UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(Mark One)

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

For the fiscal year ended March 31, 2020

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 000-26251

NETSCOUT SYSTEMS, INC.
(Exact name of registrant as specified in its charter)

Delaware	04-2837575
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)

310 Littleton Road, Westford, MA 01886
(978) 614-4000

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered:
Common Stock, $0.001 par value per share	NTCT	Nasdaq Global Select Market

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒
Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES ☐ NO ☒
The aggregate market value of common stock held by non-affiliates of the registrant as of September 30, 2019 (based on the last reported sale price on the Nasdaq Global Select Market as of such date) was approximately $1,654,986,360. As of May 11, 2020, there were 72,220,906 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Proxy Statement for the fiscal year 2020 Annual Meeting of Stockholders, which will be made available on the Company's website at ir.netscout.com and at the SEC's website at www.sec.gov, are incorporated by reference into Part III of this Annual Report on Form 10-K. Except as expressly incorporated by reference, the proxy statement is not deemed to be part of this report.

NETSCOUT SYSTEMS, INC.

FORM 10-K

FOR THE FISCAL YEAR ENDED MARCH 31, 2020
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Unless the context suggests otherwise, references in this Annual Report on Form 10-K (Annual Report) to "NetScout," the "Company," "we," "us," and "our" refer to NetScout Systems, Inc. and, where appropriate, our consolidated subsidiaries.

NetScout, the NetScout logo, Adaptive Service Intelligence and other trademarks or service marks of NetScout appearing in this Annual Report are the property of NetScout Systems, Inc. and/or its subsidiaries and/or affiliates in the United States and/or other countries. Any third-party trade names, trademarks and service marks appearing in this Annual Report are the property of their respective holders.

Cautionary Statement Concerning Forward-Looking Statements

This Annual Report contains forward-looking statements under Section 21E of the Exchange Act (as defined below) and other federal securities laws. These statements relate to future events or our future financial performance and are identified by terminology such as "may," "will," "could," "should," "expects," "plans," "intends," "seeks," "anticipates," "believes," "estimates," "potential" or "continue," or the negative of such terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on these forward-looking statements. Actual events or results may differ materially. Factors that may cause such differences include, but are not limited to, the factors discussed under the heading "Risk Factors" and in our other filings with the Securities and Exchange Commission (SEC). These factors may cause our actual results to differ materially from any forward-looking statement. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make.

Except as required by law, we do not undertake any obligation to release publicly any revisions to these forward-looking statements after completion of the filing of this Annual Report to reflect later events or circumstances or the occurrence of unanticipated events.

PART I

Item 1. Business

Overview

We are an industry leader with over 35 years of experience in providing service assurance and security solutions that are used by customers worldwide to assure their digital business services against disruption. Service providers and enterprises, including local, state and federal government agencies, rely on our solutions to achieve the visibility necessary to optimize network performance, ensure the delivery of high-quality, mission-critical applications and services, gain timely insight into the end user experience and protect the network from attack. With our offerings, customers can quickly, efficiently and effectively identify and resolve issues that result in downtime, interruptions to services, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader technology initiatives. Some of the more significant technology trends and catalyst for our business include the evolution of customers digital transformation initiatives, the rapidly evolving security threat landscape, business intelligence and analytics advancements, and the 5G evolution in both the service provider and enterprise verticals.

Our operating results are influenced by a number of factors, including, but not limited to, the mix and quantity of products and services sold, pricing, costs of materials used in our products, growth in employee-related costs, including commissions, and the expansion of our operations. Factors that affect our ability to maximize our operating results include, but are not limited to, our ability to introduce and enhance existing products, the marketplace acceptance of those new or enhanced products, continued expansion into international markets, development of strategic partnerships, competition, successful acquisition integration efforts, and our ability to achieve expense reductions and make improvements in a highly competitive industry.

Markets

Our service assurance solutions are used by enterprises (including government agencies) and service providers to optimize network performance, quickly identify and resolve issues impacting application and service quality and gain insight into the end user experience. Our security solutions are used by enterprises and service providers to identify and mitigate advanced, volumetric and application-specific distributed denial of service (DDoS) attacks, as well as assist enterprise security teams in rapidly finding and isolating advanced network threats.

Enterprise Market

Within the enterprise market, NetScout's nGeniusONE and ISNG offerings enable IT organizations to support a growing range of performance management and security use cases including:

- *Network Performance Management* - Our nGeniusONE analytics and our ISNG real-time information platform provide the necessary insight to optimize network performance, restore service and understand the quality of the users’ experience. By integrating certain acquired product lines and product features from the former Fluke Networks Enterprise business with our core offerings, our customers can benefit from a consistent view across their traditional wired network infrastructures, remote offices and wireless networks (WiFi).

- *Application Performance Management: Data Center Transformation and Cloud Computing* - We enable information technology (IT) organizations, from their development operations to their infrastructure teams, to manage the delivery of services across virtual and physical environments, providing a comprehensive, unified real-time view into network, application, server, and user communities' performance. We proactively detect emerging issues with the ability to help analyze both physical and virtual service delivery environments within the data center which enables organizations to optimize datacenter infrastructure investments, protect against service degradations, and simplify the operation of complex, multi-tier application environments in consolidated, state-of-the-art data centers. Our solutions are often used by enterprises to support private cloud computing environments that are aimed at enabling greater, more cost-effective accessibility to applications without compromising the reliability and security of those applications and the network. Our solutions portfolio also includes a range of new virtual appliances that can help enterprise customers extend their monitoring of applications deeper into their traditional data centers, confidently migrate applications into public cloud environments and gain a comprehensive, cohesive view into the resulting hybrid cloud environment.
- *Unified Communications (UC)* - We deliver deep application-level unified visibility into voice, data and video services side-by-side in order to understand the interrelationships of all UC services that traverse the network infrastructure and assess quality and performance of the delivery of these services. As a result, our real-time, actionable intelligence helps customers to deliver a high-quality UC experience as users make calls, video conference and engage in instant messaging. We also help desktop, network, telecom, and application teams manage UC through a common platform across complex, geographically dispersed, and multi-vendor environments.
- *Software-as-a-Service and Infrastructure Performance Management* - We also provide enterprise customers with active agent-based offerings that can help them determine availability and performance levels for software-as-a-service (SaaS) applications, and gauge the health of servers, routers and switches as well as wireless and virtual infrastructures. As a result, customers can continuously monitor the performance of key business services and the infrastructure used to deliver them, regardless of how applications are deployed or where the user is located. Deployed independently or as part of our broader service assurance solution, these products also play an important role in helping enterprises deliver a superior user experience, achieve outstanding service quality and drive better returns on their application and infrastructure investments.
- *Application and Desktop Virtualization* - We provide clear and actionable insights that help customers fully realize the operational benefits associated with Application and Desktop Virtualization, and reduce the time it takes to identify and resolve service problems. We offer visibility across all virtual desktop infrastructure (VDI) tiers including remote access, client, virtualization, web, front-end application, and related database systems, and help customers gain actionable metrics from monitoring and analyzing the consumption and performance of VDI services.
- *Cybersecurity: DDoS Protection and Cyber Threat Analytics* - Computer networks continue to be targeted for cyberattacks that are aimed at disrupting, damaging or otherwise destroying an enterprise’s ability to conduct its business or gaining unauthorized access to corporate applications and stealing valuable information. We provide a range of network security solutions under the NetScout Arbor brand that enable enterprises to protect their networks from high-volume and application-specific DDoS attacks, which are aimed at either overwhelming the network with traffic or over-exercising specific functions or features of a website with the intention to disable those functions or features. We are also developing new security solutions for enterprises that provide greater deep-dive forensic capabilities as well as analytics that can provide visibility into anomalous behavior on the network that may be indicative of an advanced threat. These new security analytics will enable existing enterprise customers to leverage their historical investments in NetScout’s service assurance solutions by using the Adaptive Service Intelligence (ASI) data already being generated to support service assurance and security use cases.

Government Markets

Considered as part of our enterprise vertical, we have built a strong position with federal, state and local government agencies, both in the United States and abroad. Similar to our enterprise customers, government agencies are focused on streamlining and transforming IT into more efficient and more easily managed environments. To accomplish this, agencies are turning to IT solutions that will help simplify managing and assuring their IT environments as well as reduce costs. However, governmental markets differ from enterprise markets primarily due to their purchasing cycles being influenced by potential changes in government administrators, budgetary priorities and allocated funding for key projects.

Telecommunication Service Provider Markets

Today's service providers are focused on delivering a compelling set of services and ensuring a high-quality user experience, while also striving to minimize operational complexity, control costs and improve automation. This, coupled with the challenge of internet protocol (IP) transformation activities and complex technologies such as Long-Term Evolution (LTE), Network Functions Virtualization (NFV), Internet Protocol Television (IP-TV), wireless network (WiFi) and cloud services drives the need for a more automated and unified approach to managing service delivery and the subscriber experience. Our service provider solutions support an expanding range of use cases including:

- *Service Assurance for Mobile, Fixed Line and Cable Operators* - The fundamental transformation of the mobile network to all-IP enables mobile operators to build highly-scalable service delivery environments to offer new services to meet the growing subscriber demand for data, voice and video-centric services and to consolidate and simplify network operations. Mobile operators use our offerings to gain real-time, detailed IP packet-level insight and core-to-access visibility, which enables them to ensure services offered over the network meet certain pre-defined quality levels for an optimal subscriber experience. NetScout's service assurance solutions help service providers effectively manage capacity, assess overall network quality, take proactive steps to modify the network before issues impact subscribers, and quickly identify and troubleshoot network problems. In addition to improving the overall return on their network infrastructure investments, mobile operators using our solutions also benefit from improved network quality and unique customer insights - both of which contribute to subscriber acquisition, retention and monetization. The growing demand for high-bandwidth triple-play services, broadband connectivity, content anywhere, IP-TV, on-demand video traffic, new extended WiFi initiatives and carrier Ethernet services presents fixed line and cable multi-system operators with significant revenue opportunities. IP has become the *de facto* convergence mechanism for access, distribution and core networks, enabling new service offerings and simplifying network operations while reducing total cost of operations. For example, cable operators use our solutions to monitor and manage their local area WiFi connectivity services, ensure the high-quality delivery of video to consumers outside of their homes as well as provide broadband and telephony services targeting small- and medium-sized businesses.
- *Business Intelligence for Service Providers* - Service providers strive to understand how the performance of their networks impact customer experience, subscriber behavior and related usage trends. By combining network traffic data with other information, including support requests, subscriber calling plans, demographic data and other details, service providers can make more timely decisions about their offerings and sales and marketing initiatives to acquire, retain and further monetize their subscribers. NetScout's analytics deliver timely insights into a service provider's subscribers, services, networks, and applications, as well as easy export capabilities so that this information can be integrated into their data lakes and third-party analytic platforms.
- *DDoS Protection* - Over the past decade, Internet Service Providers (ISPs), including leading telecommunications providers, cable multi service operators and cloud providers, have seen significant increases in the sophistication, scale and frequency of high-volume and application-specific DDoS attacks on their networks. DDoS attacks are aimed at disrupting the online services of an ISP's business customer by overwhelming the network with traffic or by over-exercising specific functions or features of a website with the intention to disable those functions or features. NetScout Arbor DDoS solutions are used by a wide range of ISPs around the world to help protect their networks against DDoS attacks, and to resell certain DDoS offerings to their enterprise customers.

Products Overview

Since our founding in 1984, we have been an industry innovator in using IP-based network traffic to help organizations manage and optimize the delivery of services and applications over their networks, improve the end-user experience and protect networks from unwanted security threats. Using our patented ASI technology, our solutions instantaneously convert network traffic data, often referred to as wire data, into high-value metadata, or "smart data". Our offerings can help customers quickly identify and troubleshoot network and application performance issues, defend their networks from DDoS attacks, and rapidly find and isolate advanced network threats. Our solutions are typically deployed by customers as integrated hardware and software, as software only that is then integrated into commercial off-the-shelf hardware or in a virtualized form factor. Our solutions help our customers meet the increasing demands and ever-changing technology landscape of IP networks, service and applications. In recent years, to further elevate our value proposition and address the near- and long-term needs of customers and prospects, we have delivered major product upgrades across our product lines by integrating key functionality from acquired product lines, increasing the deployment flexibility of our solutions, and adding new features and capabilities that enable us to address a broader range of use cases. Our primary products can be categorized as follows:

Service Assurance Solutions for Network and Application Performance, and Business Intelligence Analytics

- *nGeniusONE Management Software and Analytic Modules* - Our nGeniusONE management software is used to support our enterprise, service provider and government customers enabling them to predict, preempt, and resolve network and service delivery problems while facilitating the optimization and capacity planning of their network infrastructures. Additionally, we market a range of specialized platforms and analytic modules that can enable our customers to analyze and troubleshoot traffic in radio access network and WiFi networks, as well as gain timely insight into high-value services, applications and systems, and better understand the subscriber's experience on the network. nGeniusPULSE is an active testing tool that enables enterprises to identify infrastructure performance issues and determine application availability, reliability and performance. We also market our nGenius Business Analytics solution, which enables service providers to quickly and efficiently analyze their network traffic to gain greater and more timely insights into their subscribers, services, networks, and applications, as well as easily export our smart data into their data lakes and into third-party analytic platforms.
- *Visibility Products (Probes, Packet Flow Systems and Taps)* - Our ISNG platform provides real-time collection and analysis of information-rich, high-volume packet-flow data from across the network that is displayed through the nGeniusONE Service Assurance Solution. The ISNG is an advanced passive network probe that can be deployed as a traditional appliance with integrated hardware and software, as software-only for use in commercial-off-the-shelf hardware or in virtualized form factors. The virtualized form factor version of our intelligent data source, which is marketed as vSTREAM, can be deployed to support NFV environments as well as to cost-effectively monitor application performance in traditional data center, private cloud and public cloud environments. We also provide comprehensive packet flow systems (also called network packet brokers or network visibility fabric switches), that deliver targeted network traffic access to a range of monitoring and security tools and systems, including the nGeniusONE Service Assurance platform. Additionally, we market a suite of test access points (TAPs) that enable full, non-disruptive access to network traffic with multiple link type and speed options.

Cybersecurity Solutions

- *DDoS Protection* – We provide security solutions that enable service providers and enterprises around the world to protect their networks against DDoS attacks under the Arbor brand. Dozens of service provider customers around the world also resell Arbor's solutions as a managed DDoS service to their enterprise customers. Our portfolio of DDoS solutions offers complete deployment flexibility spanning on-premise offerings and cloud-based capabilities to meet a broad array of customer needs, as well as specialized analytics and comprehensive threat intelligence information. Our DDoS offerings for service providers include Arbor Sightline for DDoS visibility and threat detection product, Arbor Threat Mitigation System for removing DDoS attack traffic from the network without disruption to key network services and Arbor Insight for advanced analytical and forensic information. Our DDoS offerings for enterprises include Arbor Edge Defense, a perimeter-based appliance for identifying and blocking incoming DDoS attacks and outbound malicious communications, and Arbor Cloud, a global, cloud-based traffic scrubbing service that quickly removes DDoS attack traffic. We plan to further enhance and expand these capabilities in ways that will enable greater adoption of our solutions by service provider and enterprise customers.
- *Advanced Threat Detection* – We are actively expanding our enterprise security offerings to better leverage the investment that our enterprise customers have made in our traditional service assurance solutions. By collecting network traffic via our probes, we can expand our value proposition by providing specialized analytics for both service assurance and security. We have introduced and will continue to advance solutions such as new packet forensic capabilities designed specifically for security operations teams as well as new anomalous behavior analytics that security teams can use to identify and investigate potential advanced network threats.

Integration with Third-Party Solutions

To have greater operational impact on assuring performance of applications and service delivery, we have integrated our technology with third-party management consoles and business service management systems. This integration allows organizations to receive alarms on impending performance problems and to link into the nGenius Service Assurance solution in order to perform detailed problem analysis and troubleshooting. The third-party solution providers that we have integrated our solutions with include Cisco Systems, Cisco Sourcefire, Citrix Systems, Dell Technologies, Hewlett-Packard Company, IBM Tivoli and VMWare. In addition, we have embedded NetScout Arbor DDoS mitigation capabilities on a blade within Cisco's market-leading ASR9000 router and will continue to evaluate partnership opportunities to integrate its DDoS capabilities within other network equipment platforms.

Growth Strategy

The following are key elements in our growth strategy for fiscal year 2021:

- *Drive Innovation* - In order to support our customers' near-term and longer-term requirements, we plan to continue innovating by enhancing and expanding our product portfolio. In particular, we continue to invest in research and development, and leverage the strong technical and domain expertise across our organization. Our engineering teams are focused on advancing technical innovation across our broad product portfolio. By capitalizing on our extensive experience with global enterprise, service provider and government organizations with IP-based networks, we remain well positioned to cross-leverage our technology development across all major platforms and relevant technologies to address the evolving demands of current and prospective customers.
- *Deliver Pervasive Visibility* - By making our visibility products available in multiple form factors, including software that can be deployed with commercial off-the-shelf servers and as virtual appliances, we believe that it is easier and more affordable for customers to deploy our technology more broadly across their hybrid network and IT infrastructures. By offering more cost-effective instrumentation options, we are well positioned to help customers gain greater visibility into more places across their end-to-end network environments and address an even broader range of service assurance and security use cases.
- *Extension into Adjacent Markets* - By enhancing and expanding our product portfolio and driving product integration via internal development and acquisitions, we have expanded our reach into complementary adjacent markets such as application performance management, infrastructure performance management and cybersecurity. We believe that this element of our strategy is integral to gaining access to larger budgets, increasing spending from existing customers, attracting new customers, and increasing our total addressable market. In particular, we are broadening our security solutions beyond the DDoS market with plans for new enterprise security offerings that can help our customers extract more value from the network traffic that we are already collecting to support service assurance use cases.
- *Fortify and Expand Existing Customer Relationships* - We have an expansive, global customer base of service providers and enterprises that have purchased our products in support of major technology and network initiatives that they have implemented over the past decade. As a result, we believe we are well positioned to expand the scope of many of these relationships as we identify new opportunities to support new network and broader technology projects.
- *Expand our Customer Base* - The investments we have made over the past several years to expand our product portfolio and support greater deployment flexibility also positions us to win new customers in established geographic markets where we can leverage our global direct sales organization and an extensive network of value-added resellers and systems integrators.
- *Increase Market Relevance and Awareness* - We plan to continue to implement marketing campaigns aimed at generating high-quality sales opportunities with both current and prospective enterprise and service provider customers, promoting thought leadership and building the NetScout brand.
- *Extend our Technology Partner Alliance Ecosystem* - We plan to continue to develop and fortify alliances with complementary solutions providers that can help us support a larger, more global and more diverse customer base. We also plan to continue to enhance our technology value, product capabilities and customer relevance through the continued integration of our products into technology partner products.
- *Pursue Strategic Acquisitions* - We have completed many acquisitions since our inception that have helped broaden our capabilities, enhance our products and technologies, enable us to expand into adjacent markets and better position us to meet the needs of a larger base of customers and prospects.
- *Improve Cost Structure and Drive Efficiencies* - We plan to balance our investments in key technology, product development, sales and marketing, and other initiatives that will enable us to drive long-term profitable growth with an ongoing focus on controlling costs and driving efficiencies.

Support Services

Customer satisfaction is a key driver of our success. Our support programs offer customers various levels of high-quality support services to assist in the deployment and use of our solutions. We have support personnel strategically deployed across the globe to deliver 24/7 support to our premium customers. Certain support services, such as on-site support activities, are provided by qualified third-party support partners. In addition, many of our certified resellers provide Partner Enabled Support to our end users. This is especially prevalent in international locations where time zones and language, among other factors, make it more efficient for end users to have the reseller provide initial support functions. Our support also includes updates to our software and firmware at no additional charge, if and when such updates are developed and made generally available to our commercial customer base. If ordered, support commences upon expiration of the standard warranty for software. For software, which also includes firmware, the standard warranty commences upon shipment and expires 60 to 90 days thereafter. With regard to hardware, the standard warranty commences upon shipment and expires 60 days to 12 months thereafter. We believe our warranties are consistent with commonly accepted industry standards. We expect to continue to provide support services for the acquired platforms under existing agreements and plan to explore opportunities to further simplify and standardize our support obligations over the coming years.

Manufacturing

Our manufacturing operations consist primarily of final product assembly, configuration and testing. We purchase components and subassemblies from suppliers and construct our hardware products in accordance with NetScout standard specifications. We inspect, test and use process controls to ensure the quality and reliability of our products. We maintain an ISO 9001 quality systems registration, a certification showing that our corporate procedures and manufacturing facilities comply with standards for quality assurance and process control. We also maintain an ISO 9001:2000 quality systems registration, a certification showing that our corporate procedures comply with standards for continuous improvement and customer satisfaction.

We generally use standard parts and components for our products, which can be sourced from various suppliers. We have generally been able to obtain adequate supplies of components in a timely manner from current suppliers. While certain components, such as computer network interface cards, are currently purchased from a single supplier, we have identified alternate suppliers that we believe can be qualified relatively quickly to fulfill our needs should an issue arise with the existing supplier. Our reliance on single source suppliers is further described in Item 1A "Risk Factors."

We manufacture our products based upon near-term demand estimates resulting from sales forecasts and historical fulfillment information. However, since these forecasts have a high degree of variability because of factors that include time of year, overall economic conditions and sales employee incentives, we believe it is prudent to maintain inventory levels in advance of receipt of firm orders to ensure that we have sufficient stock to satisfy incoming orders. Our inventory management system has thus far enabled us to minimize the effects of the disruption caused by the global COVID-19 pandemic from a supply chain perspective. The potential impact of the COVID-19 pandemic on our business is further described in Item 1A "Risk Factors."

Sales and Marketing

Sales

We sell our products, support and services through a direct sales force and an indirect reseller and distribution channel.

Our direct sales force generally uses a "high-touch" sales model that consists of face-to-face meetings with customers to understand and identify their unique business challenges and requirements. In the current global pandemic environment, our sales teams have been successful in engaging customers virtually to understand their requirements and effectively design solutions. Our sales teams translate our customers' requirements into tailored business solutions that allow the customer to maximize the performance of its infrastructure and service delivery environment. Due to the complexity of the systems and the capital expenditures involved, our sales cycles typically take between three and twelve months. We build strategic relationships with our customers by continually enhancing our solution to help them address their evolving service delivery management challenges. In addition to providing a comprehensive solution to meet these needs, we continually provide software enhancements to our customers as part of their maintenance contracts with us. These enhancements are designed to provide additional and ongoing value to our existing customers to promote loyalty and the expansion of their deployment of our products. Existing customer growth is also driven by the expansion and changes in their networks as they add new infrastructure elements, new users, new locations, new applications and experience increasing service traffic volumes. In fiscal year 2020, we took steps to drive more effective cross-selling of our service assurance and security solutions into our installed customer base by consolidating the previously separate security and service assurance salesforces and by realigning existing sales resources accordingly.

We also maintain an indirect reseller and distribution channel. Sales to customers outside the United States are primarily export sales through channel partners. Our channel partners assist us by improving our reach to customers, extending our presence in new markets, and marketing and selling our products to a broad array of organizations globally. We sell through a range of channel partners including value-added resellers, value-added distributors, resellers, and system integrators, to our enterprise, service provider and government customers. Historically and currently, we have used indirect distribution channels principally as intermediaries on contractual terms for customers with whom we do not have a contract. Our sales force meets with end user customers to present our products and solutions, conduct demonstrations, provide evaluation equipment, recommend detailed product solutions, develop product deployment designs and timelines, and assist in establishing financial and other justifications for the proposed solution. During this selling process, a channel partner, who has contracts with both the end customer and us, may be brought in to facilitate the transaction and to provide fulfillment services. In the case of international channel partners, those services usually also include currency translation and support. In the U.S., fulfillment services are usually limited to invoicing and cash collection. Under this approach, we have limited dependence upon channel partners for the major elements of the selling process. In many cases, there are multiple channel partners with the required contractual relationships, so dependence on any single channel partner is not significant.

During the fiscal years ended March 31, 2020, 2019 and 2018, no direct customers or indirect channel partners accounted for more than 10% of our total revenue.

Marketing

Our marketing organization drives our market research, strategy, product positioning and messaging, and produces and manages a variety of programs such as customer forums, trade shows, industry events, advertising, public and analyst relations, social media, direct mail, seminars and webinars, sales promotions and other online marketing programs. These programs are focused on promoting the sale and acceptance of our solutions to further build the NetScout brand as well as the ASI, nGenius, Arbor and other applicable product brand names in the marketplace.

Key elements of our marketing strategy focus on thought leadership, market positioning, market education, go to market strategies, reputation management, demand generation, and the acceleration of our strategic selling relationships with local and global resellers, systems integrators, and our technology alliance partners. During fiscal year 2020, we continued to invest in the promotion of the NetScout brand as well as the nGenius and Arbor brands as core solution-level brands in their respective markets. We expect to continue these initiatives during fiscal year 2021.

Research and Development

Our continued success depends significantly on our ability to anticipate and create solutions that will meet emerging customer requirements. We work closely with our largest enterprise and service provider customers to better understand and address their near-term and longer-term requirements. By better understanding the key, time-sensitive needs of our global customer base, we believe our development programs will continue to result in enhanced products that are able to meet the increasing challenges of an increasingly complex and dynamic global network environment.

We have invested significant financial resources and personnel into the development of our products and technology. Our continued investment in research and development is crucial to our business and our continued success in the market. We have assembled a team of highly skilled engineers with expertise in various technologies associated with our business and the technologies being deployed by our customers. We plan to continue to enhance and expand our product offerings and capabilities in the near future while integrating key capabilities from acquired product lines as appropriate. As a result, we plan to continue to invest and dedicate significant resources to our research and development activities for both our enterprise and service provider customers.

We predominantly develop our products internally, with some limited third-party contracting. We have also acquired developed technology through business acquisitions. To promote industry standards and manifest technology leadership, we participate in and support the activities and recommendations of industry standards bodies, and we also engage in close and regular dialogue with our key customers and alliance partners. These activities provide early insight into the direction of network and application performance requirements for current and emerging technologies.

Seasonality

We have experienced, and expect to continue to experience, quarterly variations in our order bookings as a result of a number of factors, including the length of the sales cycle, complexity of customer environments, new product introductions and their market acceptance and seasonal factors affected by customer projects and typical IT buying cycles. Due to these factors, we historically have experienced stronger bookings during our fiscal third and fourth quarters than in our fiscal first and second quarters.

Customers

We sell our products to enterprises, service providers and local, state and federal governmental agencies with large-and medium-sized high-speed IP computer networks. Our enterprise customers cover a wide variety of industries, such as financial services, technology, manufacturing, healthcare, utilities, education, transportation and retail as well as government and associated agencies. Our telecommunications service provider customer group includes mobile operators, wireline operators, cable operators, internet service providers, and cloud providers.

Backlog

We produce our products on the basis of our forecast of near-term demand and maintain inventory in advance of receipt of firm orders from customers. We configure our products to customer specifications and generally deliver products shortly after receipt of the purchase order. Service engagements are also included in certain orders. Customers generally may reschedule or cancel orders with little or no penalty. We believe that our backlog at any particular time is not meaningful because it is not necessarily indicative of future sales levels. Our combined product backlog at March 31, 2020 was $29.4 million compared to $19.8 million at March 31, 2019. A majority of the backlog relates to customization and integration projects and radio frequency propagation modeling. In some cases, we have begun these projects but have not yet hit billable milestones. A majority of revenue for these projects is expected to be recognized into revenue throughout fiscal year 2021.

Competition

We compete with many companies in the markets we serve. The service assurance market, including the network and application performance management markets, is highly competitive, rapidly evolving, and fragmented with overlapping technologies and a wide range of competitors, both large and small, who may deliver certain elements of our solution. Consequently, there are a number of companies who have greater name recognition and substantially greater financial, management, marketing, service, support, technical, distribution and other resources than we do. Additionally, certain competitors, either due to their size and resources or due to their technological strengths, may be able to respond more effectively than we can to new or changing opportunities, technologies, standards and customer requirements.

Principal competitive factors in our service assurance market include scalability; ability to address a large number of applications, locations and users; product performance; the ability to easily deploy into existing network environments; the ability to offer virtualized solutions; and the ability to administer and manage the solution.

While we face multiple competitors within the service assurance industry, we believe that we compete favorably on the basis of the following factors:

- we provide a comprehensive service delivery management solution that is capable of addressing the needs of both enterprise and service provider customers and can be scaled to meet the challenges of today's dynamic service delivery environments;
- we believe that our solutions provide superior data and compete favorably on a broad range of metrics including the ability to recognize and track a large number of applications;
- we believe our solutions possess the scalability to support high and increasing levels of data and network traffic;
- our solutions look at both data and control plane traffic across an entire network; and
- our ASI technology is optimized to provide real-time information about service performance and real-time alerts to emerging service problems whereas traditional solutions are inherently latent, supporting only forensic-trouble shooting after an issue has occurred.

In the enterprise market, our competitors include companies who provide network performance management, application performance management, infrastructure performance management and other related solutions such as Avaya, CA Technologies (a Broadcom Inc. business), Cisco Systems, Dynatrace, Data Dog, ExtraHop, InfoVista, Keysight, SevOne, Viavi, Gigamon, ThousandEyes, New Relic, Riverbed Technology, Splunk and SolarWinds. In addition, we both compete with and partner with large enterprise management vendors, such as HP and IBM, who offer performance management solutions. We also compete with smaller, privately held competitors who often focus on specific vertical markets.

In the service provider market, we compete with traditional probe vendors, network equipment manufacturers, big data and analytics vendors, and virtualization vendors. These vendors include Anritsu, Cisco, Empirix, Ericsson, Dell Technologies, EXFO (which acquired Astellia in March 2018), Huawei, IBM, Niksun, Polystar (an Elisa Oyj business), Radcom, SevOne, Splunk, Nokia and Viavi. We face additional competitive threats from startups and new entrants that seek to offer innovative solutions in an industry characterized by rapid technological change.

In the cybersecurity market, we face a range of competitors, including those that may have greater name recognition and substantially greater financial, management, marketing, service, support, technical, distribution and other resources than we do. We believe that the scalability of our solutions, flexible deployment, and price-performance of our cybersecurity solutions positions us well to compete against both larger network equipment and security companies and smaller niche security solutions vendors.

In the DDoS solutions market, we compete under the NetScout Arbor brand with a broad range of vendors including Radware, Akamai, F5 Networks, A10 Networks, Fortinet, Fastly, Cloudflare and Corero Network Security. In the market for specialized threat analysis, packet forensics and protection solutions used to identify advanced network threats, we compete with a range of vendors including Darktrace, Vectra Networks, FireEye, Cisco, Palo Alto Networks, RSA (a Dell Technologies business) and other specialist providers.

Our ability to sustain a competitive advantage depends on our ability to deliver continued technology innovation and adapt to meet the evolving needs of our customers. Competitive factors in our industry are further described in Item 1A "Risk Factors."

Intellectual Property Rights

We rely on patent, copyright, trademark, and trade secret laws and contract rights to establish and maintain our rights in our technology and products. While our intellectual property rights are an important element in our success, our business as a whole does not depend on any one particular patent, trademark, copyright, trade secret, license, or other intellectual property right.

We use contracts, statutory laws, domestic and foreign intellectual property registration processes, and international intellectual property treaties to police and protect our intellectual property portfolio and rights from infringement. From a contractual perspective, we use license agreements and non-disclosure agreements to control the use of our intellectual property and protect our trade secrets from unauthorized use and disclosure. In addition to license agreements, we rely on U.S. and international copyright law to protect against unauthorized copying of software programs in the U.S. and abroad. We have obtained U.S. and foreign trademark registrations to preserve and protect certain trademarks and trade names. We have also filed and obtained U.S. patents and international counterparts to protect certain unique NetScout inventions from being unlawfully exploited by other parties. However, there is no assurance that pending or future patent applications will be granted, that we will be able to obtain patents covering all of our products, or that we will be able to license, if needed, patents from other companies on favorable terms or at all. Our proprietary rights are subject to other risks and uncertainties described under Item 1A "Risk Factors."

Employees

At March 31, 2020, we had a total of 2,502 employees.

Corporate Information

Our corporate headquarters are located at 310 Littleton Road, Westford, Massachusetts, and our telephone number is (978) 614-4000. We were incorporated in Delaware in 1984.

Our internet address is http://www.NetScout.com. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Exchange Act, are made available free of charge on or through our website at ir.netscout.com as soon as reasonably practicable after such reports are filed with, or furnished to, the SEC. None of the information posted on our website is incorporated by reference into this Report.

We webcast our earnings calls and certain events we participate in or host with members of the investment community. They are made available on our investor relations website at ir.netscout.com//investors/events-and-presentations/events-calendar/default.aspx. Additionally, we provide notifications of news or announcements regarding our financial performance, including SEC filings, investor events, press and earnings releases, as part of our investor relations website. The contents of these sections of our investor relations website are not intended to be incorporated by reference into this report or in any other report or document we file with the SEC.

Item 1A. Risk Factors.

In addition to the other information in this report, the following factors should be considered carefully in evaluating NetScout and our business.

Our operating results and financial condition have varied in the past and may vary significantly in the future depending on a number of factors. Except for the historical information in this report, the matters contained in this report include forward-looking statements that involve risk and uncertainties. The following factors are among many that could cause actual results to differ materially from those contained in or implied by forward-looking statements made in this report. These statements involve the risks and uncertainties identified below as well as additional risks and uncertainties that are not yet identified or that we currently think are immaterial but may also impact our business operations. Such factors are among many that may have a material adverse impact upon our business, results of operations and financial condition.

You should consider carefully the risks and uncertainties described below, together with the information included elsewhere in this Annual Report on Form 10-K and other documents we file with the SEC. The risks and uncertainties described below are those that we have identified as material but are not the only risks and uncertainties facing us. Our business is also subject to general risks and uncertainties that affect many other companies. Additional risks and uncertainties not currently known to us or that we currently believe are immaterial also may impair our business, including our results of operations, liquidity and financial condition.

Because of the following factors, as well as other variables affecting our results of operations, past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods.

Our business and operations, and the operations of our customers, may be adversely affected by epidemics and pandemics, such as the COVID-19 outbreak, which the World Health Organization has declared a "pandemic." COVID-19 and future epidemics and pandemics risk disrupting and adversely affecting our business operations and financial results, as well as the markets and communities in which we and customers, suppliers and other business partners operate.

We face risks related to epidemics, pandemics and other outbreaks of communicable diseases that adversely affect global commercial activity, economies, financial markets, and companies. The recent outbreak of COVID-19 was declared a "pandemic" by the World Health Organization on March 11, 2020. An epidemic or pandemic or other outbreak of communicable diseases, such as the current COVID-19 pandemic, poses the risk that we or our customers, suppliers, and other business partners may be disrupted or prevented from conducting normal business activities for certain periods of time, the durations of which are uncertain, and may otherwise experience significant impairments of business activities.

The President of the United States has declared the COVID-19 pandemic a national emergency. In response to the COVID-19 pandemic, many state, local, and foreign governments have put in place, and others in the future may put in place, quarantines, executive orders, shelter-in-place orders, and similar government orders and restrictions to reduce the rate of infection and control the spread of the disease. Such orders or restrictions, or the perception that such orders or restrictions could occur, have resulted in business closures, work stoppages, slowdowns and delays, work-from-home policies, travel restrictions and cancellation of events, among other effects that could negatively impact productivity and disrupt our operations and those of our suppliers, customers, and business partners.

To protect our employees, contractors, customers, suppliers, and our local communities, and limit the effect of the COVID-19 pandemic on our operations, we have directed NetScout employees at our locations globally to work remotely, with limited exceptions for site-essential personnel (with protective measures and protocols in place), and we may take further actions that alter our operations as may be required by federal, state, or local authorities, or by foreign governments in countries in which we operate, or which we determine are in the best interests of our employees, suppliers, customers, business partners, and stockholders. We expect that work from home requirements and other restrictions on our employees, suppliers, customers, and business partners will change over time, whether becoming more or less restrictive, as the pandemic and global responses progress.

There is a great deal of uncertainty as to when our employees will be able to return to work on-site. Similar to other companies we have begun planning for our employees to return to work on-site in phases in accordance with federal, state and local government guidelines, as well as in accordance with foreign governmental guidelines in the countries in which we operate. Furthermore, any process we implement to enable our employees to return to work on-site will be in accordance with prevailing health and science guidance, and in a manner that seeks to protect our employees, contractors, customers, suppliers and our local communities.

As part of our existing business continuity planning, we had established infrastructure and protocols to enable our employees to work from home, but we have never before required our employees to work remotely for such an extended period of time. While we believe that our employees are able to and can continue to effectively work remotely, it is possible that the disruptions to our business operations resulting from quarantines, self-isolations, or other movement and restrictions on the ability of our employees to perform their jobs could affect our ability to develop and design our products and services in a timely manner or meet required milestones or customer commitments, and that this could have an adverse effect on our revenue and operating results. In addition, although we have been able to adequately staff our facilities with site-critical personnel with specific health and safety protocols, to satisfy our manufacturing obligations to our customers, it is possible that we or others may determine that it is necessary to direct that employees engaged in manufacturing refrain from working on-site for an indeterminate period of time, and that this could have an adverse effect on our revenue and operating results.

Furthermore, global travel has been sharply curtailed, and in some cases prohibited. Our sales personnel often meet with customers or prospective customers in person to provide greater personalized service. While our employees and customers have adjusted to virtual meetings, the inability of our sales personnel to meet with customers or prospective customers at a customer facility could have an adverse effect on our revenue and operating results.

In addition, we rely on third-party suppliers and manufacturers in China and elsewhere. The COVID-19 outbreak has resulted in the extended shutdown of certain businesses throughout the world, which may result in disruptions or delays to our supply chain. These may include disruptions from temporary closure of third-party supplier and manufacturer facilities, interruptions in product supply or restrictions on the export or shipment of our products, as well as the import of products into countries in which we operate. Although we have attempted to minimize the effects of these disruptions, it is possible that these attempts will be insufficient, and that these disruptions will likely have an adverse effect on our revenues and operating results.

The impact of the COVID-19 outbreak has been widespread and has adversely affected the global economy. While the potential impact and duration of the COVID-19 pandemic on the global economy and our business in particular may be difficult to assess or predict, the pandemic has resulted in, and may continue to result in, significant disruption of global financial markets, reducing our ability to access capital, which could in the future negatively affect our liquidity. In addition, a recession or market correction resulting from the spread of COVID-19 could decrease technology spending, adversely affecting demand for our products and services, and thus negatively affecting our revenues and operating results.

The global COVID-19 pandemic continues to rapidly evolve, and we will continue to monitor the COVID-19 situation closely and respond appropriately. The extent to which COVID-19 impacts our results will depend on future developments, which are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of COVID-19 and the length of, and effectiveness of, measures taken to contain it or treat its impact, as well as actions taken by governmental authorities to address the economic impact of the outbreak.

To the extent the COVID-19 pandemic adversely affects our business and financial results, it may also have the effect of heightening many of the other risks described in this "Risk Factors" section, such as those relating to our quarterly revenue and operating results, the estimates made for our critical accounting policies, and the operation of internal controls over such estimates, as well as on our liquidity and on our ability to satisfy our indebtedness obligations, including the compliance with the covenants that apply to our indebtedness.

Our quarterly revenue and operating results may fluctuate.

Our quarterly revenue and operating results are difficult to predict and may fluctuate significantly from quarter to quarter as a result of a variety of factors associated with our industry, many of which may be outside of our control, including the following:

- the rate of growth of, and changes in technology trends in, our market and other industries in which we currently operate or may operate in the future;
- technology spending by current and potential customers, and the timing and size of orders from customers, especially in light of our lengthy sales cycle;
- reduced demand for our products and uneven demand for service delivery and network and application performance management solutions and network security solutions;
- the timing and market acceptance of new products or product enhancements by us or our competitors;
- the timing of hiring sales personnel and the speed at which such personnel become fully productive;

- our ability to develop and manufacture new products and technologies in a timely manner, the competitive position of our products, and the continued acceptance of our products by our customers and in the industries that we serve;
- changes in the number and size of our competitors, including the effects of new entrants and the effects of well-resourced competitors' increasing their investments in our markets, and changes in the prices and capabilities of competitors' products;
- customer ability to implement our products;
- cancellation, deferral, or limitation of orders by customers;
- changes in foreign currency exchange rates;
- attrition of key employees and competition with other companies for employees with specific talents and experience;
- the number, severity, and timing of cyber-related threat outbreaks (e.g., malware, attacks, ransomware, worms and viruses);
- the quality and level of our execution of our business strategy and operating plan, and the effectiveness of our sales and marketing programs;
- changes in accounting rules;
- costs related to acquisitions; and
- our ability to manage expenses.

Most of our expenses, such as employee compensation, benefits and rent, are relatively fixed in the short term. Moreover, our expense levels are based, in part, on our expectations regarding future revenue levels. As a result, if revenue for a particular quarter is significantly below our expectations, we may not be able to reduce operating expenses proportionately for that quarter, and, therefore, this revenue shortfall would have a disproportionately negative impact on our operating results for that quarter.

It may be necessary in the future to undertake cost reduction initiatives to improve profitability, which could lead to a deterioration of our competitive position. Any difficulties that we encounter as we reduce our costs could negatively impact our results of operations and cash flows.

Our actual operating results may differ significantly from our guidance.

We release guidance regarding our future performance on our quarterly earnings conference calls, quarterly earnings releases, and otherwise. Such guidance, which includes forward-looking statements, reflects our management's estimates as of the date of release and is based on projections prepared by our management. We may also decide not to release, or to defer, issuing guidance, where such guidance might not be appropriate or when we do not have sufficient visibility or clarity to issue such guidance. In those situations, we expect to communicate our reasons for not releasing or deferring release of guidance.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. The principal reason that we release guidance is to provide a basis for our management to discuss our business outlook with analysts and investors. We are not responsible for any projections or reports published by any such analysts or investors.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions underlying the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results may vary from our guidance and the variations may be material. In light of the foregoing, investors are urged not to rely upon our guidance in making an investment decision regarding our common stock.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in this "Risk Factors" section in this report could result in the actual operating results being different from our guidance, and the differences may be adverse and material.

Our indebtedness may limit our operations and our use of our cash flow, and any failure to comply with the covenants that apply to our indebtedness could adversely affect our liquidity and financial condition.

On January 16, 2018, we amended and expanded our existing credit facility (Amended Credit Agreement) with a syndicate of lenders. The Amended Credit Agreement provides for a five-year $1.0 billion senior secured revolving credit facility, including a letter of credit sub-facility of up to $75.0 million. We have used the new credit facility for working capital purposes and to finance the repurchase of common stock under our previously announced accelerated stock repurchase plan. The commitments under the Amended Credit Agreement will expire on January 16, 2023, and any outstanding loans will be due on that date. As of the date of this report, we had approximately $450 million in outstanding indebtedness under the

Amended Credit Agreement. Our debt level can have negative consequences, including exposing us to future interest rate risk. We may incur significantly more debt in the future, and there can be no assurance that our cost of funding will not substantially increase. Our current revolving credit facility also imposes certain restrictions on us; for a more detailed description please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations." Upon an event of default, for example, the administrative agent, with the consent of, or at the request of, the holders of more than 50% in principal amount of the loans and commitments may terminate the commitments and accelerate the maturity of the loans and enforce certain other remedies under the Amended Credit Agreement and other loan documents, which would adversely affect our liquidity and financial condition. If we take on additional indebtedness, the risks described above could increase.

Interest on the outstanding balances under the Amended Credit Agreement is calculated based on the London Interbank Offered Rate (LIBOR). On July 27, 2017, the U.K. Financial Conduct Authority (FCA), which regulates LIBOR, announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. That announcement indicates that the continuation of LIBOR on the current basis cannot and will not be guaranteed after 2021. The Amended Credit Agreement provides for the administrative agent under the agreement to determine if (i) adequate and reasonable means do not exist for ascertaining the LIBOR rate or (ii) the FCA or governmental authority having jurisdiction over the administrative agent has made a public statement identifying a specific date after which the LIBOR rate shall no longer be used for determining interest rates for loans, and the administrative agent determines that both of these factors are unlikely to be temporary, then we and the administrative agent would agree to transition to an alternate base rate borrowing or amend the credit agreement to establish an alternate interest rate to LIBOR that includes consideration of the then-prevailing market convention for determining interest rates for syndicated loans in the United States at that time.

We are not able to predict whether LIBOR will actually cease to be available after 2021 or whether there will be another market benchmark in its place. Our Amended Credit Agreement defines an alternative rate to LIBOR which we have the option to select, the Alternate Base Rate which is equal to the greatest of (1) JPMorgan's prime rate, or (2) 0.50% in excess of the New York Federal Reserve Bank (NYFRB) rate. Any uncertainty regarding the continued use and reliability of LIBOR as a benchmark interest rate could adversely affect the performance of LIBOR relative to its historic values. If the methods of calculating LIBOR change from current methods for any reason, or if LIBOR ceases to perform as it has historically, or if we select an alternative benchmark rate our interest expense associated with our outstanding indebtedness or any future indebtedness we incur may increase.

Any failure to meet our debt obligations could damage our business.

Our ability to meet our obligations under the Amended Credit Agreement will depend on market conditions and our future performance, which is subject to economic, financial, competitive and other factors beyond our control. If we are unable to remain profitable, or if we use more cash than we generate in the future, our level of indebtedness at such time could adversely affect our operations by increasing our vulnerability to adverse changes in general economic and industry conditions and by limiting or prohibiting our ability to obtain financing for additional capital expenditures, acquisitions and general corporate and other purposes. In addition, if we are unable to make payments as required under the Amended Credit Agreement, we would be in default under the terms of the loans, which could seriously harm our business. If we incur significantly more debt, this could intensify the risks described above.

We may fail to secure necessary additional financing.

Our future success may depend in part on our ability to obtain additional financing to support our continued growth and operations and any downgrades in our credit rating could affect our ability to obtain additional financing in the future or may affect the terms of any such financing. If our existing sources of liquidity are insufficient to satisfy our operating requirements, we may need to seek to raise capital by one or more of the following:

- issuing additional common stock or other equity instruments;
- acquiring additional bank debt;
- issuing debt securities; or
- obtaining lease financings.

However, we may not be able to obtain additional capital when we want or need it, or capital may not be available on satisfactory terms. Furthermore, any additional capital may have terms and conditions that adversely affect our business, such as new financial or operating covenants, or that may result in dilution to our stockholders.

We expect that existing cash, cash equivalents, marketable securities, cash provided from operations and our bank credit facilities will be sufficient to meet ongoing cash requirements. However, our failure to generate sufficient cash as our debt becomes due or to renew credit lines prior to their expiration could materially adversely affect our business, financial condition, operating results and cash flows.

Our effective tax rate may fluctuate, which could increase our income tax expense and reduce our net income.

Our effective tax rate or the taxes we owe could be adversely affected by several factors, many of which are outside of our control, including:

- changes in the relative proportions of revenues and income before taxes in the various jurisdictions in which we operate that have differing statutory tax rates;
- changing tax laws, regulations, and interpretations in multiple jurisdictions in which we operate as well as the requirements of certain tax rulings;
- changes in the research and development tax credit laws;
- earnings being lower than anticipated in jurisdictions where we have lower statutory rates and being higher than anticipated in jurisdictions where we have higher statutory rates;
- the valuation of generated and acquired deferred tax assets and the related valuation allowance on these assets;
- transfer pricing adjustments;
- the tax effects of purchase accounting for acquisitions and restructuring charges that may cause fluctuations between reporting periods; and
- tax assessments or any related tax interest or penalties that could significantly affect our income tax expense for the period in which the settlements take place.

We are subject to income taxes in the United States and in numerous foreign jurisdictions. From time to time, we may receive notices that a tax authority in a particular jurisdiction believes that we owe a greater amount of tax than we have reported to such authority.

While we regularly assess the likelihood of adverse outcomes from such examinations and the adequacy of our provision for income taxes, there can be no assurance that such provision is sufficient and that a determination by a tax authority will not have an adverse effect on our results of operations. An adverse change in our effective tax rate could have a material and adverse effect on our financial condition and results of operations and the price of our common stock could decline if our financial results are materially affected by an adverse change in our effective tax rate.

We may be impacted by changes in taxation, trade and other regulatory requirements.

We are subject to income tax in local, national and international jurisdictions. In addition, our products are subject to import and excise duties and/or sales or value-added taxes (VAT) in many jurisdictions. We are also subject to the examination of our tax returns and other tax matters by the Internal Revenue Service and other tax authorities and governmental bodies. We regularly assess the likelihood of an adverse outcome resulting from these examinations to determine the adequacy of our provision for taxes. Additionally, changes in or the improper application of import and excise duties and or sales taxes or VAT may negatively impact our operating results. There can be no assurance as to the outcome of these examinations. Fluctuations in tax rates and duties, changes in tax legislation or regulation or adverse outcomes of these examinations could have a material adverse effect on our results of operations, financial condition and cash flows.

There is increased uncertainty with respect to tax policy and trade relations between the U.S. and other countries. Major developments in tax policy or trade relations, such as the imposition of unilateral tariffs on imported products, could have a material adverse effect on our results of operations, financial condition and cash flows.

Our estimates and judgments related to critical accounting policies could be inaccurate.

We consider accounting policies related to revenue recognition, marketable securities, valuation of goodwill, intangible assets and other acquisition and divestiture accounting items, and share-based compensation to be critical in fully understanding and evaluating our financial results. Management makes judgments and creates estimates when applying these policies. These estimates and judgments affect, among other things, the reported amounts of our assets, liabilities, revenue and expenses, the amounts of charges accrued by us, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances and at the time they are made. If our estimates or the assumptions underlying them are not correct, actual results may differ materially from our estimates and we may need to, among other things, accrue additional charges or impair assets that could adversely impact our business. As a result, our operating results and financial condition could be materially and adversely impacted in future periods.

Our disclosure controls and procedures and internal control over financial reporting may not be effective.

Our disclosure controls and procedures and internal control over financial reporting may not prevent all material errors and intentional misrepresentations. Any system of internal control can only provide reasonable assurance that all control objectives are met. Some of the potential risks involved could include, but are not limited to, management judgments, simple errors or mistakes, misinterpretation and willful misconduct regarding controls. Under Section 404 of the Sarbanes-Oxley Act, we are required to evaluate and determine the effectiveness of our internal control over financial reporting. Compliance with this provision requires management's attention and expense. Management's assessment of our internal control over financial reporting may or may not identify weaknesses that need to be addressed in our internal control system. If we are unable to conclude that our internal control over financial reporting is effective, investors could lose confidence in our reported financial information which could have an adverse effect on the market price of our stock or impact our borrowing ability. In addition, changes in operating conditions and changes in compliance with policies and procedures currently in place may result in inadequate disclosure controls and procedures and internal control over financial reporting in the future.

Foreign currency exchange rates may adversely affect our financial statements.

An increasing portion of our revenue is derived from international operations. Our consolidated financial results are reported in U.S. dollars. Most of the revenue and expenses of our foreign subsidiaries are denominated in local currencies. Given that cash is typically received over an extended period of time for many of our license agreements and given that a material and increasing portion of our revenue is generated outside of the United States, fluctuations in foreign exchange rates (including the Euro) against the U.S. dollar could result in substantial changes in reported revenues and operating results due to the foreign exchange impact upon translation of these transactions into U.S. dollars.

In the normal course of business, we employ various hedging strategies to partially mitigate these risks, including the use of derivative instruments. These strategies may not be effective in fully protecting us against the effects of fluctuations from movements in foreign exchange rates, including the increased volatility in foreign exchange rates following the COVID-19 outbreak and future global pandemics and other events. Fluctuations of the foreign exchange rates could materially adversely affect our business, financial condition, operating results and cash flow.

Additionally, sales and purchases in currencies other than the U.S. dollar expose us to fluctuations in foreign currencies relative to the U.S. dollar and may adversely affect our financial statements. Increased strength of the U.S. dollar increases the effective price of our products sold in U.S. dollars into other countries, which may require us to lower our prices or adversely affect sales to the extent we do not increase local currency prices. Decreased strength of the U.S. dollar could adversely affect the cost of materials, products and services we purchase overseas. Sales and expenses of our non-U.S. businesses are also translated into U.S. dollars for reporting purposes and the strengthening or weakening of the U.S. dollar could result in unfavorable translation effects. In addition, we may invoice customers in a currency other than the functional currency of our business, and movements in the invoiced currency relative to the functional currency could also result in unfavorable translation effects. We also face exchange rate risk from our investments in subsidiaries owned and operated in foreign countries.

If our products contain errors or quality issues, such issues may be costly to correct, revenue may be delayed, we could be sued, and our reputation could be harmed.

Our products are inherently complex and, despite testing by our customers and us, errors or quality issues may be found in our products after commencement of commercial shipments, especially when products are first introduced or when new versions are released. These errors may result from components supplied by third parties incorporated into our products, which makes us dependent upon the cooperation and expertise of such third parties for the diagnosis and correction of such errors. If errors are discovered, we may not be able to correct them in a timely manner or at all. In addition, we may need to make significant expenditures to eliminate errors and failures. Errors and failures in our products could result in loss of or delay in market acceptance of our products and could damage our reputation. Regardless of the source of these defects or errors, we may need to divert the attention of our engineering personnel from our product development efforts to address the detection and correction of these errors and defects. If one or more of our products fail, a customer may assert warranty and other contractual claims for substantial damages against us. Our contracts with customers contain provisions relating to warranty disclaimers and liability limitations, which may not be upheld. Defending a lawsuit, regardless of its merit, is costly and may divert management's attention and harm the market's perception of us and our products. In addition, if our business liability insurance coverage proves inadequate or future coverage is unavailable on acceptable terms or at all, our business, operating results and financial condition could be adversely impacted.

The occurrence or discovery of these types of errors or failures could have a material and adverse impact on our business, operating results and financial condition. Any such errors, defects, or security vulnerabilities could also adversely affect the market's perception of our products and business.

If we fail to introduce new products and solutions or enhance our existing products and solutions to keep up with rapid technological change, demand for our products and solutions may decline.

The market for application and network performance management, service assurance, cybersecurity solutions, and business intelligence is highly competitive and characterized by rapid changes in technology, evolving industry standards, changes in customer requirements, increasing competition, and frequent product introductions and enhancements. Our success is dependent upon our ability to meet our customers' needs, which are driven by changes in technologies, new application technologies, new security risks and the emergence of new industry standards. In addition, new technologies may shorten the life cycle for our products and solutions or could render our existing or planned products and services less competitive or obsolete. We must address demand from our customers for advancements in our products and services applications in order to support our customers' growing needs and requirements. In order to meet this challenge and remain competitive in the market, we must introduce new enhancements and additional form factors to our existing product lines and service offerings. If we are unable to develop, introduce and communicate new network and application performance management and service assurance products, network security products, business intelligence products, and solutions or enhancements to existing products in a timely and successful manner, this inability could have a material and adverse impact on our business, operating results and financial condition.

As our success depends in part on our ability to develop product enhancements and new products and solutions that keep pace with continuing changes in technology, cyber risk and customer preferences, we must devote significant resources to research and development, development and introduction of new products and enhancements on a timely basis, and obtaining market acceptance for our existing products and new products. We have introduced and intend to continue to introduce new products and solutions, including increased migration to "software as a service" and software-deployed products. If the introduction of these products and solutions is significantly delayed or if we are unsuccessful in bringing these products and solutions to market, our business, operating results and financial condition could be materially and adversely impacted. We are developing and are already deploying a number of new products as well as enhancements to our existing products and offerings, including software only solutions and products available in multiple form factors.

We must invest in research and development in order to remain competitive in our industry. However, there can be no assurances that continued investment and increased research and development expenses will ultimately result in our maintaining or increasing our market share, which could result in a decline in our operating results. The process of developing new solutions is complex and uncertain; we must commit significant resources to developing new services or features without knowing whether our investments will result in services or features the market will accept. If our research and development expenses increase without a corresponding increase in our revenues, it could have a material adverse effect on our operating results. Also, we may not be able to successfully complete the development and market introduction of new products or product enhancements in a timely manner. If we fail to develop and deploy new products and product enhancements on a timely basis, or if we fail to gain market acceptance of our new products, our revenues will likely decline, and we may lose market share to our competitors.

The move to software focused products requires higher unit sales.

To address customer requirements for future technology changes such as "edge computing" and to reduce the environmental impacts of our products, we have increased and are continuing to increase our software offerings. While software products have a higher overall sales margin than that of bundled hardware and software products, the per unit revenue for software-only sales is lower than for sales that include software/hardware bundles. Therefore, in order to increase overall revenue, we will need to sell more units of software-only products to meet or exceed the revenues generated by software/hardware bundled products.

We face significant competition from other technology companies.

The service assurance, application performance management, network security and business intelligence markets are highly competitive, rapidly evolving, and fragmented markets that have overlapping technologies and competitors, both large and small, and we expect competition on offerings and pricing to increase. We believe customers make service management system, network security and business intelligence purchasing decisions based primarily upon the following factors:

- product and service performance, functionality and price;
- timeliness of new product and service introductions;

- network capacity;
- ease of installation, integration, and use;
- customer service and technical support;
- name and reputation of vendor;
- quality and value of the product and services; and
- alliances with industry partners.

We compete with a growing number of providers of service assurance, application performance management solutions, network security offerings and portable network traffic analyzers and probes, as well as with providers of business intelligence services. In addition, leading network equipment, network security and service assurance and application technology vendors offer their own management solutions, including products which they license from other competitors. Some of our current and potential competitors have greater name recognition and substantially greater financial, management, marketing, service, support, technical, distribution and other resources than we do. In addition, some of our customers develop their own in-house solutions to meet their technological needs. Further, in recent years some of our competitors have been acquired by larger companies that are seeking to enter or expand in the markets in which we operate. We expect this trend to continue as companies attempt to strengthen or maintain their market positions in an evolving industry. Therefore, given their larger size and greater resources, our competitors may be able to respond more effectively than we can to new or changing opportunities, technologies, standards and customer requirements.

As a result of the competitive factors highlighted in this section and in other risk factors, we may not be able to compete effectively with our current or future competitors. If we are unable to anticipate or react to these competitive challenges or if existing or new competitors gain market share in any of our markets, our competitive position could weaken and we could experience a decline in our sales that could adversely affect our business and operating results. This competition could result in increased pricing pressure, reduced profit margins, increased sales and marketing expenses, and failure to increase, or the loss of market share, any of which would likely have a material and adverse impact on our business, operating results and financial condition.

Increased customer demands on our technical support services may adversely affect our relationships with our customers and our financial results.

We offer technical support services with many of our products. We may be unable to respond quickly enough to accommodate short-term increases in customer demand for support services. We also may be unable to modify the format of our support services to compete with changes in support services provided by competitors. Our customers depend on our support organization to resolve issues relating to our products deployed on their networks. A high level of support is critical for continued relationships with our customers. If we or our channel partners do not effectively assist our customers in deploying our products, succeed in helping our customers quickly resolve post-deployment issues, and provide effective ongoing support, it would adversely affect our ability to sell our products to existing customers and would harm our reputation with existing and potential customers. Any failure to maintain high quality support and services would harm our operating results and reputation. Further, if customers demand these services, and we cannot adequately meet their demand, or if we cannot realize revenues in connection with our provision of services related to product support, it could have a material and adverse impact on our financial condition and results of operations.

Failure to manage growth properly and to implement enhanced automated systems could adversely impact our business.

The growth in size and complexity of our business and our customer base has been and will continue to be a challenge to our management and operations. Additional growth will place significant demands on our management, infrastructure, and other resources. To manage further growth effectively, we must hire, integrate, and retain highly skilled personnel qualified to manage our expanded operations. We will also need to continue to improve our financial and management controls, reporting systems, and procedures. If we are unable to manage our growth effectively, our costs, the quality of our products, the effectiveness of our sales organization, attraction and retention of key personnel, our business, our operating results and financial condition could be materially and adversely impacted. To manage our growth effectively, we may need to implement new or enhanced automated infrastructure technology and systems.

Any disruptions or ineffectiveness relating to our systems implementations and enhancements could adversely affect our ability to process customer orders, ship products, provide services and support to our customers, bill and track our customers, fulfill contractual obligations, and otherwise run our business.

As a result of the diversification of our business, personnel growth, acquisitions and international expansion in recent years, most of our employees are now based outside of our headquarters. If we are unable to appropriately increase management depth and enhance succession planning, we may not be able to achieve our financial or operational goals. It is also important to our continued success that we hire qualified employees, properly train them and manage out poorly performing personnel, all while maintaining our corporate culture and spirit of innovation. If we are not successful at these efforts, our growth and operations could be adversely affected.

As our business evolves, we must also expand and adapt our information technology (IT) and operational infrastructure. Our business relies on our data systems, billing systems and other operational and financial reporting and control systems. All of these systems have become increasingly complex due to the diversification and complexity of our business, acquisitions of new businesses with different systems. To manage our technical support infrastructure effectively and improve our sales efficiency, we will need to continue to upgrade and improve our data systems, billing systems, ordering processes, customer relationship management systems, and other operational and financial systems, procedures and controls. These upgrades and improvements may be difficult and costly, and they may require employees to dedicate a significant amount of time to implement. If we are unable to adapt our systems and organization in a timely, efficient and cost-effective manner to accommodate changing circumstances, our business may be adversely affected. If the third parties we rely on for hosted data solutions for our internal network and information systems are subject to a security breach or otherwise suffer disruptions that impact the services we utilize, the integrity and availability of our internal information could be compromised causing the loss of confidential or proprietary information, damage to our reputation and economic loss.

We may not successfully complete acquisitions or integrate acquisitions we do make, which could impair our ability to compete and could harm our operating results.

We may need to acquire complementary businesses, products or technologies to remain competitive or expand our business. We actively investigate and evaluate potential acquisitions of complementary businesses, products and technologies in the ordinary course of business. We may compete for acquisition opportunities with entities having significantly greater resources than we have. As a result, we may not succeed in acquiring some or all businesses, products or technologies that we seek to acquire. Our inability to effectively consummate acquisitions on favorable terms could significantly impact our ability to compete effectively in our targeted markets and could negatively affect our results of operations.

Acquisitions that we do complete could adversely impact our business. The potential adverse consequences from acquisitions include:

- the potentially dilutive issuance of common stock or other equity instruments;
- the incurrence of debt and amortization expenses related to acquired intangible assets;
- the potentially costly and disruptive impact of assuming unfavorable pre-existing contractual relationships of acquired companies that we would not have otherwise entered into and potentially exiting or modifying such relationships;
- the potential litigation or other claims in connection with, or inheritance of claims or litigation risk as a result of, an acquisition including claims from terminated employees, customers, third parties or enforcement actions by various regulators;
- the incurrence of significant costs and expenses to complete the acquisition and integrate the acquired business; and
- the potentially negative impact of poor performance of an acquisition on our earnings per share.

Acquisition transactions also involve numerous business risks. These risks from acquisitions include:

- difficulties in assimilating the acquired operations, technologies, personnel and products;
- difficulties in managing geographically dispersed operations;
- difficulties in assimilating diverse financial reporting and management information systems as well as differing ordering processes and customer relationship management systems;
- difficulties in maintaining uniform standards, controls, procedures and policies;
- the diversion of management's attention from other business concerns;
- use of cash to pay for acquisitions that may limit other potential uses of our cash, including stock repurchases and repayment of outstanding indebtedness;
- substantial accounting charges for restructuring and related expenses, write-off of in-process research and development, impairment of goodwill, amortization or impairment of intangible assets and share-based compensation expense;
- the potential disruption of our business;
- the potential loss of key employees, customers, distributors or suppliers;
- the inability to generate sufficient revenue to offset acquisition or investment costs; and

- the potential for delays in customer purchases due to uncertainty and the inability to maintain relationships with customers of the acquired businesses.

If we are not able to successfully manage these issues, the anticipated benefits and efficiencies of the acquisitions may not be realized fully or at all, or may take longer to realize than expected, and our ability to compete, our revenue and gross margins and our results of operations may be adversely affected.

Our ability to quickly and successfully recover from a disaster, public health crisis (including a global pandemic such as COVID-19), or other business continuity event could affect our ability to deliver our products and cause reputational harm to our business.

The occurrence of a natural disaster, public health crisis (including a global pandemic such as COVID-19) or an act of terrorism, or a decision or need to close any of our facilities without adequate notice or time for making alternative arrangements could result in interruptions in the delivery of our products and services. Our central business functions, including administration, human resources, finance services, legal, development, manufacturing and customer support depend on the proper functioning of our computer, telecommunication and other technology systems and operations, some of which are operated or hosted by third parties.

A disruption or failure of these systems or operations because of a disaster, public health crisis (including a global pandemic such as COVID-19) or other business continuity event could cause data to be lost or otherwise delay our ability to complete sales and provide the highest level of service to our customers. In addition, we could have difficulty producing accurate financial statements on a timely basis, which could have an impact on our ability to make timely disclosures and could adversely affect the trading value of our stock. Although we endeavor to ensure there is redundancy in these systems and that they are regularly backed-up, there are no assurances that data recovery in the event of a disaster would be effective or occur in an efficient manner. Our operations are dependent upon our ability to protect our technology infrastructure against damage from business continuity events that could have a significant disruptive effect on our operations. We could experience material adverse interruptions to our operations or delivery of services to our clients in a disaster recovery scenario.

Vulnerabilities and critical security defects, prioritization decisions regarding remedying vulnerabilities or security defects, failure of third party providers to remedy vulnerabilities or security defects, or customers not deploying security releases or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation or otherwise harm our business.

The products and services we sell to customers, and our cloud-based solutions, may contain vulnerabilities or critical security defects which have not been remedied and cannot be disclosed without compromising security. We may also make prioritization decisions in determining which vulnerabilities or security defects to fix, and the timing of these fixes, which could result in an exploit that compromises security.

Customers also need to test security releases before they can be deployed which can delay implementation. In addition, we rely on third-party providers of software and cloud-based services and we cannot control the rate at which they remedy vulnerabilities. Customers may also not deploy a security release, or decide not to upgrade to the latest versions of our products, services or cloud-based solutions containing the release, leaving them vulnerable.

An actual, alleged, or perceived security breach, cyberattack or incident against us could interrupt our operations, create a perception that our products and services are vulnerable, and damage our brand and reputation, which could reduce revenue, increase expenses, and expose us to legal claims or regulatory actions.

Our IT networks, software and systems, and those of our service providers and partners, may be vulnerable to a wide variety of security breaches, cyberattacks and other incidents, including but not limited to traditional computer “hackers,” malicious code (such as viruses, ransomware and worms), data theft, phishing attempts and other social engineering schemes, employee mistake, theft or misuse, denial of service attacks, and nation-state and nation-state-supported actors engaged in attacks and intrusions. Although we have controls and security measures in place to prevent cyberattacks, experienced computer hackers are increasingly organized and sophisticated. Malicious attack efforts operate on a large-scale and sometimes offer targeted attacks as a paid for service. In addition, the techniques they use to access or sabotage networks change frequently and may not be recognized until launched against a target. As a provider of security solutions, we may be a more attractive target for such attacks. Other individuals or entities, including employees or vendors, may also intentionally or unintentionally provide unauthorized access to our IT environments or to our customers' IT environments.

If we, our service providers, or our partners were to experience a security breach, cyberattack or other incident, our service availability, IT systems and networks could be impacted, we or our customers may experience system disruptions or slowdowns, security vulnerabilities of our products could be exploited, the information stored on our networks or those of our third-party service providers or partners could be accessed, publicly disclosed, altered, lost, or stolen, all of which could subject us to liability and cause us financial harm. Any actual, alleged or perceived security breach or incident affecting us, our service providers, our partners or our industry as a whole could result in damage to our reputation, negative publicity, loss of partners, customers and sales, increased costs to remedy any problems and otherwise respond to any incident, regulatory investigations and enforcement actions, costly litigation, and other liability. In addition, we could incur substantial costs and liabilities, including but not limited to, expenses attributable to investigating, remediating and rectifying a security breach, cyberattack or other incident (including the cost of repairing any damage to our or our customers' systems), liability for stolen assets or information, lost revenue and income resulting from any system or product downtime, increased costs for cybersecurity protection, and costs to comply with any notification obligations resulting from any security incidents. Such outcomes could damage our reputation, cause customers and possibly investors to lose confidence in us, and adversely affect our business or operating results.

Additionally, efforts by hackers or others could cause interruptions, delays or cessation of our product licensing, or modification of our software, which could cause us to lose existing or potential customers. If these efforts are successful and a third party obtains unauthorized access to our or our customers' IT environments, our business operations, and those of our customers could be adversely affected, losses or theft of data could occur, our reputation and future sales could be harmed, governmental regulatory action or private or governmental litigation could be commenced against us and our business, and our financial condition, operating results and cash flows could be materially adversely affected.

Our reliance on sole source suppliers could adversely impact our business.

Specific components that are necessary for the hardware assembly of our instruments are obtained from separate sole source suppliers or a limited group of suppliers. These components include our network interface cards and proprietary hardware. Our reliance on sole or limited suppliers involves several risks, including a lack of control over the manufacturing process and inventory management and potential inability to obtain an adequate supply of required components and the inability to exercise control over pricing, quality and timely delivery of components. For most of our products, we do not have the internal manufacturing capabilities to meet our customers' demands. It is our practice to mitigate these risks by partnering with key suppliers, including distributors, to establish a variety of supply continuity practices. These practices may include, among other approaches, establishing buffer supply requiring suppliers to maintain adequate stocks of materials, bonding agreements with distributors, and use-based and kanban programs to set supply thresholds. We also enter into escrow arrangements for certain technologies. Where possible, we use widely-available off the shelf hardware and work with large suppliers with multiple factories and other risk management practices. However, failure of supply or failure to execute effectively on any of these programs, including as a result of a public health crisis (included a global pandemic such as COVID-19) could result in our inability to obtain adequate deliveries or the occurrence of any other circumstance that would require us to seek alternative sources of supply for these components would impact our ability to ship our products on a timely basis. Moreover, if we are unable to continue to acquire from these suppliers on acceptable terms, or should any of these suppliers cease to supply us with components for any reason, we may not be able to identify and integrate an alternative source of supply in a timely fashion or at the same costs. Any transition to one or more alternate manufacturers would likely result in delays, operational problems and increased costs, and may limit our ability to deliver our products to our customers on time for such transition period. These risks could damage relationships with our current and prospective customers, cause shortfalls in expected revenue, and could materially and adversely impact our business, operating results and financial condition.

If we violate the U.S. Foreign Corrupt Practices Act or applicable anti-bribery laws in other countries, or if we fail to comply with U.S. export controls and government contracting laws, our business could be harmed.

We earn a significant portion of our total revenues from international sales. As a result, we must comply with complex foreign and U.S. laws and regulations, such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and other local laws prohibiting corrupt payments to government officials and others, as well as anti-competition regulations.

The U.S. Foreign Corrupt Practices Act (FCPA), which continues to see increased enforcement in recent years, generally prohibits U.S. companies and their intermediaries from making corrupt payments to foreign officials for the purpose of obtaining or keeping business or otherwise obtaining favorable treatment and requires companies to maintain appropriate record-keeping and internal accounting practices to accurately reflect the transactions of the company. Under the FCPA, U.S. companies may be held liable for actions taken by agents or local partners or representatives. In addition, regulators may seek to hold us liable for successor liability FCPA violations committed by companies which we acquire. We are also subject to the U.K. Bribery Act and may be subject to certain anti-corruption laws of other countries in which we do business.

In addition to anti-bribery and anti-corruption laws, we are also subject to the export and re-export control laws of the U.S., including the U.S. Export Administration Regulations (EAR) and the office of Foreign Asset Control (OFAC), as well as to U.S. government contracting laws, rules and regulations, and may be subject to government contracting laws of other countries in which we do business. If we or our distributors, resellers, agents, or other intermediaries fail to comply with the FCPA, the EAR, OFAC or U.S. government contracting laws, or the anti-corruption, export or governmental contracting laws of other countries, governmental authorities in the U.S. or other countries could seek to impose civil and/or criminal penalties, which could have a material adverse effect on our business, results of operations, financial conditions and cash flows.

Violations of these laws and regulations could result in fines and penalties, criminal sanctions, restrictions on our business conduct and on our ability to offer our products and services in one or more countries. Such violations could also adversely affect our reputation with existing and prospective customers, which could negatively impact our operating results and growth prospects.

The failure to recruit and retain qualified personnel and plan for and manage the succession of key executives could hinder our ability to successfully manage our business, which could have a material adverse effect on our financial position and operating results.

We operate in businesses where there is intense competition for experienced personnel in all of our global markets and have, in some instances, experienced attrition of our employees to direct and indirect competitors. We depend on our ability to identify, recruit, hire, train, develop and retain qualified and effective professionals and to attract and retain talent needed to execute our business strategy. Our future success depends in large part upon our ability to attract, train, motivate and retain highly skilled employees, particularly executives, sales and marketing personnel, software engineers, and technical support personnel. The complexity of our products, processing functionality, software systems and services require highly trained professionals. While we presently have a sophisticated, dedicated and experienced team of employees who have a deep understanding of our business lines, the labor market for these individuals has historically been very competitive due to the limited number of people available with the necessary technical skills and understanding. If we are unable to attract and retain the highly skilled technical personnel that are integral to our sales, marketing, product development and technical support teams, the rate at which we can generate sales and develop new products or product enhancements may be limited. This inability could have a material and adverse impact on our business, operating results and financial condition.

In addition, we must maintain and periodically increase the size of our sales force in order to increase our direct sales and support our indirect sales channels. Because our products are very technical, sales-people require a comparatively long period of time to become productive, typically three to twelve months. This lag in productivity, as well as the challenge of attracting qualified candidates, may make it difficult to meet our sales force growth targets. Further, we may not generate sufficient sales to offset the increased expense resulting from growing our sales force. If we are unable to maintain and periodically expand our sales capability, our business, operating results and financial condition could be materially and adversely impacted.

Loss of key personnel could adversely impact our business. Our future success depends to a significant degree on the skills, experience and efforts of Anil Singhal, our President, Chief Executive Officer, and co-founder, and our other key executive officers and senior managers to work effectively as a team. Effective succession planning is also important for our long-term success. Failure to ensure effective transfers of knowledge and smooth transitions involving key employees could hinder our strategic planning and execution. The loss of one or more of our key personnel could have a material and adverse impact on our business, operating results and financial condition. We must, therefore, plan for and manage the succession of key executives due to retirement, illness or competitive offers elsewhere.

We assumed certain non-U.S. pension benefit obligations associated with the business acquired in the Comms Transaction. Future funding obligations related to these liabilities could restrict cash available for our operations, capital expenditures or other requirements, or require us to borrow additional funds.

As part of the Comms Transaction, we assumed certain unfunded non-U.S. pension obligations related to non-U.S. employees of the Communications Business. While we intend to comply with any future funding obligations for our non-U.S. pension benefit plans through the use of cash from operations, there can be no assurance that we will generate enough cash to do so and also meet our other required or intended cash uses. Our inability to fund these obligations through cash from operations could require us to seek funding from other sources, including through additional borrowings, which could materially increase our outstanding debt or debt service requirements.

Our success depends, in part, on our ability to manage and leverage our distribution channels. Disruptions to, or our failure to effectively develop and manage, these partners and the processes and procedures that support them could adversely affect our ability to generate revenues from the sale of our products and services. Managing these distribution

channels and relationships requires experienced personnel, and lack of sufficient expertise could lead to a decrease in sales of our products and services, which could cause our operating results to suffer.

Our future success may require us to increase the number and depth of our indirect sales efforts through our distributors and channel partners and to leverage those relationships to expand these our distribution channels and to develop new indirect distribution channels to increase revenue. Our channel partners have no obligation to purchase any products from us. Some of our distribution and channel partners also distribute and sell competitive products and services and the reduction in sales by these partners could materially reduce our revenues. In addition, they could internally develop products that compete with our solutions or partner with our competitors and bundle or resell competitors' solutions, possibly at lower prices. The potential inability to develop relationships with new partners in new markets, expand and manage our existing partner relationships, the unwillingness of our partners to market and sell our products effectively or the loss of existing partnerships could have a material and adverse impact on our business, operating results and financial condition. Our international operations, including our operations in the United Kingdom, mainland Europe, India, Asia-Pacific and other regions, are generally also subject to the risk of longer sales cycles through our international distribution channels. Sales to customers outside the United States accounted for 39%, 39%, and 41% of our total revenue for the fiscal years ended March 31, 2020, 2019 and 2018, respectively.

The need to develop such relationships can be particularly acute in areas outside of the U.S. Recruiting and retaining qualified channel partners and training them in the use of our technology and services and ensuring that they comply with our legal and ethical expectations requires significant time and resources.

Our failure to maintain and increase the number and quality of relationships with channel partners, and any inability to successfully execute on the partnerships we initiate, could significantly impede our revenue growth prospects in the short and long term.

Our success depends, in part, on our ability to manage our international research and development operations and related partnerships. Our international research and development efforts may achieve delayed or lower than expected benefits and involve competitive and other risks.

We must continue to enhance our existing products and introduce new products in order to keep up with rapid technological change. Our international research and development teams play a critical role in these efforts. We must attract, train, motivate and retain our international research and development team members. To maintain this international employee research and development talent, we believe we must provide our international engineers with compelling and strategically significant work, coupled with technical and architectural ownership of their respective development projects. We must develop the leaders of these international teams, while ensuring their frequent inclusion and participation in corporate strategic and operational planning. We are likely to recognize the costs associated with these investments earlier than some of the anticipated benefits, and the return on these investments may be lower, or may develop more slowly, than we expect. These development efforts also involve risks, including, knowledge transfer issues related to our technology and resulting exposure to misappropriation of intellectual property or information that is proprietary to us, heightened exposure to economic, security and political conditions abroad, and exchange rate and tax compliance issues. The risks related to our research and development efforts abroad could increase our expenses, impair our development efforts, harm our competitive position and damage our reputation. If we do not achieve the benefits anticipated from these investments, or if the achievement of these benefits is delayed, our operating results may be adversely affected.

Necessary licenses for third-party technology may not be available to us on commercially reasonable terms or at all.

We currently and will in the future license technology from third parties that we use to produce or embed in our products. While we have generally been able to license required third-party technology to date, third-party licenses required in the future may not be available to us on commercially reasonable terms or at all. Third parties who hold exclusive rights to technology that we seek to license may include our competitors. If we are unable to obtain any necessary third-party licenses, we would be required to redesign our product or obtain substitute technology, which may not perform as well, be of lower quality or be more costly. The loss of these licenses or the inability to maintain any of them on commercially acceptable terms could delay development of future products or the enhancement of existing products. We may also choose to pay a premium price for such a license in certain circumstances where continuity of the licensed product would outweigh the premium cost of the license. The unavailability of these licenses or the necessity of agreeing to commercially unreasonable terms for such licenses could materially adversely affect our business, financial condition, operating results and cash flows.

Our success depends on our ability to protect our intellectual property rights.

Our business is heavily dependent on our intellectual property. We rely upon a combination of patent, copyright, trademark and trade secret laws and registrations and non-disclosure and other contractual and license arrangements to protect our intellectual property rights. The reverse engineering, unauthorized copying, or other misappropriation of our intellectual property could enable third parties to benefit from our technology without compensating us. Furthermore, the laws of some foreign jurisdictions do not offer the same protections for our proprietary rights as the laws of the United States, and we may be subject to unauthorized use of our products in those countries. Legal proceedings to enforce our intellectual property rights could be burdensome and expensive and could involve a high degree of uncertainty. In addition, legal proceedings may divert management's attention from growing our business. There can be no assurance that the steps we have taken to protect our intellectual property rights will be adequate to deter misappropriation of proprietary information, or that we will be able to detect unauthorized use by third parties and take appropriate steps to enforce our intellectual property rights. The unauthorized copying or use of our products or proprietary information could result in reduced sales of our products and eventually harm our operating results.

Others may claim that we infringe on their intellectual property rights.

From time to time we have been and may continue to be subject to claims by others that our products infringe on their intellectual property rights, patents, copyrights or trademarks. In some cases, we may have agreed to indemnify our customers and partners if our products or technology infringe or misappropriate specified third party intellectual property rights; therefore, we could become involved in litigation or claims brought against our customers or partners if our products or technology are the subject of such allegations. These claims, whether or not valid, could require us to spend significant sums in litigation, pay damages or royalties, delay product shipments, reengineer our products, rename our products and rebuild name recognition or acquire licenses to such third-party intellectual property. We may not be able to secure any required licenses on commercially reasonable terms or secure them at all. Any of these claims or resulting events could have a material and adverse impact on our business, operating results and financial condition.

Uncertainties of regulation of the Internet and data traveling over the Internet could have a material and adverse impact on our financial condition and results of operations.

We could be materially adversely affected by increased regulation of the Internet and Internet commerce in any country where we operate, as well as access to or commerce conducted on the Internet. Further, governments may further regulate or restrict the sales, licensing, distribution, and export or import of certain technologies to certain countries. The adoption of additional regulation of the Internet and Internet commerce could decrease demand for our products, and, at the same time, increase the cost of selling our products, which could have a material and adverse effect on our financial condition and results of operations.

The rapid evolution and increasing enforcement of privacy and security laws and regulations and standards around the world could require significant company resources, limit certain functionalities of our products, and harm our business.

We are subject to federal, state, local, and international laws, regulations, directives, and standards relating to the collection, use, retention, disclosure, security, transfer, and other processing of personally identifiable information. The regulatory framework for privacy and security issues worldwide is rapidly evolving, and as a result, implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. We publicly post documentation regarding our practices concerning the processing, use, and disclosure of data. Any failure, or allegations of failure, by us, our suppliers, or other parties with whom we do business to comply with this documentation or with other federal, state, local or foreign laws, regulations, directives, and standards could result in investigations and/or proceedings against us by governmental entities or others. In many jurisdictions, enforcement actions and consequences for noncompliance are rising. In the United States, these include enforcement actions in response to rules and regulations promulgated under the authority of federal agencies, state attorneys general, states' legislation, and consumer protection agencies. In addition, privacy advocates and industry groups have regularly proposed, and may propose in the future, self-regulatory standards with which we must legally comply or that contractually apply to us. If we fail to follow these security standards, even if no customer information is compromised, we may incur significant fines or experience a significant increase in costs.

Internationally, virtually every jurisdiction in which we operate has established its own data security and privacy legal framework with which we or our customers must comply. For example, the European Union (EU) has adopted the General Data Protection Regulation (GDPR) which went into effect on May 25, 2018, and introduced numerous privacy-related obligations for companies operating in the EU, including greater control for data subjects, increased data portability for EU consumers, data breach notification requirements, and increased fines. In particular, under the GDPR, fines of up to 20 million euros or up to 4% of the annual global revenue of the noncompliant company, whichever is greater, could be imposed for violations of certain of the GDPR's requirements. The GDPR requirements apply not only to third-party transactions, but also to transfers of information between us and our subsidiaries, including employee information.

The international data protection landscape is rapidly evolving, resulting in possible significant operational costs for internal compliance and risk to our business. For example, we rely upon the EU-U.S. Privacy Shield framework and EU Standard Contractual Clauses in our data export agreements as legal bases for transferring personal data outside of the European Economic Arena (EEA). Both of these frameworks are subject to ongoing review by governmental bodies and legal challenges which may result in a ruling that the industry-standard measures we, and other companies, have taken are no longer sufficient. As a result, in the future we may need to take additional measures to ensure compliance with respect to our transfers of personal data outside of the EEA.

In addition to the GDPR, the European Commission is considering additional regulations that could affect us and our customers and other companies by requiring additional regulation of communication services, which may increase our compliance burden and affect product offerings.

Complying with international data protection laws may cause us to incur additional operational costs or require us to change our business practices. Despite our efforts, we may not be successful in achieving compliance either due to internal or external factors such as lack of vendor cooperation. Any actual or perceived non-compliance could result in proceedings against us by governmental entities, customers, data subjects, or others.

Domestic laws in this area are also complex and developing rapidly. In recent years, there have been a number of well-publicized data breaches involving the improper dissemination of personal information of individuals. Many states have adopted legislation that regulates how businesses operate online, including measures relating to privacy, data security and data breaches. For example, California enacted the California Consumer Privacy Act (CCPA), which took effect on January 1, 2020, and provides its residents expanded rights to access and to delete their personal information, opt out rights to certain personal information sharing, and detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. The CCPA and its regulations may increase our compliance costs and potential liability.

Because the interpretation and application of privacy and data protection laws are uncertain, it is possible that these laws may be interpreted and applied in a manner that is inconsistent with our existing data management practices or the features of our products and platform capabilities. If so, we could be required to change our business activities and practices or modify our products and platform capabilities, which could have an adverse effect on our business. Any inability by us to adequately address privacy and security concerns, even if unfounded, or comply with applicable privacy and data security laws, regulations, and policies or our contracts governing our processing of personal information, could result in additional cost and liability to us, damage our reputation, inhibit sales, and adversely affect our business. Furthermore, the costs of compliance with, and other burdens imposed by, the laws, regulations, and policies that are applicable to the businesses of our customers or to our marketing and promotion of our products to interested individuals may have an adverse effect on our business.

We or our suppliers may be impacted by new regulations related to climate change or other environmental issues.

We or our suppliers may become subject to new laws enacted with regards to climate change or other environmental issues. In the event that new laws are enacted or current laws are modified in countries in which we or our suppliers operate, we could face increased costs in order to comply with these laws. These costs may be incurred across various levels of our supply chain in order to comply with new environmental regulations, as well as by us in connection with our manufacturing of products, including costs related to incorporation of substitute materials and other product re-design costs, as well as costs associated with product recalls. In addition, we may be unable to service existing products if certain materials are no longer compliant with new regulations, which could cause us to incur increased costs in order to satisfy service obligations to customers. Additionally, our flow of product may be impacted which could delay the recognition of revenue and have a materially adverse effect on our business.

The current economic and geopolitical environment may impact some specific industries into which we sell and may lead our customers to delay or forgo technology investments and could have other impacts, any of which could materially adversely affect our business, financial condition, operating results and cash flows.

Many of our customers are concentrated in certain industries, including financial services, public sector, healthcare, and the service provider market. Certain industries may be more acutely affected by economic, geopolitical and other factors, including public heath crises (including global pandemics such as COVID-19), and changes in U.S. trade policy with China and other countries, than other sectors. Our public sector customers are affected by federal, state and local budget decisions. To the extent that one or more of the sectors in which our customer base operates is adversely impacted, whether as a result of general conditions affecting all sectors or as a result of conditions affecting only those particular sectors, our business, financial condition and results of operations could be materially and adversely impacted. If companies in our target markets reduce capital expenditures, we may experience a reduction in sales, longer sales cycles, slower adoption of new technologies as well as downward pressure on the price of our products. There can be no assurance that any decrease in sales resulting from the COVID-19 outbreak will be offset by increased sales in subsequent periods. Although the magnitude of the impact of the COVID-19 outbreak on our business and operations remains uncertain, the continued spread of COVID-19 or the occurrence of other epidemics and the imposition of related public health measures and travel and business restrictions could adversely impact our business, financial condition, operating results and cash flows.

International economic, political, legal, compliance and business factors could negatively affect our financial statements and growth.

We expect to continue to develop our sales and presence outside the U.S.. Our international business (and particularly our business in high-growth markets) is subject to risks that are customarily encountered in non-U.S. operations, any of which could negatively affect our business, financial condition and results of operations.

In particular, after significant negotiation between the United Kingdom and the EU, the withdrawal of the United Kingdom from the EU, commonly referred to as Brexit, took effect on January 31, 2020. There is now a transition period while the United Kingdom and EU negotiate additional arrangements, including their future trading terms. The United Kingdom has stated that it wants the transition period to expire, and the future trading terms to be agreed, by December 31, 2020. The withdrawal could, among other outcomes, disrupt the free movement of goods, services, and people between the United Kingdom and the EU, undermine bilateral cooperation in key policy areas, significantly disrupt trade between the United Kingdom and the EU, and lead to a period of considerable uncertainty in relation to global financial and banking markets. In addition, the withdrawal could lead to legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which EU laws to replace or replicate. If the United Kingdom and the EU are unable to negotiate acceptable future trading terms or if other EU member states pursue withdrawal, barrier-free access between the United Kingdom and other EU member states or among the EEA overall could be diminished or eliminated. Given the lack of comparable precedent, it is unclear what financial, trade, and legal implications the withdrawal of the United Kingdom from the EU will have and how such withdrawal may affect us.

The success of our business depends, in part, on the continued growth in the market for and the continued commercial demand for service delivery, service assurance and network security solutions focused on the performance monitoring and management of applications and networks.

We derive nearly all of our revenue from the sale of products and services that are designed to allow our customers to assure the delivery of services through management of the performance and network security of applications across IP networks. We have actively expanded our operations in the past through acquisitions and organic growth and may continue to expand them in the future in order to gain share in the evolving market in which we operate. Therefore, we must be able to predict the appropriate features and prices for future products to address the market, the optimal distribution strategy and the future changes to the competitive environment. In order for us to be successful, our potential customers must recognize the value of more sophisticated application management and network security solutions, decide to invest in the management of their networked applications and, in particular, adopt our management solutions. Any failure of this market to continue to be viable would materially and adversely impact our business, operating results and financial condition. Additionally, businesses may choose to outsource the operations and management of their networks to managed service providers. Our business may depend on our ability to continue to develop relationships with these service providers and successfully market our products to them.

Changes in industry structure and market conditions could lead to charges related to discontinuances of certain of our products or businesses and asset impairments.

In response to changes in industry and market conditions, we may be required to strategically reallocate managerial, operational, financial and other resources. Any such efforts may result in charges related to consolidation of excess facilities or claims from third parties who were resellers or users of discontinued products.

Our growth could suffer if the markets into which we sell our products and services experience cyclicality.

Our growth will depend in part on the growth of the markets which we serve. We serve certain industries that have historically been cyclical and have experienced periodic downturns that have had a material adverse impact on demand for the products, software and services that we offer. Any of these factors could adversely affect the business, financial condition and results of operations of the company in any given period.

Uncertain conditions in the global economy and constraints in the global credit market may adversely affect our revenue and results of operations.

Disruptions in the global economy and constraints in the global credit market may cause some of our customers to reduce, delay, or cancel spending on capital and technology projects, resulting in reduced spending with us. While some industry sectors such as government and telecommunications may be less susceptible to the effects of an economic slowdown, our enterprise customers may be adversely affected, especially in financial services and consumer industries. Continued volatility in, or disruption of financial markets could limit customers' ability to obtain adequate financing to maintain operations and result in a decrease in sales volume that could have a negative impact on our results of operations. Further, competitors may respond to economic conditions by lowering their prices, which could put pressure on our pricing. We could also experience lower than anticipated order levels, cancellations of orders in backlog, defaults on outstanding accounts receivable and extended payment or delivery terms. Economic weakness, customer financial difficulties and constrained spending on IT initiatives have resulted, and may in the future result, in challenging and delayed sales cycles and could negatively impact our ability to forecast future periods. In addition, some of the markets we serve are emerging and the purchase of our products involves material changes to established purchasing patterns and policies. The purchase of our products is often discretionary and may involve a significant commitment of capital and other resources.

Our stock price has been subject to fluctuations, and will likely continue to be subject to fluctuations, which may be volatile and due to factors beyond our control.

The market price of our common stock is subject to wide fluctuations in response to various factors, some of which are beyond our control. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this report, factors that could cause fluctuations in the market price of our common stock include the following:

- actual or anticipated fluctuations in our operating results;
- the financial projections we may provide to the public, any changes in these projections, or our failure to meet these projections;
- failure of securities analysts to initiate or maintain coverage of our company, changes in financial estimates and publication of other news by any securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- ratings changes by any securities analysts who follow our company;
- announcements by us or our competitors of significant technical innovations, acquisitions, strategic partnerships, joint ventures, or capital commitments;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- price and volume fluctuations in the overall stock market from time to time, including as a result of trends in the economy as a whole;
- changes in accounting standards, policies, guidelines, interpretations, or principles;
- actual or anticipated developments in our business or our competitors’ businesses or the competitive landscape generally;
- developments or disputes concerning our intellectual property or our products and platform capabilities, or third-party proprietary rights;
- cybersecurity attacks or incidents;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws, or regulations applicable to our business;
- changes in our board of directors or management;
- announced or completed equity or debt transactions involving our securities;
- sales of shares of our common stock by us, our officers, directors, or other stockholders;
- lawsuits filed or threatened against us; and
- other events or factors, including those resulting from public health crises (including global pandemics such as COVID-19, war, incidents of terrorism, or responses to these events).

In addition, the market for technology stocks and the stock markets in general have experienced extreme price and volume fluctuations. Stock prices of many technology companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. In the past, stockholders have instituted securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business, and adversely affect our business, results of operations, financial condition, and cash flows. A decline in the value of our common stock, including as a result of one or more factors set forth above, may result in substantial losses for our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our headquarters are located in Westford, MA, in approximately 175,000 square feet of space under a lease expiring in September 2030. In addition, we lease office and/or manufacturing space in Allen, Texas; San Jose, California; Ann Arbor, Michigan; Berkeley, California; and Bangalore, India.

Item 3. Legal Proceedings

From time to time, we are subject to legal proceedings and claims in the ordinary course of business. In the opinion of management, the amount of ultimate expense with respect to any current legal proceedings and claims, if determined adversely, will not have a material adverse effect on our financial condition, results of operations or cash flows.

As previously disclosed, in March 2016, Packet Intelligence LLC (Packet Intelligence or Plaintiff) filed a Complaint against us and two subsidiary entities in the United States District Court for the Eastern District of Texas asserting infringement of five United States patents. Plaintiff's Complaint alleged that legacy Tektronix GeoProbe products, including the G10 and GeoBlade products, infringed these patents. We filed an Answer denying Plaintiff's allegations and asserting that Plaintiff's patents were, among other things, invalid, not infringed, and unenforceable due to inequitable conduct. In October 2017, a jury trial was held to address the parties' claims and counterclaims regarding infringement of three patents by the G10 and GeoBlade products, invalidity of these patents, and damages. On October 13, 2017, the jury rendered a verdict finding in favor of the Plaintiff and that Plaintiff was entitled to $3,500,000 for pre-suit damages and $2,250,000 for post-suit damages. The jury indicated that the awarded damages amounts were intended to reflect a running royalty. In September 2018, the Court entered judgment and "enhanced" the jury verdict in the amount of $2.8 million as a result of a jury finding. The judgment also awards pre- and post-judgment interest, and a running royalty on the G10 and GeoBlade products until the expiration of the patents at issue, the last date being June 2022. The Court denied the Plaintiff's motion for fees. Following additional motions for judgment as a matter of law, the court entered final judgment. On June 12, 2019, we filed our Notice of Appeal of the judgment and all other adverse findings. We have concluded that the risk of loss from this matter is currently neither remote nor probable, and therefore, under GAAP definitions, the risk of loss is termed "reasonably possible". Therefore, accounting rules require us to provide an estimate for the range of potential liability. We currently estimate that the estimated range of liability is between $0 and the aggregate amount awarded by the jury and the Court's award of enhanced damages, plus potential additional pre- and post-judgment interest amounts and costs and any royalties owed on post-trial sales of the accused G10 and GeoBlade products.

Item 4. Mine Safety Disclosures

None.

PART II

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

Price Range of Common Stock

Our common stock trades on the Nasdaq Global Select Market, under the symbol NTCT.

Stockholders

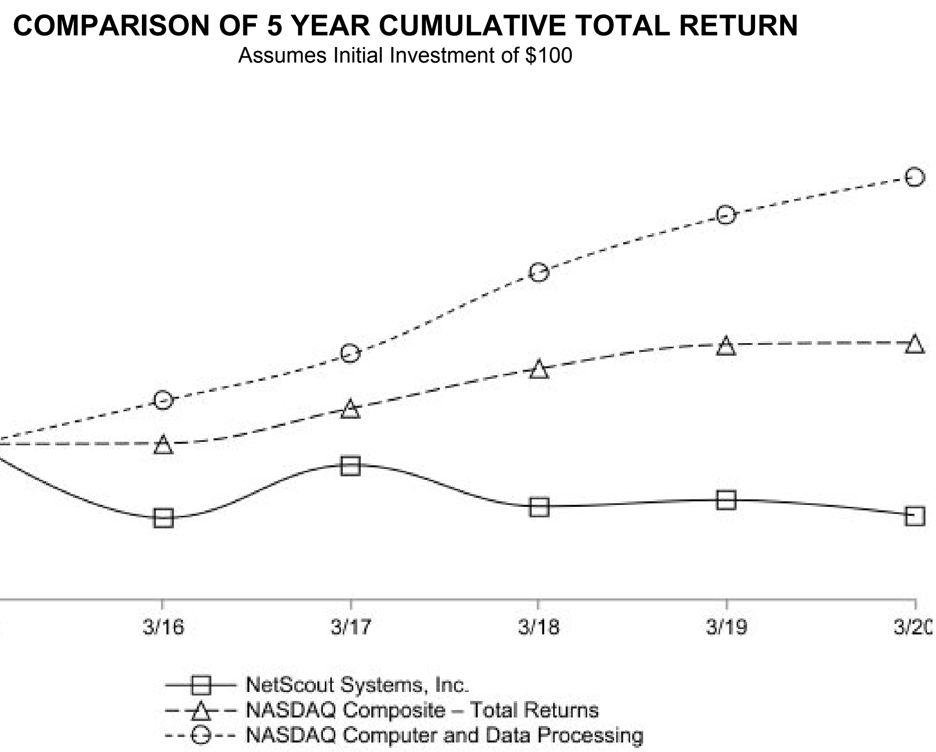
At May 11, 2020, we had 96 stockholders of record. We believe that the number of beneficial holders of our common stock exceeds 14,000.

Stock Performance Graph

This performance graph shall not be deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of NetScout under the Exchange Act or the Securities Act of 1933, as amended.

The Stock Performance Graph set forth below compares the yearly change in the cumulative total stockholder return on our common stock during the five-year period from March 31, 2015 through March 31, 2020 with the cumulative total return of the Nasdaq Composite Index and the Nasdaq Computer & Data Processing Index. The comparison assumes $100 was invested on March 31, 2015 in our common stock or in the Nasdaq Composite Index and the Nasdaq Computer & Data Processing Index and assumes reinvestment of dividends, if any.

The stock price performance shown on the graph below is not necessarily indicative of future price performance. Information used in the graph was obtained from Zacks Investment Research, Inc.



	3/31/2015	3/31/2016	3/31/2017	3/31/2018	3/31/2019	3/31/2020
NetScout Systems, Inc.	$ 100.00	$ 52.38	$ 86.55	$ 60.09	$ 64.01	$ 53.98
Nasdaq Composite – Total Returns	$ 100.00	$ 100.55	$ 123.56	$ 149.21	$ 165.07	$ 166.22
Nasdaq Computer and Data Processing	$ 100.00	$ 128.31	$ 158.29	$ 211.57	$ 248.63	$ 273.16

Dividend Policy

In fiscal years 2020 and 2019, we did not declare any cash dividends and do not anticipate declaring cash dividends in the foreseeable future. In addition, the terms of our credit facility limit our ability to pay cash dividends on our capital stock. It is our intention to retain all future earnings for reinvestment to fund our expansion and growth, to pay down our debt, and to fund our stock buyback program further described under Item 7 "Liquidity and Capital Resources." Any future cash dividend declaration will be at the discretion of our Board of Directors and will depend upon, among other things, our future earnings, general financial conditions, capital requirements, existing bank covenants and general business conditions.

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Issuer

The following table provides information about purchases we made during the quarter ended March 31, 2020 of equity securities that are registered by us pursuant to Section 12 of the Exchange Act:

	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares That May Yet be Purchased Under the Program
1/1/2020 - 1/31/2020	—	$ —	—	9,194,997
2/1/2020 - 2/29/2020	915,114	28.33	906,100	8,288,897
3/1/2020 - 3/31/2020	1,046,161	23.26	1,045,466	7,243,431
Total	1,961,275	$ 25.63	1,951,566	7,243,431

(1) We purchased an aggregate of 9,709 shares transferred to us from employees in satisfaction of tax withholding obligations associated with the vesting of restricted stock units during the period. Such purchases reflected in the table do not reduce the maximum number of shares that may be purchased under our previously announced stock repurchase program (our previously disclosed 25 million share repurchase program).

Item 6. Selected Financial Data

SELECTED CONSOLIDATED FINANCIAL DATA

The selected consolidated financial data set forth below should be read in conjunction with our audited consolidated financial statements and notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included under Item 7 of this Annual Report on Form 10-K. The consolidated statement of operations data for the fiscal years ended March 31, 2020, 2019 and 2018 and the consolidated balance sheet data at March 31, 2020 and 2019 are derived from audited consolidated financial statements included under Item 8 of this Annual Report on Form 10-K. The consolidated statement of operations data for the fiscal years ended March 31, 2017 and 2016 and the consolidated balance sheet data at March 31, 2018, 2017 and 2016 have been derived from audited consolidated financial statements of NetScout that do not appear in this Annual Report on Form 10-K. Certain amounts for the twelve months ended March 31, 2018, 2017 and 2016, respectively, have been reclassified to conform to the current period presentation. These reclassifications had no effect on the reported results of operations. The historical results are not necessarily indicative of the operating results to be expected in the future.

	Year Ended March 31,				
	2020	2019 (1)	2018	2017	2016 (2)
	(In thousands, except per share data)				
Statement of Operations Data:					
Revenue:					
Product	$ 438,341	$ 467,289	$ 520,418	$ 715,404	$ 625,537
Service	453,479	442,629	466,369	446,708	329,882
Total revenue	891,820	909,918	986,787	1,162,112	955,419
Cost of revenue:					
Product	122,832	140,938	158,628	233,275	235,996
Service	119,360	113,189	113,277	112,864	92,453
Total cost of revenue	242,192	254,127	271,905	346,139	328,449
Gross profit	649,628	655,791	714,882	815,973	626,970
Operating expenses:					
Research and development	188,294	203,588	215,076	232,701	208,630
Sales and marketing	276,523	291,870	312,536	328,628	293,335
General and administrative	99,994	93,572	109,479	118,438	117,714
Amortization of acquired intangible assets	64,505	74,305	76,640	70,141	32,373
Restructuring charges	2,674	18,693	5,209	4,001	468
Impairment of intangible assets	—	35,871	—	—	—
Loss on divestiture of business	—	9,472	—	—	—
Total operating expenses	631,990	727,371	718,940	753,909	652,520
Income (loss) from operations	17,638	(71,580)	(4,058)	62,064	(25,550)
Interest and other expense, net	(15,714)	(21,332)	(14,601)	(9,879)	(6,889)
Income (loss) before income tax expense (benefit)	1,924	(92,912)	(18,659)	52,185	(32,439)
Income tax expense (benefit)	4,678	(19,588)	(98,471)	18,894	(4,070)
Net income (loss)	$ (2,754)	$ (73,324)	$ 79,812	$ 33,291	$ (28,369)
Basic net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.91	$ 0.36	$ (0.35)
Diluted net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.90	$ 0.36	$ (0.35)
Weighted average common shares outstanding used in computing:					
Net income (loss) per share—basic	75,162	78,617	87,425	92,226	81,927
Net income (loss) per share—diluted	75,162	78,617	88,261	92,920	81,927

(1) The fiscal year 2019 amounts and all following years have been impacted by the April 1, 2018 adoption of the new revenue standard.

(2) During the fiscal year ended March 31, 2016, NetScout completed the Comms Transaction. The total equity consideration was approximately $2.3 billion based on issuing approximately 62.5 million new shares of NetScout common stock.

	March 31,				
	2020 (1)	2019	2018	2017	2016 (2)
			(In thousands)		
Balance Sheet Data:					
Cash, cash equivalents and short- and long-term marketable securities	$ 389,071	$ 486,988	$ 447,762	$ 464,705	$ 352,075
Working capital	$ 260,746	$ 421,286	$ 339,108	$ 394,279	$ 283,422
Total assets	$ 3,120,503	$ 3,269,994	$ 3,368,608	$ 3,601,513	$ 3,592,843
Debt	$ 450,000	$ 550,000	$ 600,000	$ 300,000	$ 300,000
Total stockholders' equity	$ 1,937,919	$ 2,065,433	$ 2,068,782	$ 2,436,250	$ 2,443,382

(1) Upon adoption of ASU 2016-02, Leases (Topic 842), at the beginning of the first quarter of fiscal 2020, NetScout began including right-of-use assets in total assets, as the guidance requires an entity to recognize lease liabilities and a right-of-use assets on the balance sheet.

(2) During the fiscal year ended March 31, 2016, NetScout completed the Comms Transaction. The total equity consideration was approximately $2.3 billion based on issuing approximately 62.5 million new shares of NetScout common stock.

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

The following information should be read in conjunction with the audited consolidated financial information and the notes thereto included in this Annual Report on Form 10-K. In addition to historical information, the following discussion and other parts of this Annual Report contain forward-looking statements that involve risks and uncertainties. You should not place undue reliance on these forward-looking statements. Actual events or results may differ materially due to competitive factors and other factors discussed in Item 1A. "Risk Factors" and elsewhere in this Annual Report. These factors may cause our actual results to differ materially from any forward-looking statement. See the section titled "Cautionary Statement Concerning Forward-Looking Statements" that appears at the beginning of this Annual Report.

Overview

We are an industry leader in providing service assurance and security solutions that are used by customers worldwide to assure their digital business services against disruption. Service providers and enterprises, including local, state and federal government agencies, rely on our solutions to achieve the visibility necessary to optimize network performance, ensure the delivery of high-quality, mission-critical applications and services, gain timely insight into the end user experience and protect the network from attack. With our offerings, customers can quickly, efficiently and effectively identify and resolve issues that result in downtime, interruptions to services, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader technology initiatives. Some of the more significant technology trends and catalyst for our business include the evolution of customers digital transformation initiatives, the rapidly evolving security threat landscape, business intelligence and analytics advancements, and the 5G evolution in both the service provider and enterprise verticals.

Our operating results are influenced by a number of factors, including, but not limited to, the mix and quantity of products and services sold, pricing, costs of materials used in our products, growth in employee-related costs, including commissions, and the expansion of our operations. Factors that affect our ability to maximize our operating results include, but are not limited to, our ability to introduce and enhance existing products, the marketplace acceptance of those new or enhanced products, continued expansion into international markets, development of strategic partnerships, competition, successful acquisition integration efforts, and our ability to achieve expense reductions and make improvements in a highly competitive industry.

COVID-19 Impact

In March 2020, the World Health Organization declared the novel strain of coronavirus (COVID-19) a global pandemic and recommended containment and mitigation measures worldwide. The pandemic and these containment and mitigation measures have led to adverse impacts on the U.S. and global economies. Due to the critical nature of our products and services, we are considered critical under State and Federal guidelines. We remain focused on protecting the health and well-being of our employees and have implemented work from home policies for a vast majority of our employees where possible.

We are closely monitoring the impact of the outbreak of COVID-19 on all aspects of our business, including how it has impacted and will continue to impact our customers, employees, supply chain, and distribution network. While COVID-19 did not have a material adverse effect on our reported results for the fourth quarter of our fiscal year 2020, the pandemic did impact the timing of some transactions. There is a great deal of uncertainty in the global economy, and we are unable to predict the ultimate impact that it may have on our business, future results of operations, financial position or cash flows. The extent to which our operations may be impacted by the COVID-19 pandemic will depend largely on future developments, which are highly uncertain and cannot be accurately predicted, including new information which may emerge concerning the severity of the outbreak and actions by government authorities to contain the outbreak or treat its impact. Furthermore, the impacts of a potential worsening of global economic conditions and the continued disruptions to and volatility in the financial markets remain unknown.

Although there is uncertainty related to the anticipated impact of the recent COVID-19 outbreak on our future results, we believe that our products offer customers a unique solution set that can assist them in dealing with unexpected network, security and capacity challenges during and after the pandemic. Despite high customer interest in our products, the timing of the receipt of orders is challenging to predict. We believe our current cash reserves leave us well-positioned to manage our business through this crisis as it continues to unfold. Based on our analysis, we believe our existing balances of cash, cash equivalents and marketable securities and our currently anticipated operating cash flows will be sufficient to meet our cash needs arising in the ordinary course of business for the next twelve months. We are taking actions to reduce costs and increase productivity throughout our company. This includes limiting discretionary spending and reducing hiring activities. We have temporarily halted our stock repurchase program, although the repurchase authorization remains effective. In addition, based on covenant levels at March 31, 2020, we have an incremental $285 million available to us under our $1.0 billion revolving credit facility.

The extent of the impact of the global COVID-19 outbreak on our operational and financial performance will depend on certain developments, including the duration and spread of the outbreak, its impact on our customers and suppliers and the range of governmental and community reactions to the pandemic, which are uncertain and cannot be fully predicted at this time. We will continue to proactively respond to the situation and may take further actions that alter our business operations as may be required by governmental authorities, or that we determine are in the best interests of our stakeholders.

Results Overview

Total revenue for the fiscal year ended March 31, 2020 as compared to total revenue for the fiscal year ended March 31, 2019 was primarily impacted by an $18.1 million decrease in revenue as a result of the divestiture of the HNT tools business in September 2018, as well as a decrease in product revenue from both network performance management and DDOS offerings. These decreases were offset by an increase in service revenue from new maintenance contracts and renewals from a growing support base.

Our gross profit percentage increased by approximately one percentage point during the fiscal year ended March 31, 2020 as compared with the fiscal year ended March 31, 2019.

Net loss for the fiscal year ended March 31, 2020 was $2.8 million, as compared with net loss for the fiscal year ended March 31, 2019 of $73.3 million, resulting in a decrease in net loss of $70.5 million. The decrease in net loss was primarily due to a $35.9 million impairment charge of certain intangible assets related to the HNT tools business recorded in the fiscal year ended March 31, 2019, a $17.6 million decrease in amortization of intangible assets, a $16.0 million decrease in restructuring charges, an $11.8 million decrease in employee-related expenses, and a $9.5 million loss on the divestiture of the HNT tools business recorded in the fiscal year ended March 31, 2019. These decreases were partially offset by a $24.3 million increase in income tax expense.

At March 31, 2020, we had cash, cash equivalents, and marketable securities (current and non-current) of $389.1 million. This represents a decrease of $97.9 million compared to the fiscal year ended March 31, 2019. This decrease was primarily due to $175.0 million used to repurchase shares of our common stock, $100.0 million used to repay long-term debt, $19.9 million used for capital expenditures, $11.9 million used for tax withholdings in connection with the vesting of restricted stock units, and $11.3 million used for the acquisitions of Gigavation Incorporated (Gigavation) and Eastwind Networks, Inc. (Eastwind). These decreases were partially offset by $225.0 million in cash provided by operations during the fiscal year ended March 31, 2020.

Use of Non-GAAP Financial Measures

We supplement the United States generally accepted accounting principles (GAAP) financial measures we report in quarterly and annual earnings announcements, investor presentations and other investor communications by reporting the following non-GAAP measures: non-GAAP total revenue, non-GAAP product revenue, non-GAAP service revenue, non-GAAP gross profit, non-GAAP income from operations, non-GAAP operating margin, non-GAAP earnings before interest and other expense, income taxes, depreciation and amortization (EBITDA) from operations, non-GAAP net income, and non-GAAP net income per share (diluted). Non-GAAP revenue (total, product and service) eliminates the GAAP effects of acquisitions by adding back revenue related to deferred revenue revaluation, as well as revenue impacted by the amortization of acquired intangible assets. Non-GAAP gross profit includes the aforementioned revenue adjustments and also removes expenses related to the amortization of acquired intangible assets, share-based compensation, certain expenses relating to acquisitions including depreciation costs, compensation for post-combination services and business development and integration costs and adds back transitional service agreement income. Non-GAAP income from operations includes the aforementioned adjustments and also removes restructuring charges, intangible asset impairment charges, loss on divestiture and costs related to new accounting standard implementation. Non-GAAP EBITDA from operations includes the aforementioned items related to non-GAAP income from operations and also removes non-acquisition-related depreciation expense. Non-GAAP net income includes the foregoing adjustments related to non-GAAP income from operations, net of related income tax effects in addition to the provisional one-time impacts of the U.S. Tax Cuts and Jobs Act (TCJA) while removing transitional service agreement income and changes in contingent consideration. Non-GAAP diluted net income per share also excludes these expenses as well as the related impact of all these adjustments on the provision for income taxes.

These non-GAAP measures are not in accordance with GAAP, should not be considered an alternative for measures prepared in accordance with GAAP (revenue, gross profit, operating profit, net income (loss) and diluted net income (loss) per share), and may have limitations in that they do not reflect all our results of operations as determined in accordance with GAAP. These non-GAAP measures should only be used to evaluate our results of operations in conjunction with the corresponding GAAP measures. The presentation of non-GAAP information is not meant to be considered superior to, in isolation from, or as a substitute for results prepared in accordance with GAAP.

Management believes these non-GAAP financial measures enhance the reader's overall understanding of our current financial performance and our prospects for the future by providing a higher degree of transparency for certain financial measures and providing a level of disclosure that helps investors understand how we plan and measure our business. We believe that providing these non-GAAP measures affords investors a view of our operating results that may be more easily compared with our peer companies and also enables investors to consider our operating results on both a GAAP and non-GAAP basis during and following the integration period of our acquisitions. Presenting the GAAP measures on their own may not be indicative of our core operating results. Furthermore, management believes that the presentation of non-GAAP measures when shown in conjunction with the corresponding GAAP measures provide useful information to management and investors regarding present and future business trends relating to our financial condition and results of operations.

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The following table reconciles revenue, gross profit, income (loss) from operations, net income (loss) and net income (loss) per share on a GAAP and non-GAAP basis for the fiscal years ended March 31, 2020, 2019 and 2018:

	Fiscal Year Ended March 31, (Dollars in Thousands, Except per Share Data)		
	2020	2019	2018
GAAP revenue	$ 891,820	$ 909,918	$ 986,787
Product deferred revenue fair value adjustment	—	391	3,064
Service deferred revenue fair value adjustment	192	1,199	9,409
Amortization of acquired intangible assets	—	—	9
Non-GAAP revenue	$ 892,012	$ 911,508	$ 999,269
GAAP gross profit	$ 649,628	$ 655,791	$ 714,882
Product deferred revenue fair value adjustment	—	391	3,064
Service deferred revenue fair value adjustment	192	1,199	9,409
Share-based compensation expense	6,843	7,422	5,983
Amortization of acquired intangible assets	24,974	31,238	37,332
Business development and integration expense	—	—	244
Acquisition related depreciation expense	31	75	145
Transitional service agreement income	—	2	—
Non-GAAP gross profit	$ 681,668	$ 696,118	$ 771,059
GAAP income (loss) from operations	$ 17,638	$ (71,580)	$ (4,058)
Product deferred revenue fair value adjustment	—	391	3,064
Service deferred revenue fair value adjustment	192	1,199	9,409
Share-based compensation expense	50,861	56,328	47,317
Amortization of acquired intangible assets	89,479	105,543	113,972
Business development and integration expense	373	874	2,689
New standard implementation expense	5	914	2,630
Compensation for post-combination services	578	789	1,108
Restructuring charges	2,674	18,693	5,209
Impairment of intangible assets	—	35,871	—
Acquisition related depreciation expense	312	905	2,057
Loss on divestiture	—	9,472	—
Transitional service agreement income	1,212	2,186	—
Non-GAAP income from operations	$ 163,324	$ 161,585	$ 183,397
GAAP net income (loss)	$ (2,754)	$ (73,324)	$ 79,812
Product deferred revenue fair value adjustment	—	391	3,064
Service deferred revenue fair value adjustment	192	1,199	9,409
Share-based compensation expense	50,861	56,328	47,317
Amortization of acquired intangible assets	89,479	105,543	113,972
Business development and integration expense	373	874	2,689
New standard implementation expense	5	914	2,630
Compensation for post-combination services	578	789	1,108

Restructuring charges	2,674	18,693	5,209
Impairment of intangible assets	—	35,871	—
Acquisition-related depreciation expense	312	905	2,057
Loss on divestiture	—	9,472	—
Other income	—	—	(57)
Transitional service agreement income	—	(45)	—
Change in contingent consideration	762	1,495	—
Income tax adjustments	(23,415)	(49,877)	(142,546)
Non-GAAP net income	$ 119,067	$ 109,228	$ 124,664
GAAP diluted net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.90
Per share impact of non-GAAP adjustments identified above	1.61	2.31	0.51
Non-GAAP diluted net income per share	$ 1.57	$ 1.38	$ 1.41
GAAP income (loss) from operations	$ 17,638	$ (71,580)	$ (4,058)
Previous adjustments to determine non-GAAP income from operations	145,686	233,165	187,455
Non-GAAP income from operations	163,324	161,585	183,397
Depreciation excluding acquisition related	26,313	31,430	37,474
Non-GAAP EBITDA from operations	$ 189,637	$ 193,015	$ 220,871

Critical Accounting Policies

We consider accounting policies related to revenue recognition, marketable securities, valuation of goodwill, intangible assets and other acquisition and divestiture accounting items, and share-based compensation to be critical in fully understanding and evaluating our financial results. We apply significant judgment and create estimates when applying these policies.

Revenue Recognition

We exercise judgment and use estimates in connection with determining the amounts of product and service revenues to be recognized in each accounting period.

We derive revenues primarily from the sale of network management tools and security solutions for service provider and enterprise customers, which include hardware, software and service offerings. The majority of our product sales consist of hardware products with embedded software that are essential to providing customers the intended functionality of the solutions. We also sell software offerings decoupled from the underlying hardware and software solutions to provide customers with enhanced functionality.

We account for revenue once a legally enforceable contract with a customer has been approved by the parties and the related promises to transfer products or services have been identified. A contract is defined by us as an arrangement with commercial substance identifying payment terms, each party's rights and obligations regarding the products or services to be transferred and the amount we deem probable of collection. Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. Revenue is recognized when control of the products or services are transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for products and services.

Product revenue is typically recognized upon shipment, provided a legally enforceable contract exists, control has passed to the customer, and in the case of software products, when the customer has the rights and ability to access the software; and collection of the related receivable is probable. If any significant obligations to the customer remain post-delivery, typically involving obligations relating to installation and acceptance by the customer, revenue recognition is deferred until such obligations have been fulfilled. Our service offerings include installation, integration, extended warranty and maintenance services, post-contract customer support, stand-ready software-as-a-service (SAAS) and other professional services including consulting and training. We generally provide software and/or hardware support as part of product sales. Revenue related to the initial bundled software and hardware support is recognized ratably over the support period. In addition, customers can elect to purchase extended support agreements for periods after the initial software/hardware warranty expiration. Support services generally include rights to unspecified upgrades (when and if available), telephone and internet-based support, updates, bug fixes and hardware repair and replacement. Consulting services are recognized upon delivery or completion of performance depending on the terms of the underlying contract. Reimbursements of out-of-pocket expenditures incurred in connection with providing consulting services are included in services revenue, with the offsetting expense recorded in cost of service revenue. Training services include on-site and classroom training. Training revenues are recognized upon delivery of the training.

Generally, our contracts are accounted for individually. However, when contracts are closely interrelated and dependent on each other, it may be necessary to account for two or more contracts as one to reflect the substance of the group of contracts.

Bundled arrangements are concurrent customer purchases of a combination of our product and service offerings that may be delivered at various points in time. We allocate the transaction price among the performance obligations in an amount that depicts the relative standalone selling prices (SSP) of each obligation. Judgment is required to determine the SSP for each distinct performance obligation. We use a range of amounts to estimate SSP when we sell each of the products and services separately based on the element’s historical pricing. We also consider our overall pricing objectives and practices across different sales channels and geographies, and market conditions. Generally, we have established SSP for a majority of our service elements based on historical standalone sales. In certain instances, we have established SSP for services based upon an estimate of profitability and the underlying cost to fulfill those services. Further, for certain service engagements, we consider quoted prices as part of multi-element arrangements of those engagements as a basis for establishing SSP. SSP has been established for product elements as the average or median selling price the element was recently sold for, whether sold alone or sold as part of a multiple element transaction. We review sales of the product elements on a quarterly basis and update, when appropriate, SSP for such elements to ensure that it reflects recent pricing experience. Our products are distributed through our direct sales force and indirect distribution channels through alliances with resellers and distributors. Revenue arrangements with resellers and distributors are recognized on a sell-in basis; that is, when control of the product transfers to the reseller or distributor. We record consideration given to a reseller or distributor as a reduction of revenue to the extent we have recorded revenue from the reseller or distributor. With limited exceptions, our return policy does not allow product returns for a refund. Returns have been insignificant to date. In addition, we have a history of successfully collecting receivables from our resellers and distributors.

Marketable Securities

We measure the fair value of our marketable securities at the end of each reporting period. Fair value is defined as the exchange price that would be received for an asset in the principal or most advantageous market for the asset in an orderly transaction between market participants on the measurement date. Marketable securities are recorded at fair value and have been classified as Level 1 or 2 within the fair value hierarchy. Fair values determined by Level 1 inputs utilize quoted prices (unadjusted) in accessible active markets for identical assets or liabilities. Fair values determined by Level 2 inputs utilize data points that are observable such as quoted prices, interest rates and yield curves.

Valuation of Goodwill, Intangible Assets and Other Acquisition and Divestiture Accounting Items

We amortize acquired definite-lived intangible assets over their estimated useful lives. Goodwill and other indefinite-lived intangible assets are not amortized but subject to annual impairment tests; more frequently if events or circumstances occur that would indicate a potential decline in their fair value. We perform the assessment annually during the fourth quarter and on an interim basis if potential impairment indicators arise.

Reporting units are determined based on the components of our operating segments that constitute a business for which financial information is available and for which operating results are regularly reviewed by segment management. Through the first half of fiscal year 2020, we had two reporting units: (1) Service Assurance and (2) Security. As part of our continued integration efforts, effective during the third quarter of fiscal year 2020, we reorganized our business units. As a result of this change, we reduced the number of reporting units from two reporting units to one reporting unit. The former Service Assurance and Security reporting units were combined as result of organizational changes made to fully integrate the resources and assets of the Service Assurance and Security business units.

We completed an assessment of any potential impairment for all reporting units immediately prior to and after the reporting unit change and determined that no impairment existed. As such, no impairment charges were recognized during the fiscal year ended March 31, 2020.

To test impairment, we first assess qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the intangible asset is impaired. If based on our qualitative assessment it is more likely than not that the fair value of the intangible asset is less than its carrying amount, quantitative impairment testing is required. However, if we conclude otherwise, quantitative impairment testing is not required. During fiscal year 2020, we performed our annual impairment analysis for goodwill as of January 31, 2020. We performed a quantitative analysis and determined the fair value of the reporting unit's goodwill using established income and market valuation approaches. Goodwill was determined to be recoverable as of January 31, 2020. We considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic to be a triggering event. As such, we performed a quantitative analysis as of March 31, 2020 and determined the fair value of the reporting unit's goodwill using established income and market valuation approaches. Goodwill was estimated to be recoverable as of March 31, 2020.

Indefinite-lived intangible assets are tested for impairment at least annually as of January 31, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the indefinite-lived intangible assets below its carrying value. To test impairment, we first assess qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the indefinite-lived intangible is impaired. If based on our qualitative assessment we conclude that it is more likely than not that the fair value of the indefinite-lived asset is greater than its carrying amount, quantitative impairment testing is not required. We completed our annual impairment test of the indefinite-lived intangible asset at January 31, 2020 using the qualitative Step 0 assessment. No impairment indicators were observed as of January 31, 2020. We considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic and concluded that it was not more likely than not that the trade name was impaired and therefore a quantitative Step 1 assessment was not performed as of March 31, 2020.

We completed three acquisitions and one divestiture during the three-year period ended March 31, 2020. The acquisition method of accounting requires an estimate of the fair value of the assets and liabilities acquired as part of these transactions. In order to estimate the fair value of acquired intangible assets, we use either an income, market or cost method approach.

We had a contingent liability at March 31, 2020 for $0.7 million related to the acquisition of Gigavation in February 2020, for which an escrow account was established to cover damages we may suffer related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. Except to the extent that valid indemnification claims are made prior to such time, the contingent purchase consideration of $0.7 million will be paid to the seller in February 2021.

We had a contingent liability at March 31, 2020 for $1.0 million related to the acquisition of Eastwind in April 2019 for which an escrow account was established to cover damages we may suffer related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. The contingent purchase consideration of $1.0 million was paid to the seller in April 2020.

We had a contingent consideration asset related to the divestiture of our handheld network test (HNT) tools business in September 2018. The contingent consideration asset represented potential future earnout payments to us of up to $4.0 million over two years that were contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the divestiture date and was measured using observable (Level 3) inputs. The value of the contingent consideration asset at March 31, 2020 and 2019 was $0 was $0.8 million, respectively.

We had a contingent liability at March 31, 2018 for $0.5 million related to the acquisition of Efflux Systems, Inc. (Efflux) in July 2017 for which an escrow account was established to cover damages we may have suffered related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. The $0.5 million was paid to the seller in July 2018.

We had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena LLC (Simena) in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with us. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

Share-Based Compensation

We recognize compensation expense for all share-based payments. Under the fair value recognition provisions, we recognize share-based compensation net of an estimated forfeiture rate and only recognize compensation cost for those shares expected to vest on a straight-line basis over the requisite service period of the award.

We are required to estimate the expected forfeiture rate and only recognize expense for those shares expected to vest. If our actual forfeiture rate is materially different from our estimate, the share-based compensation expense could be significantly different from what we have recorded in the current period.

Based on historical experience, we assumed an annualized forfeiture rate of 0% for awards granted to our directors, an annualized forfeiture rate of approximately 2% for awards granted to our senior executives, and an annualized forfeiture rate of approximately 5% for all remaining employees. We will record additional expense if the actual forfeitures are lower than estimated and will record a recovery of prior expense if the actual forfeitures are higher than estimated.

Comparison of Years Ended March 31, 2020 and 2019

The sections that follow discuss our consolidated statement of operations data for the fiscal years ended March 31, 2020 and March 31, 2019 including results as a percentage of revenue for those periods. For a discussion of (i) our consolidated statement of operations data for the fiscal year ended March 31, 2018 including results as a percentage of revenue for that period, as well as (ii) our liquidity and capital resources for the fiscal year ended March 31, 2018, see "Comparison of Years Ended March 31, 2019 and 2018" and "Liquidity and Capital Resources" in Part II, Item 7 of our Annual Report on Form 10-K for the fiscal year ended March 31, 2019, filed with the SEC on May 28, 2019 (our 2019 Annual Report).

Results of Operations

Revenue

Product revenue consists of sales of our hardware products and licensing of our software products. Service revenue consists of customer support agreements, consulting, training and stand-ready software as a service offerings. During the fiscal years ended March 31, 2020 and 2019, no direct customer or indirect channel partner accounted for more than 10% of our total revenue.

	Fiscal Year Ended March 31, (Dollars in Thousands)				Change	
	2020		2019			
		% of Revenue		% of Revenue	$	%
Revenue:						
Product	$ 438,341	49 %	$ 467,289	51 %	$ (28,948)	(6)%
Service	453,479	51	442,629	49	10,850	2 %
Total revenue	$ 891,820	100 %	$ 909,918	100 %	$ (18,098)	(2)%

Product. The 6%, or $28.9 million, decrease in product revenue compared with the same period last year was primarily due to lower enterprise-related product revenue for both network performance management and DDoS offerings, a decrease in network performance management offerings from service provider customers, as well as the divestiture of the HNT tools business in September 2018.

Service. The 2%, or $10.9 million, increase in service revenue compared to the same period last year was primarily due to an increase in revenue from maintenance contracts due to increased new maintenance contracts and renewals from a growing support base.

Total revenue by geography is as follows:

	Fiscal Year Ended March 31, (Dollars in Thousands)				Change	
	2020		2019			
		% of Revenue		% of Revenue	$	%
United States	$ 545,620	61 %	$ 553,267	61 %	$ (7,647)	(1)%
International:						
Europe	154,510	17	148,036	16	6,474	4 %
Asia	59,939	7	72,355	8	(12,416)	(17)%
Rest of the world	131,751	15	136,260	15	(4,509)	(3)%
Subtotal international	346,200	39	356,651	39	(10,451)	(3)%
Total revenue	$ 891,820	100 %	$ 909,918	100 %	$ (18,098)	(2)%

United States revenue decreased 1%, or $7.6 million, primarily due to a decrease in revenue from network performance management offerings, as well as a decrease due to the divestiture of the HNT tools business, partially offset by an increase in

DDoS offerings. International revenue decreased 3%, or $10.5 million, primarily due to a decrease in revenue from network performance management offerings.

Cost of Revenue and Gross Profit

Cost of product revenue consists primarily of material components, manufacturing personnel expenses, packaging materials, overhead and amortization of capitalized software, acquired developed technology and core technology. Cost of service revenue consists primarily of personnel, material, overhead and support costs.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2020		2019		Change	
		% of Revenue		% of Revenue	$	%
Cost of revenue:						
Product	$ 122,832	14 %	$ 140,938	16 %	$ (18,106)	(13)%
Service	119,360	13	113,189	12	6,171	5 %
Total cost of revenue	$ 242,192	27 %	$ 254,127	28 %	$ (11,935)	(5)%
Gross profit:						
Product $	$ 315,509	35 %	$ 326,351	36 %	$ (10,842)	(3)%
Product gross profit %	72 %		70 %		2 %	
Service $	$ 334,119	37 %	$ 329,440	36 %	$ 4,679	1 %
Service gross profit %	74 %		74 %		— %	
Total gross profit $	$ 649,628		$ 655,791		$ (6,163)	(1)%
Total gross profit %	73 %		72 %		1 %	

Product. The 13%, or $18.1 million, decrease in cost of product revenue compared to the same period last year was primarily due to a $7.8 million decrease in the amortization of intangible assets, a $7.2 million decrease in direct material costs due to a decrease in product revenue, a $4.2 million decrease in employee-related expenses associated with the timing of certain projects and a reduction in headcount, and a $1.4 million decrease in costs to deliver model calibration products. These decreases were partially offset by a $2.3 million increase in inventory obsolescence charges. The product gross profit percentage increased by two percentage points to 72% during the fiscal year ended March 31, 2020 as compared to the same period in the prior year. The 3%, or $10.8 million decrease in product gross profit, corresponds with the 6%, or $28.9 million decrease in product revenue, partially offset by the 13%, or $18.1 million, decrease in cost of product.

Service. The 5%, or $6.2 million, increase in cost of service revenue was primarily due to a $7.0 million increase in employee-related expenses associated with an increase in variable incentive compensation as well as the timing of certain projects, an $0.8 million increase in cost of materials used to support customers under service contracts, a $0.7 million increase in rent and other facilities related expenses and a $0.5 million increase in warranty expense. These increases were partially offset by a $2.8 million decrease in contractor fees. The service gross profit percentage remained flat at 74% during the fiscal year ended March 31, 2020 compared to the fiscal year ended March 31, 2019. The 1%, or $4.7 million, increase in service gross profit corresponds with the 2%, or $10.9 million, increase in service revenue, partially offset by the 5%, or $6.2 million increase in cost of services.

Gross profit. Our gross profit decreased 1%, or $6.2 million, compared to the fiscal year ended March 31, 2019. This decrease is attributable to the 2%, or $18.1 million, decrease in revenue partially offset by the $11.9 million, or 5%, decrease in cost of revenue. The gross margin percentage increased by one percentage point to 73% during the fiscal year ended March 31, 2020 compared to the same period in the prior year.

Operating Expenses

	Fiscal Year Ended March 31, (Dollars in Thousands)				Change	
	2020		2019			
		% of Revenue		% of Revenue	$	%
Research and development	$ 188,294	21	$ 203,588	22 %	$ (15,294)	(8)%
Sales and marketing	276,523	31	291,870	32	(15,347)	(5)%
General and administrative	99,994	11	93,572	10	6,422	7 %
Amortization of acquired intangible assets	64,505	7	74,305	8	(9,800)	(13)%
Restructuring charges	2,674	—	18,693	2	(16,019)	(86)%
Impairment of intangible assets	—	—	35,871	4	(35,871)	(100)%
Loss on divestiture of business	—	—	9,472	1	(9,472)	(100)%
Total operating expenses	$ 631,990	70 %	$ 727,371	79 %	$ (95,381)	(13)%

Research and development. Research and development expenses consist primarily of personnel expenses, fees for outside consultants, overhead and related expenses associated with the development of new products and the enhancement of existing products.

The 8%, or $15.3 million, decrease in research and development expenses compared to the same period last year was primarily due to a net $12.0 million decrease in employee-related expense due to a reduction in headcount partially offset by an increase in variable incentive compensation, a $2.3 million decrease in depreciation expense, and a $0.7 million decrease in software license expense.

Sales and marketing. Sales and marketing expenses consist primarily of personnel expenses and commissions, overhead and other expenses associated with selling activities and marketing programs such as trade shows, seminars, advertising, and new product launch activities.

The 5%, or $15.3 million, decrease in total sales and marketing expenses compared to the same period last year was primarily due to a net $4.0 million decrease in employee-related expense due to a reduction in headcount as well as a decrease in share-based compensation expense partially offset by an increase in variable incentive compensation, a $3.6 million decrease in marketing related expenses, a $3.3 million decrease in travel expense, a $2.3 million decrease in commissions expense, and a $1.9 million decrease in trade shows and other events.

General and administrative. General and administrative expenses consist primarily of personnel expenses for executive, financial, legal and human resource employees, overhead and other corporate expenditures.

The 7%, or $6.4 million, increase in general and administrative expenses compared to the same period last year was primarily due to a $6.6 million increase in legal fees and penalties, and a net $1.4 million increase in employee-related expenses due to an increase in variable incentive compensation offset by a decrease in share-based compensation. These increases were partially offset by a $1.7 million decrease in rent and other facilities related expenses.

Amortization of acquired intangible assets. Amortization of acquired intangible assets consists primarily of amortization of customer relationships, definite-lived trademark and tradenames, and leasehold interests related to the Comms Transaction, ONPATH Technologies, Inc., Simena, Psytechnics, Ltd, Network General Corporation, Avvasi Incorporated and Efflux.

The 13%, or $9.8 million, decrease in amortization of acquired intangible assets was largely due to a decrease in amortization of the intangible assets related to the divestiture of the HNT tools business in September 2018, with the remaining decrease due to a reduction in the amortization of intangible assets related to the Comms Transaction.

Restructuring. During fiscal years 2020 and 2019, we restructured certain departments to better align functions, drive productivity and improve efficiency. During fiscal year 2019, we also implemented a voluntary separation program (VSP) for employees who met certain age and service requirements to reduce overall headcount. As a result of these restructuring programs, we recorded $2.7 million and $18.7 million of restructuring charges related to one-time termination benefits as well as facility-related charges during the fiscal years ended March 31, 2020 and 2019, respectively.

Impairment of intangible assets. During the first quarter of fiscal year 2019, we performed a quantitative analysis on certain intangible assets related to the HNT tools business. The fair value of these intangible assets was determined to be less than the carrying value, and as a result, we recognized an impairment charge of $35.9 million during the fiscal year ended March 31, 2019.

Loss on divestiture of business. During the fiscal year ended March 31, 2019, we recorded a $9.5 million loss on the divestiture of the HNT tools business.

Interest and Other Expense, Net

Interest and other expense, net includes interest earned on our cash, cash equivalents and marketable securities, interest expense and other non-operating gains or losses.

	Fiscal Year Ended March 31, (Dollars in Thousands)				Change	
	2020		2019			
		% of Revenue		% of Revenue	$	%
Interest and other expense, net	$ (15,714)	(2) %	$ (21,332)	(2) %	$ 5,618	26 %

The 26%, or $5.6 million, decrease in interest and other expense, net was primarily due to a $5.8 million decrease in interest expense due to debt repayments on the credit facility during fiscal year 2020, a $1.3 million decrease in foreign exchange expense, and an $0.8 million decrease in other expense due to a lower adjustment to the fair value of the contingent consideration related to the HNT tools business divestiture during fiscal year 2020 when compared to the fair value adjustment recorded in fiscal year 2019. These decreases in expense were partially offset by a $1.1 million decrease in transitional services agreement income related to the HNT tools business divestiture and a $0.7 million decrease in interest income received on investments.

Income Tax Expense

The annual effective tax rate for fiscal year 2020 was 243.1%, compared to an annual effective tax rate of 21.1% for fiscal year 2019. Generally, the effective tax rate differs from the statutory tax rate due to state income taxes and foreign withholding taxes, partially offset by the tax benefit associated Foreign Derived Intangible Income deduction, foreign tax credits, research and development tax credits and earnings in jurisdictions subject to tax rates lower than the U.S. statutory rate.

The effective tax rate for the twelve months ended March 31, 2020 is higher than the effective rate for the twelve months ended March 31, 2019, primarily due to the establishment of net deferred tax liabilities related to elections made during the year to treat several of our foreign subsidiaries as U.S. branches for federal income tax purposes offset by a discrete benefit related to the issuance of U.S. regulations impacting our estimate of the Base Erosion Anti-Abuse Tax in the prior fiscal year and a significant reduction in pre-tax losses as compared to the prior year.

During fiscal year 2019, we completed our analysis and recording of all the tax effects related to the Tax Cuts and Jobs Act (TCJA), as required under SAB 118, and recorded a benefit of $87 million due to the re-measurement of our deferred taxes and a $2 million one-time transition tax.

	Fiscal Year Ended March 31, (Dollars in Thousands)				Change	
	2020		2019			
		% of Revenue		% of Revenue	$	%
Income tax expense (benefit)	$ 4,678	1 %	$ (19,588)	(2) %	$ 24,266	124 %

Contractual Obligations

At March 31, 2020, we had the following contractual obligations:

	Payment due by period (Dollars in thousands)				
Contractual Obligations	**Total**	**Less than 1 year**	**1-3 years**	**3-5 years**	**More than 5 years**
Long-term debt obligations (1)	$ 481,779	$ 11,361	$ 470,418	$ —	$ —
Unconditional purchase obligations (2)	35,491	27,230	8,261	—	—
Operating lease obligations (3)	96,137	12,479	25,190	20,186	38,282
Pension benefit plan	32,805	409	969	1,224	30,203
Contingent purchase consideration	1,748	1,748	—	—	—
Total contractual obligations	$ 647,960	$ 53,227	$ 504,838	$ 21,410	$ 68,485

At March 31, 2020, the total amount of net unrecognized tax benefits for uncertain tax positions and the accrual for the related interest was $1.3 million. We are unable to make a reliable estimate when cash settlement, if any, will occur with a tax authority as the timing of examinations and ultimate resolution of those examinations is uncertain. We have also excluded long-term deferred revenue of $104.2 million as such amounts will be recognized as services are provided.

At March 31, 2020, the total accrual of our retirement obligation for our chairman and CEO was $1.2 million. The payment stream for this retirement obligation is based upon the retirement date which is currently not determinable.

(1) Includes estimated future interest at an interest rate of 2.49% for our outstanding term loan at March 31, 2020.
(2) Represents estimated open purchase orders to purchase inventory as well as commitments for products and services used in the normal course of business.
(3) We lease facilities under operating lease agreements extending through September 2030 for a total of $96.1 million.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Commitment and Contingencies

We account for claims and contingencies in accordance with authoritative guidance that requires us to record an estimated loss from a claim or loss contingency when information available prior to issuance of our consolidated financial statements indicates that it is probable that a liability has been incurred at the date of the consolidated financial statements and the amount of the loss can be reasonably estimated. If we determine that it is reasonably possible, but not probable, that an asset has been impaired or a liability has been incurred, or if the amount of a probable loss cannot be reasonably estimated, then, in accordance with the authoritative guidance, we disclose the amount or range of estimated loss if the amount or range of estimated loss is material. Accounting for claims and contingencies requires us to use our judgment. We consult with legal counsel on those issues related to litigation and seek input from other experts and advisors with respect to matters in the ordinary course of business.

Our Level 3 liabilities at March 31, 2020 consisted of contingent purchase consideration related to the two acquisitions that occurred during the fiscal year 2020. The contingent purchase consideration related to the two acquisitions represent amounts deposited into escrow accounts, which were established to cover damages we may suffer related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the sellers as described in the acquisition agreements. The contingent purchase consideration of $0.7 million and $1.0 million related to the Gigavation Incorporated (Gigavation) and Eastwind Networks, Inc. (Eastwind) acquisitions are included as accrued other in our consolidated balance sheet at March 31, 2020. Except to the extent that valid indemnification claims are made prior to such time, the $0.7 million of purchase consideration related to the Gigavation acquisition will be paid to the seller in February 2021. The contingent purchase consideration related to the Eastwind acquisition was paid to the seller in April 2020.

We had a contingent consideration asset related to the divestiture of our HNT tools business in September 2018. The contingent consideration asset represented potential future earnout payments to us of up to $4.0 million over two years that were contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the divestiture date and was measured using observable (Level 3) inputs. The contingent consideration asset at March 31, 2020 and 2019 was $0 and $0.8 million, respectively.

We had a contingent liability at March 31, 2018 for $0.5 million related to the acquisition of Efflux in July 2017 for which an escrow account was established to cover damages we may have suffered related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. The $0.5 million was paid to the seller in July 2018.

We had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with us. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

Legal - From time to time, we are subject to legal proceedings and claims in the ordinary course of business. In the opinion of management, the amount of ultimate expense with respect to any current legal proceedings and claims, if determined adversely, will not have a material adverse effect on our financial condition, results of operations or cash flows.

As previously disclosed, in March 2016, Packet Intelligence LLC (Packet Intelligence or Plaintiff) filed a Complaint against us and two subsidiary entities in the United States District Court for the Eastern District of Texas asserting infringement of five United States patents. Plaintiff's Complaint alleged that legacy Tektronix GeoProbe products, including the G10 and GeoBlade products, infringed these patents. We filed an Answer denying Plaintiff's allegations and asserting that Plaintiff's patents were, among other things, invalid, not infringed, and unenforceable due to inequitable conduct. In October 2017, a jury trial was held to address the parties' claims and counterclaims regarding infringement of three patents by the G10 and GeoBlade products, invalidity of these patents, and damages. On October 13, 2017, the jury rendered a verdict finding in favor of the Plaintiff and that Plaintiff was entitled to $3,500,000 for pre-suit damages and $2,250,000 for post-suit damages. The jury indicated that the awarded damages amounts were intended to reflect a running royalty. In September 2018, the Court entered judgment and "enhanced" the jury verdict in the amount of $2.8 million as a result of a jury finding. The judgment also awards pre- and post-judgment interest, and a running royalty on the G10 and GeoBlade products until the expiration of the patents at issue, the last date being June 2022. The Court denied the Plaintiff's motion for fees. Following additional motions for judgment as a matter of law, the court entered final judgment. On June 12, 2019, we filed our Notice of Appeal of the judgment and all other adverse findings. We have concluded that the risk of loss from this matter is currently neither remote nor probable, and therefore, under GAAP definitions, the risk of loss is termed "reasonably possible". Therefore, accounting rules require us to provide an estimate for the range of potential liability. We currently estimate that the estimated range of liability is between $0 and the aggregate amount awarded by the jury and the Court's award of enhanced damages, plus potential additional pre- and post-judgment interest amounts and costs and any royalties owed on post-trial sales of the accused G10 and GeoBlade products.

Warranty and Indemnification

We warrant that our software and hardware products will substantially conform to the documentation accompanying such products on their original date of shipment. For software, which also includes firmware, the standard warranty commences upon shipment and generally expires 60 to 90 days thereafter. With regard to hardware, the standard warranty commences upon shipment and generally expires 60 days to 12 months thereafter. Additionally, this warranty is subject to various exclusions which include, but are not limited to, non-conformance resulting from modifications made to the software or hardware by a party other than NetScout; customers' failure to follow our installation, operation or maintenance instructions; and events outside of our reasonable control. We also warrant that all support services will be performed in a good and workmanlike manner. We believe that our product and support service warranties are consistent with commonly accepted industry standards. Warranty cost information is presented and no material warranty costs are accrued since service revenue associated with warranty is deferred at the time of sale and recognized ratably over the warranty period.

Contracts that we enter into in the ordinary course of business may contain standard indemnification provisions. Pursuant to these agreements, we may agree to defend third party claims brought against a partner or direct customer claiming infringement of such third party's (i) U.S. patent and/or European Union (EU), or other selected countries' patents, (ii) Berne convention member country copyright, and/or (iii) U.S., EU, and/or other selected countries' trademark or intellectual property rights. Moreover, this indemnity may require us to pay any damages awarded against the partner or direct customer in such type of lawsuit as well as reimburse the partner or direct customer for reasonable attorney's fees incurred by them from the lawsuit.

We may also agree from time to time to provide other forms of indemnification to partners or direct customers, such as indemnification that would obligate us to defend and pay any damages awarded to a third party against a partner or direct customer based on a lawsuit alleging that such third party has suffered personal injury or tangible property damage legally determined to have been caused by negligently designed or manufactured products.

We have agreed to indemnify our directors and officers and our subsidiaries' directors and officers if they are made a party or are threatened to be made a party to any proceeding (other than an action by or in the right of NetScout) by reason of the fact that the indemnified are agents of NetScout. The indemnity is for any and all expenses and liabilities of any type (including but not limited to, judgments, fines and amounts paid in settlement) reasonably incurred by the directors or officers in connection with the investigation, defense, settlement or appeal of such proceeding, provided they acted in good faith.

Other Contingent Liabilities

During fiscal year 2020, one of our subsidiaries, located in the United Kingdom (UK), determined that value added tax (VAT) was not properly applied to certain supplies of service to the UK. We filed a blank disclosure with HM Revenue & Customs (HMRC) notifying HMRC of these application differences, and subsequently filed a voluntary disclosure agreement (VDA). The VDA covered the period from March 1, 2016 through February 29, 2020. The penalties associated with the application differences can range from 0%-30% of the underpayment and are based on objective and subjective determinations to be made by HMRC. At March 31, 2020 we have accrued the penalties that we believe are probable and estimable of assessment by HMRC. A majority of the difference in our application of the VAT rules relates to services for which the subsidiary did not collect VAT from its customers and for which customers would have been eligible to reclaim under the UK VAT regime. Based on these facts, we currently believe that it is probable that we will not be required to settle these amounts separately with our customers and HMRC, hence we have not recorded a payable to HMRC and a receivable from our customers for these amounts. We believe that it is reasonably possible that HMRC will require separate settlement; if that occurred, we would be required to collect approximately £16 million from our current customers and remit that amount to HMRC.

Liquidity and Capital Resources

Cash, cash equivalents and marketable securities consist of the following (in thousands):

	At March 31, (Dollars in Thousands)		
	2020	2019	2018
Cash and cash equivalents	$ 338,489	$ 409,632	$ 369,821
Short-term marketable securities	47,969	76,344	77,941
Long-term marketable securities	2,613	1,012	—
Cash, cash equivalents and marketable securities	$ 389,071	$ 486,988	$ 447,762

Cash, cash equivalents and marketable securities

At March 31, 2020, cash, cash equivalents and marketable securities (current and non-current) totaled $389.1 million. This represents a decrease of $97.9 million from $487.0 million at March 31, 2019. This decrease was primarily due to $175.0 million used to repurchase shares of our common stock, $100.0 million used to repay long-term debt, $19.9 million used for capital expenditures, $11.9 million used for tax withholdings in connection with the vesting of restricted stock units, and $11.3 million used for the acquisitions of Gigavation and Eastwind. These decreases were partially offset by $225.0 million in cash provided by operations during the fiscal year ended March 31, 2020.

At March 31, 2020, cash, short-term and long-term investments in the United States were $251.7 million, while cash held outside of the United States was approximately $137.4 million.

Cash and cash equivalents were impacted by the following:

	Fiscal Year Ended March 31, (Dollars in Thousands)		
	2020	2019	2018
Net cash provided by operating activities	$ 225,023	$ 149,838	$ 222,454
Net cash (used in) provided by investing activities	$ (4,309)	$ (26,252)	$ 57,128
Net cash used in financing activities	$ (286,870)	$ (79,285)	$ (220,962)

Net cash from operating activities

Fiscal year 2020 compared to fiscal year 2019

Cash provided by operating activities was $225.0 million during the fiscal year ended March 31, 2020, compared to $149.8 million of cash provided by operating activities during the fiscal year ended March 31, 2019. This $75.2 million increase was due in part to a $70.6 million increase from a smaller net loss, a $43.7 million favorable impact from accounts receivable, a $23.6 million increase from deferred income taxes, a $12.8 million increase from accrued compensation and other expenses, a $10.8 million increase from prepaid expenses and other assets, and a $10.5 million increase from operating lease right-of-use assets. These increases were partially offset by a $35.9 million decrease due to the impairment of certain intangible assets, a $21.8 million decrease from depreciation and amortization, a $13.1 million decrease from operating lease liabilities, a $7.7 million decrease in loss on divestiture of business, a $7.0 million decrease from deferred revenue, a $5.5 million decrease from share-based compensation expense, and a $3.8 million decrease from inventories. Accounts receivable days sales outstanding was 73 days at March 31, 2020 compared to 88 days at March 31, 2019 and 78 days at March 31, 2018.

Net cash from investing activities

	Fiscal Year Ended March 31, (Dollars in Thousands)		
	2020	2019	2018
Cash (used in) provided by investing activities included the following:			
Purchase of marketable securities	$ (117,383)	$ (229,769)	$ (114,178)
Proceeds from maturity of marketable securities	144,322	230,433	196,041
Purchase of fixed assets	(19,922)	(23,392)	(15,913)
Purchase of intangible assets	—	—	(544)
Payments related to the divestiture of business	—	(3,293)	—
Acquisition of businesses, net of cash acquired	(11,347)	—	(8,334)
Increase in deposits	(31)	(97)	(330)
Contingent purchase consideration	—	—	523
Collection of contingent consideration	52	—	—
Capitalized software development costs	—	(134)	(137)
	$ (4,309)	$ (26,252)	$ 57,128

Cash used in investing activities decreased by $21.9 million to $4.3 million during the fiscal year ended March 31, 2020, compared to $26.3 million of cash used in investing activities during the fiscal year ended March 31, 2019.

Net cash inflows relating to the purchase and sales of marketable securities increased $26.2 million during the fiscal year ended March 31, 2020 relating to the amount of investments held at each respective balance sheet date, from an inflow of $0.7 million during fiscal year ended March 31, 2019 to an inflow of $26.9 million during fiscal year ended March 31, 2020.

During the twelve months ended March 31, 2020, there was an $11.3 million cash outflow related to the acquisitions of Eastwind and Gigavation. During the twelve months ended March 31, 2019, there was a $3.3 million cash outflow related to the divestiture of HNT.

Our investments in property and equipment consist primarily of computer equipment, demonstration units, office equipment and facility improvements. We plan to continue to invest in capital expenditures to support our infrastructure in our fiscal year 2021.

Net cash from financing activities

	Fiscal Year Ended March 31, (Dollars in Thousands)		
	2020	2019	2018
Cash used in financing activities included the following:			
Issuance of common stock under stock plans	$ 2	$ 3	$ 1
Payment of contingent consideration	—	(2,851)	(660)
Treasury stock repurchases, including accelerated share repurchases	(175,000)	(14,468)	(501,324)
Tax withholding on restricted stock units	(11,872)	(11,969)	(13,598)
Proceeds from issuance of long-term debt, net of issuance costs	—	—	294,619
Repayment of long-term debt	(100,000)	(50,000)	—
	$ (286,870)	$ (79,285)	$ (220,962)

Cash used in financing activities increased $207.6 million to $286.9 million during the fiscal year ended March 31, 2020, compared to $79.3 million of cash used in financing activities during the fiscal year ended March 31, 2019.

During the twelve months ended March 31, 2020, we repurchased 7,116,159 shares for $175.0 million under the twenty-five million share repurchase program. During the twelve months ended March 31, 2019, we repurchased 543,251 shares for $14.5 million under the twenty-five million share repurchase program.

On February 1, 2018, we entered into ASR agreements with two third-party financial institutions to repurchase an aggregate of $300 million of our common stock via accelerated stock repurchase transactions under the twenty million share repurchase program and the twenty five million share repurchase program. We borrowed $300 million under our Amended Credit Agreement and made an up-front payment of $300 million pursuant to the ASR and received an initial delivery of 7,387,862 shares in the aggregate, which is approximately 70 percent of the total number of shares of our common stock expected to be repurchased under the ASR. As part of this purchase, 970,650 shares for $27.6 million were deducted under the twenty million share repurchase program and 6,417,212 shares for $182.4 million were deducted under the twenty five million share repurchase program. Final settlement of the ASR agreements was completed in August 2018. As a result, we received an additional 3,679,947 shares of common stock for $96.8 million, which reduced the number of shares available to be purchased from the twenty-five million share repurchase program during the fiscal year ended March 31, 2019. In total, 11,067,809 shares of our common stock were repurchased under the ASR at an average cost per share of $27.11.

In connection with the delivery of common shares upon vesting of restricted stock units, we have withheld 519,241 shares for $11.9 million, 451,683 shares for $11.9 million and 408,097 shares for $13.6 million related to minimum statutory tax withholding requirements on these restricted stock units during the fiscal years ended March 31, 2020, 2019 and 2018, respectively. These withholding transactions do not fall under the repurchase program described above, and therefore do not reduce the amount that is available for repurchase under that program.

During the fiscal years ended March 31, 2020 and 2019, we repaid $100.0 million and $50.0 million of borrowings under the Amended Credit Agreement, respectively.

Credit Facility

On January 16, 2018, we amended and expanded our existing credit agreement (Amended Credit Agreement) with a syndicate of lenders by and among: NetScout; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Fifth Third Bank, Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

The Amended Credit Agreement provides for a five-year $1.0 billion senior secured revolving credit facility, including a letter of credit sub-facility of up to $75.0 million. We may elect to use the new credit facility for general corporate purposes or to finance the repurchase of up to twenty-five million shares of common stock under our common stock repurchase plan. The commitments under the Amended Credit Agreement will expire on January 16, 2023, and any outstanding loans will be due on that date. During the fiscal year ended March 31, 2020, we repaid $100.0 million of borrowings under the Amended Credit Agreement. At March 31, 2020, $450 million was outstanding under the Amended Credit Agreement.

At our election, revolving loans under the Amended Credit Agreement bear interest at either (a) an Alternate Base Rate per annum equal to the greatest of (1) JPMorgan's prime rate, (2) 0.50% in excess of the New York Federal Reserve Bank (NYFRB) rate, or (3) an adjusted one month LIBOR rate plus 1%; or (b) such adjusted LIBOR rate (for the interest period selected by us), in each case plus an applicable margin. For the period from the delivery of our financial statements for the quarter ended December 31, 2019, until we have delivered financial statements for the quarter ended March 31, 2020, the applicable margin will be 1.50% per annum for LIBOR loans and 0.50% per annum for Alternate Base Rate loans, and thereafter the applicable margin will vary depending on our leverage ratio, ranging from 1.00% per annum for Base Rate loans and 2.00% per annum for LIBOR loans if our consolidated leverage ratio is greater than 3.50 to 1.00, down to 0.00% per annum for Alternate Base Rate loans and 1.00% per annum for LIBOR loans if our consolidated leverage ratio is equal to or less than 1.50 to 1.00.

On July 27, 2017, the U.K. Financial Conduct Authority (FCA) announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. Our Amended Credit Agreement provides for the Administrative Agent to determine if (i) adequate and reasonable means do not exist for ascertaining the LIBOR rate or (ii) the FCA or Government Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which the LIBOR rate shall no longer be used for determining interest rates for loans and the Administrative Agent determines that (i) and (ii) above are unlikely to be temporary then the Administrative Agent and NetScout would agree to transition to an

Alternate Base Rate borrowing as described above or amend the Credit Agreement to establish an alternate rate of interest to LIBOR that gives due consideration to the then prevailing market convention for determining a rate of interest for syndicated loans in the United States at such time.

Our consolidated leverage ratio is the ratio of our total funded debt compared to our consolidated adjusted EBITDA. Consolidated adjusted EBITDA includes certain adjustments, including, without limitation, adjustments relating to extraordinary, unusual or non-recurring charges, certain restructuring charges, non-cash charges, certain transaction costs and expenses and certain pro forma adjustments in connection with material acquisitions and dispositions, all as set forth in detail in the definition of consolidated adjusted EBITDA in the Amended Credit Agreement.

Commitment fees will accrue on the daily unused amount of the credit facility. For the period from the delivery of our financial statements for the quarter ended December 31, 2019 until we have delivered financial statements for the quarter ended March 31, 2020, the commitment fee will be 0.25% per annum, and thereafter the commitment fee will vary depending on the our consolidated leverage ratio, ranging from 0.30% per annum if our consolidated leverage ratio is greater than 2.75 to 1.00, down to 0.15% per annum if our consolidated leverage ratio is equal to or less than 1.50 to 1.00.

Letter of credit participation fees are payable to each lender on the amount of such lender’s letter of credit exposure, during the period from the closing date of the Amended Credit Agreement to but excluding the date which is the later of (i) the date on which such lender’s commitment terminates or (ii) the date on which such lender ceases to have any letter of credit exposure, at a rate per annum equal to the applicable margin for LIBOR loans. Additionally, we will pay a fronting fee to each issuing bank in amounts to be agreed to between us and the applicable issuing bank.

Interest on Alternate Base Rate loans is payable at the end of each calendar quarter. Interest on LIBOR loans is payable at the end of each interest rate period or at the end of each three-month interval within an interest rate period if the period is longer than three months. We may also prepay loans under the Amended Credit Agreement at any time, without penalty, subject to certain notice requirements.

Debt is recorded at the amount drawn on the revolving credit facility plus interest based on floating rates reflective of changes in the market which approximates fair value.

The loans and other obligations under the credit facility are (a) guaranteed by each of our wholly owned material domestic restricted subsidiaries, subject to certain exceptions, and (b) are secured by substantially all of the assets of us and the subsidiary guarantors, including a pledge of all the capital stock of material subsidiaries held directly by us and the subsidiary guarantors (which pledge, in the case of any foreign subsidiary, is limited to 65% of the voting stock), subject to certain customary exceptions and limitations. The Amended Credit Agreement generally prohibits any other liens on the assets of NetScout and its restricted subsidiaries, subject to certain exceptions as described in the Amended Credit Agreement.

The Amended Credit Agreement contains certain covenants applicable to us and our restricted subsidiaries, including, without limitation, limitations on additional indebtedness, liens, various fundamental changes, dividends and distributions, investments (including acquisitions), transactions with affiliates, asset sales, including sale-leaseback transactions, speculative hedge agreements, payment of junior financing, changes in business and other limitations customary in senior secured credit facilities. In addition, we are required to maintain certain consolidated leverage and interest coverage ratios. These covenants and limitations are more fully described in the Amended Credit Agreement. At March 31, 2020, we were in compliance with all of these covenants.

The Amended Credit Agreement provides that events of default will exist in certain circumstances, including failure to make payment of principal or interest on the loans when required, failure to perform certain obligations under the Amended Credit Agreement and related documents, defaults under certain other indebtedness, certain insolvency events, certain events arising under ERISA, a change of control and certain other events. Upon an event of default, the administrative agent with the consent of, or at the request of, the holders of more than 50% in principal amount of the loans and commitments may terminate the commitments and accelerate the maturity of the loans and enforce certain other remedies under the Amended Credit Agreement and the other loan documents.

In connection with NetScout's Amended Credit Agreement described above, we terminated our previous term loan dated as of July 14, 2015, by and among NetScout; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

We have capitalized debt issuance costs totaling $12.2 million at March 31, 2020, which are being amortized over the life of the revolving credit facility. The unamortized balance was $4.9 million as of March 31, 2020. The balance of $1.7 million was included as prepaid expenses and other current assets and a balance of $3.2 million was included as other assets in our consolidated balance sheet.

Expectations for Fiscal Year 2021

As we cannot predict the duration or scope of the COVID-19 pandemic and its impact on our customers and suppliers, the potential negative financial impact to our results cannot be reasonably estimated, but could be material. We are actively managing the business to maintain cash flow and believe that we have adequate liquidity. We believe that these factors will allow us to meet our anticipated funding requirements. We believe that our cash balances, available debt, short-term marketable securities classified as available-for-sale and future cash flows generated by operations will be sufficient to meet our anticipated cash needs for working capital and capital expenditures for at least the next 12 months.

Additionally, a portion of our cash may be used to acquire or invest in complementary businesses or products or to obtain the right to use complementary technologies. From time to time, in the ordinary course of business, we evaluate potential acquisitions of such businesses, products or technologies. If our existing sources of liquidity are insufficient to satisfy our liquidity requirements, we may seek to sell additional equity or debt securities. The sale of additional equity or debt securities could result in additional dilution to our stockholders.

Recent Accounting Standards

For information with respect to recent accounting pronouncements on our consolidated financial statements, See Note 2 contained in the "Notes to Consolidated Financial Statements" included in Part IV of this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk. We hold our cash, cash equivalents and investments for working capital purposes. Some of the securities we invest in are subject to market risk. This means that a change in prevailing interest rates may cause the principal amount of the investment to fluctuate. To minimize this risk, we maintain our portfolio of cash, cash equivalents and investments in a variety of securities, including money market funds and government debt securities. The risk associated with fluctuating interest rates is limited to our investment portfolio. Due to the short-term nature of these instruments, we believe that we do not have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates. Declines in interest rates, however, would reduce future interest income. The effect of a hypothetical 10% increase or decrease in overall interest rates would not have had a material impact on our operating results or the total fair value of the portfolio.

We are exposed to market risks related to fluctuations in interest rates related to our credit facility. At March 31, 2020, we owed $450 million on this loan with an interest rate of 2.49%. A sensitivity analysis was performed on the outstanding portion of our debt obligation as of March 31, 2020. Should the current weighted average interest rate increase or decrease by 10%, the resulting annual increase or decrease to interest expense would be approximately $1.1 million as of March 31, 2020.

Credit Risk. Our cash equivalents and marketable securities consist primarily of money market instruments, U.S. Treasury bills, certificates of deposit, commercial paper, corporate bonds and municipal obligations.

At March 31, 2020 and periodically throughout the year, we have maintained cash balances in various operating accounts in excess of federally insured limits. We limit the amount of credit exposure with any one financial institution by evaluating the creditworthiness of the financial institutions with which we invest.

Foreign Currency Exchange Risk. As a result of our foreign operations, we face exposure to movements in foreign currency exchange rates, primarily the Euro, British Pound, Canadian Dollar and Indian Rupee. The current exposures arise primarily from expenses denominated in foreign currencies. We currently engage in foreign currency hedging activities in order to limit these exposures. We do not use derivative financial instruments for speculative trading purposes.

At March 31, 2020, we had foreign currency forward contracts with notional amounts totaling $1.7 million. The valuation of outstanding foreign currency forward contracts at March 31, 2020 resulted in a liability balance of $49 thousand, reflecting unfavorable contract rates in comparison to current market rates at this date. At March 31, 2019, we had foreign currency forward contracts with notional amounts totaling $4.6 million. The valuation of outstanding foreign currency forward contracts at March 31, 2019 resulted in a liability balance of $68 thousand, reflecting unfavorable contract rates in comparison to current market rates at this date and an asset balance of $58 thousand reflecting favorable rates in comparison to current market rates.

Item 8. Financial Statements and Supplementary Data

Our Consolidated Financial Statements and Schedule and Report of Independent Registered Public Accounting Firm appear beginning on page F-1 attached to this report.

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

There have been no changes in or disagreements with accountants on accounting or financial disclosure matters.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of March 31, 2020, NetScout, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15(b) promulgated under the Exchange Act. Based upon that evaluation, our principal executive officer and principal financial officer concluded that, as of March 31, 2020 our disclosure controls and procedures were effective in ensuring that material information relating to NetScout, including its consolidated subsidiaries, required to be disclosed by NetScout in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, including ensuring that such material information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

During the quarter ended March 31, 2020, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Exchange Act Rule 13a-15(f). Our internal control over financial reporting was designed to provide reasonable assurance regarding reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. 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. Our management assessed the effectiveness of our internal control over financial reporting as of March 31, 2020. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control—Integrated Framework in 2013. Based on our assessment, we concluded that our internal control over financial reporting was effective as of March 31, 2020.

The effectiveness of our internal control over financial reporting as of March 31, 2020 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 will be included under the captions "Directors and Executive Officers," "Proposal 1 Election of Directors," "Delinquent Section 16(a) Reports," "Corporate Governance -- Code of Ethics," "The Board of Directors and its Committees" and "Corporate Governance" in our definitive Proxy Statement with respect to our 2020 Annual Meeting of Stockholders to be filed with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this Item 11 will be included under the caption "Compensation and Other Information Concerning Directors and Executive Officers" in our definitive Proxy Statement with respect to our 2020 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

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

The information required by this Item 12 will be included under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Compensation and Other Information Concerning Directors and Executive Officers -- Equity Compensation Plan Information" in our definitive Proxy Statement with respect to our 2020 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

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

The information required by this Item 13 will be included, as applicable, under the captions "Corporate Governance --Director Independence," "Compensation and Other Information Concerning Directors and Executive Officers -- Employment and Other Agreements" and "Transactions with Related Persons" in our definitive Proxy Statement with respect to our 2020 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information required by this Item 14 will be included under the captions "Auditors Fees and Services" and "Auditors Fees and Services -- Policy on Audit Committee Pre-approval of Audit and Non-Audit Services" in our definitive Proxy Statement with respect to our 2020 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) 1. Consolidated Financial Statements.

2. Financial Statement Schedule.

No other financial statement schedules have been included because they are either not applicable or the information is in the consolidated financial statements.

3. Exhibits listed in the accompanying Index to Exhibits are filed or incorporated by reference as part of this report.

(b) We hereby file as part of this Annual Report on Form 10-K the exhibits listed in Item 15(a)(3) above.

(c) We hereby file as part of this Annual Report on Form 10-K the financial statement schedule listed in Item 15(a)(2) above.

NetScout Systems, Inc.

Index to Exhibits

3.1, 4.1	Composite conformed copy of Third Amended and Restated Certificate of Incorporation of NetScout (as amended) (filed as Exhibit 3.2 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed on September 21, 2016, and incorporated herein by reference).
3.2, 4.2	Amended and Restated By-laws of NetScout (filed as Exhibit 3.1 to NetScout's current Report on Form 8-K, SEC File No. 000-26251, filed on May 11, 2020 and incorporated herein by reference).
4.3	Specimen Certificate for shares of NetScout's Common Stock (filed as Exhibit 4.3 to NetScout's Annual Report on Form 10-K for the fiscal year ended March 31, 2001, SEC File No. 000-26251, filed on June 29, 2001, and incorporated herein by reference).
4.4	Description of Common Stock (filed herewith).
10.1*	Form of Amended and Restated Indemnification Agreement between NetScout and each director and executive officer filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2013, SEC File No. 000-26251, filed January 28, 2014, and incorporated herein by reference).
10.2	Lease between Arturo J. Gutierrez and John A. Cataldo, Trustees of Nashoba Westford Realty Trust, u/d/t dated April 27, 2000 and recorded with the Middlesex North Registry of Deeds in Book 10813, Page 38 and NetScout for Westford Technology Park West, as amended (filed as Exhibit 10.26 to NetScout's Annual Report on Form 10-K for the fiscal year ended March 31, 2001, SEC File No. 000-26251, filed on June 29, 2001, and incorporated herein by reference).
10.3*	Agreement Relating to Employment, dated January 3, 2007, by and between NetScout and Anil K. Singhal (filed as Exhibit 10.2 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on January 5, 2007 and incorporated herein by reference).
10.4*	Amendment No. 1, dated February 2, 2007, to Agreement Relating to Employment by and between the Company and Anil K. Singhal (filed as exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2006, SEC File No. 000-26251, filed February 5, 2007 and incorporated herein by reference).
10.5*	Amendment No. 2, dated December 22, 2008, to Agreement Relating to Employment by and between the Company and Anil K. Singhal (filed as exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2008, SEC File No. 000-26251, filed February 6, 2009 and incorporated herein by reference).
10.6*	Amendment No. 3, dated May 28, 2012, to Agreement Relating to Employment, by and between the Company and Anil K. Singhal (filed as Exhibit 10.3 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on June 1, 2012 and incorporated herein by reference).
10.7*	NetScout Systems, Inc. 2007 Equity Incentive Plan, as amended (filed as Appendix A to the Registrant's Definitive Proxy Statement on Schedule 14A, SEC File No. 000-26251, filed with the Commission on July 28, 2015 and incorporated herein by reference)
10.8*	NetScout Form of Restricted Stock Unit Agreement with respect to the NetScout 2007 Equity Incentive Plan (filed as Exhibit 99.2 to NetScout's Registration Statement on Form S-8, SEC File No. 333-148364, filed on December 27, 2007 and incorporated herein by reference).
10.9*	Form of Amended and Restated Severance Agreement for Named Executive Officers (other than the CEO and CFO) (filed as Exhibit 10.1 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on June 1, 2012 and incorporated herein by reference).
10.10*	Amended and Restated Severance Agreement, dated May 28, 2012, by and between the Company and Jean Bua (filed as Exhibit 10.2 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on June 1, 2012 and incorporated herein by reference).

10.11	Third Amendment Agreement, dated August 10, 2010, to that certain Lease, dated August 17, 2000, as amended, between the Company and Westford West I Limited Partnership, as successor to Arturo J. Gutierrez and John A. Cataldo, Trustees of Nashoba Westford Realty Trust, u/d/t dated April 27, 2000 (filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, SEC File No. 000-26251, filed November 9, 2010 and incorporated herein by reference).
10.12*	NetScout Systems, Inc. Amended and Restated 2011 Employee Stock Purchase Plan (filed as Exhibit 10.1 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on September 13, 2018 and incorporated herein by reference).
10.13*	Form of Amendment to Amended and Restated Severance Agreement for Executive Officers (filed as Exhibit 10.9 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2014, SEC File No. 000-26251, filed on January 27, 2015 and incorporated herein by reference).
10.14	Amendment and Restatement Agreement dated as of January 16, 2018, to the Credit Agreement, dated as of July 14, 2015, by and among NetScout Systems, Inc.; certain subsidiaries of NetScout Systems, Inc. as loan parties; the lenders and issuing banks party thereto and JPMorgan Chase Bank, N.A., as administrative agent attaching the Amended and Restated Credit Agreement, dated as of January 16, 2018, by and among NetScout Systems, Inc.; JPMorgan Chase Bank, N.A., as administrative agent and collateral agent; JPMorgan Chase Bank, N.A., Wells Fargo Securities, LLC, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and KeyBanc Capital Markets Inc., as joint lead arrangers and joint bookrunners; SunTrust Bank, N.A., Santander Bank, N.A., U.S. Bank National Association and Fifth Third Bank, as co-documentation agents; and the lenders party thereto (filed as Exhibit 10.5 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed with the SEC on January 18, 2018 and incorporated by reference herein.
10.15*	Summary of Non-Employee Director Compensation (filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10Q for the quarterly period ended September 30, 2018, SEC file No. 000-26251, filed on November 8, 2018 and incorporated herein by reference.
21	Subsidiaries of NetScout (filed herewith).
23	Consent of PricewaterhouseCoopers LLP (filed herewith).
31.1	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
31.2	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.1†	Certification Pursuant to Section 906 of the Sarbanes–Oxley Act of 2002 (furnished herewith).
32.2†	Certification Pursuant to Section 906 of the Sarbanes–Oxley Act of 2002 (furnished herewith).
101.INS**	XBRL Instance Document.
101.SCH**	XBRL Taxonomy Extension Schema Document.
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document.
104	The cover page from the Company's Annual Report on Form 10-K for the year ended March 31, 2020 formatted in Inline XBRL

* Indicates a management contract or compensatory plan or arrangement.

** XBRL (Extensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and otherwise is not subject to liability under these sections.

† Exhibit has been furnished, is not deemed filed and is not to be incorporated by reference into any of the Company's filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, irrespective of any general incorporation language contained in any such filing

Item 16. Form 10-K Summary

Not provided.

SIGNATURES

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

NETSCOUT SYSTEMS, INC.

By: /S/ ANIL K. SINGHAL

Anil K. Singhal
President, Chief Executive Officer, and Chairman

Date: May 20, 2020

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

Signature	Title(s)	Date
/S/ ANIL K. SINGHAL **Anil K. Singhal**	President, Chief Executive Officer, and Chairman (Principal Executive Officer)	May 20, 2020
/S/ JEAN BUA **Jean Bua**	Executive Vice President and Chief Financial Officer (Principal Financial Officer) (Principal Accounting Officer)	May 20, 2020
/S/ MICHAEL SZABADOS **Michael Szabados**	Chief Operating Officer and Vice Chairman	May 20, 2020
/S/ ROBERT E. DONAHUE **Robert E. Donahue**	Director	May 20, 2020
/S/ JOHN R. EGAN **John R. Egan**	Director	May 20, 2020
/S/ ALFRED GRASSO **Alfred Grasso**	Director	May 20, 2020
/S/ JOSEPH G. HADZIMA, JR. **Joseph G. Hadzima, Jr.**	Director	May 20, 2020
/S/ CHRISTOPHER PERRETTA **Christopher Perretta**	Director	May 20, 2020
/S/ SUSAN L. SPRADLEY **Susan L. Spradley**	Director	May 20, 2020
/S/ VIVIAN VITALE **Vivian Vitale**	Director	May 20, 2020

NetScout Systems, Inc.

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of NetScout Systems, Inc.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of NetScout Systems, Inc. and its subsidiaries (the “Company”) as of March 31, 2020 and 2019, and the related consolidated statements of operations, comprehensive income (loss), stockholders’ equity, and cash flows for each of the three years in the period ended March 31, 2020, including the related notes and financial statement schedule listed in the index appearing under Item 15(a)(2) (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of March 31, 2020, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of March 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended March 31, 2020 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of March 31, 2020 based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Changes in Accounting Principles

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in fiscal year 2020 and the manner in which it accounts for revenues from contracts with customers in fiscal year 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management’s Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) 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.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue from Contracts with Customers - Identification of Distinct Performance Obligations

As described in Note 3 to the consolidated financial statements, the Company derives revenues primarily from the sale of network management tools and security solutions for service provider and enterprise customers, which include hardware, software and service offerings. Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. During the year ended March 31, 2020, the Company recognized revenue from contracts with customers of $891.8 million.

The principal considerations for our determination that performing procedures relating to revenue from contracts with customers, specifically the identification of distinct performance obligations, is a critical audit matter are there was significant judgment by management in determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation. This in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and evaluating management's identification of distinct performance obligations.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including controls over the identification of distinct performance obligations. These procedures also included, among others, testing management's process for identifying distinct performance obligations and evaluating the revenue recognition impact of contractual terms and conditions by examining customer contracts on a test basis.

Goodwill Impairment Assessment

As described in Note 9 to the consolidated financial statements, the Company's consolidated goodwill balance was $1.7 billion as of March 31, 2020. Management assesses goodwill for impairment at the reporting unit level at least annually, as of January 31, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the Company's reporting unit below its carrying value. Management determined the fair value of the reporting unit by preparing a discounted cash flow analysis using forward looking projections of the reporting unit's future operating results and by comparing the value of the reporting unit to the implied market value of selected peers. The assumptions used in the discounted cash flow analysis include: projected revenues, selling margins, and other operating expenditures, as well as a discount rate, which is essentially equal to the "market participant" weighted-average cost of capital (WACC).

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment is a critical audit matter are there was significant judgment by management when developing the fair value measurement of the reporting unit, which in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating evidence related to management's assumptions, specifically the assumptions related to projected revenues and other operating expenditures. In addition, the audit effort involved the use of professionals with specialized skills and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the determination of the fair value measurement of the Company's reporting unit. These procedures also included, among others (i) testing management's process for developing the fair value measurement of the reporting unit and evaluating the appropriateness of the discounted cash flow analysis, (ii) evaluating the assumptions used by management in developing the fair value measurement, including projected revenues and other operating expenditures, and (iii) testing the completeness and accuracy of the underlying data used by management to develop their estimates. Evaluating management's assumptions related to projected revenues and other operating expenditures involved evaluating whether the assumptions used were reasonable considering the current and historical performance of the business and whether these assumptions were consistent with evidence obtained in other areas of the audit as well as external market and industry data. Professionals with specialized skills and knowledge were used to assist in evaluating the appropriateness of management's discounted cash flow analysis.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
May 20, 2020

We have served as the Company's auditor since 1993.

NetScout Systems, Inc.

Consolidated Balance Sheets
(In thousands, except share and per share data)

	March 31, 2020	March 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 338,489	$ 409,632
Marketable securities	47,969	76,344
Accounts receivable and unbilled costs, net of allowance for doubtful accounts of $1,350 and $1,583 at March 31, 2020 and 2019, respectively	213,514	235,318
Inventories and deferred costs	22,227	26,270
Prepaid income taxes	13,505	18,000
Prepaid expenses and other current assets	24,039	35,658
Total current assets	659,743	801,222
Fixed assets, net	57,715	58,951
Operating lease right-of-use assets	68,583	—
Goodwill	1,725,680	1,715,485
Intangible assets, net	582,179	669,118
Deferred income taxes	6,220	7,218
Long-term marketable securities	2,613	1,012
Other assets	17,770	16,988
Total assets	$ 3,120,503	$ 3,269,994
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 20,004	$ 24,582
Accrued compensation	75,632	58,501
Accrued other	21,840	23,027
Income taxes payable	903	1,318
Deferred revenue and customer deposits	270,281	272,508
Current portion of operating lease liabilities	10,337	—
Total current liabilities	398,997	379,936
Other long-term liabilities	10,039	19,493
Deferred tax liability	114,394	124,229
Accrued long-term retirement benefits	34,256	36,284
Long-term deferred revenue and customer deposits	104,240	94,619
Operating lease liabilities, net of current portion	70,658	—
Long-term debt	450,000	550,000
Total liabilities	1,182,584	1,204,561
Commitments and contingencies (Note 19)		
Stockholders' equity:		
Preferred stock, $0.001 par value: 5,000,000 shares authorized; no shares issued or outstanding at March 31, 2020 and 2019	—	—
Common stock, $0.001 par value: 300,000,000 shares authorized; 122,006,077 and 119,760,132 shares issued and 72,220,906 and 77,610,361 shares outstanding at March 31, 2020 and 2019, respectively	122	120
Additional paid-in capital	2,891,553	2,828,922
Accumulated other comprehensive income (loss)	(3,160)	(2,639)
Treasury stock at cost, 49,785,171 and 42,149,771 shares at March 31, 2020 and 2019, respectively	(1,305,935)	(1,119,063)
Retained earnings	355,339	358,093
Total stockholders' equity	1,937,919	2,065,433
Total liabilities and stockholders' equity	$ 3,120,503	$ 3,269,994

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

NetScout Systems, Inc.

Consolidated Statements of Operations
(In thousands, except per share data)

	Year Ended March 31,		
	2020	2019	2018
Revenue:			
Product	$ 438,341	$ 467,289	$ 520,418
Service	453,479	442,629	466,369
Total revenue	891,820	909,918	986,787
Cost of revenue:			
Product	122,832	140,938	158,628
Service	119,360	113,189	113,277
Total cost of revenue	242,192	254,127	271,905
Gross profit	649,628	655,791	714,882
Operating expenses:			
Research and development	188,294	203,588	215,076
Sales and marketing	276,523	291,870	312,536
General and administrative	99,994	93,572	109,479
Amortization of acquired intangible assets	64,505	74,305	76,640
Restructuring charges	2,674	18,693	5,209
Impairment of intangible assets	—	35,871	—
Loss on divestiture of business	—	9,472	—
Total operating expenses	631,990	727,371	718,940
Income (loss) from operations	17,638	(71,580)	(4,058)
Interest and other income (expense), net:			
Interest income	4,528	5,245	1,808
Interest expense	(20,597)	(26,143)	(12,633)
Other income (expense), net	355	(434)	(3,776)
Total interest and other expense, net	(15,714)	(21,332)	(14,601)
Income (loss) before income tax expense (benefit)	1,924	(92,912)	(18,659)
Income tax expense (benefit)	4,678	(19,588)	(98,471)
Net income (loss)	$ (2,754)	$ (73,324)	$ 79,812
Basic net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.91
Diluted net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.90
Weighted average common shares outstanding used in computing:			
Net income (loss) per share—basic	75,162	78,617	87,425
Net income (loss) per share—diluted	75,162	78,617	88,261

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

NetScout Systems, Inc.

Consolidated Statements of Comprehensive Income (Loss)
(In thousands)

	Year Ended March 31,		
	2020	2019	2018
Net income (loss)	$ (2,754)	$ (73,324)	$ 79,812
Other comprehensive income (loss):			
Cumulative translation adjustments	(1,644)	(3,229)	4,889
Recognition of actuarial net gain (loss) from pension and other post-retirement plans, net of taxes (benefit) of $590, ($976), and $435	1,054	(2,278)	1,353
Changes in market value of investments:			
Changes in unrealized gains (losses), net of taxes of $39, $19, and $15	126	60	(6)
Total net change in market value of investments	126	60	(6)
Changes in market value of derivatives:			
Changes in market value of derivatives, net of (benefits) tax of ($25), ($172), and $267	(78)	(524)	812
Reclassification adjustment for net gains (losses) included in net income (loss), net of taxes (benefit) of $7, $138, and ($219)	21	437	(681)
Total net change in market value of derivatives	(57)	(87)	131
Other comprehensive income (loss)	(521)	(5,534)	6,367
Total comprehensive income (loss)	$ (3,275)	$ (78,858)	$ 86,179

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

NetScout Systems, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands, except share data)

	Common stock Voting Shares	Par Value	Additional Paid In Capital	Accumulated Other Comprehensive Income (Loss)	Treasury stock Shares	Treasury stock Stated Value	Retained Earnings	Total Stockholders' Equity
Balance, March 31, 2017	115,917,431	$ 116	$ 2,693,846	$ (3,472)	23,876,143	$ (570,921)	$ 316,681	$ 2,436,250
Net income							79,812	79,812
Unrealized net investment losses				(6)				(6)
Unrealized net gains on derivative financial instruments				131				131
Cumulative translation adjustments				4,889				4,889
Recognition of actuarial net gains from pension and other post-retirement plan				1,353				1,353
Issuance of common stock pursuant to vesting of restricted stock units	1,216,535	1						1
Stock-based compensation expense for restricted stock units granted to employees			43,425					43,425
Issuance of common stock under employee stock purchase plan	610,947		17,849					17,849
Repurchase of treasury stock			(90,000)		13,598,747	(424,922)		(514,922)
Balance, March 31, 2018	117,744,913	117	2,665,120	2,895	37,474,890	(995,843)	396,493	2,068,782
Net loss							(73,324)	(73,324)
Unrealized net investment gains				60				60
Unrealized net losses on derivative financial instruments				(87)				(87)
Cumulative translation adjustments				(3,229)				(3,229)
Recognition of actuarial net losses from pension and other post-retirement plan				(2,278)				(2,278)
Issuance of common stock pursuant to vesting of restricted stock units	1,438,219	3						3
Stock-based compensation expense for restricted stock units granted to employees			51,945					51,945
Issuance of common stock under employee stock purchase plan	577,000		15,074					15,074
Repurchase of treasury stock			96,783		4,674,881	(123,220)		(26,437)
Cumulative effect of adoption of ASU 2014-09							34,924	34,924
Balance, March 31, 2019	119,760,132	120	2,828,922	(2,639)	42,149,771	(1,119,063)	358,093	2,065,433
Net loss							(2,754)	(2,754)
Unrealized net investment gains				126				126
Unrealized net losses on derivative financial instruments				(57)				(57)
Cumulative translation adjustments				(1,644)				(1,644)
Recognition of actuarial net gains from pension and other post-retirement plan				1,054				1,054
Issuance of common stock pursuant to vesting of restricted stock units	1,651,284	2						2
Stock-based compensation expense for restricted stock units granted to employees			48,404					48,404
Issuance of common stock under employee stock purchase plan	594,661		14,227					14,227
Repurchase of treasury stock					7,635,400	(186,872)		(186,872)
Balance, March 31, 2020	122,006,077	$ 122	$ 2,891,553	$ (3,160)	49,785,171	$ (1,305,935)	$ 355,339	$ 1,937,919

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

NetScout Systems, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended March 31,		
	2020	2019	2018
Cash flows from operating activities:			
Net income (loss)	$ (2,754)	$ (73,324)	$ 79,812
Adjustments to reconcile net income (loss) to cash provided by operating activities, net of the effects of acquisitions:			
Depreciation and amortization	116,104	137,878	153,503
Operating lease right-of-use assets	10,504	—	—
Loss on divestiture of business	—	7,660	—
Loss on disposal of fixed assets	16	260	481
Deal related compensation expense and accretion charges	—	102	153
Share-based compensation expense associated with equity awards	50,861	56,328	47,317
Net change in fair value of contingent and contractual liabilities	798	1,614	—
Accretion of contingent consideration	(36)	(119)	—
Impairment charge	—	35,871	—
Deferred income taxes	(9,821)	(33,442)	(127,784)
Other (gains) losses	(152)	(152)	18
Changes in assets and liabilities			
Accounts receivable and unbilled costs	21,472	(22,180)	84,952
Due from related party	—	172	443
Inventories	1,501	5,321	1,006
Prepaid expenses and other assets	13,839	3,034	20,147
Accounts payable	(4,288)	(3,876)	(8,929)
Accrued compensation and other expenses	32,812	19,964	(17,718)
Operating lease liabilities	(13,077)	—	—
Due to related party	—	234	(75)
Income taxes payable	(919)	(639)	(2,734)
Deferred revenue	8,163	15,132	(8,138)
Net cash provided by operating activities	225,023	149,838	222,454
Cash flows from investing activities:			
Purchase of marketable securities	(117,383)	(229,769)	(114,178)
Proceeds from maturity of marketable securities	144,322	230,433	196,041
Purchase of fixed assets	(19,922)	(23,392)	(15,913)
Purchase of intangible assets	—	—	(544)
Payments related to the divestiture of business	—	(3,293)	—
Acquisition of businesses, net of cash acquired	(11,347)	—	(8,334)
Increase in deposits	(31)	(97)	(330)
Contingent purchase consideration	—	—	523
Collection of contingent consideration	52	—	—
Capitalized software development costs	—	(134)	(137)
Net cash (used in) provided by investing activities	(4,309)	(26,252)	57,128
Cash flows from financing activities:			
Issuance of common stock under stock plans	2	3	1
Payment of contingent consideration	—	(2,851)	(660)
Treasury stock repurchases, including accelerated share repurchases	(175,000)	(14,468)	(501,324)
Tax withholding on restricted stock units	(11,872)	(11,969)	(13,598)
Proceeds from issuance of long-term debt, net of issuance costs	—	—	294,619
Repayment of long-term debt	(100,000)	(50,000)	—
Net cash used in financing activities	(286,870)	(79,285)	(220,962)
Effect of exchange rate changes on cash and cash equivalents	(3,427)	(5,212)	6,385
Net (decrease) increase in cash and cash equivalents	(69,583)	39,089	65,005
Cash and cash equivalents and restricted cash, beginning of year	409,820	370,731	305,726
Cash and cash equivalents and restricted cash, end of year	$ 340,237	$ 409,820	$ 370,731
Supplemental disclosures of cash flow information:			
Cash paid for interest	$ 17,644	$ 23,281	$ 9,604
Cash paid for income taxes	$ 13,061	$ 13,381	$ 18,216
Non-cash transactions:			
Transfers of inventory to fixed assets	$ 2,290	$ 2,152	$ 5,556
Additions to property, plant and equipment included in accounts payable	$ 255	$ 455	$ 1,379
Issuance of common stock under employee stock purchase plans	$ 14,227	$ 15,074	$ 17,849
Contingent consideration related to acquisition, included in accrued other	$ 1,800	$ —	$ 523
Tenant improvement allowance	$ —	$ 10,171	$ 2,104

Initial fair value of contingent consideration received as partial consideration for divestiture of business	$	—	$	2,257	$	—

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

NOTE 1 – NATURE OF BUSINESS

NetScout Systems, Inc., or NetScout or the Company, has been a technology innovator for three-plus decades since its founding in 1984. The Company's solutions, based on patented Adaptive Service Intelligence (ASI) technology, help customers identify network and application performance issues, defend their networks from denial of service (DDoS) attacks, and rapidly find and isolate advanced network threats. As a result, customers can quickly resolve issues that cause business disruptions, downtime, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader information technology (IT) initiatives. The Company reports revenue and income in one reportable segment.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The consolidated financial statements include the accounts of NetScout and its wholly owned subsidiaries. Inter-company transactions and balances have been eliminated in consolidation.

Certain amounts for the twelve months ended March 31, 2018 have been reclassified to conform to the current period presentation. These reclassifications had no effect on the reported results of operations.

Segment Reporting

The Company's operating segments are determined based on the units that constitute a business for which financial information is available and for which operating results are regularly reviewed by the Chief Operating Decision Maker (CODM). The Company reports revenue and income in one reportable segment.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates in these financial statements include those involving revenue recognition, valuation of goodwill and acquired assets and liabilities, valuation of the pension obligation, valuation of contingent consideration and share-based compensation. These items are continuously monitored and analyzed by management for changes in facts and circumstances and material changes in these estimates could occur in the future.

The Company considered the impact of the COVID-19 pandemic on the use of estimates and assumptions used for financial reporting and determined that there was no adverse material impact to its results of operations for the fourth quarter of fiscal year 2020. The full extent to which the COVID-19 pandemic will directly or indirectly impact the Company’s business, results of operations and financial condition, including sales, expenses, reserves and allowances, manufacturing, research and development costs and employee-related amounts, will depend on future developments that are highly uncertain, including as a result of new information that may emerge concerning COVID-19 and the actions taken to contain it or treat COVID-19, as well as the economic impact on local, regional, national and international customers and markets. The Company has made estimates within our financial statements and there may be changes to those estimates in future periods. Actual results may differ from these estimates.

COVID-19 Risks and Uncertainties

The Company is closely monitoring the impact of COVID-19 on all aspects of its business. COVID-19 was declared a global pandemic by the World Health Organization on March 11, 2020 and the President of the United States declared the COVID-19 outbreak a national emergency. While the COVID-19 pandemic has not had a material adverse impact on the Company’s operations to date, the future impacts of the pandemic and any resulting economic impact are largely unknown and rapidly evolving. It is possible that the COVID-19 pandemic, the measures taken by the governments of countries affected and the resulting economic impact may materially and adversely affect the Company’s results of operations, cash flows and financial position as well as its customers.

Under Accounting Standards Update (ASU) 2014-15, Presentation of Financial Statements—Going Concern (Subtopic 205-40), or ASC 205-40, the Company has the responsibility to evaluate whether conditions and/or events raise substantial doubt about its ability to meet its future financial obligations as they become due within one year after the date that the financial statements are issued. The Company is taking precautionary actions to reduce costs and spending across the organization. This includes limiting discretionary spending and reducing hiring activities. The Company has temporarily halted the stock repurchase program, although the repurchase authorization remains effective. In addition, based on covenant levels at March 31, 2020, the Company has an incremental $285 million available under the $1.0 billion revolving credit facility. The Company expects net cash provided by operations combined with cash, cash equivalents, and marketable securities and borrowing availability under the revolving credit facility to provide sufficient liquidity to fund current obligations, capital spending, debt service requirements and working capital requirements over at least the next twelve months.

Cash and Cash Equivalents and Marketable Securities

Under current authoritative guidance, NetScout has classified its investments as "available-for-sale" which are carried at fair value based on quoted market prices and associated unrealized gains or losses are recorded as a separate component of stockholders' equity until realized. NetScout considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents and those investments with original maturities greater than three months to be marketable securities.

At March 31, 2020 and periodically throughout the year, NetScout has maintained cash balances in various operating accounts in excess of federally insured limits. NetScout limits the amount of credit exposure by investing only with credit worthy institutions which the Company believes are those institutions with an investment grade rating for deposits.

Revenue Recognition

The Company accounts for revenue in accordance with ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606), which was adopted on April 1, 2018 using the modified retrospective transition method. For further discussion of the Company's accounting policies related to revenue see Note 3, "Revenue Recognition."

Commission Expense

Sales commissions are recorded as an asset when the initial contract's duration is longer than 12 months and amortized to expense ratably over the remaining performance periods of the related contracts.

Uncollected Deferred Revenue

Because of NetScout's revenue recognition policies, there are circumstances for which the Company does not recognize revenue relating to sales transactions that have been billed, but the related account receivable has not been collected. While the receivable represents an enforceable obligation, for balance sheet presentation purposes, the Company has not recognized the deferred revenue or the related account receivable and no amounts appear in the consolidated balance sheets for such transactions because control of the underlying deliverable has not transferred. The aggregate amount of unrecognized accounts receivable and deferred revenue was $11.1 million and $23.3 million at March 31, 2020 and 2019, respectively.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentration of credit risk consist primarily of investments, trade accounts receivable and accounts payable. NetScout's cash, cash equivalents, and marketable securities are placed with financial institutions with high credit standings.

At March 31, 2020 and 2019, the Company had no direct customers or indirect channel partners which accounted for more than 10% of the accounts receivable balance.

During the fiscal years ended March 31, 2020, 2019 and 2018 respectively, no direct customers or indirect channel partners accounted for more than 10% of total revenue.

Historically, the Company has not experienced any significant failure of its customers to meet their payment obligations nor does the Company anticipate material non-performance by its customers in the future; accordingly, the Company does not require collateral from its customers. However, if the Company's assumptions are incorrect, there could be an adverse impact on its allowance for doubtful accounts.

Trade Receivable Valuations

Accounts receivable are stated at their net realizable value. The allowance against gross trade receivables reflects the best estimate of probable losses inherent in the receivables portfolio determined on the basis of historical experience, specific allowances for known troubled accounts and other currently available information.

Inventories

Inventories are stated at the lower of actual cost or net realizable value. Cost is determined by using the first-in, first-out (FIFO) method.

Fixed Assets

Fixed assets are stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets. Leasehold improvements are amortized on a straight-line basis over the shorter of the lease term or anticipated useful life of the improvement. Gains and losses upon asset disposal are recognized in the year of disposition. Expenditures for replacements and building improvements are capitalized, while expenditures for maintenance and repairs are charged against earnings as incurred.

Leases

Effective April 1, 2019, the Company adopted ASU 2016-02, Leases (Topic 842), which requires leases to be recognized on the balance sheet. Leases with an original term of 12 months or less are not recognized on the Company's balance sheet, and the lease expense related to those short-term leases is recognized over the lease term. The Company does not account for lease and non-lease (e.g. common area maintenance) components of contracts separately for any underlying asset class. For fiscal years ending prior to this date, the Company followed the guidance for leases under Topic 840, Leases. See Recently Issued Accounting Pronouncements below and Footnote 18, Leases, for further details.

The Company has operating leases for administrative, research and development, sales and marketing and manufacturing facilities and equipment under various non-cancelable lease agreements. Lease commencement occurs on the date the Company takes possession or control of the property or equipment. The Company's lease terms may include options to extend or terminate the lease where it is reasonably certain that the Company will exercise those options. The Company considers several economic factors when making this determination, including but not limited to, the significance of leasehold improvements incurred in the office space, the difficulty in replacing the asset, underlying contractual obligations, or specific characteristics unique to a particular lease. The Company's lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Valuation of Goodwill, Intangible Assets and Other Acquisition and Divestiture Accounting Items

The Company amortizes acquired definite-lived intangible assets over their estimated useful lives. Goodwill and other indefinite-lived intangible assets are not amortized but subject to annual impairment tests; more frequently if events or circumstances occur that would indicate a potential decline in their fair value. The Company performs the assessment annually during the fourth quarter and on an interim basis if potential impairment indicators arise.

Reporting units are determined based on the components of a Company's operating segments that constitute a business for which financial information is available and for which operating results are regularly reviewed by segment management. Through the first half of fiscal year 2020, the Company had two reporting units: (1) Service Assurance and (2) Security. As part of its continued integration efforts, effective during the third quarter of fiscal year 2020, the Company reorganized its business units. As a result of this change, the Company reduced the number of reporting units from two reporting units to one reporting unit. The former Service Assurance and Security reporting units were combined as result of organizational changes made to fully integrate the resources and assets of the Service Assurance and Security business units.

To test impairment, the Company first assesses qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the intangible asset is impaired. If based on the Company's qualitative assessment it is more likely than not that the fair value of the intangible asset is less than its carrying amount, quantitative impairment testing is required. However, if the Company concludes otherwise, quantitative impairment testing is not required. During fiscal year 2020, the Company performed its annual impairment analysis for goodwill as of January 31, 2020. The Company performed a quantitative analysis and determined the fair value of the reporting unit's goodwill using established income and market valuation approaches. Goodwill was estimated to be recoverable as of January 31, 2020. The Company considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic to be a triggering event. As such, the Company performed a quantitative analysis as of March 31, 2020 and determined the fair value of the reporting unit's goodwill using established income and market valuation approaches. Goodwill was determined to be recoverable as of March 31, 2020.

Indefinite-lived intangible assets are tested for impairment at least annually, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the indefinite-lived intangible assets below its carrying value. To test impairment, the Company first assesses qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the indefinite-lived intangible is impaired. If based on the Company's qualitative assessment, the Company concludes that it is more likely than not that the fair value of the indefinite-lived asset is greater than its carrying amount, quantitative impairment testing is not required. The Company completed its annual impairment test of the indefinite-lived intangible asset at January 31, 2020 using the qualitative Step 0 assessment. No impairment indicators were observed as of January 31, 2020. The Company considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic and concluded that it was not more likely than not that the trade name was impaired and therefore a quantitative Step 1 assessment was not performed as of March 31, 2020.

The Company completed three acquisitions and one divestiture during the three-year period ended March 31, 2020. The acquisition method of accounting requires an estimate of the fair value of the assets and liabilities acquired as part of these transactions. In order to estimate the fair value of acquired intangible assets, the Company uses either an income, market or cost method approach.

The Company's Level 3 liabilities at March 31, 2020 consisted of contingent purchase consideration related to the two acquisitions that occurred during the fiscal year 2020. The contingent purchase consideration related to the two acquisitions represent amounts deposited into escrow accounts, which were established to cover damages NetScout may suffer related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the sellers as described in the acquisition agreements. The contingent purchase consideration of $0.7 million and $1.0 million related to the Gigavation Incorporated (Gigavation) and Eastwind Networks, Inc. (Eastwind) acquisitions are included as accrued other in the Company's consolidated balance sheet at March 31, 2020. Except to the extent that valid indemnification claims are made prior to such time, the $0.7 million of purchase consideration related to the Gigavation acquisition will be paid to the seller in February 2021. The contingent purchase consideration related to the Eastwind acquisition was paid to the seller in April 2020.

The Company had a contingent consideration asset related to the divestiture of its handheld network test (HNT) tools business in September 2018. The contingent consideration asset represented potential future earnout payments to the Company of up to $4.0 million over two years that were contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the divestiture date and was measured using unobservable (Level 3) inputs. The value of the contingent consideration asset at March 31, 2020 and 2019 was $0 and $0.8 million, respectively.

The Company had a contingent liability at March 31, 2018 for $0.5 million related to the acquisition of Efflux in July 2017 for which an escrow account was established to cover damages NetScout may have suffered related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. The $0.5 million was paid to the seller in July 2018.

The Company had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena LLC in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with NetScout. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

Capitalized Software Development Costs

Costs incurred in the research and development of the Company’s products are expensed as incurred, except for certain software development costs. Costs associated with the development of computer software are expensed prior to the establishment of technological feasibility and capitalized thereafter until the related software products are available for first customer shipment. Such costs are amortized using the straight-line method over the estimated economic life of the product, which generally does not exceed three years. Capitalized software development costs are periodically assessed for recoverability in the event of changes to the anticipated future revenue for the software products or changes in product technologies. Unamortized capitalized software development costs that are determined to be in excess of the net realizable value of the software products would be expensed in the period in which such a determination is made.

Typically for accounting purposes, these R&D investments have not been capitalized because of the development methodology employed. The developments are added individually to the core code over a shorter period of time but marketed as a release once all portions are complete.

Amortization included as cost of product revenue was $0.5 million, $1.1 million, and $1.0 million for the fiscal years ended March 31, 2020, 2019, and 2018, respectively. The Company capitalized $0 and $0.1 million in software development costs in the fiscal years ended March 31, 2020 and 2019.

Derivative Financial Instruments

Under authoritative guidance for derivative instruments and hedging activities, all hedging activities must be documented at the inception of the hedge and must meet the definition of highly effective in offsetting changes to future cash flows in order for the derivative to qualify for hedge accounting. Under the guidance, if an instrument qualifies for hedge accounting, the changes in the fair value each period for open contracts, measured at the end of the period, are recorded to other comprehensive income. Otherwise, changes in the fair value are recorded in earnings each period. Management must perform initial and ongoing tests in order to qualify for hedge accounting. In accordance with the guidance, the Company accounts for its instruments under hedge accounting. The effectiveness and a measurement of ineffectiveness of qualifying hedge contracts are assessed by the Company quarterly. The Company records the fair value of its derivatives in prepaid expenses and other current assets and accrued other in the Company's consolidated balance sheet. The effective portion of gains or losses resulting from changes in the fair value of qualifying hedges are recorded in other comprehensive income (loss) until the forecasted transaction occurs, with any ineffective portion classified directly to the Company’s consolidated statement of operations based on the expense categories of the items being hedged. When forecasted transactions occur, unrealized gains or losses associated with the effective portion of the hedge are reclassified to the respective expense categories in the Company’s consolidated statement of operations. Gains or losses related to hedging activity are included as operating activities in the Company’s consolidated statement of cash flows. If the underlying forecasted transactions do not occur, or it becomes probable that they will not occur, the gain or loss on the related cash flow hedge is recognized immediately in earnings.

Contingencies

NetScout accounts for claims and contingencies in accordance with authoritative guidance that requires an estimated loss to be recorded from a claim or loss contingency when information available prior to issuance of its consolidated financial statements indicates that it is probable that a liability has been incurred at the date of the consolidated financial statements and the amount of the loss can be reasonably estimated. If NetScout determines that it is reasonably possible but not probable that an asset has been impaired or a liability has been incurred or if the amount of a probable loss cannot be reasonably estimated, then in accordance with the authoritative guidance, Netscout discloses the amount or range of estimated loss if the amount or range of estimated loss is material. Accounting for claims and contingencies requires NetScout to use its judgment. NetScout consults with legal counsel on those issues related to litigation and seeks input from other experts and advisors with respect to matters in the ordinary course of business.

Contingent assets and liabilities include contingent consideration in connection with the Company’s acquisitions and divestitures. Contingent consideration represents earnout payments in connection with the Company’s acquisitions and divestitures and is recognized at fair value on the acquisition date and remeasured each reporting period with subsequent adjustments recognized in the consolidated statements of income. The Company discounts the contingent purchase consideration to present value using a risk adjusted interest rate at each reporting period. Contingent consideration is valued using significant inputs that are not observable in the market which are defined as Level 3 inputs pursuant to fair value measurement accounting. The Company believes its estimates and assumptions are reasonable, however, there is significant judgment involved.

Changes in the fair value of contingent assets and liabilities may result from changes in discount periods. The Company reflects changes in fair value due to probability changes in earnings in the consolidated statements of income. Earnout payments are reflected in both cash flows from operating and financing activities and the changes in fair value are reflected in cash flows from operating activities in the consolidated statements of cash flows.

Share-Based Compensation

NetScout recognizes compensation expense for all share-based payments granted. Under the fair value recognition provisions, share-based compensation is calculated net of an estimated forfeiture rate and compensation cost is only recognized for those shares expected to vest on a straight-line basis over the expected requisite service period of the award.

Foreign Currency

NetScout accounts for its reporting of foreign operations in accordance with guidance which establishes guidelines for the determination of the functional currency of foreign subsidiaries. In accordance with the guidance, NetScout has determined its functional currency for those foreign subsidiaries that are an extension of NetScout's U.S. operations to be the U.S. Dollar.

Assets and liabilities of subsidiaries operating outside the United States with a functional currency other than U.S. dollars are translated into U.S. dollars using the period-end exchange rate, and income and expense items are translated using the average exchange rate during the period. Cumulative translation adjustments are reflected as a separate component of stockholders' equity.

NetScout will experience currency exchange risk with respect to foreign currency denominated expenses. In order to partially offset the risks associated with the effects of certain foreign currency exposures, NetScout has established a program that utilizes foreign currency forward contracts. Under this program, increases or decreases in foreign currency exposures are partially offset by gains or losses on forward contracts, to mitigate the impact of foreign currency transaction gains or losses. The Company does not use forward contracts to engage in currency speculation. All outstanding foreign currency forward contracts are recorded at fair value at the end of each fiscal period.

The Company had foreign currency losses of $0.7 million, $2.0 million and $4.1 million for the fiscal years ended March 31, 2020, 2019 and 2018, respectively. These amounts are included in other expense, net.

Advertising Expense

NetScout recognizes advertising expense as incurred. Advertising expense was $8.3 million, $9.4 million and $6.5 million for the fiscal years ended March 31, 2020, 2019 and 2018, respectively.

Comprehensive Income (Loss)

Comprehensive income (loss) consists of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) typically consists of unrealized gains and losses on marketable securities, unrealized gain (loss) on hedge contracts, actuarial gains and losses, and foreign currency translation adjustments.

Income Taxes

NetScout accounts for its income taxes under the asset and liability method. Under the asset and liability method, deferred tax assets and liabilities are recognized based on anticipated future tax consequences attributable to differences between financial statement carrying amounts of assets and liabilities and their respective tax basis, as well as the effect of any net operating loss and tax credit carryforwards. Income tax expense is comprised of the current tax liability or benefit and the change in deferred tax assets and liabilities. NetScout evaluates the recoverability of deferred tax assets by considering all positive and negative evidence relating to future profitability. NetScout weighs objective and verifiable evidence more heavily in this analysis. In situations where NetScout concludes that it does not have sufficient objective and verifiable evidence to support the realizability of the deferred tax asset, NetScout creates a valuation allowance against it.

Recent Accounting Standards

In March 2020, the FASB issued ASU 2020-04, Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting. The amendments provide optional guidance for a limited time to ease the potential burden in accounting for reference rate reform. The new guidance provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships and other transactions affected by reference rate reform if certain criteria are met. The amendments apply only to contracts and hedging relationships that reference LIBOR or another reference rate expected to be discontinued due to reference rate reform. These amendments are effective immediately and may be applied prospectively to contract modifications made and hedging relationships entered into or evaluated on or before December 31, 2022. The adoption will not have a material impact on the Company's financial position, results of operations, and disclosures.

In January 2020, the FASB issued ASU 2020-01, Investments-Equity Securities (Topic 321), Investments-Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815) - Clarifying the Interactions between Topic 321, Topic 323, and Topic 815. This guidance addresses accounting for the transition into and out of the equity method and provides clarification of the interaction of rules for equity securities, the equity method of accounting, and forward contracts and purchase options on certain types of securities. This standard is effective for fiscal years and interim periods within those fiscal years beginning after December 15, 2020. Early adoption is permitted. ASU 2020-01 is effective for NetScout beginning April

1, 2021. The Company is currently assessing the effect that ASU 2020-01 will have on its financial position, results of operations, and disclosures.

In December 2019, the FASB issued ASU 2019-12, Simplifying the Accounting for Income Taxes. ASU 2019-12 simplifies the accounting for income taxes, eliminates certain exceptions within ASC 740, Income Taxes, and clarifies certain aspects of the current guidance to promote consistency among reporting entities. ASU 2019-12 is effective for fiscal years beginning after December 15, 2021. ASU 2019-12 is effective for NetScout beginning April 1, 2022. Most amendments within the standard are required to be applied on a prospective basis, while certain amendments must be applied on a retrospective or modified retrospective basis. The Company is currently assessing the effect that ASU 2019-12 will have on its financial position, results of operations, and disclosures.

In August 2018, the FASB issued ASU 2018-14, Compensation – Retirement Benefits – Defined Benefit Plans – General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans. This ASU adds, modifies and clarifies several disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. This guidance is effective for fiscal years ending after December 15, 2020. ASU 2018-14 is effective for NetScout beginning April 1, 2020. Early adoption is permitted. This guidance will have no impact on the Company's consolidated financials statements upon adoption other than with respect to the updated disclosure requirements.

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement. ASU 2018-13 adds, modifies and removes several disclosure requirements relative to the three levels of inputs used to measure fair value in accordance with Topic 820, Fair Value Measurement. This guidance is effective for fiscal years beginning after December 15, 2019, including interim periods within that fiscal year. ASU 2018-13 is effective for NetScout beginning April 1, 2020. Early adoption is permitted. The Company does not believe the adoption of ASU 2018-13 will have a material impact on its financial position, results of operations, and disclosures.

In August 2017, the FASB issued ASU 2017-12, Derivatives and Hedging (Topic 815), Targeted Improvements to Accounting for Hedging Activities (ASU 2017-12). ASU 2017-12 provides guidance to better align an entity's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. The amendments expand and refine hedge accounting for both non-financial and financial risk components and align the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. This standard is effective for financial statements issued for fiscal years beginning after December 15, 2018. The Company adopted ASU 2017-12 effective April 1, 2019. The adoption has had an immaterial impact on the Company's consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments (ASU 2016-13) and also issued subsequent amendments to the initial guidance: ASU 2018-19, ASU 2019-04, ASU 2019-05, ASU 2019-11 and ASU 2020-02 (collectively, Topic 326). Topic 326 requires measurement and recognition of expected credit losses for financial assets held. Topic 326 replaces the existing incurred loss impairment model with an expected loss methodology, which will result in more timely recognition of credit losses. Topic 326 is effective for annual periods beginning after December 15, 2019, and interim periods therein. Topic 326 is effective for NetScout beginning April 1, 2020, and earlier adoption is permitted. The Company does not believe the adoption of Topic 326 will have a material impact on its financial position, results of operations, and disclosures.

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842) Section A - Leases: Amendments to the FASB Accounting Standards Codification (ASU 2016-02) and issued subsequent amendments to initial guidance in July 2018 within ASU 2018-10, Codification Improvements to Topic 842, Leases and ASU 2018-11, Leases (Topic 842): Targeted Improvements (collectively, ASC 842). ASC 842 aims to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. The Company adopted the guidance as of April 1, 2019 using the modified retrospective method. Please refer to Note 18, "Leases" for further details.

NOTE 3 - REVENUE RECOGNITION

Revenue from Contracts with Customers

In May 2014, the FASB issued Topic 606, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. Topic 606 replaced most existing revenue recognition guidance under GAAP. The new standard introduces a five-step process to be followed in determining the amount and timing of revenue recognition. It also provides guidance on accounting for costs incurred to obtain or fulfill contracts with customers and establishes disclosure requirements which are more extensive than those required under prior GAAP.

Topic 606 became effective for the Company on April 1, 2018. The Company elected to use the modified retrospective transition approach. Therefore, the comparative financial information has not been restated and continues to be reported under the accounting standards in effect for those periods.

Revenue Recognition Policy

The Company exercises judgment and uses estimates in connection with determining the amounts of product and service revenues to be recognized in each accounting period.

The Company derives revenues primarily from the sale of network management tools and security solutions for service provider and enterprise customers, which include hardware, software and service offerings. The majority of the Company's product sales consist of hardware products with embedded software that are essential to providing customers the intended functionality of the solutions. The Company also sells software offerings decoupled from the underlying hardware and software solutions to provide customers with enhanced functionality.

The Company accounts for revenue once a legally enforceable contract with a customer has been approved by the parties and the related promises to transfer products or services have been identified. A contract is defined by the Company as an arrangement with commercial substance identifying payment terms, each party's rights and obligations regarding the products or services to be transferred and the amount the Company deems probable of collection. Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. Revenue is recognized when control of the products or services are transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for products and services.

Product revenue is typically recognized upon shipment, provided a legally enforceable contract exists, control has passed to the customer, and in the case of software products, when the customer has the rights and ability to access the software; and collection of the related receivable is probable. If any significant obligations to the customer remain post-delivery, typically involving obligations relating to installation and acceptance by the customer, revenue recognition is deferred until such obligations have been fulfilled. The Company's service offerings include installation, integration, extended warranty and maintenance services, post-contract customer support, stand-ready software-as-a-service (SAAS) and other professional services including consulting and training. The Company generally provides software and/or hardware support as part of product sales. Revenue related to the initial bundled software and hardware support is recognized ratably over the support period. In addition, customers can elect to purchase extended support agreements for periods after the initial software/hardware warranty expiration. Support services generally include rights to unspecified upgrades (when and if available), telephone and internet-based support, updates, bug fixes and hardware repair and replacement. Consulting services are recognized upon delivery or completion of performance depending on the terms of the underlying contract. Reimbursements of out-of-pocket expenditures incurred in connection with providing consulting services are included in services revenue, with the offsetting expense recorded in cost of service revenue. Training services include on-site and classroom training. Training revenues are recognized upon delivery of the training.

Generally, the Company's contracts are accounted for individually. However, when contracts are closely interrelated and dependent on each other, it may be necessary to account for two or more contracts as one to reflect the substance of the group of contracts.

Bundled arrangements are concurrent customer purchases of a combination of the Company's product and service offerings that may be delivered at various points in time. The Company allocates the transaction price among the performance obligations in an amount that depicts the relative standalone selling prices (SSP) of each obligation. Judgment is required to determine the SSP for each distinct performance obligation. The Company uses a range of amounts to estimate SSP when it sells each of the products and services separately based on the element's historical pricing. The Company also considers its overall pricing objectives and practices across different sales channels and geographies, and market conditions. Generally, the Company has established SSP for a majority of its service elements based on historical standalone sales. In certain instances, the Company has established SSP for services based upon an estimate of profitability and the underlying cost to fulfill those services. Further, for certain service engagements, the Company considers quoted prices as part of multi-element arrangements of those engagements as a basis for establishing SSP. SSP has been established for product elements as the average or median selling price the element was recently sold for, whether sold alone or sold as part of a multiple element transaction. The

Company reviews sales of the product elements on a quarterly basis and updates, when appropriate, its SSP for such elements to ensure that it reflects recent pricing experience. The Company's products are distributed through its direct sales force and indirect distribution channels through alliances with resellers and distributors. Revenue arrangements with resellers and distributors are recognized on a sell-in basis; that is, when control of the product transfers to the reseller or distributor. The Company records consideration given to a customer as a reduction of revenue to the extent they have recorded revenue from the customer. With limited exceptions, the Company's return policy does not allow product returns for a refund. Returns have been insignificant to date. In addition, the Company has a history of successfully collecting receivables from its resellers and distributors.

During the fiscal year ended March 31, 2020, the Company recognized revenue of $271.7 million related to the Company's deferred revenue balance reported at March 31, 2019.

Performance Obligations

Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. The transaction price is allocated among performance obligations in bundled contracts in an amount that depicts the relative standalone selling prices of each obligation.

For contracts involving distinct hardware and software licenses, the performance obligations are satisfied at a point in time when control is transferred to the customer. For standalone maintenance and post-contract support (PCS) the performance obligation is satisfied ratably over the contract term as a stand-ready obligation. For consulting and training services, the performance obligation may be satisfied over the contract term as a stand-ready obligation, satisfied over a period of time as those services are delivered, or satisfied at the completion of the service when control has transferred, or the services have expired unused.

Payments for hardware, software licenses, one-year maintenance, PCS and consulting services, are typically due up front with payment terms of 30 to 90 days. However, the Company does have contracts pursuant to which billings occur ratably over a period of years following the transfer of control for the contracted performance obligations. Payments on multi-year maintenance, PCS and consulting services are typically due in annual installments over the contract term. The Company did not have any material variable consideration such as obligations for returns, refunds or warranties at March 31, 2020.

At March 31, 2020, the Company had total deferred revenue of $374.5 million, which represents the aggregate total contract price allocated to undelivered performance obligations. The Company expects to recognize $270.3 million, or 72%, of this revenue during the next 12 months, and expects to recognize the remaining $104.2 million, or 28%, of this revenue thereafter.

NetScout expects that the amount of billed and unbilled deferred revenue will change from quarter to quarter for several reasons, including the specific timing, duration and size of large customer support and service agreements, varying billing cycles of such agreements, the specific timing of customer renewals, and foreign currency fluctuations. The Company did not have any significant financing components, or variable consideration or performance obligations satisfied in a prior period recognized during the twelve months ended March 31, 2020.

Contract Balances

The Company may receive payments from customers based on a billing schedule as established by the Company’s contracts. Contract assets relate to performance obligations where control has transferred to the customer in advance of scheduled billings. The Company records unbilled accounts receivable representing the right to consideration in exchange for goods or services that have been transferred to a customer conditional on the passage of time. Deferred revenue relates to payments received in advance of performance under the contract.

Costs to Obtain Contracts

The Company has determined that the only significant incremental costs incurred to obtain contracts with customers within the scope of Topic 606 are sales commissions paid to its employees. Sales commissions are recorded as an asset and amortized to expense ratably over the remaining performance periods of the related contracts with remaining performance obligations. The Company expenses costs as incurred for sales commissions when the amortization period would have been one year or less.

At March 31, 2020, the consolidated balance sheet included $7.2 million in assets related to sales commissions to be expensed in future periods. A balance of $3.9 million was included in prepaid expenses and other current assets, and a balance of $3.3 million was included as other assets in the Company's consolidated balance sheet at March 31, 2020. At March 31, 2019, the consolidated balance sheet included $6.4 million in assets related to sales commissions to be expensed in future periods. A balance of $3.8 million was included in prepaid expenses and other current assets, and a balance of $2.6 million was included in other assets in the Company's consolidated balance sheet at March 31, 2019.

During the twelve months ended March 31, 2020 and 2019, the Company recognized $6.5 million of amortization related to this sales commission asset, which is included in the sales and marketing expense line in the Company's consolidated statements of operations.

NOTE 4 – CASH, CASH EQUIVALENTS AND MARKETABLE SECURITIES

Cash and cash equivalents consisted of U.S government and municipal obligations, commercial paper, money market instruments and cash maintained with various financial institutions at March 31, 2020 and 2019.

Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets that sum to the total of the same such amounts shown in the consolidated statements of cash flows (in thousands):

	March 31, 2020	March 31, 2019	March 31, 2018	March 31, 2017
Cash and cash equivalents	$ 338,489	$ 409,632	$ 369,821	$ 304,880
Restricted cash	1,748	188	910	846
Total cash, cash equivalents and restricted cash	$ 340,237	$ 409,820	$ 370,731	$ 305,726

The Company's restricted cash includes cash balances which are legally or contractually restricted. The Company's restricted cash is included within prepaid and other current assets and consists of amounts related to holdbacks associated with prior acquisitions.

Marketable Securities

The following is a summary of marketable securities held by NetScout at March 31, 2020 classified as short-term and long-term (in thousands):

	Amortized Cost	Unrealized Gains	Fair Value
Type of security:			
U.S. government and municipal obligations	$ 28,621	$ 107	$ 28,728
Commercial paper	14,644	—	14,644
Corporate bonds	4,587	10	4,597
Total short-term marketable securities	47,852	117	47,969
U.S. government and municipal obligations	2,562	51	2,613
Total long-term marketable securities	2,562	51	2,613
Total marketable securities	$ 50,414	$ 168	$ 50,582

The following is a summary of marketable securities held by NetScout at March 31, 2019, classified as short-term and long-term (in thousands):

	Amortized Cost	Unrealized Gains	Fair Value
Type of security:			
U.S. government and municipal obligations	$ 27,610	$ 12	$ 27,622
Commercial paper	48,722	—	48,722
Total short-term marketable securities	76,332	12	76,344
Corporate bonds	1,007	5	1,012
Total long-term marketable securities	1,007	5	1,012
Total marketable securities	$ 77,339	$ 17	$ 77,356

Contractual maturities of the Company's marketable securities held at March 31, 2020 and March 31, 2019 were as follows (in thousands):

	March 31, 2020	March 31, 2019
Available-for-sale securities:		
Due in 1 year or less	$ 47,969	$ 76,344
Due after 1 year through 5 years	2,613	1,012
	$ 50,582	$ 77,356

NOTE 5 – FAIR VALUE MEASUREMENTS

The fair value hierarchy has three levels based on the reliability of the inputs used to determine fair value. Level 1 refers to fair values determined based on quoted prices in active markets for identical assets. Level 2 refers to fair values estimated using significant other observable inputs, and Level 3 includes fair values estimated using significant unobservable inputs. The following tables present the Company's financial assets and liabilities measured on a recurring basis using the fair value hierarchy at March 31, 2020 and 2019 (in thousands):

	Fair Value Measurements at March 31, 2020			
	Level 1	Level 2	Level 3	Total
ASSETS:				
Cash and cash equivalents	$ 338,489	$ —	$ —	$ 338,489
U.S. government and municipal obligations	31,341	—	—	31,341
Commercial paper	—	14,644	—	14,644
Corporate bonds	4,597	—	—	4,597
	$ 374,427	$ 14,644	$ —	$ 389,071
LIABILITIES:				
Contingent purchase consideration	$ —	$ —	$ (1,748)	$ (1,748)
Derivative financial instruments	—	(49)	—	(49)
	$ —	$ (49)	$ (1,748)	$ (1,797)

	Fair Value Measurements at March 31, 2019			
	Level 1	Level 2	Level 3	Total
ASSETS:				
Cash and cash equivalents	$ 409,632	$ —	$ —	$ 409,632
U.S. government and municipal obligations	10,732	16,890	—	27,622
Commercial paper	—	48,722	—	48,722
Corporate bonds	1,012	—	—	1,012
Derivative financial instruments	—	58	—	58
Contingent consideration	—	—	762	762
	$ 421,376	$ 65,670	$ 762	$ 487,808
LIABILITIES:				
Derivative financial instruments	$ —	$ (68)	$ —	$ (68)
	$ —	$ (68)	$ —	$ (68)

This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. On a recurring basis, the Company measures certain financial assets and liabilities at fair value, including marketable securities and derivative financial instruments.

The Company's Level 1 investments are classified as such because they are valued using quoted market prices or alternative pricing sources with reasonable levels of price transparency.

The Company's Level 2 investments are classified as such because fair value is calculated using market observable data for similar but not identical instruments, or a discounted cash flow model using the contractual interest rate as compared to the underlying interest yield curve. The Company classifies municipal obligations as Level 2 because the fair values are determined using quoted prices from markets the Company considers to be inactive. Commercial paper is classified as Level 2 because the Company uses market information from similar but not identical instruments and discounted cash flow models based on interest rate yield curves to determine fair value. The Company's derivative financial instruments consist of forward foreign exchange contracts and are classified as Level 2 because the fair values of these derivatives are determined using models based on market observable inputs, including spot prices for foreign currencies and credit derivatives, as well as an interest rate factor.

The Company's Level 3 liabilities at March 31, 2020 consisted of contingent purchase consideration related to the two acquisitions that occurred during the fiscal year 2020. The contingent purchase consideration related to the two acquisitions represent amounts deposited into escrow accounts, which were established to cover damages NetScout may suffer related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the sellers as described in the acquisition agreements. The contingent purchase consideration of $0.7 million and $1.0 million related to the Gigavation and Eastwind acquisitions are included as accrued other in the Company's consolidated balance sheet at March 31, 2020. Except to the extent that valid indemnification claims are made prior to such time, the $0.7 million of purchase consideration related to the Gigavation acquisition will be paid to the seller in February 2021. The contingent purchase consideration related to the Eastwind acquisition was paid to the seller in April 2020.

The Company's Level 3 assets at March 31, 2019 consisted of contingent consideration related to the divestiture of the Company's handheld network test (HNT) tools business in September 2018. The contingent consideration represented potential future earnout payments to the Company of up to $4.0 million over two years that were contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the divestiture date and was measured using unobservable (Level 3) inputs. The Company recorded a $0.8 million and a $1.6 million change in the fair value of the contingent consideration, which is included in other expense, net within the Company's consolidated statement of operations for the years ended March 31, 2020 and 2019, respectively. The $0.8 million of contingent consideration was included in other assets within the Company’s consolidated balance sheet at March 31, 2019.

The following table sets forth a reconciliation of changes in the fair value of the Company's Level 3 financial liabilities for the year ended March 31, 2020 (in thousands):

	Contingent Purchase Consideration	Contingent Consideration
Balance at March 31, 2019	$ —	$ 762
Additions to Level 3	(1,800)	—
Change in fair value of contingent consideration	—	(762)
Payments received	52	—
Balance at March 31, 2020	$ (1,748)	$ —

Accretion income related to the contingent consideration received as partial consideration for the divestiture of the HNT tools business for the fiscal year ended March 31, 2020 was $36 thousand and was included within interest income.

The following table sets forth a reconciliation of changes in the fair value of the Company's Level 3 financial liabilities for the year ended March 31, 2019 (in thousands):

	Contingent Purchase Consideration	Contingent Consideration
Balance at March 31, 2018	$ (5,464)	$ —
Contingent consideration pursuant to divestiture of the HNT tools business	—	2,257
Change in fair value of contingent consideration	(102)	(1,495)
Payments made	5,566	—
Balance at March 31, 2019	$ —	$ 762

Deal related compensation expense and accretion charges related to the contingent purchase consideration for the fiscal year ended March 31, 2019 were $102 thousand and were included within research and development expense. Accretion income related to the contingent consideration received as partial consideration for the divestiture of the HNT tools business for the fiscal year ended March 31, 2019 was $119 thousand and was included within interest income.

NOTE 6 – INVENTORIES

Inventories are stated at the lower of actual cost or net realizable value. Cost is determined by using the FIFO method. Inventories consisted of the following (in thousands):

	March 31,	
	2020	2019
Raw materials	$ 15,311	$ 14,432
Work in process	819	1,181
Finished goods	5,376	7,738
Deferred costs	721	2,919
	$ 22,227	$ 26,270

NOTE 7 – FIXED ASSETS

Fixed assets consisted of the following (in thousands):

	Estimated Useful Life in Years	March 31, 2020	March 31, 2019
Furniture and fixtures	3-7	$ 9,561	$ 9,373
Computer equipment and internal use software	3-5	170,518	158,797
Demonstration and spare part units	2-5	51,910	17,928
Leasehold improvements (1)	up to 12	19,626	46,662
		251,615	232,760
Less – accumulated depreciation		(193,900)	(173,809)
		$ 57,715	$ 58,951

(1) Leasehold improvements are depreciated over the shorter of the lease term or anticipated useful life of the improvement.

Depreciation expense was $23.4 million, $27.4 million and $34.7 million for the fiscal years ended March 31, 2020, 2019 and 2018, respectively.

NOTE 8 – ACQUISITIONS & DIVESTITURES

Gigavation Acquisition

On February 5, 2020 (the Gigavation Closing Date), the Company acquired 100% of the common stock of Gigavation Incorporated, a cybersecurity company for $8.0 million. Gigavation's solutions provide security to device communication protocols, end point protection and security analytics. The Gigavation technology and engineering talent have been integrated into our service assurance products in order to support the ongoing enhancement of that products portfolio.

The Company has completed the purchase accounting related to the Gigavation acquisition as of March 31, 2020. Goodwill and intangible assets recorded as part of the acquisition are not deductible for tax purposes. The Company determined Gigavation's results of operations are not material. As such, the pro forma information is not required for fiscal year 2020.

The following table summarizes the allocation of the purchase price (in thousands):

Initial cash payment	$ 7,200
Estimated fair value of contingent purchase consideration	800
Estimated purchase price	$ 8,000

The following table reflects the estimated fair value of assets acquired and liabilities assumed (in thousands):

Cash	$ 7
Accounts receivable	209
Prepaid and other current assets	5
Intangible assets	4,760
Deferred tax liability	(693)
Accounts payable	(50)
Accrued other liabilities	(54)
Goodwill	$ 3,816

Of the total consideration, $0.8 million was deposited into an escrow account. The escrow account was established to cover damages NetScout may suffer related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. Generally, indemnification claims that Gigavation would be liable for are limited to the total amount of the escrow account, which shall be the sole source for the satisfaction of any damages to the Company for such claims, but such limitation does not apply with respect to the seller's breach of certain fundamental representations or related to other specified indemnity items, for which certain of Gigavation's shareholders may be liable for additional amounts in excess of the escrow amount. During the year ended March 31, 2020, $0.1 million was withdrawn from the escrow account to satisfy an indemnification claim. Except to the extent that valid indemnification claims are made prior to such time, the remaining $0.7 million will be paid to the seller in February 2021.

In connection with the Gigavation acquisition, certain former employees of Gigavation received restricted stock units. The restricted stock units issued are considered new share-based payment awards granted by NetScout to the former employees of Gigavation. NetScout accounted for these new awards separately from the business combination. The Company recognized share-based compensation net of an estimated forfeiture rate and only recognized compensation cost for those shares expected to vest on a straight-line basis over the requisite service period of the award.

The fair value of the intangible asset was based on a valuation using an income approach. The underlying assumptions include the estimated cash flows to be generated by the technology purchased as part of the acquisition less any returns on contributory assets, if any. This fair value measurement was based on significant inputs not observable in the market and thus represents Level 3 fair value measurements.

The following table reflects the fair value of the acquired identifiable intangible asset and related estimated useful life (in thousands):

	Fair Value	Useful Life (Years)
Developed technology	$4,760	10

The weighted average useful life of the developed technology acquired from Gigavation is 10 years.

Eastwind Acquisition

On April 3, 2019 (the Eastwind Closing Date), the Company completed the acquisition of certain assets and liabilities of Eastwind for $5.2 million. Eastwind's breach analytics cloud analyzes data to identify malicious activity, insider threats and data leakage.

The Company completed the purchase accounting related to the Eastwind acquisition as of June 30, 2019. Goodwill and intangible assets recorded as part of the acquisition are deductible for tax purposes. The Company determined Eastwind's results of operations are not material. As such, the pro forma information is not required for fiscal year 2020.

Initial cash payment	$	4,154
Estimated fair value of contingent purchase consideration		1,000
Estimated purchase price	$	5,154

The following table reflects the estimated fair value of assets acquired and liabilities assumed (in thousands):

Property, plant and equipment	$	17
Intangible assets		4,230
Accrued other liabilities		(96)
Goodwill	$	1,003

Of the total consideration, $1.0 million was deposited into an escrow account. The escrow account was established to cover damages NetScout may suffer related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. Generally, indemnification claims that Eastwind would be liable for are limited to the total amount of the escrow account, which shall be the sole source for the satisfaction of any damages to the Company for such claims, but such limitation does not apply with respect to the seller's breach of certain fundamental representations or related to other specified indemnity items, for which certain of Eastwind's shareholders may be liable for additional amounts in excess of the escrow amount. The contingent purchase consideration of $1.0 million was paid to the seller in April 2020.

In connection with the Eastwind acquisition, certain former employees of Eastwind received cash retention payments totaling $0.3 million on the Eastwind Closing Date. Because these employees were not required to provide future services to the Company, the cash retention payments were accounted for as part of the purchase price. These former Eastwind employees will also receive cash retention payments subject to such employee's continued employment with the Company through the next regularly scheduled payroll dates following each of the first and second anniversaries of the Eastwind Closing Date. The cash retention payment liability related to these future cash retention payments were accounted for separately from the business combination as the cash retention payment is automatically forfeited upon termination of employment. The Company will record the liability over the period it is earned as compensation expense for post-combination services.

The fair value of intangible asset was based on a valuation using a cost method approach. The underlying assumptions include estimates of cost to replace or reproduce the asset, less adjustments for physical deterioration and functional obsolescence, if relevant. This fair value measurement was based on significant inputs not observable in the market and thus represents Level 3 fair value measurements.

The following table reflects the fair value of the acquired identifiable intangible asset and related estimated useful life (in thousands):

	Fair Value	Useful Life (Years)
Developed technology	$4,230	10

The average useful life of the developed technology acquired from Eastwind is 10 years.

HNT Tools Business Divestiture

On September 14, 2018 (the HNT Divestiture Date), the Company divested its HNT tools business for cash proceeds of $1.3 million and potential future earnout payments of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration in the amount of $2.3 million was recognized on the HNT Divestiture Date and was measured using unobservable (Level 3) inputs. The contingent consideration is presented as a non-cash investing activity on the consolidated statement of cash flows. The Company transferred $4.6 million of consideration along with net liabilities of the HNT tools business related to a working capital adjustment during the year ended March 31, 2019. The Company recorded a loss on the divestiture for the year ended March 31, 2019 totaling $9.5 million, which included $1.3 million of transaction costs and $0.5 million of incentive compensation payable to the HNT tools business employees negotiated as part of the sale. In connection with the divestiture, the Company has entered into a transitional services agreement with the buyer to provide certain services for a period of up to eighteen months. Income associated with the transitional services agreement for the fiscal years ended March 31, 2020 and 2019 was $1.2 million and $2.2 million, respectively, and is included within other expense, net in the Company's consolidated statement of operations.

The Company determined that the sale of the HNT tools business did not represent a strategic shift and will not have a major effect on its consolidated results of operations, financial position or cash flows. Accordingly, the Company has not presented the sale as a discontinued operation in the consolidated financial statements.

Efflux

On July 12, 2017 (the Efflux Closing Date), the Company completed the acquisition of Efflux for $8.6 million. Efflux's technology detects, analyzes and correlates threat activity within enterprise networks. The Efflux technology and engineering talent have been integrated into our security products in order to support the ongoing enhancement of that products portfolio.

Goodwill of $6.1 million was recognized for the excess purchase price over the fair value of the net assets acquired. Goodwill and intangible assets recorded as part of the acquisition are not deductible for tax purposes.

NOTE 9 – GOODWILL & INTANGIBLE ASSETS

Goodwill

The Company assesses goodwill for impairment at the reporting unit level at least annually, as of January 31, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the reporting unit below its carrying value.

Reporting units are determined based on the components of a Company's operating segments that constitute a business for which financial information is available and for which operating results are regularly reviewed by segment management. Through the first half of fiscal year 2020, the Company had two reporting units: (1) Service Assurance and (2) Security. As part of its continued integration efforts, effective during the third quarter of fiscal year 2020, the Company reorganized its business units. As a result of this change, the Company reduced the number of reporting units from two reporting units to one reporting unit. The former Service Assurance and Security reporting units were combined as result of organizational changes made to fully integrate the resources and assets of the Service Assurance and Security business units.

At March 31, 2020 and 2019, the carrying amount of goodwill was $1.7 billion.

In fiscal years 2020 and 2019, the Company's quantitative impairment tests indicated that goodwill was not impaired. The Company considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic to be a triggering event. As such, the Company performed a quantitative analysis as of March 31, 2020. The quantitative impairment test indicated goodwill was not impaired as of March 31, 2020.

The Company determined the fair value of its reporting unit by preparing a discounted cash flow analysis using forward looking projections of the reporting unit's future operating results and by comparing the value of the reporting unit to the implied market value of selected peers. The assumptions used in the discounted cash flow analysis include: projected revenues, selling margins, and other operating expenditures. The discount rate used is a cost of equity method, which is essentially equal to the "market participant" weighted-average cost of capital (WACC). The goodwill fair value substantially exceeded the carrying value.

The change in the carrying amount of goodwill for the fiscal year ended March 31, 2020 is due to the acquisitions of Eastwind and Gigavation and impact of foreign currency translation adjustments related to asset balances that are recorded in currencies other than the U.S. Dollar.

The changes in the carrying amount of goodwill for the fiscal years ended March 31, 2020 and 2019 are as follows (in thousands):

Balance at March 31, 2018	$	1,712,764
Divestiture of the HNT tools business		(4,414)
Foreign currency translation impact		7,135
Balance at March 31, 2019	$	1,715,485
Goodwill attributed to the Eastwind acquisition		1,003
Goodwill attributed to the Gigavation acquisition		3,816
Foreign currency translation impact		5,376
Balance at March 31, 2020	$	1,725,680

Intangible Assets

The net carrying amounts of intangible assets were $582.2 million and $669.1 million at March 31, 2020 and 2019, respectively. Intangible assets acquired in a business combination are recorded under the acquisition method of accounting at their estimated fair values at the date of acquisition. The Company amortizes intangible assets over their estimated useful lives, except for the acquired trade name which resulted from the Network General acquisition, which has an indefinite life and thus is not amortized. The carrying value of the indefinite lived trade name is evaluated for potential impairment annually or more frequently if events or changes in circumstances indicate that the asset might be impaired.

NetScout Systems, Inc.

Notes to Consolidated Financial Statements—(Continued)

During fiscal year 2019, the Company performed a quantitative analysis on certain intangible assets related to the HNT tools business, which has since been divested. The fair value for the intangible assets related to the HNT tools business was calculated considering a range of potential transaction prices which the Company considers to be a Level 3 measurement. The fair value of these intangible assets was determined to be less than the carrying value, and as a result, the Company recognized an impairment charge of $35.9 million in the twelve months ended March 31, 2019. The impairment charge was recorded within a separate operating expense line item in the Company's consolidated statements of operations during the twelve months ended March 31, 2019.

During fiscal year 2019, the Company completed the divestiture of the HNT tools business. As a result, the net carrying value of the Company's intangible assets was reduced by $10.2 million.

In fiscal year 2020 and 2019, the Company's annual impairment tests indicated that the acquired trade name was not impaired. In the fourth quarter of fiscal year 2019, the Company completed its annual impairment test of the indefinite lived intangible at January 31, 2020 using the qualitative Step 0 assessment. No impairment indicators were observed at January 31, 2020. The Company considered the current and expected future economic and market conditions surrounding the COVID-19 pandemic and concluded that it was not more likely than not that the trade name was impaired and therefore a quantitative Step 1 assessment was not performed as of March 31, 2020.

Intangible assets include the indefinite lived trade name with a carrying value of $18.6 million and the following amortizable intangible assets at March 31, 2020 (in thousands):

	Cost	Accumulated Amortization	Net
Developed technology	$ 249,675	$ (191,876)	$ 57,799
Customer relationships	767,366	(275,361)	492,005
Distributor relationships and technology licenses	6,785	(6,321)	464
Definite-lived trademark and trade name	39,059	(26,246)	12,813
Core technology	7,192	(7,074)	118
Net beneficial leases	336	(336)	—
Non-compete agreements	292	(292)	—
Leasehold interest	500	(500)	—
Backlog	16,223	(16,223)	—
Capitalized software	3,317	(3,202)	115
Other	1,208	(943)	265
	$ 1,091,953	$ (528,374)	$ 563,579

Intangible assets include the indefinite lived trade name with a carrying value of $18.6 million and the following amortizable intangible assets at March 31, 2019 (in thousands):

	Cost	Accumulated Amortization	Net
Developed technology	$ 242,259	$ (168,289)	$ 73,970
Customer relationships	772,969	(218,043)	554,926
Distributor relationships and technology licenses	6,882	(5,237)	1,645
Definite-lived trademark and trade name	39,304	(20,586)	18,718
Core technology	7,192	(6,845)	347
Net beneficial leases	336	(336)	—
Non-compete agreements	292	(292)	—
Leasehold interest	500	(500)	—
Backlog	16,397	(16,397)	—
Capitalized software	3,317	(2,690)	627
Other	1,208	(923)	285
	$ 1,090,656	$ (440,138)	$ 650,518

NetScout Systems, Inc.

Notes to Consolidated Financial Statements—(Continued)

Amortization included as product revenue consists of amortization of backlog. Amortization included as cost of product revenue consists of amortization of developed technology, distributor relationships and technology licenses, core technology and software. Amortization included as operating expense consists of all other intangible assets. The following table provides a summary of amortization expense during the fiscal years ended March 31, 2020, 2019, and 2018 (in thousands).

	Years Ended March 31,		
	2020	2019	2018
Amortization of intangible assets included as:			
Product revenue	$ —	$ —	$ 9
Cost of product revenue	26,664	34,039	40,286
Operating expense	64,525	74,325	76,661
	$ 91,189	$ 108,364	$ 116,956

The following is the expected future amortization expense at March 31, 2020 for the fiscal years ended March 31 (in thousands):

2021	$ 80,028
2022	69,657
2023	61,976
2024	53,910
2025	47,665
Thereafter	250,343
Total	$ 563,579

The weighted average amortization period of developed technology and core technology is 11.2 years. The weighted average amortization period for customer and distributor relationships is 15.9 years. The weighted average amortization period for trademarks and trade names is 8.6 years. The weighted average amortization period for capitalized software is 3.0 years. The weighted average amortization period for all amortizing intangible assets is 14.6 years.

NOTE 10 – DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

NetScout operates internationally and, in the normal course of business, is exposed to fluctuations in foreign currency exchange rates. The exposures result from costs that are denominated in currencies other than the U.S. Dollar, primarily the Euro, British Pound, Canadian Dollar, and Indian Rupee. The Company manages its foreign cash flow risk by hedging forecasted cash flows for operating expenses denominated in foreign currencies for up to twelve months, within specified guidelines through the use of forward contracts. The Company enters into foreign currency exchange contracts to hedge cash flow exposures from costs that are denominated in currencies other than the U.S. Dollar. These hedges are designated as cash flow hedges at inception.

All of the Company's derivative instruments are utilized for risk management purposes, and the Company does not use derivatives for speculative trading purposes. These contracts will mature over the next twelve months and are expected to impact earnings on or before maturity.

The notional amounts and fair values of derivative instruments in the consolidated balance sheets at March 31, 2020 and 2019 were as follows (in thousands):

	Notional Amounts (a)		Prepaid Expenses and Other Current Assets		Accrued Other	
	March 31, 2020	March 31, 2019	March 31, 2020	March 31, 2019	March 31, 2020	March 31, 2019
Derivatives Designated as Hedging Instruments:						
Forward contracts	$ 1,722	$ 4,550	$ —	$ 58	$ 49	$ 68

(a) Notional amounts represent the gross contract/notional amount of the derivatives outstanding.

The following table provides the effect foreign exchange forward contracts had on other comprehensive income (loss), (OCI) and results of operations at March 31, 2020 and 2019 (in thousands):

	Loss Recognized in OCI on Derivative (a)			Gain (Loss) Reclassified from Accumulated OCI into Income (b)	
	March 31, 2020	March 31, 2019	Location	March 31, 2020	March 31, 2019
Forward contracts	$ (103)	$ (696)	Research and development	$ (19)	$ 164
			Sales and marketing	47	411
	$ (103)	$ (696)		$ 28	$ 575

(a) The amount represents the change in fair value of derivative contracts due to changes in spot rates.
(b) The amount represents reclassification from other comprehensive income to earnings that occurs when the hedged item affects earnings.

NOTE 11 – RESTRUCTURING CHARGES

During the fourth quarter of fiscal year 2017, the Company restructured certain departments to better align functions subsequent to the Comms Transaction. Communication of the plan to the impacted employees was substantially completed on March 31, 2017. As a result of the workforce reduction, during the fiscal year ended March 31, 2017, the Company recorded a restructuring charge totaling $1.9 million related to one-time termination benefits and $0.4 million in facility related charges. All of the workforce reduction was completed during the second quarter of fiscal year 2018 and as a result the Company recorded an additional charge for one-time termination benefits and facility-related costs of $0.9 million during the fiscal year ended March 31, 2018. The one-time termination benefits and facilities-related costs related to this plan were paid in full during the fiscal year ended March 31, 2018.

During the fiscal year ended March 31, 2018, the Company restructured certain departments to better align functions. As a result of the workforce reduction, during the fiscal year ended March 31, 2018, the Company recorded a restructuring charge totaling $5.1 million related to one-time termination benefits for the employees that were notified during the period. Additional one-time termination benefit charges and facility-related costs of $1.7 million were recorded during the fiscal year ended March 31, 2019. The one-time termination benefits and facility-related costs related to this plan were paid in full during the fiscal year ended March 31, 2019.

During the fiscal year ended March 31, 2019, the Company implemented a voluntary separation program (VSP) for employees who met certain requirements to reduce overall headcount. As a result of the related workforce reduction, the Company recorded restructuring charges totaling $17.2 million related to one-time termination benefits for employees who voluntarily terminated their employment with the Company during the period. Additional one-time termination benefit charges of $0.1 million were recorded in the fiscal year ended March 31, 2020. The one-time termination benefits were paid in full by the end of the first quarter of the fiscal year ended March 31, 2020.

During the fiscal year ended March 31, 2020, the Company approved two restructuring plans. During the second quarter of the fiscal year ended March 31, 2020, the Company restructured certain departments to better align functions. As a result of the workforce reduction, the Company recorded a restructuring charge totaling $0.5 million during the year ended March 31, 2020. The one-time termination benefits are expected to be paid in full during the first three months of the fiscal year ending March 31, 2021. During the fourth quarter of the fiscal year ended March 31, 2020, the Company restructured certain departments to better align functions. As a result of the workforce reduction, the Company recorded a restructuring charge totaling $2.1 million during the fiscal year ended March 31, 2020. The one-time termination benefits are expected to be paid in full by the second quarter of the fiscal year ending March 31, 2021.

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The following table provides a summary of the activity related to the restructuring plans and the related restructuring liability (in thousands):

	Q4 FY2017 Plan		FY2018 Plan		VSP	Q2 FY20 Plan	Q4 FY20 Plan	
	Employee-Related	Facilities Related	Employee-Related	Facilities Related	Employee-Related	Employee-Related	Employee-Related	Total
Balance at March 31, 2017	$ 1,550	$ 405	$ —	$ —	$ —	$ —	$ —	$ 1,955
Restructuring charges to operations	729	208	5,085	—	—	—	—	6,022
Cash payments	(1,867)	(374)	(1,331)	—	—	—	—	(3,572)
Other adjustments	(412)	(239)	(58)	—	—	—	—	(709)
Balance at March 31, 2018	$ —	$ —	$ 3,696	$ —	$ —	$ —	$ —	$ 3,696
Restructuring charges to operations	—	—	1,017	643	17,248	—	—	18,908
Cash payments	—	—	(4,240)	(458)	(17,329)	—	—	(22,027)
Other adjustments	—	—	(473)	(185)	81	—	—	(577)
Balance at March 31, 2019	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Restructuring charges to operations					123	465	2,069	2,657
Cash payments					(123)	(434)	(339)	(896)
Other adjustments					—	(28)	(13)	(41)
Balance at March 31, 2020	$ —	$ —	$ —	$ —	$ —	$ 3	$ 1,717	$ 1,720

NOTE 12 – LONG-TERM DEBT

On January 16, 2018, the Company amended and expanded its existing credit agreement (Amended Credit Agreement) with a syndicate of lenders by and among: the Company; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Fifth Third Bank, Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

The Amended Credit Agreement provides for a five-year, $1.0 billion senior secured revolving credit facility, including a letter of credit sub-facility of up to $75.0 million. The Company may elect to use the new credit facility for general corporate purposes or to finance the repurchase of up to twenty-five million shares of the Company's common stock under the Company's common stock repurchase plan. The commitments under the Amended Credit Agreement will expire on January 16, 2023, and any outstanding loans will be due on that date. During the fiscal year ended March 31, 2020, the Company repaid $100.0 million of borrowings under the Amended Credit Agreement. At March 31, 2020, $450 million was outstanding under the Amended Credit Agreement.

At the Company's election, revolving loans under the Amended Credit Agreement bear interest at either (a) an Alternate Base Rate per annum equal to the greatest of (1) JPMorgan's prime rate, (2) 0.50% in excess of the New York Federal Reserve Bank (NYFRB) rate, or (3) an adjusted one month LIBOR rate plus 1%; or (b) such adjusted LIBOR rate (for the interest period selected by the Company), in each case plus an applicable margin. For the period from the delivery of the Company's financial statements for the quarter ended December 31, 2019, until the Company has delivered financial statements for the quarter ended March 31, 2020, the applicable margin will be 1.50% per annum for LIBOR loans and 0.50% per annum for Alternate Base Rate loans, and thereafter the applicable margin will vary depending on the Company's leverage ratio, ranging from 1.00% per annum for Base Rate loans and 2.00% per annum for LIBOR loans if the Company's consolidated leverage ratio is greater than 3.50 to 1.00, down to 0.00% per annum for Alternate Base Rate loans and 1.00% per annum for LIBOR loans if the Company's consolidated leverage ratio is equal to or less than 1.50 to 1.00.

On July 27, 2017, the U.K. Financial Conduct Authority (FCA) announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. The Company's Amended Credit Agreement provides for the Administrative

Agent to determine if (i) adequate and reasonable means do not exist for ascertaining the LIBOR rate or (ii) the FCA or Government Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which the LIBOR rate shall no longer be used for determining interest rates for loans and the Administrative Agent determines that (i) and (ii) above are unlikely to be temporary then the Administrative Agent and the Company would agree to transition to an Alternate Base Rate borrowing as described above or amend the Credit Agreement to establish an alternate rate of interest to LIBOR that gives due consideration to the then prevailing market convention for determining a rate of interest for syndicated loans in the United States at such time.

The Company's consolidated leverage ratio is the ratio of its total funded debt compared to its consolidated adjusted EBITDA. Consolidated adjusted EBITDA includes certain adjustments, including, without limitation, adjustments relating to extraordinary, unusual or non-recurring charges, certain restructuring charges, non-cash charges, certain transaction costs and expenses and certain pro forma adjustments in connection with material acquisitions and dispositions, all as set forth in detail in the definition of consolidated adjusted EBITDA in the Amended Credit Agreement.

Commitment fees will accrue on the daily unused amount of the credit facility. For the period from the delivery of the Company's financial statements for the quarter ended December 31, 2019 until the Company has delivered financial statements for the quarter ended March 31, 2020, the commitment fee will be 0.25% per annum, and thereafter the commitment fee will vary depending on the Company's consolidated leverage ratio, ranging from 0.30% per annum if the Company's consolidated leverage ratio is greater than 2.75 to 1.00, down to 0.15% per annum if the Company's consolidated leverage ratio is equal to or less than 1.50 to 1.00.

Letter of credit participation fees are payable to each lender on the amount of such lender’s letter of credit exposure, during the period from the closing date of the Amended Credit Agreement to but excluding the date which is the later of (i) the date on which such lender’s commitment terminates or (ii) the date on which such lender ceases to have any letter of credit exposure, at a rate per annum equal to the applicable margin for LIBOR loans. Additionally, the Company will pay a fronting fee to each issuing bank in amounts to be agreed to between the Company and the applicable issuing bank.

Interest on Alternate Base Rate loans is payable at the end of each calendar quarter. Interest on LIBOR loans is payable at the end of each interest rate period or at the end of each three-month interval within an interest rate period if the period is longer than three months. The Company may also prepay loans under the Amended Credit Agreement at any time, without penalty, subject to certain notice requirements.

Debt is recorded at the amount drawn on the revolving credit facility plus interest based on floating rates reflective of changes in the market which approximates fair value.

The loans and other obligations under the credit facility are (a) guaranteed by each of the Company's wholly owned material domestic restricted subsidiaries, subject to certain exceptions, and (b) are secured by substantially all of the assets of the Company and the subsidiary guarantors, including a pledge of all the capital stock of material subsidiaries held directly by the Company and the subsidiary guarantors (which pledge, in the case of any foreign subsidiary, is limited to 65% of the voting stock), subject to certain customary exceptions and limitations. The Amended Credit Agreement generally prohibits any other liens on the assets of the Company and its restricted subsidiaries, subject to certain exceptions as described in the Amended Credit Agreement.

The Amended Credit Agreement contains certain covenants applicable to the Company and its restricted subsidiaries, including, without limitation, limitations on additional indebtedness, liens, various fundamental changes, dividends and distributions, investments (including acquisitions), transactions with affiliates, asset sales, including sale-leaseback transactions, speculative hedge agreements, payment of junior financing, changes in business and other limitations customary in senior secured credit facilities. In addition, the Company is required to maintain certain consolidated leverage and interest coverage ratios. These covenants and limitations are more fully described in the Amended Credit Agreement. At March 31, 2020, the Company was in compliance with all of these covenants.

The Amended Credit Agreement provides that events of default will exist in certain circumstances, including failure to make payment of principal or interest on the loans when required, failure to perform certain obligations under the Amended Credit Agreement and related documents, defaults under certain other indebtedness, certain insolvency events, certain events arising under ERISA, a change of control and certain other events. Upon an event of default, the administrative agent with the consent of, or at the request of, the holders of more than 50% in principal amount of the loans and commitments may terminate the commitments and accelerate the maturity of the loans and enforce certain other remedies under the Amended Credit Agreement and the other loan documents.

In connection with the Company's Amended Credit Agreement described above, the Company terminated its previous term loan dated as of July 14, 2015, by and among the Company; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

The Company has capitalized debt issuance costs totaling $12.2 million at March 31, 2020, which are being amortized over the life of the revolving credit facility. The unamortized balance was $4.9 million as of March 31, 2020. The balance of $1.7 million was included as prepaid expenses and other current assets and a balance of $3.2 million was included as other assets in the Company's consolidated balance sheet.

NOTE 13 – NET INCOME (LOSS) PER SHARE

Calculations of the basic and diluted net income (loss) per share and potential common shares are as follows (in thousands, except for per share data):

	Year Ended March 31,		
	2020	2019	2018
Numerator:			
Net income (loss)	$ (2,754)	$ (73,324)	$ 79,812
Denominator:			
Denominator for basic net income (loss) per share - weighted average common shares outstanding	75,162	78,617	87,425
Dilutive common equivalent shares:			
Weighted average restricted stock units	—	—	836
Denominator for diluted net income (loss) per share - weighted average shares outstanding	75,162	78,617	88,261
Net income (loss) per share:			
Basic net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.91
Diluted net income (loss) per share	$ (0.04)	$ (0.93)	$ 0.90

The following table sets forth restricted stock units excluded from the calculation of diluted net income per share, since their inclusion would be antidilutive (in thousands):

	Year Ended March 31,		
	2020	2019	2018
Restricted stock units	675	706	1,450

Basic net income (loss) per share is calculated by dividing net income (loss) by the weighted average number of shares outstanding during the period. Unvested restricted shares, although legally issued and outstanding, are not considered outstanding for purposes of calculating basic earnings per share. Diluted net income (loss) per share is calculated by dividing net income (loss) by the weighted average number of shares outstanding plus the dilutive effect, if any, of outstanding restricted shares and restricted stock units using the treasury stock method. The calculation of the dilutive effect of outstanding equity awards under the treasury stock method includes consideration of proceeds from the assumed exercise of unrecognized compensation expense. As the Company incurred a net loss in the fiscal years ended March 31, 2020 and 2019, all outstanding restricted stock units have an anti-dilutive effect and are therefore excluded from the computation of diluted weighted average share outstanding.

For the fiscal year ended March 31, 2018, the delivery of 7.4 million shares under the Company's accelerated share repurchase (ASR) agreements reduced its outstanding shares used to determine its weighted average common shares outstanding for purposes of calculating basic and diluted earnings per share. See Note 14 for additional information. The Company evaluated the ASR agreements for potential dilutive effects of any shares remaining to be received or owed upon settlement and determined the additional shares to be received would be anti-dilutive, and therefore they were not included in the Company's calculation of diluted earnings per share for the fiscal year ended March 31, 2018.

NOTE 14 – TREASURY STOCK

On May 19, 2015, the Company's Board of Directors approved a share repurchase program, conditional upon the completion of the Comms Transaction. This program enabled the Company to repurchase up to 20 million shares of its common stock. This plan became effective on July 14, 2015 upon the completion of the Comms Transaction and replaced the Company's previously existing open market stock repurchase program. The Company was not obligated to acquire any specific amount of common stock within any particular timeframe under this program. The Company repurchased 6,773,438 shares for $227.6 million in the open market under this stock repurchase plan during the fiscal year ended March 31, 2018. At March 31, 2018, there were no shares of common stock that remained available to be purchased under this plan.

On October 24, 2017, the Company's Board of Directors approved a new share repurchase program that enables the Company to repurchase up to twenty-five million shares of its common stock. This new program became effective once the Company's previously disclosed twenty million share repurchase program was completed. The Company is not obligated to acquire any specific amount of common stock within any particular timeframe as a result of its new share repurchase program.

On February 1, 2018, the Company entered into ASR agreements with two third-party financial institutions (the Dealers) to repurchase an aggregate of $300 million of the Company's common stock via accelerated stock repurchase transactions under the Company's twenty million share repurchase program and the twenty-five million share repurchase program. The Company borrowed $300 million against its Amended Credit Facility in order to finance the payment of the initial purchase price to each of the Dealers. Under the terms of the ASR, the Company made a $150 million payment to each of the Dealers on February 2, 2018, and received an initial delivery of 3,693,931 shares from each of the Dealers, or 7,387,862 shares in the aggregate, which is approximately 70 percent of the total number of shares of the Company's common stock expected to be repurchased under the ASR. As part of this purchase, 970,650 shares for $27.6 million were deducted under the twenty million share repurchase program and 6,417,212 shares for $182.4 million were deducted from the twenty-five million share repurchase program during the fiscal year ended March 31, 2018. Final settlement of the ASR agreements was completed in August 2018. As a result, the Company received an additional 3,679,947 shares of its common stock for $96.8 million, which reduced the number of shares available to be purchased from the twenty-five million share repurchase program during the fiscal year ended March 31, 2019. In total, 11,067,809 shares of the Company's common stock were repurchased under the ASR at an average cost per share of $27.11.

The Company repurchased an additional 7,116,159 shares for $175.0 million, and 543,251 shares for $14.5 million under the twenty-five million share repurchase program during the fiscal years ended March 31, 2020 and 2019, respectively. At March 31, 2020, 7,243,431 shares of common stock remained available to be purchased under the current repurchase program.

In connection with the vesting and release of the restriction on previously vested shares of restricted stock, the Company repurchased 519,241 shares for $11.9 million, 451,683 shares for $11.9 million and 408,097 shares for $13.6 million related to minimum statutory tax withholding requirements on these restricted stock units during the fiscal years ended March 31, 2020, 2019 and 2018, respectively. These repurchase transactions do not fall under the repurchase program described above, and therefore do not reduce the amount that is available for repurchase under those programs.

NOTE 15 – STOCK PLANS

2011 Employee Stock Purchase Plan

On September 7, 2011, the Company's stockholders approved the 2011 Employee Stock Purchase Plan (the ESPP), under which 2,500,000 shares of the Company's common stock have been reserved for issuance. On November 8, 2018, the Company increased the number of shares available under the ESPP by an additional 3,000,000 shares. The Company implemented the ESPP on March 1, 2012. Eligible employees may purchase shares of the Company's common stock through regular payroll deductions of up to 20% of their eligible compensation. Under the terms of the offering under the ESPP, the number of shares of the Company's common stock which a participant could purchase during any purchase period is limited to 2,000. In addition, the fair market value of shares purchased by an individual participant in the plan may not exceed $25,000 if the contribution period is within any calendar year. However, if contribution periods overlap calendar years, an individual participant is eligible to utilize the unused portion of the $25,000 limit from the subsequent purchase in the current purchase up to $50,000. Under the ESPP, shares of the company's common stock may be purchased on the last day of each bi-annual offering period at 85% of the fair market value on the last day of such offering period. The offering periods run from March 1 through August 31 and from September 1 through the last day of February of each year. During the fiscal year ended March 31, 2020, employees purchased 594,661 shares under the ESPP with a weighted average purchase price per share of $23.92. At March 31, 2020, 2,313,482 shares were available for future issuance under the ESPP.

2019 Equity Incentive Plan

On September 12, 2019, the Company's stockholders approved the 2019 Equity Incentive Plan (2019 Plan), which replaced the Company's Amended 2007 Plan. The 2019 Plan permits the granting of incentive and nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, and other stock awards, collectively referred to as "share-based awards." Periodically, the Company grants share-based awards to employees and officers of the Company and its subsidiaries. The Company accounts for these share-based awards in accordance with GAAP, which requires the measurement and recognition of compensation expense based on estimated fair values for all share-based payment awards made to its employees and directors. Share-based award grants are generally measured at fair value on the date of grant based on the number of shares granted and the quoted price of the Company's common stock. Such value is recognized as a cost of revenue or an operating expense over the corresponding vesting period. At September 12, 2019, there was a total of 6,794,651 shares reserved for issuance under the 2019 Plan, which consisted of 5,500,000 new shares plus 1,294,651 shares that remained available for grant under the Amended 2007 Plan as of September 12, 2019, the effective date of the 2019 Plan.

The aggregate number of shares available for issuance under the 2019 Plan will increase by 2.76 shares for each share: (i) subject to an award granted under the Amended 2007 Plan or 2019 Plan that are not issued because such award expires or otherwise terminates without all of the shares covered by such award having been issued; (ii) any shares subject to an award under the Amended 2007 Plan or 2019 Plan that are not issued because such award is settled in cash; (iii) any shares issued pursuant to an award granted under the Amended 2007 Plan or 2019 Plan that are forfeited back to or repurchased by the Company because of failure to vest; and (iv) any shares that are reacquired or withheld by the Company to satisfy tax withholding obligations in connection with common stock issued pursuant to restricted stock, restricted stock units, performance stock awards, or other stock awards granted under the Amended 2007 Plan and 2019 Plan. Furthermore, the share reserve under the 2019 Plan is reduced by one share for each share of common stock issued pursuant to a stock option or stock appreciation right and 2.76 shares for each share of common stock issued pursuant to restricted stock, restricted stock units, performance stock awards, or other stock awards granted under the 2019 Plan on or after September 12, 2019. At March 31, 2020, an aggregate of 4,274,473 shares of unvested equity awards were outstanding under the 2019 Plan.

The 2019 Plan is administered by the Compensation Committee of the Board of Directors. The Compensation Committee operates under guidelines established by the Board of Directors. The Compensation Committee has the authority to select the employees and consultants to whom awards are granted (except for directors and executive officers) and determine the terms of each award, including the number of shares of common stock subject to the award.

Share-based awards generally vest over four years. The exercise price of stock options shall not be less than 100% of the fair market value of the common stock at the date of grant (110% for incentive stock options granted to holders of more than 10% of the voting stock of NetScout). The term of stock options granted cannot exceed seven years (five years for incentive stock options granted to holders of more than 10% of the voting stock of NetScout).

Based on historical experience, the Company assumed an annualized forfeiture rate of 0% for awards granted to its independent directors, approximately 2% for awards granted to its senior executives, and approximately 5% granted to all remaining employees during the fiscal years ended March 31, 2020, 2019 and 2018.

The following is a summary of share-based compensation expense including restricted stock units and employee stock purchases made under the Company's employee stock purchase plan (ESPP) based on estimated fair values within the applicable cost and expense lines identified below (in thousands):

	Year Ended March 31,		
	2020	2019	2018
Cost of product revenue	$ 1,069	$ 1,463	$ 1,159
Cost of service revenue	5,774	5,959	4,824
Research and development	15,511	17,321	14,711
Sales and marketing	17,085	18,923	15,213
General and administrative	11,422	12,662	11,410
	$ 50,861	$ 56,328	$ 47,317

Transactions under the Amended 2007 and 2019 Plan during the fiscal years ended March 31, 2020, 2019 and 2018 are summarized in the table below.

	Restricted Stock Units		
	Number of Awards		Weighted Average Fair Value
Outstanding – March 31, 2017	3,610,301	$	30.24
Granted	1,962,590		34.01
Vested	(1,216,585)		31.09
Canceled	(277,526)		31.70
Outstanding – March 31, 2018	4,078,780	$	31.77
Granted	2,178,339		30.10
Vested	(1,438,219)		32.49
Canceled	(608,245)		30.52
Outstanding – March 31, 2019	4,210,655	$	30.84
Granted	2,062,110		26.32
Vested	(1,651,284)		31.03
Canceled	(347,008)		29.74
Outstanding – March 31, 2020	4,274,473	$	28.68

At March 31, 2020, there were 6,967,333 shares of common stock available for grant under the 2019 Plan.

The Company does not currently expect to repurchase shares from any source to satisfy its obligations under the 2019 Plan.

The aggregate intrinsic value of stock options exercised and the fair value of restricted stock units vested at March 31, 2020, 2019 and 2018 were as follows (in thousands):

	Year Ended March 31,					
	2020		2019		2018	
Total fair value of restricted stock unit awards vested	$	37,783	$	38,070	$	40,539

At March 31, 2020, the total unrecognized compensation cost related to restricted stock unit awards was $93.6 million, which is expected to be amortized over a weighted-average period of 1.4 years.

NOTE 16 – PENSION BENEFIT PLANS

401(k) Plan

The Company has a defined contribution program for certain employees that is qualified under Section 401(k) of the Internal Revenue Code of 1986, as amended. The Company matches 50% of the employee's contribution up to 6% of the employee's salary. NetScout contributions vest at a rate of 25% per year of service. NetScout made matching contributions of $6.7 million, $6.6 million and $8.0 million to the plan for the fiscal years ended March 31, 2020, 2019 and 2018, respectively.

Defined Benefit Pension Plan

Certain of the Company's non-U.S. employees participate in certain noncontributory defined benefit pension plans. None of the Company's employees in the U.S. participate in any noncontributory defined benefit pension plans. In general, these plans are funded based on considerations relating to legal requirements, underlying asset returns, the plan's funded status, the anticipated deductibility of the contribution, local practices, market conditions, interest rates and other factors.

The components of the change in benefit obligation of the pension plan is as follows (in thousands):

	March 31, 2020	March 31, 2019
Benefit obligation, at beginning of year	$ 34,895	$ 33,464
Service cost	341	304
Interest cost	603	704
Benefits paid and other	(359)	(302)
Actuarial loss (gain)	(1,644)	3,254
Foreign exchange rate impact	(1,031)	(2,529)
Benefit obligation, at end of year	$ 32,805	$ 34,895

The reconciliation of the beginning and ending balances of the fair value of the assets of the pension plan is as follows (in thousands):

	March 31, 2020	March 31, 2019
Fair value of plan assets, at beginning of year	$ —	$ —
Employer direct benefit payments	359	302
Benefits paid and other	(359)	(302)
Fair value of plan assets, at end of year	$ —	$ —

The following sets forth the components of the Company's net periodic pension cost of the noncontributory defined benefit pension plans for the fiscal years ended March 31, 2020, 2019, and 2018 (in thousands):

	Year Ended March 31,		
	2020	2019	2018
Service cost	$ 341	$ 304	$ 407
Interest cost	603	704	718
Net periodic pension cost	$ 944	$ 1,008	$ 1,125

Weighted average assumptions used to determine net periodic pension cost at date of measurement:

	March 31, 2020	March 31, 2019	March 31, 2018
Discount rate	1.90 %	1.80 %	2.30 %
Rate of compensation increase	3.00 %	3.00 %	2.25 %

As of March 31, 2020, unrecognized actuarial gain of $1.6 million ($1.1 million, net of tax) which have not yet been recognized in net periodic pension cost are included in accumulated other comprehensive income (loss). The unrecognized actuarial gains and losses are calculated as the difference between the actuarially determined projected benefit obligation and the value of the plan assets less accrued pension costs. None of this amount is expected to be recognized in net periodic pension costs during the fiscal year ending March 31, 2021. No plan assets are expected to be returned to the Company during the fiscal year ending March 31, 2021.

Expected Contributions

During the fiscal year ended March 31, 2020, the Company contributed $359 thousand to its defined benefit pension plan. The following sets forth benefit payments, which reflect expected future service, as appropriate, expected to be paid by the plan in the periods indicated (in thousands):

2021	$	409
2022	$	454
2023	$	515
2024	$	562
2025	$	662
2026 - 2031	$	4,741

NOTE 17 – INCOME TAXES

Income (loss) before income tax expense (benefit) consisted of the following (in thousands):

	Year Ended March 31,		
	2020	2019	2018
Domestic	$ (1,502)	$ (107,088)	$ (35,032)
Foreign	3,426	14,176	16,373
	$ 1,924	$ (92,912)	$ (18,659)

The components of the income tax expense (benefit) are as follows (in thousands):

	Year Ended March 31,		
	2020	2019	2018
Current income tax expense:			
Federal	$ 2,817	$ 3,902	$ 14,191
State	1,850	(136)	1,925
Foreign	9,712	10,618	12,249
	14,379	14,384	28,365
Deferred income tax benefit:			
Federal	(5,287)	(25,347)	(113,122)
State	(2,897)	(3,845)	(10,037)
Foreign	(1,517)	(4,780)	(3,677)
	(9,701)	(33,972)	(126,836)
	$ 4,678	$ (19,588)	$ (98,471)

NetScout Systems, Inc.

Notes to Consolidated Financial Statements—(Continued)

The income tax expense (benefit) computed using the federal statutory income tax rate differs from NetScout's effective tax rate primarily due to the following:

	Year Ended March 31,		
	2020	2019	2018
Statutory U.S. federal tax rate	21.0 %	21.0 %	31.6 %
State taxes, net of federal tax effect	(47.8)	3.4	6.9
Research and development tax credits	(245.9)	7.1	39.5
Effect of foreign operations	(66.9)	(0.1)	14.0
Meals and entertainment	43.7	(1.0)	(6.7)
Domestic production activities deduction	—	—	13.8
Change in valuation allowance	250.0	2.2	(0.2)
Internal restructuring charges	196.5	—	—
Stock compensation	172.1	(2.6)	(2.5)
Divestiture	—	(1.0)	—
GILTI/FDII	(174.3)	2.9	—
BEAT	—	(7.0)	—
2017 Tax Act (transition tax and re-measurement of deferreds)	—	0.4	454.1
Foreign withholding	220.6	(3.1)	(21.0)
Provision to return	(152.8)	(1.0)	0.8
Other permanent differences	26.9	(0.1)	(2.6)
	243.1 %	21.1 %	527.7 %

The components of net deferred tax assets and liabilities are as follows (in thousands):

	Year Ended March 31,	
	2020	2019
Deferred tax assets:		
Accrued expenses	$ 5,060	$ 4,359
Deferred revenue	14,420	11,278
Reserves	3,216	5,463
Pension and other retiree benefits	5,078	5,960
Net operating loss carryforwards	12,443	14,992
Tax credit carryforwards	14,138	9,043
Share-based compensation	4,534	5,505
Operating lease liability	18,213	—
Other	20	166
Total gross deferred tax assets	77,122	56,766
Valuation allowance	(5,641)	(835)
Net deferred tax assets	71,481	55,931
Deferred tax liabilities:		
Intangible assets	(146,950)	(164,199)
Other deferred liabilities	(8,061)	(1,609)
Operating lease right-of-use asset	(15,152)	—
Depreciation	(9,492)	(7,134)
Total deferred tax liability	$ (108,174)	$ (117,011)

Deferred tax assets and liabilities are recognized based on the anticipated future tax consequences, attributable to differences between financial statement carrying amounts of assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which the differences are expected to reverse. The Company evaluates the recoverability of deferred tax assets by considering all positive and negative evidence relating to future profitability. The Company weighs objective and verifiable evidence more heavily in this analysis. In situations where the Company concludes that it does not have sufficient objective and verifiable evidence to support the realizability of the asset it creates a valuation allowance against it. As a result, the Company established a valuation allowance of $0.8 million as of March 31, 2019 and $5.6 million as of March 31, 2020, representing an increase of $4.8 million. The increase in the valuation allowance as of March 31, 2020, as compared to March 31, 2019, is primarily related to deferred tax assets related to foreign tax credits that the Company believes are not more likely than not to be realized. If it is later determined the Company is able to use all or a portion of the deferred tax assets for which a valuation allowance has been established, then the Company may be required to recognize these deferred tax assets through a tax benefit recorded in the period such determination is made.

At March 31, 2020, the Company had U.S. federal net operating loss carry forwards of approximately $19 million, state net operating loss carryforwards of approximately $34 million and tax credit carryforwards of approximately $12 million. The net operating loss and credit carryforwards will expire at various dates beginning in 2021. The Company also had foreign net operating loss carryforwards of approximately $45 million at March 31, 2020 and tax credit carryforwards of approximately $4 million. The majority of foreign net operating losses have no expiration dates. Utilization of the U.S. net operating losses and credits are subject to an annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended, and similar state tax provisions.

The Company files U.S. federal tax returns and files returns in various state, local and foreign jurisdictions. With respect to the U.S. federal and primary state jurisdictions, the Company is no longer subject to examinations by tax authorities for tax years before 2015, although carryforward attributes that were generated prior to 2015 may still be adjusted upon examination if they either have been or will be used in a future period. The Company also receives inquiries from various tax jurisdictions during the year, and some of those inquiries may include an audit of the tax return previously filed. In the normal course of business, NetScout and its subsidiaries are examined by various taxing authorities, including the IRS in the United States.

A reconciliation of the beginning and ending amount of unrecognized tax benefits for the fiscal years ended March 31, 2020, 2019 and 2018 is as follows (in thousands):

	Year Ended March 31,		
	2020	2019	2018
Balance at April 1,	$ 1,314	$ 2,215	$ 2,926
Additions based on tax positions related to the current year	49	28	126
Release of tax positions of prior years	(212)	(194)	(481)
Decrease relating to settlements with taxing authorities	—	(735)	(356)
Balance at March 31,	$ 1,151	$ 1,314	$ 2,215

The Company is unable to make a reliable estimate when cash settlement, if any, will occur with a tax authority as the timing of examinations and ultimate resolution of those examinations is uncertain. All of the unrecognized tax benefits would affect the effective tax rate if recognized.

The Company includes interest and penalties accrued in the consolidated financial statements as a component of the tax provision.

During fiscal year 2019, we completed our analysis and recording of all the tax effects related to the Tax Cuts and Jobs Act (TCJA), as required under SAB 118, and recorded a benefit of $87.0 million due to the re-measurement of our deferred taxes and a $2.0 million one-time transition tax.

The Company is subject to a territorial tax system under the TCJA, in which we are required to provide for tax on Global Intangible Low-Taxed Income (GILTI) earned by certain foreign subsidiaries. The Company has established an accounting policy to provide for tax expense related to GILTI in the year the tax is incurred as a period expense.

As a result of the TJCA, the Company expects that foreign earnings can be repatriated tax efficiently. Specifically, foreign earnings will not be indefinitely reinvested where the Company can repatriate those earnings in a tax efficient manner acceptable to management and which comply with local statutory and operational requirements. The Company repatriated certain previously taxed historical earnings during the current fiscal year in a tax efficient manner. The Company continues to assert that any remainder of historical book over tax basis differences will be permanently reinvested. It is not practicable to estimate the amount of unrecognized deferred U.S. taxes on these differences.

NOTE 18 – LEASES

In February 2016, the FASB issued ASC 842 to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. The Company adopted the guidance on April 1, 2019 using the modified retrospective method and as a result did not adjust comparative periods or modify disclosures in those comparative periods.

The new guidance provides a number of optional practical expedients in transition. The Company elected the package of practical expedients, which does not require the reassessment of prior conclusions about lease identification, lease classification and initial direct costs. Further, the Company elected the practical expedients to combine lease and non-lease components, and to not recognize right-of-use (ROU) assets and lease liabilities for short-term leases. Leases with an initial term of 12 months or less are classified as short-term leases. The Company did not elect the hindsight practical expedient to determine the lease term for existing leases.

The adoption of ASC 842 on April 1, 2019 resulted in the recognition of operating lease ROU assets of approximately $68.2 million, operating lease liabilities of approximately $83.2 million and the elimination of deferred rent of approximately $15.0 million. Operating leases are included in operating lease ROU assets and lease liabilities on the Company’s balance sheets. The adoption of ASC 842 did not have a material impact on the Company’s consolidated statement of operations, consolidated statement of stockholders' equity, consolidated statement of comprehensive income (loss) or consolidated statement of cash flows. The new standard had no material impact on liquidity and had no impact on the Company’s debt-covenant compliance under its current debt agreements.

The Company determines if an arrangement is a lease at inception. ROU assets represent the Company’s right to use an underlying asset for the duration of the lease term. Lease liabilities represent the Company’s contractual obligation to make lease payments over the lease term. ROU assets are recorded and recognized at commencement for the lease liability amount, plus initial direct costs incurred less lease incentives received. Lease liabilities are recorded at the present value of future lease payments over the lease term at commencement. The discount rate used is generally the Company’s estimated incremental borrowing rate unless the lessor’s implicit rate is readily determinable. Incremental borrowing rates are calculated periodically to estimate the rate the Company would pay to borrow the funds necessary to obtain an asset of similar value over a similar term. Lease expenses relating to operating leases are recognized on a straight-line basis over the lease term.

The Company has operating leases for administrative, research and development, sales and marketing and manufacturing facilities and equipment under various non-cancelable lease agreements. The Company’s leases have remaining lease terms ranging from 1 year to 11 years. The Company’s lease terms may include options to extend or terminate the lease where it is reasonably certain that the Company will exercise those options. The Company considers several economic factors when making this determination, including but not limited to, the significance of leasehold improvements incurred in the office space, the difficulty in replacing the asset, underlying contractual obligations, or specific characteristics unique to a particular lease. The Company’s lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Most of the Company’s lease agreements contain variable payments, primarily for common area maintenance (CAM), which are expensed as incurred and not included in the measurement of the ROU assets and lease liabilities.

The components of operating lease cost for the fiscal year ended March 31, 2020 were as follows (in thousands):

Lease cost under long-term operating leases	$	13,318
Lease cost under short-term operating leases		4,172
Variable lease cost under short-term and long-term operating leases		4,259
Total operating lease cost	$	21,749

The table below presents supplemental cash flow information related to leases during the fiscal year ended March 31, 2020 (in thousands):

Right-of-use assets obtained in exchange for new operating lease liabilities	$	11,127

Weighted average remaining lease term in years and weighted average discount rate are as follows:

Weighted average remaining lease term in years - operating leases	8.59
Weighted average discount rate - operating leases	4.1 %

Future minimum payments under non-cancellable leases at March 31, 2020 are as follows (in thousands):

Year Ending March 31,		
2021	$	12,479
2022		13,626
2023		11,564
2024		10,167
2025		10,019
Thereafter		38,282
Total lease payments	$	96,137
Less imputed interest		(15,142)
Present value of lease liabilities	$	80,995

As previously disclosed in the Company's fiscal year Form 10-K and under the previous lease accounting standard, ASC 840, Leases, the following table summarizes the future non-cancelable minimum lease commitments (including office space, copiers, and automobiles) at March 31, 2019 (in thousands):

Year Ending March 31,		
2020	$	16,102
2021		11,059
2022		9,804
2023		8,807
2024		8,500
Remaining years		43,997
Total minimum lease payments	$	98,269

NOTE 19 – COMMITMENTS AND CONTINGENCIES

Acquisition- and Divestiture-Related

The Company's Level 3 liabilities at March 31, 2020 consisted of contingent purchase consideration related to the two acquisitions that occurred during the fiscal year 2020. The contingent purchase consideration related to the two acquisitions represent amounts deposited into escrow accounts, which were established to cover damages NetScout may suffer related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the sellers as described in the acquisition agreements. The contingent purchase consideration of $0.7 million and $1.0 million related to the

Gigavation and Eastwind acquisitions are included as accrued other in the Company's consolidated balance sheet at March 31, 2020. Except to the extent that valid indemnification claims are made prior to such time, the $0.7 million of purchase consideration related to the Gigavation acquisition will be paid to the seller in February 2021. The contingent purchase consideration related to the Eastwind acquisition was paid to the seller in April 2020.

The Company had a contingent consideration asset related to the divestiture of its HNT tools business in September 2018. The contingent consideration asset represented potential future earnout payments to the Company of up to $4.0 million over two years that were contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the acquisition date and was measured using unobservable (Level 3) inputs. The contingent consideration asset at March 31, 2020 and 2019 was $0 and $0.8 million, respectively.

The Company had a contingent liability at March 31, 2018 for $0.5 million related to the acquisition of Efflux in July 2017 for which an escrow account was established to cover damages NetScout may have suffered related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the acquisition agreement. The $0.5 million was paid to the sellers in July 2018.

The Company had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena LLC in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with NetScout. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

Legal

From time to time, NetScout is subject to legal proceedings and claims in the ordinary course of business. In the opinion of management, the amount of ultimate expense with respect to any current legal proceedings and claims, if determined adversely, will not have a material adverse effect on the Company’s financial condition, results of operations or cash flows.

As previously disclosed, in March 2016, Packet Intelligence LLC (Packet Intelligence or Plaintiff) filed a Complaint against NetScout and two subsidiary entities in the United States District Court for the Eastern District of Texas asserting infringement of five United States patents. Plaintiff’s Complaint alleged that legacy Tektronix GeoProbe products, including the G10 and GeoBlade products, infringed these patents. NetScout filed an Answer denying Plaintiff’s allegations and asserting that Plaintiff’s patents were, among other things, invalid, not infringed, and unenforceable due to inequitable conduct. In October 2017, a jury trial was held to address the parties’ claims and counterclaims regarding infringement of three patents by the G10 and GeoBlade products, invalidity of these patents, and damages. On October 13, 2017, the jury rendered a verdict finding in favor of the Plaintiff and that Plaintiff was entitled to $3,500,000 for pre-suit damages and $2,250,000 for post-suit damages. The jury indicated that the awarded damages amounts were intended to reflect a running royalty. The Court also conducted a bench trial on whether these patents were unenforceable due to, among other things, inequitable conduct. In September 2018, the Court entered judgment and "enhanced" the jury verdict in the amount of $2.8 million as a result of a jury finding. The judgment also awards pre- and post judgement interest, and a running royalty on the G10 and GeoBlade products until the expiration of the patents at issue, the last date being June 2022. The Court denied the Plaintiff's motion for fees. Following additional motions for judgment as a matter of law, the court entered final judgment. On June 12, 2019, NetScout filed its Notice of Appeal of the judgment and all other adverse findings. NetScout has concluded that the risk of loss from this matter is currently neither remote nor probable, and therefore, under GAAP definitions, the risk of loss is termed "reasonably possible". Therefore, accounting rules require NetScout to provide an estimate for the range of potential liability. NetScout currently estimates that the estimated range of liability is between $0 and the aggregate amount awarded by the jury and the Court's award of enhanced damages, plus potential additional pre- and post-judgment interest amounts and costs and any royalties owed on post-trial sales of the accused G10 and GeoBlade products.

Unconditional Purchase Obligations

At March 31, 2020, the Company had unconditional purchase obligations of $35.5 million, which represent estimated open purchase orders to purchase inventory as well as commitments for products and services used in the normal course of business.

Other Contingent Liabilities

During fiscal year 2020, one of the Company's subsidiaries, located in the United Kingdom (UK), determined that value added tax (VAT) was not properly applied to certain supplies of service to the UK. The Company filed a blank disclosure with HM Revenue & Customs (HMRC) notifying HMRC of these application differences, and subsequently filed a voluntary disclosure agreement (VDA). The VDA covered the period of March 1, 2016 through February 29, 2020. The penalties associated with the application differences can range from 0%-30% of the underpayment and are based on objective and subjective determinations to be made by HMRC. At March 31, 2020 the Company has accrued the penalties that it believes are probable and estimable of assessment by HMRC. A majority of the difference in the Company's application of the VAT rules relates to services for which the subsidiary did not collect VAT from its customers and for which customers would have been eligible to reclaim under the UK VAT regime. Based on these facts the Company currently believes that it is probable that it will not be required to settle these amounts separately with its customers and HMRC, hence the Company has not recorded a payable to HMRC and a receivable from its customers for these amounts. The Company believes that it is reasonably possible that HMRC will require separate settlement; if that occurred, the Company would be required to collect approximately £16 million from its current customers and remit that amount to HMRC.

NOTE 20 – SEGMENT AND GEOGRAPHIC INFORMATION

The Company manages its business in the following geographic areas: United States, Europe, Asia and the rest of the world. The Company's policies mandate compliance with economic sanctions and export controls.

Total revenue by geography is as follows (in thousands):

	Year Ended March 31,		
	2020	2019	2018
United States	$ 545,620	$ 553,267	$ 581,853
Europe	154,510	148,036	174,445
Asia	59,939	72,355	88,917
Rest of the world	131,751	136,260	141,572
	$ 891,820	$ 909,918	$ 986,787

The United States revenue includes sales to resellers in the United States. These resellers fulfill customer orders and may subsequently ship the Company's products to international locations. Further, the Company determines the geography of its sales after considering where the contract originated. A majority of revenue attributable to locations outside of the United States is a result of export sales. Substantially all of the Company's identifiable assets are located in the United States.

NOTE 21 – QUARTERLY RESULTS OF OPERATIONS – UNAUDITED

The following table sets forth certain unaudited quarterly results of operations of NetScout for the fiscal years ended March 31, 2020 and 2019. In the opinion of management, this information has been prepared on the same basis as the audited consolidated financial statements and all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts stated below to present fairly the quarterly information when read in conjunction with the audited consolidated financial statements and notes thereto included elsewhere in this Annual Report on Form 10-K. The quarterly operating results are not necessarily indicative of future results of operations.

	Three Months Ended (in thousands, except per share data)							
	March 31, 2020	Dec. 31, 2019	Sept. 30, 2019	June 30, 2019	March 31, 2019	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018
Revenue	$ 229,351	$ 260,024	$ 216,421	$ 186,024	$ 235,002	$ 246,008	$ 223,797	$ 205,111
Gross profit	$ 166,619	$ 194,439	$ 157,289	$ 131,281	$ 176,466	$ 176,424	$ 159,817	$ 143,084
Net income (loss)	$ 7,336	$ 36,725	$ (17,472)	$ (29,343)	$ 19,211	$ (3,603)	$ (26,428)	$ (62,504)
Diluted net income (loss) per share	$ 0.10	$ 0.49	$ (0.23)	$ (0.38)	$ 0.24	$ (0.05)	$ (0.34)	$ (0.78)

NetScout Systems, Inc.
Schedule II—Valuation and Qualifying Accounts
(in thousands)

	Balance at Beginning of Year	Additions Resulting in Charges to Operations	Charges to Other Accounts	Deductions Due to Write-Offs	Balance at End of Year
Year ended March 31, 2018					
Allowance for doubtful accounts	$ 2,066	$ 695	$ (346)	$ (424)	$ 1,991
Deferred tax asset valuation allowance	$ 3,374	$ —	$ —	$ (266)	$ 3,108
Year ended March 31, 2019					
Allowance for doubtful accounts	$ 1,991	$ 826	$ (464)	$ (770)	$ 1,583
Deferred tax asset valuation allowance	$ 3,108	$ 905	$ —	$ (3,178)	$ 835
Year ended March 31, 2020					
Allowance for doubtful accounts	$ 1,583	$ 1,450	$ (1,202)	$ (481)	$ 1,350
Deferred tax asset valuation allowance	$ 835	$ 4,806	$ —	$ —	$ 5,641

DESCRIPTION OF COMMON STOCK

The following description summarizes the most important terms of our capital stock. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description of the matters set forth in this "Description of Capital Stock," you should refer to our amended and restated certificate of incorporation and amended and restated by-laws, which are included as exhibits to our Annual Report on Form 10-K, and to the applicable provisions of Delaware law. Our authorized capital stock consists of 300,000,000 shares of common stock, $0.001 par value per share, and 5,000,000 shares of undesignated preferred stock, $0.001 par value per share. Our board of directors is authorized, without stockholder approval except as required by the listing standards of The Nasdaq Stock Market LLC to issue additional shares of our capital stock.

Common Stock

Voting Rights

Each holder of our common stock is entitled to one vote for each share of common stock held on all matters submitted to a vote of stockholders, except as otherwise expressly provided in our amended and restated certificate of incorporation or required by applicable law. Our amended and restated certificate of incorporation does not provide for cumulative voting for the election of directors.

Economic Rights

Dividends and Distributions. Subject to the prior rights of holders of all classes and series of stock at the time outstanding having prior rights as to dividends, the holders of common stock are entitled to receive, when, as and if declared by the board of directors, out of any assets legally available therefor, such dividends as may be declared from time to time by the board of directors.

Liquidation Rights. In the event of our liquidation, dissolution, or winding-up of our company, upon the completion of the distributions required with respect to any series of preferred stock that may then be outstanding, the remaining assets legally available for distribution to stockholders shall be distributed ratably among the holders of common stock.

Preferred Stock

Our board of directors may, without further action by our stockholders, fix the rights, preferences, privileges, and restrictions of up to an aggregate of 5,000,000 shares of preferred stock in one or more series and authorize their issuance. These rights, preferences, and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms, and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of our common stock. The issuance of our preferred stock could adversely affect the voting power of holders of our common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring, or preventing a change of control or other corporate action. No shares of preferred stock are currently outstanding, and we have no present plan to issue any shares of preferred stock.

Anti-Takeover Provisions

Delaware Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned by (i) persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge, or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or

- the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges, or other financial benefits by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the person's affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

Amended and Restated Certificate of Incorporation and Amended and Restated By-law Provisions

Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the voting power of our shares of common stock outstanding are able to elect all of our directors. Our amended and restated certificate of incorporation and amended and restated by-laws provide that all stockholder actions must be effected at a duly called meeting of stockholders and not by written consent. A special meeting of stockholders may be called by the majority of our whole board of directors, chair of the board of directors, or our president.

In accordance with our amended and restated certificate of incorporation, our board of directors is divided into three classes with staggered three-year terms.

In addition, our amended and restated certificate of incorporation and amended and restated by-laws provide that the number of directors constituting our board of directors may be set only by a resolution adopted by a majority vote of our entire board of directors and that directors may be removed without cause only by the holders of at least seventy-five percent (75%) of the shares then entitled to vote at an election of directors or with cause only by the holders of at a majority of the shares then entitled to vote at an election of directors. Our amended and restated certificate of incorporation and amended and restated by-laws also provide that vacancies occurring on our board of directors and newly created directorships resulting from an increase in the authorized number of directors, unless and until filled by our stockholders, may be filled only by vote of a majority of the remaining members of our board of directors, or by a sole remaining director, even though less than a quorum. Our amended and restated certificate of incorporation and amended and restated by-laws provide that our board of directors is expressly authorized to adopt, amend, or repeal our by-laws, and require a vote of the holders of at least seventy-five percent (75%) of the shares then entitled to vote at an election of directors to amend our by-laws and certain provisions of our certificate of incorporation.

Our amended and restated by-laws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated by-laws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

The foregoing provisions will make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage certain types of transactions that may involve an actual or threatened acquisition of us. These provisions are also designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of deterring hostile takeovers or delaying changes in our control or management. As a consequence, these provisions also may inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Choice of Forum

Our amended and restated by-laws provide that the Court of Chancery of the State of Delaware is the exclusive forum for (i) any derivative action or proceeding brought on our behalf; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any current or former director, officer or other employee of, to us and our stockholders; (iii) any action or proceeding asserting a claim against us or any current or former director or officer or other employee arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated by-laws (as either may be amended from time to time); (iv) any action or proceeding to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or our amended and restated by-laws (including any right, obligation, or remedy thereunder); (v) or any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; or (vi) any action and proceeding asserting a claim against us or any director or officer or other employee governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. This forum provision does not apply to suits brought to enforce a duty or liability created by the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction.

Our amended and restated by-laws further provide that unless the we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended.

Our amended and restated by-laws further provide that any person or entity holding, owning or otherwise acquiring any interest in any of our securities shall be deemed to have notice of and consented to these forum provisions.

Limitations of Liability and Indemnification

Our amended and restated certificate of incorporation provides that we will indemnify our directors and officers, and may indemnify our employees and other agents, to the fullest extent permitted by the Delaware General Corporation Law. However, Delaware law prohibits our amended and restated certificate of incorporation from limiting the liability of our directors for the following:

- any breach of the director's duty of loyalty to us or to our stockholders;
- acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or unlawful stock repurchases or redemptions; and
- any transaction from which the director derived an improper personal benefit.

If Delaware law is amended to authorize corporate action further eliminating or limiting the personal liability of a director, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law, as so amended. Our amended and restated certificate of incorporation does not eliminate a director's duty of care and, in appropriate circumstances, equitable remedies, such as injunctive or other forms of nonmonetary relief, remain available under Delaware law. This provision also does not affect a director's responsibilities under any other laws, such as the federal securities laws or other state or federal laws. Under our amended and restated by-laws, we will also be empowered to enter into indemnification agreements with our directors, officers, employees, and other agents and to purchase insurance on behalf of any person whom we are required or permitted to indemnify.

In addition to the indemnification required by our amended and restated certificate of incorporation, we have entered into indemnification agreements with each of our current directors and officers. These agreements provide for the indemnification of such persons for all reasonable expenses and liabilities incurred in connection with any action or proceeding brought against them by reason of the fact that they are or were serving in such capacity. We believe that these by-law provisions and indemnification agreements are necessary to attract and retain qualified persons as directors, officers, and employees. Furthermore, we have obtained director and officer liability insurance to cover liabilities our directors and officers may incur in connection with their services to us.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted to our directors, officers, and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

Exhibit 21

SUBSIDIARIES OF NETSCOUT

Name	Jurisdiction of Incorporation
AirMagnet, Inc.	California
Aran Communications Limited	Ireland
Arbor Networks Canada Limited	Canada
Arbor Networks GmbH	Germany
Arbor Networks K.K.	Japan
Arbor Networks Pte Ltd	Singapore
Arbor Networks UK Ltd	United Kingdom
Arbor Networks, Inc.	Delaware
ClearSight Networks, Inc.	Delaware
Cragen Limited	United Kingdom
Ellacoya Networks, LLC	Delaware
NetScout Systems Industrial Private Limited	India
Gigavation, Inc.	Delaware
Green Sigma Holding Co., LLC	Delaware
Inet Technologies International, Inc.	Delaware
NetScout Berlin GmbH & Co. KG	Germany
NetScout Berlin Verwaltungs GmbH	Germany
NetScout Communications Limited	Ireland
NetScout Española S.A.	Spain
NetScout Network Systems GmbH	Germany
NetScout Network Systems Pty Ltd	Australia
NetScout Padova S.r.l.	Italy
NetScout Systems (HK) Limited	China
NetScout Systems (UK) Limited	United Kingdom
NetScout Systems A.C. UK Limited	United Kingdom
NetScout Systems Australia Pty Ltd	Australia
NetScout Systems Argentina SAU	Argentina
NetScout Systems Canada, Inc.	Canada
NetScout Systems Federal Corp.	Delaware
NetScout Systems Germany GmbH	Germany
NetScout Systems India Pte Ltd	India
NetScout Systems Italy S.r.l.	Italy
NetScout Systems Japan KK	Japan
NetScout Systems Norway AS	Norway
NetScout Systems Security Corporation	Massachusetts
NetScout Systems Singapore Pte Ltd	Singapore
NetScout Systems Software India Pte Ltd.	India
NetScout Systems Technology Representacao Brasil Ltda.	Brazil

NetScout Systems Texas, LLC	Delaware
NetScout Systems UK Holdings Ltd.	United Kingdom
Network General Central Corporation	Delaware
Network General Holdings Cayman	Cayman Islands
Network General International Corporation	Delaware
Network General Technology	Cayman Islands
Network General, BV	Netherlands
Newfield Wireless, Inc.	California
NSRS Austria GmbH	Austria
NSRS Belgium BVBA	Belgium
NSRS Comms Ireland Limited	Ireland
NSRS Czech Republic s.r.o.	Czech Republic
NSRS France Sarl	France
NSRS Germany GmbH	Germany
NSRS Holdings B.V.	Netherlands
NSRS Holdings Ireland Limited	Ireland
NSRS Hong Kong Ltd.	Hong Kong
NSRS Korea Ltd.	Korea, Republic of
NSRS Middle East FZ-LLC	UAE
NSRS Operations B.V.	Netherlands
NSRS Software (Shanghai) Co. Ltd.	China
NSRS Sweden AB	Sweden
Psytechnics Limited	United Kingdom
RS Merger Sub II, LLC	Delaware
Servicios A Terceros, S.C.	Mexico
Starburst Technology Holdings I, LLC	Delaware
Starburst Technology Holdings II, LLC	Delaware
TF Holdings B.V.	Netherlands

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-145047) and Form S-8 (Nos. 333-148364; 333-112704; 333-73842; 333-41880; 333-95647; 333-90971; 333-88131; 333-178411, 333-207695 and 333-228272) of NetScout Systems, Inc. of our report dated May 20, 2020 relating to the consolidated financial statements, financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
May 20, 2020

Exhibit 31.1

CERTIFICATIONS

I, Anil K. Singhal, certify that:

1. I have reviewed this Annual Report on Form 10-K of NetScout Systems, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 20, 2020

/s/ ANIL K. SINGHAL

Anil K. Singhal

President, Chief Executive Officer and Chairman (Principal Executive Officer)

Exhibit 31.2

CERTIFICATIONS

I, Jean Bua, certify that:

1. I have reviewed this Annual Report on Form 10-K of NetScout Systems, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):
   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 20, 2020

/s/ JEAN BUA

Jean Bua
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)
(Principal Accounting Officer)

Exhibit 32.1

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of NetScout Systems, Inc. (the “Company”) on Form 10-K for the period ended March 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Anil K. Singhal, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/S/ ANIL K. SINGHAL

Anil K. Singhal
President, Chief Executive Officer and Chairman

May 20, 2020

This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of NetScout Systems, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

Exhibit 32.2

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of NetScout Systems, Inc. (the "Company") on Form 10-K for the period ended March 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jean Bua, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/S/ JEAN BUA

Jean Bua
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)
(Principal Accounting Officer)

May 20, 2020

This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of NetScout Systems, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.