectively, primarily relate to certain foreign tax credit carryforward tax assets. The Company assessed whether its valuation allowance analyses are affected by various aspects of the Tax Act (e.g., deemed repatriation of deferred foreign income, GILTI inclusions, new categories of foreign tax credits) and concluded that they were not significantly affected by the Tax Act.

In determining the Company's provision for or benefit from income taxes, net deferred tax assets, liabilities, and valuation allowances, management is required to make judgments and estimates related to projections of domestic and foreign profitability, the timing and extent of the utilization of NOL carryforwards, applicable tax rates, transfer pricing methods, and prudent and feasible tax planning strategies. As a multinational company, the Company is required to calculate and provide for estimated income tax liabilities for each of the tax jurisdictions in which it operates. This process involves estimating current tax obligations and exposures in each jurisdiction, as well as making judgments regarding the future recoverability of deferred tax assets. Changes in the estimated level of annual pre-tax income, changes in tax laws, particularly changes related to the utilization of NOLs in various jurisdictions, and changes resulting from tax audits can all affect the overall effective income tax rate which, in turn, impacts the overall level of income tax expense or benefit and net income.

Judgments and estimates related to the Company's projections and assumptions are inherently uncertain. Therefore, actual results could differ materially from projections. The timing and manner in which the Company will use research and development tax credit carryforward tax assets, alternative minimum tax credit carryforward tax assets, and foreign tax credit carryforward tax assets in any year, or in total, may be limited by provisions of the Internal Revenue Code regarding changes in the Company's ownership. Currently, the Company expects to use the tax assets, subject to Internal Revenue Code limitations, within the carryforward periods. Valuation allowances have been established where the Company has concluded that it is more likely than not that such deferred tax assets are not realizable. If the Company is unable to sustain profitability in future periods, it may be required to increase the valuation allowance against the deferred tax assets, which could result in a charge that would materially adversely affect net income in the period in which the charge is incurred.

Section 382 of the Internal Revenue Code provides an annual limitation on the amount of federal NOLs and tax credits that may be used in the event of an ownership change. The limitation is based on, among other things, the value of the company as of the change date multiplied by a U.S. federal long-term tax exempt interest rate. The Company does not currently expect the limitations under the Section 382 ownership change rules to impact the Company's ability to use its NOL carryforwards or tax credits that existed as of the date of the ownership change.

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(11) Share-based Compensation

The 2013 Equity Plan authorizes the issuance of various types of share-based awards to the Company's employees, officers, directors, and other eligible participants. As of December 31, 2017, the total number of shares of the Company's class A common stock authorized for issuance under the 2013 Equity Plan was 1,700,000 shares.

During 2017, stock options to purchase an aggregate of 175,000 shares of class A common stock were granted to certain Company employees and directors pursuant to the 2013 Equity Plan. As of December 31, 2017, there were options to purchase 991,633 shares of class A common stock outstanding under the 2013 Equity Plan. As of December 31, 2017, there were 485,000 remaining shares of class A common stock authorized for future issuance under the 2013 Equity Plan.

Shares issued under the 2013 Equity Plan may consist in whole or in part of authorized but unissued shares or treasury shares. No awards may be issued more than ten years after the 2013 Equity Plan's effective date. Stock options that are granted under the 2013 Equity Plan must have an exercise price equal to at least the fair market value of the Company's class A common stock on the date of grant, become exercisable as established by the Board of Directors or the Compensation Committee, and expire no later than ten years following the date of grant. The Company recognizes share-based compensation expense associated with such stock option awards on a straight-line basis over the award's requisite service period (generally, the vesting period). The stock option awards granted to date vest in equal annual installments over an approximately four-year vesting period (unless accelerated upon a change in control event (as defined in the stock option agreement for the applicable award) or otherwise in accordance with provisions of the 2013 Equity Plan or applicable option agreement).

Share-based compensation expense is based on the fair value of the stock option awards on the date of grant, as estimated using the Black-Scholes option pricing model. The Black-Scholes option pricing model requires the input of certain management assumptions, including the expected term, expected stock price volatility, risk-free interest rate, and expected dividend yield. The Company estimates the term over which option holders are expected to hold their stock options by using the simplified method for "plain-vanilla" stock option awards because the Company's stock option exercise history does not provide a reasonable basis to compute the expected term for stock options granted under the 2013 Equity Plan. The Company relies exclusively on its historical stock price volatility to estimate the expected stock price volatility over the expected term because the Company believes future volatility is unlikely to differ from the past. In estimating the expected stock price volatility, the Company uses a simple average calculation method. The risk-free interest rate is based on U.S. Treasury securities with terms that approximate the expected term of the stock options. The expected dividend yield is based on the Company's past cash dividend history and anticipated future cash dividend payments. The expected dividend yield is zero, as the Company has not previously declared cash dividends and does not currently intend to declare cash dividends in the foreseeable future. These assumptions are based on management's best judgment, and changes to these assumptions could materially affect the fair value estimates and amount of share-based compensation expense recognized.

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The following table summarizes the Company's stock option activity (in thousands, except per share data and years) for the periods indicated:

	Stock Options Outstanding			
	Shares	Weighted Average Exercise Price Per Share	Aggregate Intrinsic Value	Weighted Average Remaining Contractual Term (Years)
Balance as of January 1, 2015	1,201	$ 111.77		
Granted	380	178.93		
Exercised	(91)	105.25	$ 6,367	
Forfeited/Expired	(167)	131.31		
Balance as of December 31, 2015	1,323	129.04		
Granted	45	189.62		
Exercised	(112)	97.82	$ 8,102	
Forfeited/Expired	(370)	110.28		
Balance as of December 31, 2016	886	143.89		
Granted	175	169.04		
Exercised	(12)	143.35	$ 541	
Forfeited/Expired	(57)	196.52		
Balance as of December 31, 2017	992	$ 145.28		
Exercisable as of December 31, 2017	536	$ 135.48	$ 3,941	6.6
Expected to vest as of December 31, 2017	456	$ 156.79	1,409	7.9
Total	992	$ 145.28	$ 5,350	7.2

Stock options outstanding as of December 31, 2017 are comprised of the following range of exercise prices per share (in thousands, except per share data and years):

	Stock Options Outstanding at December 31, 2017		
Range of Exercise Prices per Share	Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (Years)
$117.85 - $120.00	25	$ 118.55	6.3
$120.01 - $150.00	570	$ 122.67	6.7
$150.01 - $180.00	202	$ 167.50	7.2
$180.01 - $201.25	195	$ 191.78	8.7
Total	992	$ 145.28	7.2

An aggregate of 215,000, 222,500, and 283,750 stock options with an aggregate fair value of $13.0 million, $13.7 million, and $14.2 million vested during the years ended December 31, 2017, 2016, and 2015,

respectively. Beginning January 1, 2017, the Company made an accounting policy election to prospectively account for forfeitures as they occur. Therefore, share-based compensation expense has not been adjusted for any estimated forfeitures. Prior periods have not been restated.

The weighted average grant date fair value of stock option awards using the Black-Scholes option pricing model was $68.67, $75.54, and $73.86 for each share subject to a stock option granted during the years ended December 31, 2017, 2016, and 2015, respectively, based on the following assumptions:

	Years Ended December 31,		
	2017	2016	2015
Expected term of options in years	6.3	6.3	6.3
Expected volatility	37.4% - 37.8%	38.5%	39.0% - 40.2%
Risk-free interest rate	1.9% - 2.3%	1.4% - 1.6%	1.5% - 2.0%
Expected dividend yield	0.0%	0.0%	0.0%

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The Company recognized approximately $14.3 million, $11.8 million, and $17.3 million in share-based compensation expense for the years ended December 31, 2017, 2016, and 2015, respectively, from stock options granted under the 2013 Equity Plan. As of December 31, 2017, there was approximately $19.8 million of total unrecognized share-based compensation expense related to unvested stock options. As of December 31, 2017, the Company expected to recognize this remaining share-based compensation expense over a weighted-average vesting period of approximately 2.3 years.

During the years ended December 31, 2016 and 2015, the Company was able to recognize and utilize tax deductions related to equity compensation in excess of compensation recognized for financial reporting that was generated under the 2013 Equity Plan. Accordingly, additional paid-in capital increased by $1.2 million and $1.1 million during the years ended December 31, 2016 and 2015, respectively. Beginning January 1, 2017, excess tax benefits are no longer recognized as additional paid-in capital; instead they are prospectively included within the provision for income taxes. Prior periods have not been restated.

During the year ended December 31, 2016, the Company wrote off $1.7 million of deferred tax assets related to certain vested stock options that were no longer exercisable. Accordingly, additional paid-in capital decreased by $1.7 million during the year ended December 31, 2016. No such adjustment was made during the years ended December 31, 2017 and 2015.

During the year ended December 31, 2016, the Company paid $3.7 million to tax authorities related to the net exercise of a stock option under the 2013 Equity Plan. This payment resulted in a $3.7 million reduction to additional paid-in capital during the year ended December 31, 2016. No net exercises of stock options were made during the years ended December 31, 2017 and 2015.

(12) Basic and Diluted Earnings per Share

Potential shares of common stock are included in the diluted earnings per share calculation when dilutive. Potential shares of common stock, consisting of common stock issuable upon exercise of outstanding stock options, are calculated using the treasury stock method.

The following table sets forth the computation of basic and diluted earnings per share (in thousands, except per share data) for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Numerator:			
Net income	$17,643	$90,908	$105,931

Denominator:			
Weighted average common shares of class A common stock	9,409	9,390	9,320
Weighted average common shares of class B common stock	2,035	2,035	2,035
Total weighted average common stock shares outstanding	11,444	11,425	11,355
Effect of dilutive securities:			
Employee stock options	103	91	184
Adjusted weighted average shares	11,547	11,516	11,539
Earnings per share:			
Basic earnings per share	$1.54	$7.96	$9.33
Diluted earnings per share	$1.53	$7.89	$9.18

For the years ended December 31, 2017, 2016, and 2015, stock options issued under the 2013 Equity Plan to purchase a weighted average of approximately 398,000, 391,000, and 262,000 shares of class A common stock,

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respectively, were excluded from the diluted earnings per share calculation because their impact would have been anti-dilutive.

(13) Treasury Stock

The Board of Directors has authorized the Company's repurchase of up to an aggregate of $800.0 million of its class A common stock from time to time on the open market through April 29, 2018 (the "2005 Share Repurchase Program"), although the program may be suspended or discontinued by the Company at any time. The timing and amount of any shares repurchased will be determined by the Company's management based on its evaluation of market conditions and other factors. The 2005 Share Repurchase Program may be funded using the Company's working capital, as well as proceeds from any other funding arrangements that the Company may enter into in the future. As of December 31, 2017, the Company had repurchased an aggregate of 3,826,947 shares of its class A common stock at an average price per share of $90.23 and an aggregate cost of $345.3 million pursuant to the 2005 Share Repurchase Program. The average price per share and aggregate cost amounts disclosed above include broker commissions. During the years ended December 31, 2017, 2016, and 2015, the Company did not repurchase any shares of its class A common stock pursuant to the 2005 Share Repurchase Program.

(14) Employee Benefit Plan

The Company sponsors a benefit plan to provide retirement benefits for its employees, known as the MicroStrategy 401(k) Savings Plan (the "Plan"). Participants may make voluntary contributions to the Plan of up to 50% of their annual base pre-tax compensation, cash bonuses, and commissions not to exceed the federally determined maximum allowable contribution amounts. The Plan permits for discretionary Company contributions. The Company currently makes a matching contribution to each Plan participant in the amount of 50% of the first 6% of a participant's contributions, up to a maximum of $3,000 per year. A participant vests in the matching contributions in increments based on the participant's years of employment by the Company, becoming fully vested after completing six years of employment. The Company made contributions to the Plan totaling $2.1 million, $1.9 million, and $1.6 million during the years ended December 31, 2017, 2016, and 2015, respectively.

(15) Segment Information

The Company manages its business in one reportable operating segment. The Company's one reportable operating segment is engaged in the design, development, marketing, and sales of its software platform through licensing

arrangements and cloud-based subscriptions and related services. The following table presents total revenues, gross profit, and long-lived assets, excluding long-term deferred tax assets, (in thousands) according to geographic region:

Geographic regions:	Domestic	EMEA	Other Regions	Consolidated
Year ended December 31, 2017				
Total revenues	$292,930	$154,567	$ 57,046	$ 504,543
Gross profit	$233,945	$126,147	$ 47,802	$ 407,894
Year ended December 31, 2016				
Total revenues	$310,972	$150,422	$ 50,767	$ 512,161
Gross profit	$253,234	$122,865	$ 42,915	$ 419,014
Year ended December 31, 2015				
Total revenues	$326,792	$153,658	$ 49,419	$ 529,869
Gross profit	$265,438	$121,148	$ 42,175	$ 428,761
As of December 31, 2017				
Long-lived assets	$53,102	$4,108	$ 1,516	$ 58,726
As of December 31, 2016				
Long-lived assets	$67,031	$3,256	$ 1,341	$ 71,628

The domestic region consists of the United States and Canada. The EMEA region includes operations in Europe, the Middle East, and Africa. The other regions include all other foreign countries, generally comprising Latin

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America and the Asia Pacific region. For the years ended December 31, 2017, 2016, and 2015, no individual foreign country accounted for 10% or more of total consolidated revenues.

For the years ended December 31, 2017, 2016, and 2015, no individual customer accounted for 10% or more of total consolidated revenues.

As of December 31, 2017 and 2016, no individual foreign country accounted for 10% or more of total consolidated assets.

(16) Selected Quarterly Financial Data (Unaudited)

The following tables contain unaudited Statement of Operations information for each quarter of 2017 and 2016. During the fourth quarter of 2017, the Company estimated and recorded a one-time tax provision of $44.0 million as a result of the Tax Act. This tax provision is comprised of a $40.3 million Transition Tax and a $3.7 million charge related to the re-measurement of net deferred tax assets arising from the new lower corporate tax rate effected by the Tax Act. During the fourth quarter of 2016, the Company reversed the accrual for potential future payments in connection with the departure from the Company of two executives in connection with an executive management reorganization in January 2016, which resulted in a $3.4 million increase in net income. The operating results for any quarter are not necessarily indicative of results for any future period.

	Quarter Ended				
	March 31	June 30	September 30	December 31	Year
	(in thousands, except per share data)				
2017					
Revenues	$120,576	$120,610	$ 125,212	$ 138,145	$504,543
Gross profit	$97,444	$96,235	$ 100,823	$ 113,392	$407,894
Net (loss) income	$14,867	$11,076	$ 17,924	$ (26,224)	$17,643
Earnings (loss) per share:[1]					
Basic	$1.30	$0.97	$ 1.57	$ (2.29)	$1.54
Diluted	$1.28	$0.96	$ 1.56	$ (2.29)	$1.53

	Quarter Ended				
	March 31	June 30	September 30	December 31	Year
	(in thousands, except per share data)				
2016					
Revenues	$119,015	$123,142	$ 129,896	$ 140,108	$512,161
Gross profit	$96,192	$99,041	$ 106,961	$ 116,820	$419,014
Net income	$14,272	$18,884	$ 26,628	$ 31,124	$90,908

Earnings per share:[1]					
Basic	$1.25	$1.65	$ 2.33	$ 2.72	$7.96
Diluted	$1.24	$1.64	$ 2.31	$ 2.69	$7.89

(1) The sum of the basic and diluted (loss) earnings per share for the four quarters may differ from annual earnings per share as the weighted-average shares outstanding are computed independently for each of the quarters presented.

(17) Subsequent Events

In January 2018, the Company entered into an agreement to amend its corporate headquarters office lease. The amendment extends the existing lease expiration date from December 2020 to December 2030 and provides for certain tenant allowances and incentives. Before tenant allowances and incentives, the Company's annual base rent is expected to range from approximately $10.0 million to $13.0 million during the twelve-year lease term.

INDEX TO EXHIBITS

Exhibit Number	Description
3.1	Second Restated Certificate of Incorporation of the registrant (incorporated herein by reference to Exhibit 3.1 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2003 (File No. 000-24435)).
3.2	Amended and Restated By-Laws of the registrant (incorporated herein by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K filed with the SEC on January 30, 2015 (File No. 000-24435)).
4.1	Form of Certificate of Class A Common Stock of the registrant (incorporated herein by reference to Exhibit 4.1 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2003 (File No. 000-24435)).
10.1†	MicroStrategy Incorporated 2013 Stock Incentive Plan (incorporated herein by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed with the SEC on September 9, 2013 (File No. 000-24435)).
10.2†	Amendment No. 1 to the MicroStrategy Incorporated 2013 Stock Incentive Plan (incorporated herein by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed with the SEC on April 28, 2014 (File No. 000-24435)).
10.3†	Amendment No. 2 to the MicroStrategy Incorporated 2013 Stock Incentive Plan (incorporated herein by reference to Exhibit 99.3 to the registrant's Registration Statement on Form S-8 filed with the SEC on July 25, 2014 (File No. 333-197645)).
10.4†	Amendment No. 3 to the MicroStrategy Incorporated 2013 Stock Incentive Plan (incorporated herein by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed with the SEC on October 26, 2015 (File No. 000-24435)).
10.5†	2013 Form of Nonstatutory Stock Option Agreement (incorporated herein by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed with the SEC on September 9, 2013 (File No. 000-24435)).
10.6†	2016 Form of Nonstatutory Stock Option Agreement (incorporated herein by reference to Exhibit 10.1 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2016 (File No. 000-24435)).
10.7†	Summary of Perquisites and Associated Other Compensation Arrangements for Named Executive Officers (incorporated herein by reference to Exhibit 10.6 to the registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2015 (File No. 000-24435)).
10.8†	Summary of Director Fees and Perquisites and Associated Other Compensation Arrangements for Non-Employee Directors (incorporated herein by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2014 (File No. 000-24435)).
10.9†	

Sublease Agreement, dated as of January 31, 2011, by and between the Company and Aeromar Management Company, LLC (incorporated herein by reference to Exhibit 10.14 to the registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2010 (File No. 000-24435)).

10.10† Material Terms for Payment of Certain Executive Incentive Compensation (incorporated herein by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2015 (File No. 000-24435)).

10.11† Summary of Designated Company Vehicles Policy (incorporated herein by reference to Exhibit 10.1 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2007 (File No. 000-24435)).

10.12†	Amended and Restated Performance Incentive Plan (incorporated herein by reference to Exhibit 99.1 to the registrant's Current Report on Form 8-K filed with the SEC on December 28, 2012 (File No. 000-24435)).
10.13†	Summary of Salary and Annual Cash Bonus Target Determinations for Phong Q. Le and Timothy E. Lang (incorporated herein by reference to the registrant's Current Report on Form 8-K filed with the SEC on March 24, 2017 (File No. 000-24435)).
10.14†	Summary of Compensation for David J. Rennyson and W. Ming Shao (incorporated herein by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2017 (File No. 000-24435)).
10.15†	2017 Senior Executive Vice President, Worldwide Sales Compensation Plan (incorporated herein by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2017 (File No. 000-24435)).
10.16†	Summary of 2017 Cash Bonus Determinations for Executive Officers (incorporated herein by reference to Item 5.02 of the registrant's Current Report on Form 8-K filed with the SEC on January 25, 2018 (File No. 000-24435)).
10.17†	Summary of Compensation for Stephen H. Holdridge.
21.1	Subsidiaries of the registrant.
23.1	Consent of KPMG LLP.
31.1	Certification pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Chairman of the Board of Directors, President & Chief Executive Officer.
31.2	Certification pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Senior Executive Vice President & Chief Financial Officer.
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema.
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.

†Management contracts and compensatory plans or arrangements.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MicroStrategy Incorporated
(Registrant)

By: /s/ Michael J. Saylor
Name: Michael J. Saylor
Title: Chairman of the Board of Directors,
President & Chief Executive Officer

Date: February 7, 2018

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

Name	Position	Date
/s/ Michael J. Saylor Michael J. Saylor	Chairman of the Board of Directors, President & Chief Executive Officer (Principal Executive Officer)	February 7, 2018
/s/ Phong Le Phong Le	Senior Executive Vice President & Chief Financial Officer (Principal Financial and Accounting Officer)	February 7, 2018
/s/ Robert H. Epstein Robert H. Epstein	Director	February 7, 2018
/s/ Stephen X. Graham Stephen X. Graham	Director	February 7, 2018
/s/ Jarrod M. Patten Jarrod M. Patten	Director	February 7, 2018
/s/ Carl J. Rickertsen Carl J. Rickertsen	Director	February 7, 2018

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SCHEDULE II

VALUATION AND QUALIFYING ACCOUNTS

For the years ended December 31, 2017, 2016, and 2015

(in thousands)

	Balance at the beginning of the period	Additions (1)	Deductions	Balance at the end of the period
Allowance for doubtful accounts:				
December 31, 2017	$ 3,181	2,269	(1,260)	$ 4,190
December 31, 2016	$ 3,825	224	(868)	$ 3,181
December 31, 2015	$ 4,412	884	(1,471)	$ 3,825
Deferred tax valuation allowance:				
December 31, 2017	$ 832	183	0	$ 1,015
December 31, 2016	$ 1,984	20	(1,172)	$ 832
December 31, 2015	$ 2,311	75	(402)	$ 1,984

(1) Reductions in/charges to revenues and expenses.