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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 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 001-34501

JUNIPER NETWORKS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**77-0422528**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
1133 Innovation Way	
Sunnyvale, California	**94089**
(Address of principal executive offices)	*(Zip code)*

(408) 745-2000
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, par value $0.00001 per share	JNPR	New York Stock Exchange

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 filings 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.

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 has filed a report on and attestation to its management’s assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

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

The aggregate market value of voting common stock held by non-affiliates of the registrant was approximately 7,495,000,000 as of June 30, 2020, the last business day of the registrant’s most recently completed second fiscal quarter (based on the closing sales price for the common stock on the New York Stock Exchange on such date).

As of February 10, 2021, there were 328,172,099 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

As noted herein, the information called for by Part III is incorporated by reference to specified portions of the registrant's definitive proxy statement to be filed in conjunction with the registrant's 2021 Annual Meeting of Stockholders, which is expected to be filed not later than 120 days after the registrant's fiscal year ended December 31, 2020.

Juniper Networks, Inc.
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Forward-Looking Statements

This Annual Report on Form 10-K, which we refer to as the Report, including "Management's Discussion and Analysis of Financial Condition and Results of Operations," contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 regarding future events and the future results of Juniper Networks, Inc., which we refer to as "we," "us," or the "Company," that are based on our current expectations, estimates, forecasts, and projections about our business, our results of operations, the industry in which we operate and the beliefs and assumptions of our management. All statements other than statement of historical facts are statements that could be deemed to be forward-looking statements. Words such as "expects," "anticipates," "targets," "goals," "projects," "will," "would," "could," "intends," "plans," "believes," "seeks," "estimates," variations of such words, and similar expressions are intended to identify such forward-looking statements. Forward-looking statements by their nature address matters that are, to different degrees, uncertain, and these forward-looking statements are only predictions and are subject to risks, uncertainties, and assumptions that are difficult to predict, including the duration, extent, and continuing impact of the COVID-19 pandemic, and our ability to successfully manage the demand, supply, and operational challenges associated with the COVID-19 pandemic. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. Factors that might cause or contribute to such differences include, but are not limited to, those discussed in this Report under the section entitled "Risk Factors" in Item 1A of Part I and elsewhere, and in other reports we file with the U.S. Securities and Exchange Commission, or the SEC. In addition, many of the foregoing risks and uncertainties are, and could be, exacerbated by the COVID-19 pandemic and any worsening of the global business and economic environment as a result of the pandemic. While forward-looking statements are based on reasonable expectations of our management at the time that they are made, you should not rely on them. We undertake no obligation to revise or update publicly any forward-looking statements for any reason, except as required by applicable law.

PART I

ITEM 1. *Business*

Overview

Juniper Networks designs, develops, and sells products and services for high-performance networks to enable customers to build scalable, reliable, secure, and cost-effective networks for their businesses, while achieving agility and improved operating efficiency through automation. We sell our high-performance network products and service offerings across routing, switching, Wi-Fi, network security, and software-defined networking ("SDN") technologies. In addition to our products, we offer our customers services, including maintenance and support, professional services, Software-as-a-Service ("SaaS"), and education and training programs. We sell our products in more than 150 countries in three geographic regions: Americas; Europe, Middle East, and Africa, which we refer to as EMEA; and Asia Pacific, which we refer to as APAC.

Our products and services address high-performance network requirements for our customers within our verticals: Cloud, Service Provider, and Enterprise who view the network as critical to their success. We believe our silicon, systems, and software represent innovations that transform the economics and experience of networking, helping our customers achieve superior performance, greater choice, and flexibility, while reducing overall total cost of ownership.

Further, we have been expanding our software business by introducing new software solutions to our product and service portfolios that simplify the operation of networks, and allow our customers across our key verticals flexibility in consumption and deployment. Our acquisition of Mist Systems, or Mist, in 2019 accelerated our ability to execute this belief in cloud-managed, artificial intelligence ("AI"), or AI-enabled enterprise networking operations through a combination of cloud-based intelligence, enterprise-grade access points, and EX series switches. Machine learning technology simplifies wireless and wired operations and delivers a more agile cloud services platform. In 2020, we acquired 128 Technology and Netrounds. Our acquisition of 128 Technology represents the next evolution of our AI-driven enterprise vision. We believe 128 Technology will enable us to provide a superior standalone SD-WAN experience as compared to all other SD-WAN offerings currently on the market and extend the value of Mist's secure AI-engine and cloud management capabilities from client to cloud. Also, we believe our acquisition of Netrounds will enable service and cloud providers to rapidly deliver software-defined network services with guaranteed end-to-end service quality.

Our corporate headquarters are located in Sunnyvale, California. Our website address is www.juniper.net.

Strategy

We deliver highly scalable, reliable, secure, and cost-effective networks, while transforming the network's agility, efficiency, and value through automation. Our research and development efforts are focused on the following strategic priorities:

- Seize the cloud transition to gain share across our three customer verticals: Cloud, Service Provider, and Enterprise
- Differentiate with innovation in networking, security and software orchestration
- Leverage automation and AI to deliver simplicity of operations for our customers

We believe the network needs for our customers in our Cloud, Service Provider, and Enterprise verticals are converging as these customers recognize the need for high-performance networks and are adopting cloud architectures for their infrastructure and service delivery, such as large public and private data centers and service provider edge data centers, for improved agility and greater levels of operating efficiency. We believe this industry trend presents an opportunity for Juniper Networks, and we have focused our strategy on enabling our customers' transition to cloud architectures through the following strategic opportunities:

Cloud-Ready Data Center

We are focused on continuing to power public and private cloud data centers with high performance infrastructure. These data centers are the core of cloud transformation by enabling service delivery in a hybrid cloud environment, which is a combination of public cloud, private cloud, and SaaS delivery. We are a recognized leader in data center networking innovation in both software and hardware solutions. Our Junos Operating System, or Junos OS, application-specific integrated circuits, or ASIC, technology, and management and automation software investments across routing, switching, and network security technologies will continue to be key elements to maintaining our technology leadership and transforming the economics and experience of our public and private cloud customers. In 2019, we introduced our next-generation operating system, Junos OS Evolved, which enables higher availability, accelerated deployment, greater innovation, and improved operational efficiencies. In 2020, we accelerated our investments in operations experience focused automation, to stay ahead of an industry-wide trend to address size and complexity of data centers driven by a rapidly increasing number of cloud-ready workloads. In recognition of our automated fabrics, best-in-class security, and scalable designs, we have been recognized as a Gartner Magic Quadrant Leader for the third year in a row.

Our Service Provider customers are investing in the build-out of high-performance networks and distributed cloud environments to enable high-speed and low-latency applications. We are committed to support them to rearchitect their infrastructure to enable next-generation mobile network build-outs, or 5G, and Internet of Things, or IoT, service delivery close to their end users. In January 2021, we acquired Apstra, a leader in intent-based networking, open programmability and automated closed loop assurance for the management of data center networks. Our acquisition of Apstra will expand upon our data center networking portfolio to advance our vision to transform data center operations.

Automated Wide-Area-Networking Solutions

In developing our solutions, we strive to design and build best-in-class products and solutions for core, edge, and metro networking infrastructure for connecting users and devices securely to the cloud and to each other. cloud providers and service providers have deployed our product offerings in their wide area networks, or WAN, such as our highly efficient Internet Protocol, or IP, transport PTX product which can cost effectively manage incredible capacity from their end users to the data centers from which they deliver value to those customers. We also offer a robust portfolio of SDN-enabled MX series routing platforms that provide system capacity, density, security, and performance with investment protection. MX Series routers play at the heart of the digital transformation that service providers, cloud providers, and Enterprises are undergoing. Our SDN Controller for the WAN, NorthStar, enables granular visibility and control of IP/Multiprotocol Label Switching, or IP/MPLS flows for large networks. We believe our acquisition of Netrounds will enhance our automated WAN solutions with innovative testing and service assurance capabilities for fixed and mobile networks. We believe Netrounds' technology will strengthen and complement our existing capabilities, such as Healthbot, NorthStar, and our partnership with Anuta Networks to simplify network operations. We are committed to continued investment in cost effective and high-performance IP transport platforms and automation software, which forms the basis of these high-performance networks.

Secure AI-Driven Enterprise

Enterprises are consuming more value-as-a-service, where value is delivered in the form of cloud-based software and services. We have introduced cloud management and security products, which enable enterprises to consume cloud infrastructure and services securely. We believe the transition to SaaS presents an opportunity for Juniper to come to market with innovative network and security solutions for our Enterprise customers, which facilitate their transition to cloud architecture and operational experience.

We believe our understanding of high-performance networking technology, cloud architecture, and our strategy, positions us to capitalize on the industry transition to more automated, cost-efficient, scalable networks. Our strong growth from Mist has validated that belief and established us as a leader in cloud-managed AI-enabled wired and wireless enterprise networking operations. Our acquisition of 128 Technology will accelerate this strategy to next generation user-centric SD-WAN and will enable us to offer customers a unified platform for AI-driven Wireless LAN/Wired LAN/SD-WAN, with a superior user experience from client to cloud.

Customer Verticals

We sell our high-performance network products and service offerings through direct sales; distributors; value-added resellers, or VARs; and original equipment manufacturers, or OEMs, to end-users in the following verticals: Cloud, Service Provider, and Enterprise.

Key products presented above are for illustration purposes only.

Further, we believe our solutions benefit our customers by:

- Reducing capital and operational costs by running multiple services over the same network using our secure, high density, highly automated, and highly reliable platforms;

- Creating new or additional revenue opportunities by enabling new services to be offered to new market segments, which includes existing customers and new customers, based on our product capabilities;

- Increasing customer satisfaction, while lowering costs, by optimizing the experience of network operators and their users via automation, AI-enabled troubleshooting and support, and cloud-management;

- Providing increased asset longevity and higher return on investment as our customers' networks can scale to higher throughput based on the capabilities of our platforms;

- Offering network security across every environment—from the data center to campus and branch environments to assist in the protection and recovery of services and applications; and

- Offering operational improvements that enable cost reductions, including lower administrative, training, customer care, and labor costs.

The following is an overview of the trends affecting the market in which we operate by each of our customer verticals. We believe the networking needs for each of our customers will eventually result in cloud-based network architectures for improved agility and greater levels of operating efficiency.

Cloud

Our Cloud vertical includes companies that are heavily reliant on the cloud for their business model's success. Customers in the Cloud vertical can include cloud service providers, such as the largest public cloud providers, which we refer to as hyperscalers, and Tier-2 cloud providers, as well as enterprises that provide SaaS; infrastructure-as-a-service; or platform-as-a-service.

Cloud providers continue to grow as more organizations take advantage of public infrastructure to run their business. As their businesses grow, we expect they will continue to invest in their networks, which dictates the quality and experience of the products and the services they deliver to their end-customers. Further, as cloud providers begin to adopt new network technologies, such as the transition to 400-gigabit Ethernet, or 400GbE, we believe this should present further opportunities for us across our portfolio as our cloud customers value high-performance, highly compact, power efficient infrastructures, which we support and continue to develop.

In addition, SaaS continues to be an important factor for cloud providers as their customers, such as enterprises, prefer to procure and consume product and service offerings via SaaS models. As a result, we believe that SaaS providers will invest in high performance infrastructure because the quality of experience has proven just as important competitively as software features and functions. Lastly, as a result of regulations and the need for lower latency and high-performance networking, cloud providers have been transitioning to regional network build-outs or distributed cloud environments to address the increasing demand for services, data privacy, data protection, and consumer rights.

As Cloud customers are pushing the envelope in networking, our focus on collaboration combined with networking innovation around automation has made us a strategic partner with these customers, helping them develop high-performance and lower total cost of ownership networking solutions to support their business.

Service Provider

Our Service Provider vertical includes wireline and wireless carriers and cable operators, and we support most of the major carrier and operator networks in the world with our high-performance network infrastructure offerings. In recent years, we have seen increased convergence of these different types of customers through acquisitions, mergers, and partnerships.

Service Provider customers recognize the need for high-performance networks and leveraging the cloud to reduce costs from their network operations. This is dictating a change in business models and their underlying infrastructure, which we believe requires investment in the build-out of high-performance networks and the transformation of existing legacy infrastructure to distributed cloud environments in order to satisfy the growth in mobile traffic and video as a result of the increase in mobile device usage including smartphones, tablets, and connected devices of various kinds.

We expect that Network Function Virtualization, or NFV, and SDN, will be critical elements to enable our Service Provider customers the flexibility to support enhanced mobile video and dynamic new service deployments. We are engaging with these customers to transition their operations to essentially next-generation cloud operations as the need for a highly efficient infrastructure to handle large amounts of data along with low latency, or minimal delay, plays into the need to have a high performance, scalable infrastructure in combination with the automation and flexibility required to drive down operational costs and rapid provision applications. We consistently deliver leading technologies that transform the economics and experience of networking while significantly improving customer economics by lowering the capital expenditures required to build networks and the operating expenses required to manage and maintain them.

In addition to reducing operating costs, service providers are seeking to create new or additional revenue opportunities to support their evolving business models. These customers are beginning to deploy 5G, which we expect will begin to roll out over the next few years, and IoT, which we believe will give rise to new services like connected cars, smart cities, robotic manufacturing, and agricultural transformation. 5G and IoT require a highly distributed cloud data center architecture from which services are delivered to the end users and will involve a great degree of analytics and embedded security. We expect this trend will present further opportunities for Juniper with our focus on delivering a strong portfolio of network virtualization and software-based orchestration solutions, which position us to deliver on the automation and agility requirements of service providers.

Enterprise

Our high-performance network infrastructure offerings are designed to meet the performance, reliability, and security requirements of the world's most demanding enterprises. We offer enterprise solutions and services for data centers as well as branch and campus applications. Our Enterprise vertical includes enterprises not included in the Cloud vertical. They are industries with high performance, high agility requirements, including financial services; national, federal, state, and local governments; as well as research and educational institutions. We believe that our Enterprise customers are able to deploy our solutions as a powerful component in delivering the advanced network capabilities needed for their leading-edge applications.

We believe that as our Enterprise customers continue to transition their workloads to the cloud, they continue to seek greater flexibility in how they consume networking and security services, such as pay-per-use models. Additionally, Enterprises are deploying multicloud architectures which require end-to-end solutions for managing, orchestrating, and securing distributed cloud resources as a single pool of resources. Also, we are increasingly seeing a convergence of networking and security, resulting in security becoming an embedded capability in every solution that we offer to our customers.

High-performance enterprises require IP networks that are global, distributed, and always available. We are innovating in key technology areas to meet the needs of our Enterprise customers whether they plan to move to a public cloud architecture or hybrid cloud architecture (which is a mix of public and private cloud, as well as a growing number of SaaS applications).

In 2020, 2019, and 2018, no single customer accounted for 10% or more of our net revenues.

Products, Services, and Technology

Early in our history, we developed, marketed, and sold the first commercially available purpose-built IP backbone router optimized for the specific high-performance requirements of telecom and cable operators. As the need for core bandwidth continued to increase, the need for service-rich platforms at the edge of the network was created.

We have expanded our portfolio to address multiple domains in the network: core; edge; access and aggregation; data centers; and campus and branch. We have systematically focused on how we innovate in silicon, systems, and software (including our Junos OS and virtual network functions, or VNF) such as firewall, network orchestration, and automation to provide a range of hardware and software solutions in high-performance, secure networking.

Our acquisition of 128 Technology represents the next step in our AI-driven enterprise evolution. We believe 128 Technology will enhance our AI-Driven enterprise network portfolio with its session smart networking, accelerating the industry evolution from network-centric SD-WAN solutions to modern user-centric AI-driven networks. Also, we believe our acquisition of Netrounds, which is an end-to-end assurance solution for our Service Provider customers, will enhance our automated WAN solutions with innovative testing and service assurance capabilities to further simplify operations for service providers and ensure positive end-user experiences. Further, we believe our acquisition of Apstra, a leader in intent-based networking, open programmability and automated closed loop assurance for the management of data center networks, will expand upon our data center networking portfolio to advance our vision to transform data center operations.

Further, our intent is to expand our software business by introducing new software solutions to our product and services portfolios that simplify the operation of networks, and provide flexibility in consumption and deployment to our customers across our key verticals. Our software offerings include subscriptions, SaaS, and term or time-based perpetual licenses. We believe our software and related services revenues as a percentage of total revenues will increase over time as we introduce new software solutions designed to better monetize the value of software functionality in our offerings.

Significant Product Development Projects and Solutions

In 2020, we continued to execute on our product and service solution strategy and announced several new innovations, including metro, edge, and core innovations to accelerate service providers’ 5G transformation. Our Metro Fabric line expansion includes one and three rack unit ACX700 Universal Metro Routers. We announced a new edge MPC11E line card in the MX2000 Series 5G Universal Routing Platform, delivering an increase in line card and system capacity using our Penta Silicon chip. We also announced our new Triton Silicon enabling end-to-end secure connectivity at scale with 400GbE, and native Media Access Control Security that will be used in the PTX10008 and PTX10016 Universal Chassis. These new solutions will help service providers with their infrastructure transformation to 5G.

Also, we introduced our next-generation, cloud-ready operating system, Junos OS Evolved. It has the same command-line interface, the same applications and features, the same management and automation tools as Junos OS, but its infrastructure is entirely modernized, which enables higher availability, accelerated deployment, greater innovation and improved operational efficiencies.

Moreover, we announced a cloud-managed version of our SD-WAN solution. Our Contrail Service Orchestration now gives enterprises a simple way to manage and secure their WAN infrastructure, Branch LAN, and Wi-Fi networks. We also released our PTX10003 router and our QFX5220 switch, which are both 400GbE ready.

The following is an overview of our principal product families and service offerings in 2020:

Routing Products

- *ACX Series*: Our ACX Series Universal Access Routers cost-effectively address current operator challenges to rapidly deploy new high-bandwidth services. We believe that the ACX Series is well positioned to address the growing metro Ethernet and mobile backhaul needs of our customers, as we expect 5G mobile network build-outs to roll out over the next few years. The platforms deliver the necessary scale and performance needed to support multi-generation wireless technologies.

- *MX Series*: Our MX Series is a family of high-performance, SDN-ready, Ethernet routers that function as a Universal Edge platform with high system capacity, density, and performance. The MX Series platforms utilize our custom silicon and provide carrier-class performance, scale, and reliability to support large-scale Ethernet deployments. We also offer the vMX, a virtual version of the MX router, which is a fully featured MX Series 3D Universal Edge Router optimized to run as software on x86 servers.

- *PTX Series*: Our PTX Series Packet Transport Routers deliver high throughput at a low cost per bit, optimized for the service provider core as well as the scale-out architectures of cloud providers. The PTX Series is built on our custom silicon and utilizes a forwarding architecture that is focused on optimizing IP/MPLS, and Ethernet. This ensures high density and scalability, high availability, and network simplification.

- *NorthStar Controller*: Our wide-area network SDN controller automates the creation of traffic-engineering paths across the network, increasing network utilization and enabling a customized programmable networking experience.

Switching Products

- *EX Series*: Our EX Series Ethernet switches address the access, aggregation, and core layer switching requirements of micro branch, branch office, and campus environments, providing a foundation for the fast, secure, and reliable delivery of applications able to support strategic business processes.

- *QFX Series*: Our QFX Series of core, spine, and top-of-rack data center switches offer a revolutionary approach to switching that are designed to deliver dramatic improvements in data center performance, operating costs, and business agility for enterprises, high-performance computing networks, and cloud providers.

- *Juniper Access Points*: Our access points provide wireless access and performance, which is automatically optimized through reinforcement learning algorithms. Our access points have a dynamic virtual Bluetooth low energy element antenna array for accurate and scalable location services.

Security Products

- *SRX Series Services Gateways for the Data Center and Network Backbone*: Our mid-range, high-end and virtual SRX Series platforms provide high-performance, scalability, and service integration, which are ideally suited for medium to large enterprise, data centers and large campus environments, where scalability, high performance, and concurrent services, are essential. Our high-end SRX5800 platform is suited for service provider, large enterprise, and public sector networks. The upgrade to our high-end SRX firewall offering with our Services Process Card 3, or SPC3, with our Advanced Security Acceleration line card enhances the SRX5800 to deliver power for demanding use cases, including high-end data centers, IoT, and 5G.

- *Branch SRX, Security Policy and Management*: The Branch SRX family provides an integrated firewall and next-generation firewall, or NGFW, capabilities. Security Director is a network security management product that offers efficient, highly scalable, and comprehensive network security policy management. These solutions are designed to enable organizations to securely, reliably, and economically deliver powerful new services and applications to all locations and users with superior service quality.

- *Virtual Firewall*: Our vSRX Firewall delivers all of the features of our physical firewalls, including NGFW functionality, advanced security, and automated lifecycle management capabilities. The vSRX provides scalable, secure protection across private, public, and hybrid clouds. We also offer the cSRX which has been designed and optimized for container and cloud environments.

- *Advanced Malware Protection*: Our Advanced Threat Prevention portfolio consists of Sky ATP, a cloud-based service and Juniper ATP, or JATP, a premises-based solution. These products are designed to use both static and dynamic analysis with machine learning to find unknown threat signatures (zero-day attacks).

Services

In addition to our products, we offer maintenance and support, professional, SaaS, and educational services. We utilize a multi-tiered support model to deliver services that leverage the capabilities of our own direct resources, channel partners, and other third-party organizations.

We also train our channel partners in the delivery of support, professional, and educational services to ensure these services can be locally delivered.

As of December 31, 2020, we employed 1,887 people in our worldwide customer service and support organization. We believe that a broad range of services is essential to the successful customer deployment and ongoing support of our products, and we employ remote technical support engineers, on-site resident engineers, spare parts planning and logistics staff, professional services consultants, and educators with proven network experience to provide those services.

Platform Strategy

In addition to our major product families and services, our software portfolio has been a key technology element in our goal to be a leader in high-performance networking.

Our Junos Platform enables our customers to expand network software into the application space, deploy software clients to control delivery, and accelerate the pace of innovation with an ecosystem of developers. At the heart of the Junos Platform is Junos OS Evolved. We believe Junos OS Evolved is fundamentally differentiated from other network operating systems not only in its design, but also in its development capabilities. The advantages of Junos OS Evolved include:

- A modular operating system with common base of code and a single, consistent implementation for each control plane feature;
- A highly disciplined and firmly scheduled development process;
- A common modular software architecture that scales across all Junos-based platforms;
- A central database, which is used by not only Junos native applications but also external applications using application programming interfaces, or API's; and
- A fully distributed general-purpose software infrastructure that leverages all the compute resources on the network element.

Junos OS Evolved is designed to improve the availability, performance, and security of business applications running across the network. Junos OS Evolved helps to automate network operations by providing a single consistent implementation of features across the network in a single release train that seeks to minimize the complexity, cost, and risk associated with implementing network features and upgrades.

Orchestration and Monitoring

As many of our customers continue moving to programmable and automated network operations, managing, orchestrating, and securing that complex journey can be a challenge. Network automation is the process of automating the configuration, management, testing, deployment, and operations of physical and virtual devices within a network. We believe the keys to achieving success with network and security automation includes:

- Architecting networking systems with strong APIs, analytics, and autonomous control; and
- Automating operations to become more reliable in the context of IT systems, teams, processes, and network operation and security operation workflows.

We are committed to providing solutions to help our customers to optimize their programmable and automated networking operations with the following offerings:

- *Contrail*: Our Contrail Networking and Contrail Cloud Platform offer an open-source, standards-based platform for SDN and NFV. This platform enables our customers to address their key problems in the area of network automation, agility, and time-to-service deployment by providing a mechanism to virtualize the network over any physical network and automating the provisioning and management of networking services (such as security and load balancing). Contrail Enterprise Multicloud and Contrail Edge Cloud provide packaged solutions designed for Enterprise multicloud and Service Provider Edge environments, respectively. Contrail’s approach is to support multiple cloud and hardware vendors, various types of workloads, and both existing and new deployments.
- *Contrail Insights*: Contrail Insights (formerly known as AppFormix) is an optimization and management software platform for public, private, and hybrid clouds. This intent-driven software manages automated operations, visibility, and reporting in cloud and NFV use cases. It features machine learning-based policy and smart monitors, application and software-defined infrastructure analytics, and alarms to provide comprehensive visualization, smart analytics, and the ability to manage automatic remediation for service assurance.
- *Wired, Wireless, and WAN Assurance driven by Mist AI*: We provide visibility all the way down to the individual client, application and session to optimize individual user experiences from client-to-cloud. With customizable service levels that span the LAN, WLAN, and WAN, our solutions enable our customers to set and measure key metrics and proactively assure optimal user experiences on an ongoing basis. In addition, automated workflows are combined with event correlation, predictive analytics, and proactive self-driving operations to simplify IT operations and minimize end-to-end network troubleshooting costs.

- *Marvis Virtual Network Assistant driven by Mist AI:* Our Marvis Virtual Network Assistant identifies the root cause of issues across the information technology, or IT, domains and automatically resolves many issues proactively. It recommends actions for those connected systems outside of the Mist domain, while offering a real-time network health dashboard that reports issues from configuration to troubleshooting. Marvis has unique Natural Language Processing ("NLP") capabilities with a conversational interface so IT staff can get accurate answers to normal English language queries.

- *Netrounds*: Netrounds is a programmable, software-based active test and service assurance platform suitable for fixed and mobile networks for the entire service lifecycle. With its unique ability to actively test and monitor networks directly within software-defined virtual services, Netrounds acts as the missing link between services and networks, providing assurance about the quality of service experience from a customer's perspective, with insight to where a problem originated.

Research and Development

We have assembled a team of skilled engineers with extensive experience in the fields of high-end computing, network system design, ASIC design, security, routing protocols, software applications and platforms, and embedded operating systems. As of December 31, 2020, we employed 4,044 people in our worldwide research and development, or R&D, organization.

We believe that strong product development capabilities are essential to our strategy of enhancing our core technology, developing additional applications, integrating that technology, and maintaining the competitiveness and innovation of our product and service offerings. In our products, we are leveraging our software, ASIC and systems technology, developing additional network interfaces targeted to our customers' applications, and continuing to develop technology to support the build-out of secure high-performance networks and cloud environments. We continue to expand the functionality of our products to improve performance, reliability and scalability, and provide an enhanced user interface.

Our R&D process is driven by our corporate strategy and the availability of new technology, market demand, and customer feedback. We have invested significant time and resources in creating a structured process for all product development projects. Following an assessment of market demand, our R&D team develops a full set of comprehensive functional product specifications based on inputs from the product management and sales organizations. This process is designed to provide a framework for defining and addressing the steps, tasks, and activities required to bring product concepts and development projects to market.

Sales and Marketing

As of December 31, 2020, we employed 2,880 people in our worldwide sales and marketing organization. These sales and marketing employees operate in different locations around the world in support of our customers.

Our sales organization, with its structure of sales professionals, business development teams, systems engineers, marketing teams, channel teams, and an operational infrastructure team, is based on both vertical markets and geographic regions.

Our sales teams operate in their respective regions and generally either engage customers directly or manage customer opportunities through our distribution and reseller relationships as described below.

We sell to a number of Cloud and Service Provider customers directly. Otherwise, we sell to all of our key customer verticals primarily through distributors and resellers.

Direct Sales Structure

The terms and conditions of direct sales arrangements are governed either by customer purchase orders along with acknowledgment of our standard order terms, or by direct master purchase agreements. The direct master purchase agreements with these customers set forth only general terms of sale and generally do not require customers to purchase specified quantities of our products. We directly receive and process customer purchase orders.

Channel Sales Structure

A critical part of our sales and marketing efforts are our channel partners through which we conduct the majority of our sales.

We utilize various channel partners, including, but not limited to the following:

- A global network of strategic distributor relationships, as well as region-specific or country-specific distributors who in turn sell to local VARs who sell to end-user customers. Our distribution channel partners resell routing, switching, and security products, software and services, which are purchased by all of our key customer verticals. These distributors tend to focus on particular regions or countries. For example, we have substantial distribution relationships with Ingram Micro in the Americas and Hitachi in Japan. Our agreements with these distributors are generally non-exclusive, limited by region, and provide product and service discounts and other ordinary terms of sale. These agreements do not require our distributors to purchase specified quantities of our products or services. Further, most of our distributors sell our competitors' products and services, and some sell their own competing products and services.

- VARs and direct value-added resellers, including our strategic worldwide alliance partners referenced below, resell our products to end-users around the world. These channel partners either buy our products and services through distributors, or directly from us, and have expertise in designing, selling, implementing, and supporting complex networking solutions in their respective markets. Our agreements with these channel partners are generally non-exclusive, limited by region, and provide product and service discounts and other ordinary terms of sale. These agreements do not require these channel partners to purchase specified quantities of our products or services. Increasingly, our Cloud and Service Provider customers also resell our products or services to their customers or purchase our products or services for the purpose of providing managed or cloud-based services to their customers.

- Strategic worldwide reseller relationships with established Juniper alliances, comprised of Nippon Telegraph and Telephone Corporation; Ericsson Telecom A.B., or Ericsson; International Business Machines, or IBM; NEC Corporation; Fujitsu; and Atos. These companies each offer services and products that complement our own product and service offerings and act as a reseller, and in some instances as an integration partner for our products. Our arrangements with these partners allow them to resell our products and services on a non-exclusive and generally global basis, provide for product and service discounts, and specify other general terms of sale. These agreements do not require these partners to purchase specified quantities of our products or services.

Manufacturing and Operations

As of December 31, 2020, we employed 340 people in worldwide manufacturing and operations who manage our supply chain including relationships with our contract manufacturers, original design manufacturers, component suppliers, warehousing and logistics service providers.

Our manufacturing is primarily conducted through contract manufacturers and original design manufacturers in China, Malaysia, Mexico, and Taiwan. As of December 31, 2020, we utilized Celestica Incorporated, Flextronics International Ltd., Accton Technology Corporation, and Alpha Networks Inc. for the majority of our manufacturing activity. Our contract manufacturers and original design manufacturers are responsible for all phases of manufacturing from prototypes to full production including activities such as material procurement, surface mount assembly, final assembly, test, control, shipment to our customers, and repairs. Together with our contract manufacturers and original design manufacturers, we design, specify, and monitor the tests that are required to ensure that our products meet internal and external quality standards. We believe that these arrangements provide us with the following benefits:

- We can quickly ramp up and deliver products to customers with turnkey manufacturing;

- We gain economies of scale by leveraging our buying power with our contract manufacturers and original design manufacturers when we manufacture large quantities of products;

- We operate with a minimum amount of dedicated space and employees for manufacturing operations; and

- We can reduce our costs by reducing what would normally be fixed overhead expenses.

Our contract manufacturers and original design manufacturers build our products based on our rolling product demand forecasts. Each contract manufacturer procures the components necessary to assemble the products in our forecast and tests the products according to agreed-upon specifications. Products are then shipped to our distributors, resellers, or end-customers. Generally, we do not own the components. Title to the finished goods is generally transferred from the contract manufacturers to us when the products leave the contract manufacturer's or original design manufacturer's location. Customers take title to the products upon delivery at a specified destination. If the product or components remain unused or the products remain unsold for a specified period, we may incur carrying charges or charges for excess or obsolete materials.

Our contracts with our contract manufacturers and original design manufacturers set forth a framework within which the contract manufacturer and original design manufacturer, as applicable, may accept purchase orders from us. These contracts do not represent long-term commitments.

We also purchase and hold inventory for strategic reasons and to mitigate the risk of shortages of certain critical components; the majority of this inventory is production components. As a result, we may incur additional holding costs and obsolescence charges, particularly resulting from uncertainties in future product demand.

Some of our custom components, such as ASICs, are manufactured primarily by sole or limited sources, each of which is responsible for all aspects of production using our proprietary designs. To ensure the security and integrity of Juniper products during manufacture, assembly and distribution, we have implemented a supply chain risk management framework as part of our overall Brand Integrity Management System. This framework encompasses all aspects of the supply chain as well as enhanced elements specific to security issues applicable to Juniper products and our customers.

By working collaboratively with our suppliers and as members of coalitions such as the Responsible Business Alliance, Responsible Minerals Initiative, and the CDP, formerly the Carbon Disclosure Project, Supply Chain program, we endeavor to promote socially and environmentally responsible business practices beyond our company and throughout our worldwide supply chain. To this end, we have adopted a business partner code of conduct and promote compliance with such code of conduct to our suppliers. Our business partner code of conduct expresses support for and is aligned with the Ten Principles of the United Nations Global Compact and the Responsible Business Alliance Code of Conduct. The Responsible Business Alliance, a coalition of electronics, retail, auto and toy companies, provides guidelines and resources to drive performance and compliance with critical corporate social responsibility policies. Its goals are to promote ethical business practices, to ensure that working conditions in the electronic industry supply chain are safe, that workers are treated with respect and dignity, and that manufacturing processes are environmentally responsible. By using standard audit and assessment protocols and tools, we measure and monitor manufacturing partners' and direct material suppliers' compliance to the codes of conduct, including but not limited to: onsite audits; risk assessments; CDP climate change and water requests; and conflict minerals surveys. Our Corporate Citizenship and Sustainability Report, which details our supply chain efforts, and Business Partner Code of Conduct are available on our website.

Backlog

Our sales are made primarily pursuant to purchase orders under master sales agreements either with our distributors, resellers, or end-customers. At any given time, we have backlog orders for products that have not shipped. Because customers may cancel purchase orders or change delivery schedules without significant penalty, we believe that our backlog at any given date may not be a reliable indicator of future operating results. As of December 31, 2020 and December 31, 2019, our total product backlog was approximately $419.6 million and $341.1 million, respectively. Our product backlog consists of confirmed orders for products scheduled to be shipped to our distributors, resellers, or end-customers, generally within the next six months. Backlog excludes certain future revenue adjustments for items such as product revenue deferrals, sales return reserves, service revenue allocations, and early payment discounts.

Seasonality

We, as do many companies in our industry, experience seasonal fluctuations in customer spending patterns. Historically, we have experienced stronger customer demand in the fourth quarter and weaker demand in the first quarter of the fiscal year. This historical pattern should not be considered a reliable indicator of our future net revenues or financial performance.

Competition

We compete in the network infrastructure markets. These markets are characterized by rapid change, converging technologies, and a migration to solutions that combine high performance networking with cloud technologies. In the network infrastructure business, Cisco Systems, Inc., or Cisco, has historically been the dominant player. However, our principal competitors also include Arista Networks, Inc.; Dell Technologies; Hewlett Packard Enterprise Co., or HPE; Huawei Technologies Co., Ltd., or Huawei; and Nokia Corporation, or Nokia.

Many of our current and potential competitors, such as Cisco, Nokia, HPE, and Huawei, among others, have broader portfolios which enable them to bundle their networking products with other networking and information technology products in a manner that may discourage customers from purchasing our products. Many of our current and potential competitors have greater name recognition, marketing budgets, and more extensive customer bases that they may leverage to compete more effectively. Increased competition could result in price reductions, fewer customer orders, reduced gross margins, and loss of market share, negatively affecting our operating results.

In addition, there are a number of other competitors in the security network infrastructure space, including Palo Alto Networks, Inc.; Check Point Software Technologies, Ltd.; F5 Networks, Inc.; and Fortinet, Inc.; among others, who tend to be focused specifically on security solutions and, therefore, may be considered specialized compared to our broader product line.

We expect that over time, large companies with significant resources, technical expertise, market experience, customer relationships, and broad product lines, such as Cisco, Nokia, and Huawei, will introduce new products designed to compete more effectively in the market. There are also several other companies that aim to build products with greater capabilities to compete with our products. Further, there has been significant consolidation in the networking industry, with smaller companies being acquired by larger, established suppliers of network infrastructure products. We believe this trend is likely to continue which may increase the competitive pressure faced by us due to their increased size and breadth of their product portfolios.

In addition to established competitors, a number of public and private companies have announced plans for new products to address the same needs that our products address. We believe that our ability to compete depends upon our ability to demonstrate that our products are superior and cost effective in meeting the needs of our current and potential customers.

As a result, we expect to face increased competition in the future from larger companies with significantly more resources than we have and also from emerging companies that are developing new technologies. Although we believe that our technology and the purpose-built features of our products make them unique and will enable us to compete effectively with these companies, there can be no assurance that new products, enhancements or business strategies will achieve widespread market acceptance.

Material Government Regulations

Our business activities are worldwide and subject us to various federal, state, local, and foreign laws in the countries in which we operate, and our products and services are subject to laws and regulations affecting the sale of our products. To date, costs and accruals incurred to comply with these governmental regulations have not been material to our capital expenditures, results of operations, and competitive position. Although there is no assurance that existing or future governmental laws and regulations applicable to our operations, products or services will not have a material adverse effect on our capital expenditures, results of operations, and competitive position, we do not currently anticipate material expenditures for government regulations. Nonetheless, as discussed below, we believe that environmental and global trade regulations could potentially have a material impact our business.

Environment

We are committed to maintaining compliance with all environmental laws applicable to our operations, products, and services and to reducing our environmental impact across our business and supply chain. Our operations and many of our products are subject to various federal, state, local, and foreign regulations that have been adopted with respect to the environment, such as the Waste Electrical and Electronic Equipment, Directive; Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment; Registration, Evaluation, Authorization, and Restriction of Chemicals; and Substances of Concern In Products, regulations adopted by the European Union, or EU, and China.

Juniper’s greatest impact on the environment is through our products and services. Juniper has an environmental program, based on our new product introduction process that supports a circular economy model for environmental sustainability and focuses on energy efficiency, materials innovation, and recyclability. We consider opportunities to minimize resource impacts and improve efficiencies over a product’s life cycle, from the materials we use and a product’s energy footprint, to packaging and end-of-life, or EOL, activities such as reuse, refurbishment, and recycling. For example, the Juniper Certified Pre-Owned program offers a broad range of refurbished high-performance network solutions from Juniper’s current line and end-of-production hardware portfolios with available Juniper-backed warranty and support services.

We are also voluntarily participating in CDP climate change and water disclosures and encourage our direct material suppliers and manufacturing partners to do the same. Additionally, we are a member of the Responsible Business Alliance, or RBA, and have adopted and promote the adoption by our suppliers the RBA Code of Conduct, as discussed above in the section entitled

Manufacturing and Operations. We continue to invest in the infrastructure and systems required to execute on, monitor and drive environmental improvements in our global operations and within our supply chain.

Global Trade

As a global company, the import and export of our products and services are subject to laws and regulations including international treaties, U.S. export controls and sanctions laws, customs regulations, and local trade rules around the world. The scope, nature, and severity of such controls varies widely across different countries and may change frequently over time. Such laws, rules and regulations may delay the introduction of some of our products or impact our competitiveness through restricting our ability to do business in certain places or with certain entities and individuals, or by requiring us to comply with domestic preference programs, laws concerning transfer and disclosure of sensitive or controlled technology or source code, unique technical standards, localization mandates, and duplicative in-country testing and inspection requirements. In particular, the U.S. and other governments have imposed restrictions on the import and export of, among other things, certain telecommunications products and components, particularly those that contain or use encryption technology. Most of our products are telecommunications products and contain or use encryption technology and, consequently, are subject to restrictions. The consequences of any failure to comply with domestic and foreign trade regulations could limit our ability to conduct business globally. We continue to support open trade policies that recognize the importance of integrated cross-border supply chains that are expected to continue to contribute to the growth of the global economy and measures that standardize compliance for manufacturers to ensure that products comply with safety and security requirements.

For additional information concerning regulatory compliance and a discussion of the risks associated with governmental regulations that may materially impact us, please see the section entitled "Risk Factors" in Item 1A of Part I of this Report.

Intellectual Property

Our success and ability to compete are substantially dependent upon our internally developed technology and expertise, as well as our ability to obtain and protect necessary intellectual property rights. While we rely on patent, copyright, trade secret, and trademark law, as well as confidentiality agreements, to protect our technology, we also believe that factors such as the technological and creative skills of our personnel, new product developments, frequent product enhancements, and reliable product maintenance are essential to establishing and maintaining a technology leadership position. There can be no assurance that others will not develop technologies that are similar or superior to our technology.

Patents

As of December 31, 2020, we had over 4,300 patents worldwide and numerous patent applications are pending. Patents generally have a term of twenty years from filing. As our patent portfolio has been built over time, the remaining terms on the individual patents vary. We cannot be certain that patents will be issued on the patent applications that we have filed, that we will be able to obtain the necessary intellectual property rights, or that other parties will not contest our intellectual property rights.

Licenses

In addition, we integrate licensed third-party technology into certain of our products and, from time to time, we need to renegotiate these licenses or license additional technology from third parties to develop new products or product enhancements or to facilitate new business models. There can be no assurance that third-party licenses will be available or continue to be available to us on commercially reasonable terms or at all. Our inability to maintain or re-license any third-party licenses required in our products or our inability to obtain third-party licenses necessary to develop new products and product enhancements could require us to obtain substitute technology of lower quality or performance standards or at a greater cost, any of which could harm our business, financial condition, and results of operations.

Trademarks

JUNIPER NETWORKS, JUNIPER, the Juniper Networks logo, JUNOS, RUNNING JUNOS, CONTRAIL, and other trademarks are registered trademarks of Juniper Networks, Inc. and/or its affiliates in the United States and other countries. Other names may be trademarks of their respective owners.

Human Capital Resources

We believe our success in delivering high-performance networks in the digital transformation era relies on our culture, values, and the creativity and commitment of our people. As of December 31, 2020, we had 9,950 full-time employees, of whom approximately 46%, 41% and 13% resided in the Americas, APAC, and EMEA, respectively. We invest in our people. We strive to maintain healthy, safe, and secure working conditions - a workplace where our employees are treated with respect and dignity. Our vision is to create an inclusive, diverse and authentic community that inspires collaboration, integrity, engagement, and innovation. We are striving to create a world-class employee experience – one that offers opportunity for personal and professional growth, and enable work-life balance that aligns with the core values embodied in The Juniper Way.

The Juniper Way

More than a set of shared values, the Juniper Way reflects the company's commitment to inspire every Juniper employee to do their best work. This foundation is embodied in three values – Be Bold, Build Trust, and Deliver Excellence, along with a set of refined behaviors for each.

Inclusion and Diversity

As a company committed to innovation and representing diversity in a myriad of ways — including race, ethnicity, age, background, perspectives, tenure, work style, and sexual orientation — we believe that diversity is a competitive asset. At our core, we believe excellence depends on seeking out diverse ideas and fostering a culture where all employees are actively engaged. Also, we are committed to improving inclusivity by being engaged and accountable at the highest level of leadership.

We monitor our progress against our inclusion and diversity strategy of diversifying our talent base, creating an environment where all employees feel included and valued, and driving accountability across the organization. In 2020, we continued to make progress in our inclusion and diversity efforts, including higher female representation in the global leadership.

Employee Engagement

We use a framework called Talent Matters to encourage an open and interactive culture between employees and their manager, where individual needs are recognized and met, and company goals are supported. Our professional development approach includes reviewing and assessing our management teams as well as facilitating personal employee development and growth. For all employees, growth goals are tied to our corporate objectives and key results, to ensure that they are progressing and are supported by management teams. In early 2020, we launched a People Manager Network to create global consistency in how people managers lead teams and support employees, including specific focus on leading during the COVID-19 pandemic. With this program, managers are empowered and provided with the training and resources to scale employee career growth and provide their teams with the necessary tools to facilitate that growth. Managers are encouraged to schedule Conversation Days with their direct reports to identify opportunities for the company to better support employees and set goals for professional and personal growth. 91% of the people managers participated in a People Manager Network experience in 2020.

To ensure our employees' personal and professional growth, we continue to develop training courses focused on building personal capabilities as well as skill development. Each year, Juniper employees also receive role-specific training, in addition to trainings, which includes topics, such as human rights, environmental performance, compliance with the Juniper Worldwide Code of Business Conduct, engineering and other compliance and industry-specific subjects.

We consistently work to improve the employee experience by addressing feedback collected through the annual Juniper Voice Survey and topic-specific surveys, including employee benefits and total rewards package and Juniper's response to the COVID-19 pandemic.

Information about our Executive Officers

The following sets forth certain information regarding our executive officers as of the filing of this Report:

Name	Age	Position
Rami Rahim	50	Chief Executive Officer and Director
Anand Athreya	57	Executive Vice President, Chief Development Officer
Manoj Leelanivas	51	Executive Vice President, Chief Product Officer
Brian Martin	59	Senior Vice President, General Counsel and Secretary
Kenneth B. Miller	49	Executive Vice President, Chief Financial Officer
Thomas A. Austin	53	Vice President, Corporate Controller and Chief Accounting Officer

RAMI RAHIM joined Juniper in January 1997 and became Chief Executive Officer of Juniper, and a member of the Board of Directors, in November 2014. From March 2014 until he became Chief Executive Officer, Mr. Rahim served as Executive Vice President and General Manager of Juniper Development and Innovation. His responsibilities included driving strategy, development and business growth for routing, switching, security, silicon technology, and the Junos operating system. Previously, Mr. Rahim served Juniper in a number of roles, including Executive Vice President, Platform Systems Division, Senior Vice President and General Manager, Edge and Aggregation Business Unit, or EABU, and Vice President, Product Management for EABU. Prior to that, Mr. Rahim spent the majority of his time at Juniper in the development organization where he helped with the architecture, design and implementation of many Juniper core, edge, and carrier Ethernet products. Mr. Rahim holds a bachelor of science degree in Electrical Engineering from the University of Toronto and a master of science degree in Electrical Engineering from Stanford University.

ANAND ATHREYA joined Juniper in August 2004 and became Executive Vice President and Chief Development Officer in August 2017. In this role, he is responsible for Juniper's Engineering organization. Since joining Juniper, Mr. Athreya has held various leadership positions within Engineering, including most recently serving as Senior Vice President of Engineering from May 2014 through August 2017, and Corporate Vice President of Engineering from February 2011 through May 2014. Mr. Athreya joined Juniper from Procket Networks, a maker of routers and routing technology, where he served as Director of Software Engineering. Prior to that, he was Vice President of Engineering at Malibu Networks, a supplier of fixed wireless networking based broadband solutions, Assistant Vice President of Product Management and Strategy at Tiara Networks, a provider of broadband access systems, and held engineering roles at Novell, a software and services company. Mr. Athreya received his bachelor of science degree in Electrical Engineering from Bangalore University, a master of science degree in

Computer Science and Engineering from Osmania University, and an MBA from National University. He is also a graduate of the Advanced Management Program at Harvard Business School.

MANOJ LEELANIVAS joined Juniper in March 2018 as Executive Vice President, Chief Product Officer. In this role, Mr. Leelanivas leads all aspects of product strategy and direction for Juniper and helps to align products with our go-to-market strategies and execution, including marketing operations. From June 2013 to September 2017, Mr. Leelanivas was President and Chief Executive Officer of Cyphort, an innovator in scale-out security analytics technology, that was acquired by Juniper in September 2017. From March 1999 to May 2013, he held several key product management positions at Juniper, including Executive Vice President of Advanced Technologies Sales for data center. Mr. Leelanivas holds a bachelor of technology in Computer Engineering from the National Institute of Technology Karnataka, a master of science degree in Computer Science from the University of Kentucky, and is a graduate of the Stanford University Executive Business Program.

BRIAN MARTIN joined Juniper in October 2015 as Senior Vice President, General Counsel and Secretary. From January 2018 to October 2018, Mr. Martin also assumed the role of interim Chief Human Resources Officer ("CHRO") while the Company continued its search for a full-time CHRO. From April 2007 to September 2015, Mr. Martin served as Executive Vice President, General Counsel and Corporate Secretary of KLA-Tencor Corporation ("KLA-Tencor"), a provider of process control and yield management solutions. Prior to joining KLA-Tencor, Mr. Martin spent ten years in senior legal positions at Sun Microsystems, Inc. ("Sun"), a manufacturer of computer workstations, servers, software, and services for networks, most recently as Vice President, Corporate Law Group, responsible for legal requirements associated with Sun's corporate securities, mergers, acquisitions and alliances, corporate governance and Sarbanes-Oxley compliance, and litigation management. Prior to joining Sun, Mr. Martin was in private practice where he had extensive experience in antitrust and intellectual property litigation. From August 2020 to the present, he has served as an adjunct professor at the Southern University Law Center. Mr. Martin holds a bachelor of science degree in Economics from the University of Rochester and a J.D. from the State University of New York at Buffalo Law School.

KENNETH B. MILLER joined Juniper in June 1999 and has served as our Executive Vice President, Chief Financial Officer since February 2016. Mr. Miller served as our interim Chief Accounting Officer while the Company continued to search for a full-time Chief Accounting Officer from February 2019 to September 2019. From April 2014 to February 2016, Mr. Miller served as our Senior Vice President, Finance, where he was responsible for the finance organization across the Company, as well as our treasury, tax and global business services functions. Previously, Mr. Miller served as our Vice President, Go-To-Market Finance, Vice President, Platform Systems Division, Vice President, SLT Business Group Controller and in other positions in our Finance and Accounting organizations. Mr. Miller holds a bachelor of science degree in Accounting from Santa Clara University.

THOMAS A. AUSTIN joined Juniper in September 2019 as our Vice President, Corporate Controller and Chief Accounting Officer. From September 2016 until July 2019, Mr. Austin served as the Vice President of Corporate Finance at Dell Technologies, Inc., a multinational information technology company. From September 2008 until its acquisition by Dell Technologies in September 2016, Mr. Austin served as the Vice President of Corporate Finance at EMC Corporation, a multinational information technology company. From January 2001 through July 2008, Mr. Austin served as the Chief Financial Officer and Treasurer at Arbor Networks, Inc., a network security company. Prior to joining Arbor Networks, Mr. Austin served as a controller for several companies. He began his career in public accounting at PricewaterhouseCoopers, a registered public accounting firm. Mr. Austin holds a bachelor of science degree in Public Accountancy from Providence College and an MBA from Babson College. Mr. Austin is also an adjunct professor of Finance at Providence College School of Business.

Available Information

We file our annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K with the SEC electronically. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers, including Juniper Networks that file electronically with the SEC. The address of that website is https://www.sec.gov.

You may obtain a free copy of our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports on our website at http://www.juniper.net or by sending an e-mail message to Juniper Networks Investor Relations at investorrelations@juniper.net. Such reports and other information are available on our website as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Our Corporate Governance Standards, the charters of our Audit Committee, Compensation Committee, and Nominating and Corporate Governance Committee, as well as our Worldwide Code of Business Conduct are also available on our website. Information on our website is not, and will not be deemed, a part of this report or incorporated into any other filings the Company makes with the SEC.

Investors and others should note that we announce material financial and operational information to our investors using our Investor Relations website (http://investor.juniper.net), press releases, SEC filings and public conference calls and webcasts. We also use the Twitter accounts @JuniperNetworks and the Company's blogs as a means of disclosing information about the Company and for complying with our disclosure obligations under Regulation FD. The social media channels that we use as a means of disclosing information described above may be updated from time to time as listed on our Investor Relations website.

Item 1A. *Risk Factors*

Factors That May Affect Future Results

We operate in rapidly changing economic and technological environments that present numerous risks, many of which are driven by factors that we cannot control or predict. Some of these risks are highlighted in the following discussion, and in Management's Discussion and Analysis of Financial Condition and Results of Operations and Quantitative and Qualitative Disclosures About Market Risk. Investors in our securities should carefully consider all relevant risks disclosed by us before investing in our securities. The occurrence of any of these risks or additional risks and uncertainties not presently known to us or that we currently believe to be immaterial could materially and adversely affect our business, financial condition, operating results, and stock price.

RISKS RELATED TO OUR BUSINESS STRATEGY AND INDUSTRY

The COVID-19 pandemic has significantly affected how we and our customers are operating our businesses, and the duration and extent to which this will impact our future results of operations and overall financial performance remains uncertain. The COVID-19 pandemic has, and may continue to, negatively affect our operations, including as a result of external factors beyond our control such as restrictions on the physical movement of our employees, contract manufacturers, partners, and customers to limit the spread of COVID-19 and the availability and acceptance of a COVID-19 vaccine. Since March 2020, the majority of our global workforce has been working remotely resulting from shelter-in-place requirements and travel restrictions. We continue to follow the guidance of local and national governments, including monitoring the health of employees who have returned to our offices and limiting the gathering size of employee groups in indoor spaces. If the COVID-19 pandemic has a substantial impact on our employees, partners or customers health, attendance or productivity, our results of operations and overall financial performance may be adversely impacted.

Moreover, the conditions caused by the pandemic may affect the overall demand environment for our products and services and could adversely affect our customers' ability or willingness to purchase our products or services or to make payments on existing contracts with us, delay prospective customers' purchasing decisions, delay the provisioning of our offerings, lengthen payment terms, or affect attrition rates, all of which could adversely affect our future sales, operating results and overall financial performance. Further, the pandemic has and could continue to adversely affect our ability to provide or deliver products and on-site services to our customers. For example, during fiscal 2020, the COVID-19 pandemic caused us to experience supply constraints due to both constrained manufacturing capacity as well as shortages of component parts as our component vendors also faced manufacturing challenges. These challenges resulted in extended lead-times to our customers and increased logistics costs, which negatively impacted our ability to recognize revenue and decreased our gross margins for these periods. While our manufacturing capacity continues to improve, we expect several of our component suppliers will remain challenged in the near term. Further, the spread of COVID-19 has and is likely to continue to affect the shipment of goods globally.

The duration and extent of the impact from the COVID-19 pandemic on our business depends on future developments that cannot be accurately forecasted at this time, such as the transmission rate and geographic spread of the disease, the extent and effectiveness of containment actions, the world-wide distribution and acceptance of vaccines, and the impact of these and other factors on our employees, customers, partners, and vendors. If we are not able to respond to and manage the impact of such events effectively and if the macroeconomic conditions of the general economy or the industries in which we operate do not improve, or worsen from present levels, our business, operating results, financial condition and cash flows could continue to be adversely affected.

Our quarterly results are unpredictable and subject to substantial fluctuations; as a result, we may fail to meet the expectations of securities analysts and investors. Our revenues and operating results may vary significantly from quarter-to-quarter due to a number of factors, many of which are outside of our control. If our quarterly financial results or our predictions of future financial results fail to meet the expectations of securities analysts and investors, the trading price of our securities could be negatively affected. Our operating results for prior periods may not be effective predictors of our future performance.

Factors associated with our industry, the operation of our business, and the markets for our products and services that may cause our quarterly results to fluctuate, include but are not limited to:

- unpredictable ordering patterns and limited visibility into our customers' spending plans and associated revenue;
- changes in our customer mix, the mix of products and services sold, and the geographies in which our products and services are sold;
- changes in the demand for our products and services, including seasonal fluctuations in customer spending;
- changing market and economic conditions;

- price and product competition;
- ineffective legal protection of our intellectual property rights in certain countries;
- how well we execute on our strategy and business model;
- financial stability of our customers, including the solvency of private sector customers, which may be impacted by the COVID-19 pandemic;
- statutory authority for government customers to purchase goods and services;
- executive orders, tariffs, changes in laws or regulations and accounting rules, or interpretations thereof;
- regional economic and political conditions which may be aggravated by unanticipated global events;
- disruptions in our business operations or target markets caused by, among other things, terrorism or other intentional acts, outbreaks of disease, such as the COVID-19 pandemic, or earthquakes, floods, or other natural disasters; and other unanticipated extraordinary externalities.

We believe that quarter-to-quarter comparisons of operating results are not necessarily a good indication of what our future performance will be. In some prior periods, our operating results have been below our guidance, our long-term financial model or the expectations of securities analysts or investors. This may happen again, and the price of our common stock may decline. In addition, our failure to pay quarterly dividends to our stockholders or the failure to meet our commitments to return capital to our stockholders could have a material adverse effect on our stock price.

We expect our gross margins and operating margins to vary over time. Our product and service gross margins are expected to vary, and may be adversely affected in the future by numerous factors, including, but not limited to, customer, vertical, product and geographic mix shifts, an increase or decrease in our software sales or services we provide, increased price competition in one or more of the markets in which we compete, modifications to our pricing strategy to gain footprint in markets or with customers, currency fluctuations that impact our costs or the cost of our products and services to our customers, increases in material, labor, logistics, warranty costs, or inventory carrying costs, excess product component or obsolescence charges from our contract manufacturers, issues with manufacturing or component availability, issues relating to the distribution of our products and provision of our services, quality or efficiencies, increased costs due to changes in component pricing or charges incurred due to inaccurately forecasting product demand, warranty related issues, the impact of tariffs, or our introduction of new products and enhancements, or entry into new markets with different pricing and cost structures. Failure to sustain or improve our gross margins reduces our profitability and may have a material adverse effect on our business and stock price.

We derive a material portion of our revenues from a limited number of our customers, and our customers compete in industries that continue to experience consolidation. A material portion of our net revenues, across each customer vertical, depends on sales to a limited number of customers. If such customers change their business requirements or focus, vendor selection, project prioritization, or purchasing behavior, or are parties to consolidation transactions, they may delay, suspend, reduce or cancel their purchases of our products or services and our business, financial condition, and results of operations may be adversely affected.

If we are unable to compete effectively, our business and financial results could be harmed. The markets that we serve are rapidly evolving and highly competitive and include a number of well-established companies. We also compete with other public and private companies that are developing competing technologies to our products. In addition, actual or speculated consolidation among competitors, or the acquisition by, or of, our partners and/or resellers by competitors can increase the competitive pressures faced by us as customers may delay spending decisions or not purchase our products at all. Our partners and resellers generally sell or resell competing products on a non-exclusive basis and consolidation could delay spending or require us to increase discounts to compete, which could also adversely affect our business. Several of our competitors have substantially greater resources and can offer a wider range of products and services for the overall network equipment market than we do. Other competitors have become more integrated, including through consolidation and vertical integration, and offer a broader range of products and services, which could make their solutions more attractive to our customers. Many of our competitors also sell networking products as bundled solutions with other IT products. If we are unable to compete effectively against existing or future competitors, we could experience a loss in market share and a reduction in revenues and/or be required to reduce prices, which could reduce our gross margins and materially and adversely affect our business, financial condition, and results of operations.

Fluctuating economic conditions make it difficult to predict revenues and gross margin for a particular period and a shortfall in revenues or increase in costs of production may harm our operating results. Our revenues and gross margin depend significantly on general economic conditions and the demand for products in the markets in which we compete. Economic weakness or uncertainty, customer financial difficulties, and constrained spending on network expansion and enterprise infrastructure have in the past resulted in, and may in the future result in, decreased revenues and earnings. Such factors could make it difficult to accurately forecast revenues and operating results and could negatively affect our ability to provide accurate forecasts to our contract manufacturers, manage our contract manufacturer relationships and other expenses and to make decisions about future investments. In addition, economic instability or uncertainty, continued turmoil in the geopolitical environment in many parts of the world and other events beyond our control, such as the COVID-19 pandemic, have, and may continue to, put pressure on economic conditions, which has led and could lead, to reduced demand for our products, delays or reductions in network expansions or infrastructure projects, and/or higher costs of production. Future or continued economic weakness, failure of our customers and markets to recover from such weakness, customer financial difficulties, increases in costs of production, and reductions in spending on network maintenance and expansion could result in price concessions in certain markets or have a material adverse effect on demand for our products and consequently on our business, financial condition, and results of operations.

Our success depends upon our ability to effectively plan and manage our resources and restructure our business. Our ability to successfully offer our products and services in a rapidly evolving market requires an effective planning, forecasting, and management process to enable us to effectively scale and adjust our business and business models in response to fluctuating market opportunities and conditions. From time to time, we have increased investment in our business by increasing headcount, acquiring companies, and increasing our investment in research and development, sales and marketing, and other parts of our business. Conversely, in the last few years and in 2020, we have initiated restructuring plans to realign our workforce as a result of organizational and leadership changes which resulted in restructuring charges. Our ability to achieve the anticipated cost savings and other benefits from these initiatives is subject to many estimates and assumptions, which are subject to uncertainties. If our estimates and assumptions are incorrect or if we are unsuccessful at implementing changes, or if other unforeseen events occur, our business and results of operations could be adversely affected.

Integration of acquisitions or divestitures of businesses could disrupt our business and harm our financial condition and stock price and equity issued as consideration for acquisitions may dilute the ownership of our stockholders. We have made, and may continue to make, acquisitions in order to enhance our business and invest significant resources to integrate the businesses we acquire. The success of each acquisition depends in part on our ability to realize the business opportunities and manage numerous risks, including, but not limited to: problems combining the purchased operations, technologies or products, unanticipated costs, higher operating expenses, liabilities, litigation, diversion of management's time and attention, adverse effects on existing business relationships with suppliers and customers, risks associated with entering markets in which we have no or limited prior experience, and where competitors in such markets have stronger market positions, initial dependence on unfamiliar supply chains, failure of our due diligence processes to identify significant problems, liabilities or other challenges of an acquired company or technology, and the potential loss of key employees, customers, distributors, vendors, and other business partners of the companies we acquire.

There can be no assurance that we will be able to successfully integrate any businesses, products, technologies, or personnel that we might acquire or that the transaction will advance our business strategy, and we may not realize anticipated revenues or other benefits associated with our acquisitions. In addition, we have divested, and may in the future, divest businesses, product lines, or assets. These initiatives may also require significant separation activities that could result in the diversion of management’s time and attention, loss of employees, substantial separation costs, and accounting charges for asset impairments.

In connection with certain acquisitions, we may agree to issue common stock, or assume equity awards, that dilute the ownership of our current stockholders, use a substantial portion of our cash resources, assume liabilities (both known and unknown), record goodwill and amortizable intangible assets as well as restructuring and other related expenses. We may incur additional acquisition-related debt, which could increase our leverage and potentially negatively affect our credit ratings resulting in more restrictive borrowing terms or increased borrowing costs thereby limiting our ability to borrow. Any of the foregoing, and other factors, could harm our ability to achieve anticipated levels of profitability or other financial benefits from our acquired or divested businesses, product lines or assets or to realize other anticipated benefits of divestitures or acquisitions.

Long sales and implementation cycles for our products and customer urgency related to ship dates to fill large orders may cause our revenues and operating results to vary significantly from quarter-to-quarter. We experience lengthy sales cycles because our customers' decisions to purchase certain of our products, particularly new products, involve a significant commitment of their resources and a lengthy evaluation and product qualification process. Customers design and implement large network deployments following lengthy procurement processes, which may impact expected future orders. Following a purchase, customers may also deploy our products slowly and deliberately. Customers with large networks often expand their networks in large increments on a periodic basis and place large orders on an irregular basis. These sales and implementation cycles, as well as our expectation that customers will place large orders with urgent ship dates, may cause our revenues and operating results to vary significantly from quarter-to-quarter.

Our ability to recognize revenue in a particular period is contingent on the timing of product orders and deliveries and/or our sales of certain software, subscriptions, and professional support and maintenance services. In some of our businesses, our quarterly sales have periodically reflected a pattern in which a disproportionate percentage of each quarter's total sales occurs towards the end of the quarter. Further, we build certain products only when orders are received. Since the volume of orders received late in any given fiscal quarter remains unpredictable, if orders for custom products are received late in any quarter, we may not be able to recognize revenue for these orders in the same period or meet our expected quarterly revenues.

Similarly, if we were to take actions to encourage customers to place orders or accept deliveries earlier than anticipated, our ability to meet our expected revenues in future quarters could be adversely affected. We also determine our operating expenses based on our anticipated revenues and technology roadmap and a high percentage of our expenses are fixed in the short and medium term. Any failure or delay in generating or recognizing revenue could cause significant variations in our operating results and operating margin from quarter-to-quarter.

In addition, services revenue accounts for a significant portion of our revenue, comprising 36%, 35%, and 33% of total revenue in fiscal years 2020, 2019, and 2018, respectively. We expect our sales of new or renewal professional services, support, and maintenance contracts to fluctuate due to end-customers' level of satisfaction with our products and services, the prices of our products and services or those offered by our competitors, and reductions in our end-customers' spending levels. We recognize professional services when delivered, and we recognize support and maintenance, and SaaS revenue periodically over the term of the relevant service period.

Further, we recognize certain software revenues periodically over the term of the relevant use or subscription periods and as a result, the related software and support and maintenance revenue we report each fiscal quarter is derived from the recognition of deferred revenue from contracts entered into during previous fiscal quarters. Any fluctuation in such new or renewed contracts in any one fiscal quarter may not be fully or immediately reflected in revenue and could negatively affect our revenue in future fiscal quarters.

RISKS RELATED TO OUR TECHNOLOGY AND BUSINESS OPERATIONS

If the demand for network and IP systems does not continue to grow, our business, financial condition, and results of operations could be adversely affected. A substantial portion of our business and revenues depends on the growth of secure IP infrastructure as well as customers that depend on the continued growth of IP services to deploy our products in their networks and IP infrastructures. As a result of changes in the economy, capital spending, or the building of network capacity in excess of demand (all of which, have in the past, particularly affected telecommunications service providers), spending on IP infrastructure can vary, which could have a material adverse effect on our business, financial condition, and results of operations. In addition, a number of our existing customers are evaluating the build-out of their next generation networks. During the decision-making period when our customers are determining the design of those networks and the selection of the software and equipment they will use in those networks, such customers may greatly reduce or suspend their spending on secure IP infrastructure. Any reduction or suspension of spending on IP infrastructure is difficult to predict, and may be due to events beyond our control, such as the COVID-19 pandemic. This, in turn, can make it more difficult to accurately predict revenues from customers, can cause fluctuations in the level of spending by customers and, even where our products are ultimately selected, can have a material adverse effect on our business, financial condition, and results of operations.

If we do not successfully anticipate technological shifts, market needs and opportunities, we may not be able to compete effectively and our ability to generate revenues will suffer. If we are unable to anticipate future technological shifts, market needs, requirements or opportunities, or fail to develop and introduce new products, product enhancements or business strategies to meet those requirements or opportunities in a timely manner or at all, it could cause us to lose customers, substantially decrease or delay market acceptance and sales of our present and future products and services, and significantly harm our business, financial condition, and results of operations. In addition, if we invest in developing products for a market that does not develop, it could significantly harm our business, financial condition, and results of operations. Even if we are able to anticipate, develop, and commercially introduce new products, enhancements or business strategies, there can be no assurance that any new products, enhancements or business strategies will achieve widespread market acceptance.

Further, our strategy is to expand our software business. The success of our strategy is subject to a number of risks and uncertainties, including:

- the additional development efforts and costs required to create new software products and to make our disaggregated products compatible with multiple technologies;
- the possibility that our new software products or disaggregated products may not achieve widespread customer adoption;
- the possibility that our strategy could erode our revenue and gross margins;
- the impact on our financial results of longer periods of revenue recognition for certain types of software products and changes in tax treatment associated with software sales;

- the additional costs associated with regulatory compliance and changes we need to make to our distribution chain in connection with increased software sales;
- the ability of our disaggregated hardware and software products to operate independently and/or to integrate with current and future third-party products; and
- issues with third-party technologies used with our disaggregated products, which may be attributed to us.

If any of our new products or business strategies do not gain market acceptance or meet our expectations for growth, our ability to meet future financial targets may be adversely affected and our competitive position and our business and financial results could be harmed.

If our products do not interoperate with our customers' networks, installations will be delayed or cancelled and could harm our business. Our products are designed to interface with our customers' existing networks, each of which have different specifications and utilize multiple protocol standards and products from other vendors. Many of our customers' networks contain multiple generations of products that have been added over time as these networks have grown and evolved. Our products must interoperate with many or all of the products within these networks as well as future products to meet our customers' requirements. If we find errors in the existing software or defects in the hardware used in our customers' networks, we may need to modify our software or hardware to fix or overcome these errors so that our products will interoperate and scale with the existing software and hardware, which could be costly and could negatively affect our business, financial condition, and results of operations. In addition, if our products do not interoperate with those of our customers' networks, demand for our products could be adversely affected or orders for our products could be cancelled. This could hurt our operating results, damage our reputation, and seriously harm our business and prospects.

Our products incorporate and rely upon licensed third-party technology. We integrate licensed third-party technology into certain of our products. From time to time, we may be required to renegotiate our current third-party licenses or license additional technology from third parties to develop new products or product enhancements or to facilitate new business models. Third-party licenses may not be available or continue to be available to us on commercially reasonable terms and some of our agreements with our licensors may be terminated for convenience by them. In addition, we cannot be certain that our licensors are not infringing on the intellectual property rights of third parties or that our licensors have sufficient rights to the licensed intellectual property in all jurisdictions in which we may sell our products. Third-party technology we incorporate into our products that is deemed to infringe on the intellectual property of others may result, and in some cases has resulted, in limitations on our ability to source technology from those third parties, restrictions on our ability to sell products that incorporate the infringing technology, increased exposure to liability that we will be held responsible for incorporating the infringing technology in our products, and increased costs involved in removing that technology from our products or developing substitute technology. Our inability to comply with, maintain or re-license any third-party licenses required in our products or our inability to obtain third-party licenses necessary to develop new products and product enhancements, could require us to develop substitute technology or obtain substitute technology of lower quality or performance standards or at a greater cost, any of which could delay or prevent product shipment and harm our business, financial condition, and results of operations.

We may face difficulties enforcing our proprietary rights, which could adversely affect our ability to compete. We rely on a combination of patents, copyrights, trademarks, trade secret laws and contractual restrictions on disclosure of confidential and proprietary information, to protect our proprietary rights. Although we have been issued numerous patents and other patent applications are currently pending, there can be no assurance that any of our patent applications will result in issued patents with the scope of the claims we seek or that any of our patents or other proprietary rights will not be challenged, invalidated, infringed or circumvented or that our rights will, in fact, provide competitive advantages to us or protect our technology. If we cannot protect our intellectual property rights, we could incur costly product redesign efforts, discontinue certain product offerings and experience other competitive harm.

Unauthorized parties may also attempt to copy aspects of our products or obtain and use our proprietary information. We generally enter into confidentiality or license agreements with our employees, consultants, vendors, and customers, and generally limit access to and distribution of our proprietary information. However, we cannot assure you that we have entered into such agreements with all parties who may have or have had access to our confidential information or that these agreements will not be breached. We cannot guarantee that any of the measures we have taken will prevent misappropriation of our technology. We are also vulnerable to third parties who illegally distribute or sell counterfeit, stolen or unfit versions of our products, which has happened in the past and could happen in the future. Such sales could have a negative impact on our reputation and business.

In addition, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the U.S. The outcome of any actions taken in these foreign countries may be different than if such actions were determined under the laws of the U.S. If we are unable to protect our proprietary rights, we may be at a competitive disadvantage to others who need not incur the substantial expense, time, and effort required to create innovative products that have enabled our success.

We depend on contract manufacturers and original design manufacturers as well as single-source and limited source suppliers. Our operations depend on our ability to anticipate our needs for components, products and services, as well as the ability of our manufacturers, original design manufacturers, and suppliers to deliver sufficient quantities of quality components, products and services at reasonable prices and in time for us to meet critical schedules for the delivery of our own products and services. Given the wide variety of solutions that we offer, the large and diverse distribution of our manufactures, and suppliers, and the long lead times required to manufacture, assemble and deliver certain products, problems could arise in production, planning and inventory management that could seriously harm our business. Any delay in our ability to produce and deliver our products could cause our customers to purchase alternative products from our competitors. In addition, our ongoing efforts to optimize the efficiency of our supply chain could cause supply disruptions and be more expensive, time-consuming and resource-intensive than expected. Other manufacturing and supply problems that we could face are described below.

- *Manufacturing Issues*. We may experience supply shortfalls or delays in shipping products to our customers if our manufacturers experience delays, disruptions, or quality control problems in their manufacturing operations, or if we have to change or add additional manufacturers or contract manufacturing locations. Although we have contracts with our manufacturers that include terms to protect us in the event of an early termination, we may not have adequate time to transition all of our manufacturing needs to an alternative manufacturer under comparable commercial terms in the event of an early termination. We have experienced in the past and may experience in the future an increase in the expected time required to manufacture our products or ship products, including delays due to the manufacturing restrictions, travel restrictions and shelter-in-place orders to control the spread of COVID-19. Moreover, a significant portion of our manufacturing is performed in China, Malaysia and other foreign countries and is therefore subject to risks associated with doing business outside of the U.S., including import tariffs, export restrictions, disruptions to our supply chain, pandemics, regional climate-related events, or regional conflicts.

- *Single-Source Suppliers*. We rely on single or limited sources for many of our components due to technology, availability, price, quality, scale or customization needs. In addition, there has been consolidation among certain suppliers of our components. Consolidation among suppliers can result in the reduction of the number of independent suppliers of components available to us, which could negatively impact our ability to access certain component parts or the prices we have to pay for such parts and may impact our gross margins. Additionally, if certain components that we receive from our suppliers have defects or other quality issues, we may have to replace or repair such components, and we could be subject to claims based on warranty, product liability, epidemic or delivery failures that could lead to significant expenses.

- *Supply-chain Disruption.* Any disruptions to our supply chain or significant increase in component costs could decrease our sales, earnings and liquidity or otherwise adversely affect our business and result in increased costs. Such a disruption could occur as a result of any number of events, including, but not limited to: an extended closure of or any slowdown at our supplier's plants or shipping delays due to efforts to limit the spread of COVID-19, increases in prices, the imposition of regulations, quotas or embargoes on components, labor stoppages, transportation delays or failures affecting the supply chain and shipment of materials and finished goods, third-party interference in the integrity of the products sourced through the supply chain, the unavailability of raw materials, severe weather conditions, adverse effects of climate change, natural disasters, geopolitical developments, war or terrorism and disruptions in utilities and other services. In addition, the development, licensing, or acquisition of new products in the future may increase the complexity of supply chain management. Failure to effectively manage the supply of components and products would adversely affect our business.

- *Component Supply Forecast*. We provide demand forecasts for our products to our manufacturers, who order components and plan capacity based on these forecasts. If we overestimate our requirements, our manufacturers may assess charges, or we may have liabilities for excess inventory, each of which could negatively affect our gross margins. If we underestimate our requirements, our contract manufacturers may have inadequate time, materials, and/or components required to produce our products. This could increase costs or delay or interrupt manufacturing of our products, resulting in delays in shipments and deferral or loss of revenues and could negatively impact customer satisfaction. Any future spike in growth in our business, in the use of certain components we share in common with other companies, in IT spending, or in the economy in general, is likely to create greater short-term pressure on us and our suppliers to accurately forecast overall component demand and to establish optimal component inventories. If shortages or delays persist, we may not be able to secure enough components at reasonable prices or of acceptable quality to build and deliver products in a timely manner, and our revenues, gross margins and customer relationships could suffer.

- *Alternative Sources of Supply*. The development of alternate sources for components is time-consuming, difficult, and costly. In addition, the lead times associated with certain components are lengthy. For example, we have experienced extended lead times of up to 50 weeks on some semiconductor products, and we expect these extended lead times to continue for the foreseeable future, which may impact our production and delivery schedules. Also, long-term supply and maintenance obligations to customers increase the duration for which specific components are required, which may further increase the risk of component shortages or the cost of carrying inventory. In the event of a component shortage, supply interruption or significant price increase from these suppliers, we may not be able to develop alternate or second sources in a timely manner. If we are unable to buy these components in quantities sufficient to meet our requirements on a timely basis, we will not be able to deliver products and services to our customers, which would seriously affect present and future sales, and would, in turn, adversely affect our business, financial condition, and results of operations.

- *COVID*-19 *Impact.* Delays in production or in product deliveries due to the COVID-19 pandemic have adversely affected and may continue to adversely affect our business, financial condition, and results of operations. For example, during fiscal 2020, the COVID-19 pandemic caused us to experience supply constraints due to both constrained manufacturing capacity, particularly in China and Malaysia, as well as component parts shortages as our component vendors were also facing manufacturing challenges, and increased logistics costs due to air travel and transport restrictions that limited the availability of flights on which we ship our products. These challenges resulted in extended lead-times to our customers and had a negative impact on our ability to recognize associated revenue in each quarter. We continue to work with government authorities and implement safety measures to ensure that we are able to continue manufacturing and distributing our products during the COVID-19 pandemic. However, uncertainty resulting from the pandemic as well as the world-wide distribution of the vaccines for COVID-19 could result in an unforeseen disruption to our supply chain (for example, a closure of a key manufacturing or distribution facility or the inability of a key supplier or transportation supplier to source and transport materials) that could impact our operations.

System security risks, data protection breaches, and cyberattacks could compromise our and our customers' proprietary information, disrupt our internal operations and harm public perception of our products. In the ordinary course of business, we store sensitive data, including intellectual property, personal data, our proprietary business information and that of our employees, contractors, customers, suppliers, vendors, and other business partners on our networks. In addition, we store sensitive data through cloud-based services that may be hosted by third parties and in data center infrastructure maintained by third parties. Secure maintenance of this information is critical to our operations and business strategy. On an ongoing and regular basis, we have been, and expect to be, subject to cyberattacks and attempted intrusions on our networks and systems by a wide range of actors, including, but not limited to, nation states, criminal enterprises, terrorist organizations, and other organizations or individuals, as well as errors, wrongful conduct or malfeasance by employees and third-party service providers (collectively, "malicious parties"). The continued occurrence of high-profile data breaches provides evidence of an environment increasingly hostile to information security.

Despite our security measures, and those of our third-party vendors, our information technology and infrastructure have experienced breaches and may be subject to or vulnerable to breaches or attacks in the future. If any breach or attack compromises our networks or those of our vendors, creates system disruptions or slowdowns or exploits security vulnerabilities of our products, the information stored on our networks or the networks of our customers, suppliers or business partners could be accessed and modified, publicly disclosed, lost, destroyed or stolen, and we may be subject to claims for contractual, tort or equitable liability and suffer reputational and financial harm. In addition, malicious parties may compromise our manufacturing supply chain to embed malicious hardware, components and software that are designed to defeat or circumvent encryption and other cybersecurity measures to interfere with the operation of our networks, expose us or our products to cyberattacks, or gain unauthorized access to our or our customers' systems and information. If such actions are successful, they could diminish customer trust in our products, harm our business reputation, and adversely affect our business and financial condition. Because techniques used by malicious parties to access or sabotage networks change frequently and generally are not recognized until after they are used, we may be unable to anticipate or immediately detect these techniques or the vulnerabilities they have caused. Further, when vulnerabilities are discovered, we evaluate the risk, apply patches or take other remediation actions and notify customers, business partners, and suppliers as appropriate.

All of this requires significant resources and attention from management and our employees, and the economic costs to us to eliminate or alleviate these issues could be significant and may be difficult to anticipate or measure. The market perception of the effectiveness of our products and our overall reputation could also be harmed as a result of any actual or perceived breach of security that occurs in our network or in the network of a customer of our products, regardless of whether the breach is attributable to our products, the systems of other vendors and/or to actions of malicious parties. This could impede our sales, manufacturing, distribution or other critical functions, which could have an adverse impact on our financial results. These risks to our systems may be increased during the COVID-19 pandemic as the health of our internal security team members who monitor and address cyber threats and attacks against us and our employees around the world is also at risk.

Additionally, we could be subject to measures that regulate the security of the types of products we sell, such as the California Internet of Things (IoT) security law (SB-327), which became enforceable in 2020. Such regulations may result in increased costs and delays in product releases and changes in features to achieve compliance which may impact customer demand for our products, and result in regulatory investigations, potential fines, and litigation in connection with a compliance concern, security breach or related issue, and potential liability to third parties arising from such breaches. Further, in response to actual or anticipated cybersecurity regulations or contractual security requirements negotiated with our customers, we may need to make changes to existing policies, processes and supplier relationships that could impact product offerings, release schedules and service response times, which could adversely affect the demand for and sales of our products and services. We maintain product liability insurance, but there is no guarantee that such insurance will be available or adequate to protect against all such claims. If our business liability insurance coverage is inadequate, or future coverage is unavailable on acceptable terms or at all, our financial condition and results of operations could be harmed.

Disruption in our distribution channels could seriously harm our future revenue and financial condition and increase our costs and expenses. The majority of our revenues are derived through value-added resellers and distributors, most of which also sell our competitors' products, and some of which sell their own competing products. The loss of or reduction in sales to our resellers or distributors could materially reduce our revenues. Our competitors may in some cases be effective in leveraging their market share positions or in providing incentives to current or potential resellers and distributors to favor their products or to prevent or reduce sales of our products. If we are unable to develop and maintain relationships with our partners, develop new relationships with value-added resellers and distributors in new markets, expand the number of distributors and resellers in existing markets, manage, train or motivate existing value-added resellers and distributors effectively, or if these partners are not successful in their sales efforts, sales of our products may decrease, and our business, financial condition, and results of operations would suffer. We recognize a portion of our revenues at the time we sell products to our distributors. If these sales are made based on inaccurate or untimely information, the amount or timing of our revenues could be adversely impacted. Further, our distributors may increase orders during periods of product shortages, cancel orders if their inventory is too high, or delay orders in anticipation of new products. They also may adjust their orders in response to the supply of our products and the products of our competitors that are available to them, and in response to seasonal fluctuations in end-user demand.

To develop and expand our distribution channel, we continue to offer attractive channel programs to potential partners and have previously entered into OEM agreements with partners to rebrand and resell our products as part of their product portfolios. These relationships require processes and procedures that may be costly or challenging to implement, maintain, and manage. Our failure to successfully manage and develop our distribution channel could adversely affect our ability to generate revenues from the sale of our products. We also depend on our global channel partners to comply with applicable legal and regulatory requirements. Any failure by our partners to comply with these requirements, could have a material adverse effect on our business, operating results, and financial condition.

We rely on the performance of our business systems and third-party systems and processes. Some of our business processes depend upon our IT systems, the systems and processes of and IT services provided by third parties, and the interfaces between the two. For example, IBM provides us with a broad range of information technology services, such as applications, including support, development and maintenance; infrastructure management and support, including for server storage and network devices, and end user support including service desk. These cloud providers, third party providers, and off-site facilities are vulnerable to damage, interruption, including performance problems from earthquakes, hurricanes, floods, fires, power loss, telecommunications failures, equipment failure, adverse events caused by operator error, cybersecurity attacks, pandemics, and similar events. In addition, because we lease off-site data center facilities, we cannot be assured that we will be able to expand our data center infrastructure to meet user demand in a timely manner, or on favorable economic terms. If we have issues receiving and processing data, this may delay our ability to provide products and services to our customers and business partners and damage our business. We also rely upon the performance of the systems and processes of our contract manufacturers to build and ship our products. If those systems and processes experience interruption or delay, our ability to build and ship our products in a timely manner may be harmed. Since IT is critical to our operations, in addition to the risks outlined above, problems with any of the third parties we rely on for our IT systems and services could result in liabilities to our customers and business partners, lower revenue and unexecuted efficiencies, and impact our results of operations and our stock price. We could also face significant additional costs or business disruption if our arrangements with these third parties are terminated or impaired and we cannot find alternative services or support on commercially reasonable terms or on a timely basis or if we are unable to hire new employees in order to provide these services in-house.

Our ability to develop, market, and sell products could be harmed if we are unable to retain or hire key personnel or if our existing personnel were harmed by COVID-19. Our future success and ability to maintain a technology leadership position depends upon our ability to recruit and retain key management, engineering, technical, sales and marketing, and support personnel as well as to maintain the health of our personnel during a pandemic, including the COVID-19 pandemic. The supply of highly qualified individuals with technological and creative skills, in particular engineers, in specialized areas with the expertise to develop new products and enhancements for our current products, and provide reliable product maintenance, as well as the number of salespeople with industry expertise, is limited. Competition for people with the specialized technical skills we require is significant. None of our officers or key employees is bound by an employment agreement for any specific term. If we fail to attract new personnel or retain and motivate our current personnel, the development and introduction of new products could be delayed, our ability to market, sell, or support our products could be impaired, and our business, results of operations and future growth prospects could suffer. There can be no assurance that others will not develop technologies that are similar or superior to our technology.

A number of our team members are foreign nationals who rely on visas and entry permits in order to legally work in the U.S. and other countries. In recent years, the U.S. has increased the level of scrutiny in granting H-1B, L-1 and other business visas. Compliance with new and unexpected U.S. immigration and labor laws could also require us to incur additional unexpected labor costs and expenses or could restrain our ability to retain and attract skilled professionals. Additionally, pandemics, such as the COVID-19 pandemic, may interfere with our ability to hire or retain personnel. Any of these restrictions could have a material adverse effect on our business, results of operations and financial conditions.

LEGAL, REGULATORY, AND COMPLIANCE RISKS

We are a party to lawsuits, investigations, and other disputes. We have been named a party to litigation involving employment matters, commercial transactions, patent infringement, copyrights, trademarks, and other rights to technologies and related standards that are relevant to our products, as well as governmental claims, and securities laws, and we may be named in additional litigation. For example, certain U.S. governmental agencies previously conducted investigations into possible violations by us of the U.S. Foreign Corrupt Practices Act, or the FCPA, which ultimately resulted in the Company entering into a settlement with the SEC that involved making a payment of $11.8 million in August 2019. The asserted claims and/or initiated litigation may include claims against us or our manufacturers, suppliers, partners, or customers, alleging that our products or services infringe proprietary rights. The expense of initiating and defending, and in some cases settling, such litigation and investigations may be costly, and may cause us to suffer reputational harm, divert management’s attention from day-to-day operations of our business, and may require us to implement certain remedial measures that could disrupt our business and operations. In addition, if we fail to comply with the terms of any settlement agreement, we could face more substantial penalties. An unfavorable resolution of one or more of these matters could have a material adverse effect on our business, results of operations, financial condition or cash flows.

Further, increased patent litigation brought by non-practicing entities may result, and in some cases has resulted, in our customers requesting or requiring us to absorb a portion of the costs of such litigation or providing broader indemnification for litigation, each of which could increase our expenses and negatively affect our business, financial condition, and results of operations. Regardless of the merit of these claims, they may require us to develop non-infringing technologies, enter into license agreements, or cease engaging in certain activities or offering certain products or services. Furthermore, even arguably unmeritorious claims may be settled at significant costs to us because of the potential for high awards of damages or injunctive relief.

If any infringement or other intellectual property claim made against us or anyone we are required to indemnify is successful and we are required to pay significant monetary awards or damages to settle litigation, enter into royalty or licensing arrangements, or satisfy indemnification obligations that we have with some of our customers, or we fail to develop non-infringing technology and we incorporate infringing technology in our products, our business, financial condition, and results of operations could be materially and adversely affected.

In addition, increased patent litigation brought against customers in recent years, may result, and in some cases has resulted, in customers requesting or requiring vendors to absorb a portion of the costs of such litigation or providing broader indemnification for litigation, each of which could increase our expenses and negatively affect our business, financial condition, and results of operations.

Non-standard contract terms with telecommunications, cable and cloud service provider companies and other large customers, could have an adverse effect on our business or impact the amount of revenues to be recognized. Telecommunications, cable and cloud service provider companies, and other large companies, generally have greater purchasing power than smaller entities and often request and receive more favorable terms from suppliers. We may be required to agree to such terms and conditions, which may include terms that affect the timing of or our ability to recognize revenue, increase our costs, and have an adverse effect on our business, financial condition, and results of operations. Consolidation among such large customers can further increase their buying power and ability to require onerous terms from us.

In addition, other vendors may have promised but failed to deliver certain functionality to these types of customers and/or had products that caused problems or outages in their networks. As a result, these customers may request additional features from us and require substantial penalties for failure to deliver such features or for any network outages that may or may not have been caused by our products. If we are required to agree to these requests or incur penalties, the amount of revenue recognized from such sales may be negatively impacted and as a result, may negatively affect our business, financial condition and results of operations.

Regulation of our industry or those of our customers could harm our operating results and future prospects. We are subject to laws and regulations affecting the sale of our products in a number of areas. For example, some governments have regulations prohibiting government entities from purchasing security products that do not meet country-specific safety, conformance or security certification criteria or in-country test requirements. Other regulations that may negatively impact our business include local content or local manufacturing requirements most commonly applicable for government, state-owned enterprise or regulated industry procurements. These types of regulations are in effect or under consideration in several jurisdictions where we do business.

The SEC requires us, as a public company who uses certain raw materials that are considered to be “conflict minerals” in our products, to report publicly on the extent to which "conflict minerals" are in our supply chain. As a provider of hardware end-products, we are several steps removed from the mining, smelting or refining of any conflict minerals. Accordingly, our ability to determine with certainty the origin and chain of custody of these raw materials is limited. Our relationships with customers and suppliers could suffer if we are unable to describe our products as “conflict-free.” We may also face increased costs in complying with conflict minerals disclosure requirements.

Environmental laws and regulations relevant to electronic equipment manufacturing or operations, including laws and regulations governing the hazardous material content of our products and the collection of and recycling of electrical and electronic equipment, may adversely impact our business and financial condition. In particular, we face increasing complexity in our product design and procurement operations as we adjust to new and future requirements relating to the chemical and material composition of our products, their safe use, the energy consumption associated with those products, climate change laws, and regulations and product take-back legislation, which could require us to cease selling non-compliant products and to reengineer our products to use compliant components which could result in additional costs to us, disrupt our operations, and result in an adverse impact on our operating results. If we were to violate or become liable under environmental laws or if our products become non-compliant with environmental laws, our customers may refuse to purchase our products and we could incur substantial costs or face other sanctions, which may include restrictions on our products entering certain jurisdictions. The amount and timing of costs to comply with environmental laws are difficult to predict.

In addition, as a contractor and subcontractor to the U.S. government, we are subject to federal regulations pertaining to our IT systems that requires compliance with certain security and privacy controls. Failure to comply with these requirements could result in a loss of federal government business, subject us to claims or other remedies for non-compliance, or negatively impact our business, financial condition, and results of operations.

Moreover, our customers in the telecommunications industry may be subject to regulations and our business and financial condition could be adversely affected by changes in such regulations affecting our customers. Further, we could be affected by new laws or regulations on access to or commerce on IP networks in jurisdictions where we market our solutions. Regulations governing the range of services and business models that can be offered by service providers or cloud provider companies could adversely affect those customers' needs for products. Also, many jurisdictions are evaluating or implementing regulations relating to cybersecurity, supply chain integrity, privacy and data protection, any of which can affect the market and requirements for networking and security equipment.

The adoption and implementation of additional regulations could reduce demand for our products, increase the cost of building and selling our products, result in product inventory write-offs, impact our ability to ship products into affected areas and recognize revenue in a timely manner, require us to spend significant time and expense to comply with, and subject us to fines and civil or criminal sanctions or claims if we were to violate or become liable under such regulations. Any of these impacts could have a material adverse effect on our business, financial condition, and results of operations.

Governmental regulations and economic sanctions affecting the import or export of products or affecting products containing encryption capabilities could negatively affect our revenues and operating results. The U.S. and other governments have imposed restrictions on the import and export of, among other things, certain telecommunications products and components, particularly those that contain or use encryption technology. Most of our products are telecommunications products and contain or use encryption technology and, consequently, are subject to restrictions. The scope, nature, and severity of such controls vary widely across different countries and may change frequently over time.

In many cases, these government restrictions require a license prior to importing or exporting a good. Such licensing requirements can introduce delays into our operations as we must apply for the license and wait for government officials to process it; it is possible that lengthy delays will lead to the cancellation of orders by customers. Moreover, if we fail to obtain necessary licenses prior to importing or exporting covered goods, we can be subject to government sanctions, including monetary penalties. Government restrictions on the import or export of technology can restrict our ability to manufacture and sell our products, which can affect negatively our revenues and operating results.

In addition, the U.S. and other governments have especially broad sanctions and embargoes prohibiting provision of goods or services to certain countries, territories, sanctioned governments, businesses, and individuals. Some of these restrictions have been imposed not just to protect national security but also to protect domestic industries and to achieve political aims. We have implemented systems to detect and prevent sales into restricted countries or to prohibited entities or individuals, but there can be no assurance that our third party, downstream resellers and distributors will abide by these restrictions or have processes in place to ensure compliance.

Certain governments also impose special local content, certification, testing, source code review, escrow and governmental recovery of private encryption keys, or other cybersecurity feature requirements to protect network equipment and software procured by or for the government. Similar requirements also may be imposed in procurements by state owned entities or even private companies forming part of “critical network infrastructure” or supporting sensitive industries.

In recent years, U.S. government officials have had concerns with the security of products and services from certain telecommunications and video providers based in China, Russia, and other regions. As a result, Congress has enacted bans on the use of certain Chinese-origin components or systems either in items sold to the U.S. government or in the internal networks of government contractors and subcontractors (even if those networks are not used for government-related projects). The U.S. government also has been considering policies that would limit the ability of businesses to acquire certain goods and services from entities with geographic connections to China, Russia, and other untrusted nation-states, including subjecting such acquisitions to government review. Such proposals, if implemented, could introduce significant uncertainty into our supply chain and overall operational planning as we would not be certain which potential acquisitions and transactions the government would permit and which it would reject.

In addition, governments sometimes impose additional taxes on certain imported products. For example, the U.S. and Chinese governments each have imposed tariffs on certain products, including information and communication technology products originating from the other country, which resulted in a large portion of our products manufactured in China becoming subject to tariffs on importation into the U.S. Depending upon their duration and implementation, as well as our ability to mitigate their impact, these tariffs could materially affect our business, including in the form of increased cost of goods sold, increased pricing for customers, and reduced sales.

Governmental regulation of our IP networking, encryption technology and imports or exports, or our failure to obtain required import or export approval for our products, or related economic sanctions could harm our international and domestic sales and adversely affect our revenues and operating results. In addition, failure to comply with such regulations could result in harm to our reputation and ability to compete in international markets, penalties, costs, seizure of assets (including source code) and restrictions on import or export privileges or adversely affect sales to government agencies or government-funded projects.

Our actual or perceived failure to adequately protect personal data could adversely affect our business, financial condition, and results of operations. A wide variety of provincial, state, national, foreign, and international laws and regulations apply to the collection, use, retention, protection, disclosure, transfer, and other processing of personal data. These privacy and data protection-related laws and regulations are evolving, extensive, and complex. Compliance with these laws and regulations can be costly and can delay or impede the development and offering of new products and services. In addition, the interpretation and application of privacy and data protection-related laws in some cases is uncertain, and our legal and regulatory obligations are subject to frequent changes, including the potential for various regulator or other governmental bodies to enact new or additional laws or regulations, to issue rulings that invalidate prior laws or regulations, or to increase penalties. Examples of recent and anticipated developments that have or could impact our business include the following:

- The General Data Protection Regulation, which became effective in May 2018, imposes stringent data protection requirements and provides significant penalties for noncompliance. We have relied on the use of model contractual clauses approved by the E.U. Commission to legitimize the transfer of personal data outside of the E.U. to certain jurisdictions, including the United States. The model contractual clauses have been subject to legal challenge. In relation to the recent “Schrems II” decision by the Court of Justice of the European Union and its impact on our data transfer mechanism, we may experience additional costs associated with increased compliance burdens and new contract negotiations with third parties that aid in processing of data on our behalf. We may face reluctance or resistance by our current and prospective customers to use our products and services. Further, we may find it necessary to make further changes to our handling of personal data of residents of the European Economic Area ("EEA"). The regulatory environment applicable to the handling of EEA residents' personal data, and our actions in addressing such environment, may cause us to assume additional liabilities or incur additional costs and could result in our business, operating results and financial condition being harmed. In addition, both we and our customers may face a risk of enforcement actions by data protection authorities in the EEA relating to personal data transfers to us and by us from the EEA. Any such enforcement actions could result in substantial costs and diversion of resources, distract management and technical personnel, and negatively affect our business, operating results, and financial condition.

- On January 31, 2020, the United Kingdom ("U.K.") withdrew from the European Union ("EU"), commonly referred to as "Brexit". There is significant uncertainty related to how data flows in and out of the U.K. will be affected if the U.K. does not receive an adequacy decision in the next six months. We may experience additional costs associated with increased compliance burdens and new contract negotiations with third parties depending on the outcome of the adequacy discussions.

- Data protection legislation is also becoming increasingly common in the U.S. at both the federal and state level. The California Consumer Privacy Act ("CCPA"), which became effective and enforceable in 2020 requires, among other things, covered companies to provide new disclosures to California consumers regarding the use of personal information, gives California residents expanded rights to access their personal information and allows such consumers new abilities to opt-out of certain sales of personal information. The effects of the CCPA and other similar laws may require us to modify our data processing practices and policies, adapt our goods and services, and incur substantial costs and expenses to comply. The CCPA also provides for civil penalties for violations and a private right of action for data breaches that may increase the frequency and cost associated with data breach litigation. Further, the new California Privacy Rights Act ("CPRA") which was passed in November 2020, significantly modifies the CCPA. These modifications may result in additional uncertainty and require us to incur additional costs and expenses in our effort to comply.

- The Federal Trade Commission and many state attorneys general are interpreting federal and state consumer protection laws to impose standards for the online collection, use, dissemination, and security of data. In addition, we may be or become subject to data localization laws mandating that data collected in a foreign country be processed and stored within that country.

- Both U.S. and non-U.S. governments are considering regulating artificial intelligence and machine learning, which may impact our products and services and cause us to incur costs and expenses in order to comply.

Our actual or perceived failure to comply with applicable laws and regulations or other obligations to which we may be subject relating to personal data, or to protect personal data from unauthorized access, use, or other processing, could result in enforcement actions and regulatory investigations against us, claims for damages by customers and other affected individuals, fines, damage to our reputation, and loss of goodwill, any of which could have a material adverse effect on our operations, financial performance, and business. Further, evolving and changing definitions of personal data and personal information, within the EU, the U.S., U.K., and elsewhere, including the classification of IP addresses, machine identification information, location data, and other information, may limit or inhibit our ability to operate or expand our business, including limiting business relationships and partnerships that may involve the sharing or uses of data, and may require significant costs, resources, and efforts in order to comply.

FINANCIAL RISKS

Our financial condition and results of operations could suffer if there is an impairment of goodwill or purchased intangible assets. As of December 31, 2020, our goodwill was $3,669.6 million, and our purchased intangible assets were $266.7 million. We are required to test intangible assets with indefinite lives, including goodwill, annually or, in certain instances, more frequently, and may be required to record impairment charges, which would reduce any earnings or increase any loss for the period in which the impairment was determined to have occurred. Our goodwill impairment analysis is sensitive to changes in key assumptions used in our analysis. If the assumptions used in our analysis are not realized, it is possible that an impairment charge may need to be recorded in the future. We cannot accurately predict the amount and timing of any impairment of goodwill or other intangible assets. However, any such impairment would have an adverse effect on our results of operations.

Changes in effective tax rates or adverse outcomes resulting from examination of our income or other tax returns could adversely affect our results. Our future effective tax rates and the amount of our taxable income could be subject to volatility or adversely affected by the following: earnings being lower than anticipated in countries where we have lower statutory rates and higher than anticipated earnings in countries where we have higher statutory rates; changes in the valuation of our deferred tax assets and liabilities; expiration of, or lapses in, the R&D tax credit laws applicable to us; transfer pricing adjustments related to certain acquisitions, including the license of acquired intangibles under our intercompany R&D cost sharing arrangement; costs related to intercompany restructuring; tax effects of share-based compensation; challenges to our methodologies for valuing developed technology or intercompany arrangements; limitations on the deductibility of net interest expense; or changes in tax laws, regulations, accounting principles, or interpretations thereof. In addition, the Tax Act made significant changes to the taxation of U.S. business entities, which included a reduction to the federal corporate income tax rate, the current taxation of certain foreign earnings, the imposition of base-erosion prevention measures which may limit the deduction of certain transfer pricing payments, and possible limitations on the deductibility of net interest expense or corporate debt obligations. Our future effective tax rate may be impacted by changes in interpretation of the regulations, as well as additional legislation and guidance regarding the Tax Act.

Furthermore, in October 2015, the Organisation for Economic Co-operation and Development, an international association of 37 countries including the U.S., published final proposals under its Base Erosion and Profit Shifting, or BEPS, Action Plan. The BEPS Action Plan includes fifteen Actions to address BEPS in a comprehensive manner and represents a significant change to the international corporate tax landscape. These proposals, as adopted by countries, may increase tax uncertainty and adversely affect our provision for income taxes.

In addition, we are generally subject to the continuous examination of our income tax returns by the Internal Revenue Service, and other tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes, but the determination of our worldwide provision for income taxes and other tax liabilities requires significant judgment by management, and there are transactions where the ultimate tax determination is uncertain. Although we believe that our estimates are reasonable, the ultimate tax outcome may differ from the amounts recorded in our consolidated financial statements and may materially affect our financial results in the period or periods for which such determination is made.

We are subject to risks arising from our international operations, which may adversely affect our business, financial condition, and results of operations. We derive a substantial portion of our revenues from our international operations, and we plan to continue expanding our business in international markets. We conduct significant sales and customer support operations directly and indirectly through our distributors and value-added resellers in countries throughout the world and depend on the operations of our contract manufacturers and suppliers that are located outside of the U.S. In addition, a portion of our R&D and our general and administrative operations are conducted outside the U.S. As a result of our international operations, we are affected by economic, business regulatory, social, and political conditions in foreign countries, including the following:

- changes in general IT spending;
- the impact of the recent COVID-19 pandemic, and any other adverse public health developments, epidemic disease or other pandemic in the countries in which we operate or where our customers are located;
- the imposition of government controls, inclusive of critical infrastructure protection;
- changes in trade controls, economic sanctions, or other international trade regulations, which may affect our ability to import or export our products to or from various countries;
- laws that restrict sales of products that are developed, manufactured, or incorporate components or assemblies from certain countries to specific customers (e.g., U.S. federal government departments and agencies) and industry segments, or for particular uses or more generally;
- varying and potentially conflicting laws and regulations, changes in laws and interpretation of laws, misappropriation of intellectual property and reduced intellectual property protection;
- political uncertainty, including demonstrations, that could have an impact on product delivery;
- fluctuations in local economies;
- fluctuations in currency exchange rates (see Quantitative and Qualitative Disclosures about Market Risk for more information);
- tax policies, treaties or laws that could have an unfavorable business impact;

- the negotiation and implementation of free trade agreements between the U.S. and other nations;
- data privacy rules and other regulations that affect cross border data flow; and
- theft or unauthorized use or publication of our intellectual property and other confidential business information.

Any or all of these factors has or could have an adverse impact on our business, financial condition, and results of operations.

In addition, the medium and long term consequences of Brexit for the economies of the U.K. and EU member states as a result of the U.K.'s withdrawal from the EU remain unknown and unpredictable. We conduct business in the EU and the U.K. As a consequence, any one or more medium and longer term effects of Brexit, including those affecting labor policies, financial planning, product manufacturing, product distribution, and those effects we cannot anticipate, could have a material adverse effect on our business, business opportunities, operating results, financial condition, and cash flows if we are unable to anticipate and adequately address these risks.

Moreover, local laws and customs in many countries differ significantly from or conflict with those in the U.S. or in other countries in which we operate. In many foreign countries, it is common for others to engage in business practices that are prohibited by our internal policies and procedures or U.S. regulations applicable to us. There can be no assurance that our employees, contractors, channel partners, and agents will not take actions in violation of our policies and procedures, which are designed to ensure compliance with U.S. and foreign laws and policies. Violations of laws or key control policies by our employees, contractors, channel partners, or agents could result in termination of our relationship, financial reporting problems, fines, and/or penalties for us, or prohibition on the importation or exportation of our products and could have a material adverse effect on our business, financial condition and results of operations.

There are risks associated with our outstanding and future indebtedness. As of December 31, 2020, we had $2,123.8 million in aggregate principal amount of senior notes, which we refer to collectively as (the "Notes"). In April 2019, we entered into a credit agreement (the “Credit Agreement”) with certain institutional lenders that provides for a five-year $500.0 million unsecured revolving credit facility (the “Revolving Credit Facility”).

We may not be able to generate sufficient cash flow to enable us to satisfy our expenses, make anticipated capital expenditures or service our indebtedness, including the Notes. Our ability to pay our expenses, satisfy our debt obligations, refinance our debt obligations and fund planned capital expenditures is dependent upon our future performance and other factors discussed in this section. However, there can be no assurance that we will be able to manage any of these risks successfully.

The indenture that governs the Notes contains various covenants that limit our ability and the ability of our subsidiaries to, among other things: incur liens, incur sale and leaseback transactions, and consolidate or merge with or into, or sell substantially all of our assets to another person. Further, the Credit Agreement contains two financial covenants along with customary affirmative and negative covenants that include the following:

- maintenance of a leverage ratio no greater than 3.0x (provided that if a material acquisition has been consummated, we are permitted to maintain a leverage ratio no greater than 3.5x for up to four quarters) and an interest coverage ratio no less than 3.0x; and
- covenants that limit or restrict the ability of the Company and its subsidiaries to, among other things, grant liens, merge or consolidate, dispose of all or substantially all of its assets, change their accounting or reporting policies, change their business and incur subsidiary indebtedness, in each case subject to customary exceptions for a credit facility of this size and type.

As a result of these covenants, we are limited in the manner in which we can conduct our business, and we may be unable to engage in favorable business activities or finance future operations or capital needs. Accordingly, these restrictions may limit our ability to successfully operate our business. In addition, under applicable U.S. tax laws and regulations, there are limitations on the deductibility of net business interest expenses. As a result, if our taxable income were to decline, we may not be able to fully deduct our net interest expense, which could have a material impact on our business.

Further, we receive debt ratings from the major credit rating agencies in the U.S. Factors that influence our credit ratings include financial strength as well as transparency with rating agencies and timeliness of financial reporting. There can be no assurance that we will be able to maintain our credit ratings and failure to do so could adversely affect our cost of funds and related margins, liquidity, competitive position and access to capital markets.

Our investments are subject to risks, which may cause losses and affect the liquidity of these investments. We have substantial investments in asset-backed securities, certificates of deposit, commercial paper, corporate debt securities, foreign government debt securities, money market funds, mutual funds, time deposits, U.S. government agency securities, and U.S. government securities. We also have investments in privately-held companies. Certain of our investments are subject to general credit, liquidity, market, sovereign debt, and interest rate risks. Our future investment income may fall short of expectations due to changes in interest rates or if the decline in fair value related to creditworthiness of our publicly traded debt investments is judged to be material. In addition, should financial market conditions worsen in the future, investments in some financial instruments may be subject to risks arising from market liquidity and credit concerns, which could have a material adverse effect on our liquidity, financial condition, and results of operations.

Changes in the method of determining the London Interbank Offered Rate, or LIBOR, or the replacement of LIBOR with an alternative reference rate, may adversely affect our current or future indebtedness. Certain of our financial obligations and instruments, including our Revolving Credit Facility, accounts receivable finance programs, and floating rate notes that we have invested in, as well as interest rate derivatives that we use as fair value and cash flow hedges, are or may be made at variable interest rates that use LIBOR (or metrics derived from or related to LIBOR) as a benchmark for establishing the interest rate. In 2017, the United Kingdom's Financial Conduct Authority announced that it intends to stop persuading or compelling banks to submit LIBOR rates after 2021. If LIBOR ceases to exist, we may need to renegotiate our debt arrangements that extend beyond 2021 that utilize LIBOR as a factor in determining the interest rate, which may negatively impact the terms of such indebtedness. Changes in market interest rates may influence our financing costs, returns on financial investments and the valuation of derivative contracts and could reduce our earnings and cash flows. In addition, the overall financial markets may be disrupted as a result of the phase out or replacement of LIBOR. Disruption in the financial markets could have an adverse effect on our financial position, results of operations, cash flows, and liquidity.

GENERAL RISK FACTORS

Failing to adequately evolve our financial and managerial control and reporting systems and processes, or any weaknesses in our internal controls may adversely affect investor perception, and our stock price. We will need to continue to improve our financial and managerial control and our reporting systems and procedures to manage and grow our business effectively in the future. We are required to assess the effectiveness of our internal control over financial reporting annually and to disclose in our filing if such controls were unable to provide assurance that a material error would be prevented or detected in a timely manner. If in the future, our internal controls over financial reporting are determined to not be effective, resulting in a material weakness, investor perceptions regarding the reliability of our financial statements may be adversely affected which could cause a decline in the market price of our stock and otherwise negatively affect our liquidity and financial condition.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum. Our amended and restated bylaws provide that, unless we consent to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or if the Court of Chancery does not have jurisdiction, the U.S. District Court for the District of Delaware) is the sole and exclusive forum for certain actions and proceedings as specified in our bylaws. The exclusive forum provisions in our bylaws may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our current or former directors, officers, or other employees, which may discourage such lawsuits against us and our current or former directors, officers, and other employees. Alternatively, if a court were to find the exclusive forum provisions contained in our bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could have a material and adverse impact on our business.

ITEM 1B. ***Unresolved Staff Comments***

Not applicable.

ITEM 2. ***Properties***

Our corporate headquarters is located on 80 acres of owned land in Sunnyvale, California and includes approximately 0.7 million square feet of owned buildings.

In addition, we lease space (including offices and other facilities) in various locations throughout the United States, Canada, South America, EMEA, and APAC regions, including offices in Australia, China, Hong Kong, India, Ireland, Israel, Japan, the Netherlands, Russia, United Arab Emirates, and the United Kingdom. As of December 31, 2020, we leased approximately 1.7 million square feet worldwide, with approximately 36% in North America. The respective operating leases expire at various times through May 2031. Each leased facility is subject to an individual lease or sublease, which could provide various options to renew/terminate the agreement or to expand/contract the leased space. We believe that our current offices and other facilities are in good condition and appropriately support our current business needs. We may improve, replace or reduce facilities as considered appropriate to meet the needs of our operations.

For additional information regarding obligations under our leases, see Note 15, *Commitments and Contingencies*, in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report. For additional information regarding properties by geographic region, see Note 12, *Segments*, in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report.

ITEM 3. *Legal Proceedings*

The information set forth under the heading "Legal Proceedings" in Note 15, *Commitments and Contingencies*, in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report, is incorporated herein by reference.

ITEM 4. *Mine Safety Disclosures*

Not applicable.

PART II

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

The principal market in which our common stock is traded is the New York Stock Exchange, or NYSE, under the symbol JNPR.

Stockholders

As of February 10, 2021, there were 599 stockholders of record of our common stock and we believe a substantially greater number of beneficial owners who hold shares through brokers, banks or other nominees.

Dividends

We paid cash dividends of $0.20 per share each quarter, totaling $264.1 million during the year ended December 31, 2020. In January 2021, we declared a quarterly cash dividend of $0.20 per share of common stock to be paid on March 22, 2021 to stockholders of record as of the close of business on March 1, 2021. The declaration and amount of any future cash dividends are at the discretion of the Board of Directors and will depend on our financial performance, economic outlook, and any other relevant considerations.

Unregistered Securities Issued

On November 30, 2020, we issued 823,310 shares of our common stock as consideration to eight individuals in connection with the 128 Technology acquisition in the fourth quarter of 2020.

The issuance of the above securities was exempt from registration under the Securities Act of 1933, as amended (the "Securities Act"), in reliance upon Section 4(a)(2) of the Securities Act as transactions by an issuer not involving any public offering and/or the private offering safe harbor provision of Rule 506 of Regulation D promulgated under the Securities Act.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

The following table provides stock repurchase activity during the three months ended December 31, 2020 (in millions, except per share amounts):

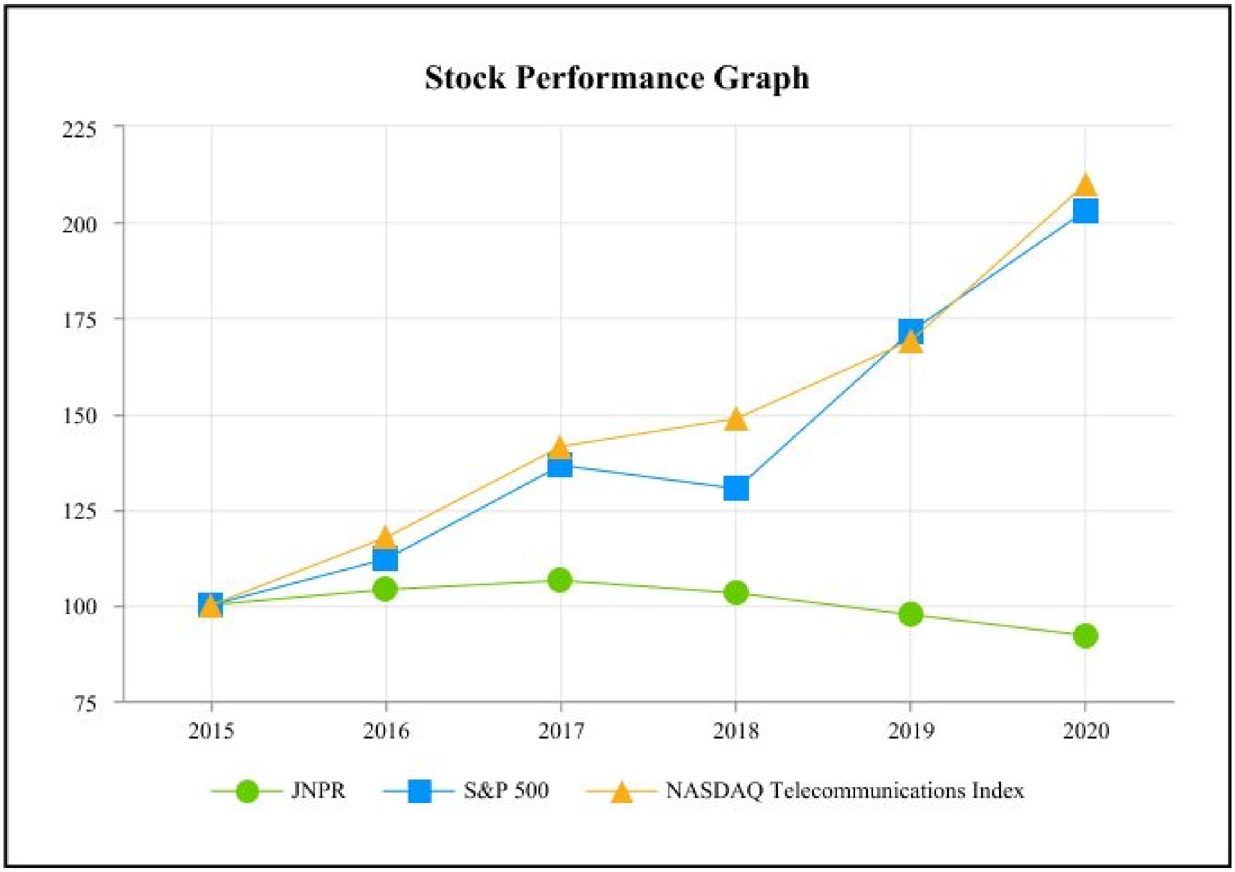
Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(*)	Maximum Dollar Value of Shares that May Still Be Purchased Under the Plans or Programs(*)
October 1 - October 31, 2020	—	$ —	—	$ 1,400.0
November 1 - November 30, 2020	—	$ —	—	$ 1,400.0
December 1 - December 31, 2020	3.4	$ 21.83	3.4	$ 1,325.0
Total	3.4		3.4	

(*) Shares were repurchased during the periods set forth in the table above under our stock repurchase program, which had been approved by the Board and authorized us to purchase an aggregate of up to $3.0 billion of our common stock. Future share repurchases under our capital return plan will be subject to a review of the circumstances in place at that time and will be made from time to time in private transactions or open market purchases as permitted by securities laws and other legal requirements. This program may be discontinued at any time. For the majority of restricted stock units granted to executive officers of the Company, the number of shares issued on the date the restricted stock units vest is net of shares withheld to meet applicable tax withholding requirements. Although these withheld shares are not issued or considered common stock repurchases under our stock repurchase program and therefore are not included in the preceding table, they are treated as common stock repurchases in our financial statements as they reduce the number of shares that would have been issued upon vesting, see Note 10, *Equity*, in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report.

Company Stock Performance

The information contained in this Company Stock Performance section shall not be deemed to be incorporated by reference into other U.S. Securities and Exchange Commission, or SEC, filings; nor deemed to be soliciting material or filed with the Commission or subject to Regulation 14A or 14C or subject to Section 18 of the Exchange Act. The comparisons in the performance graph below are based upon historical data and are not indicative of, or intended to forecast, future performance of our common stock.

The performance graph below shows the cumulative total stockholder return over a five-year period assuming the investment of $100 on December 31, 2015, in each of Juniper Networks' common stock, the Standard & Poor's 500 Stock Index (“S&P 500”), and the NASDAQ Telecommunications Index. Total stockholder return assumes reinvestment of all dividends.



	As of December 31,					
	2015	2016	2017	2018	2019	2020
JNPR	$ 100.00	$ 104.09	$ 106.46	$ 103.21	$ 97.40	$ 92.16
S&P 500	$ 100.00	$ 111.95	$ 136.38	$ 130.39	$ 171.44	$ 202.96
NASDAQ Telecommunications Index	$ 100.00	$ 117.59	$ 141.37	$ 148.82	$ 169.12	$ 210.04

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

The following discussion should be read with the Business in Item 1 of Part I and the Consolidated Financial Statements and the related notes in Item 8 of Part II of this Report.

The following discussion is based upon our Consolidated Financial Statements included elsewhere in this Report, which have been prepared in accordance with U.S. generally accepted accounting principles, or U.S. GAAP. In the course of operating our business, we routinely make decisions as to the timing of the payment of invoices, the collection of receivables, the manufacturing and shipment of products, the fulfillment of orders, the purchase of supplies, and the building of inventory and spare parts, among other matters. In making these decisions, we consider various factors including contractual obligations, customer satisfaction, competition, internal and external financial targets and expectations, and financial planning objectives. Each of these decisions has some impact on the financial results for any given period. For further information about our critical accounting policies and estimates, see "Critical Accounting Policies and Estimates" section included in this "Management's Discussion and Analysis of Financial Condition and Results of Operations."

To aid in understanding our operating results for the periods covered by this Report, we have provided an executive overview, which includes a summary of our business and market environment along with a financial results and key performance metrics overview. These sections should be read in conjunction with the more detailed discussion and analysis of our consolidated financial condition and results of operations in this Item 7, our "Risk Factors" section included in Item 1A of Part I, and our Consolidated Financial Statements and notes thereto included in Item 8 of Part II of this Report.

Executive Overview

Financial Results and Key Performance Metrics Overview

The following table provides an overview of our financial results and key financial metrics (in millions, except per share amounts, percentages, and days sales outstanding, or DSO):

	As of and for the Years Ended December 31,			
	2020	2019	$ Change	% Change
Net revenues	$ 4,445.1	$ 4,445.4	$ (0.3)	— %
Gross margin	$ 2,573.7	$ 2,616.8	$ (43.1)	(2)%
Percentage of net revenues	*57.9 %*	*58.9 %*		
Operating income	$ 353.1	$ 442.2	$ (89.1)	(20)%
Percentage of net revenues	*7.9 %*	*9.9 %*		
Net income	$ 257.8	$ 345.0	$ (87.2)	(25)%
Percentage of net revenues	*5.8 %*	*7.8 %*		
Net income per share				
Basic	$ 0.78	$ 1.01	$ (0.23)	(23)%
Diluted	$ 0.77	$ 0.99	$ (0.22)	(22)%
Operating cash flows	$ 612.0	$ 528.9	$ 83.1	16 %
Stock repurchase plan activity	$ 375.0	$ 550.0	$ (175.0)	(32)%
Cash dividends declared per common stock	$ 0.80	$ 0.76	$ 0.04	5 %
DSO(*)	71	66	5	8 %
Deferred revenue	$ 1,285.8	$ 1,223.4	$ 62.4	5 %
Product deferred revenue	$ 104.7	$ 132.6	$ (27.9)	(21)%
Service deferred revenue	$ 1,181.1	$ 1,090.8	$ 90.3	8 %

(*) DSO is for the fourth quarter ended December 31, 2020, and 2019.

- *Net Revenues:* Net revenues were flat during 2020 compared to 2019. We experienced growth in our Enterprise and Cloud verticals, which was offset by a decline in our Service Provider vertical. The growth in our Enterprise vertical was primarily driven by Switching, and the growth in our Cloud vertical was primarily driven by Routing. We believe the decline in our Service Provider vertical was partially due to the COVID-19 related supply constraints. Service net revenues increased primarily due to strong renewals of support contracts.

- *Gross Margin:* Gross margin as a percentage of net revenues decreased primarily due to increased logistics and other supply chain-related costs related to the COVID-19 pandemic, customer and product mix, and intangible amortization associated with the acquisition of Mist, partially offset by the impact associated with higher service revenues.

- *Operating Margin:* Operating income as a percentage of net revenues decreased primarily due to the drivers described in the gross margin discussion above, higher restructuring charges, and higher personnel-related costs. The decrease in operating margin was partially offset by lower travel costs due to the COVID-19 pandemic.

- *Operating Cash Flows:* Net cash provided by operations increased primarily due to higher invoicing activity and working capital differences related to customer collections, partially offset by higher payments to indirect suppliers and for employee compensation.

- *Capital Return:* We continue to return capital to our stockholders. During the fourth quarter of 2019, we entered into an accelerated share repurchase program (the "ASR"), to repurchase an aggregate of $200.0 million in shares. Under the ASR, we made an up-front payment of $200.0 million and received and retired 6.4 million shares of our common stock during the fourth quarter of 2019. During the first quarter of 2020, the ASR was completed, and we received and retired an additional 1.8 million shares for a total repurchase of 8.2 million shares of our common stock. During 2020, we repurchased a total of 16.1 million shares of our common stock in the open market at an average price of $23.36 per share for an aggregate purchase price of $375.0 million. During 2020, we paid quarterly dividends of $0.20 per share, for an aggregate amount of $264.1 million.

- *DSO:* DSO is calculated as the ratio of ending accounts receivable, net of allowances, divided by average daily net revenues for the preceding 90 days. DSO increased, primarily due to higher accounts receivable resulting from higher overall invoicing volume.

- *Deferred Revenue:* Total deferred revenue increased, primarily due to the timing of maintenance service renewals.

COVID-19 Pandemic Update

The COVID-19 pandemic and the containment measures taken by governments and businesses are expected to continue to have a substantial negative impact on businesses around the world and on global, regional, and national economies. As a result, the pandemic has, and may continue to, negatively affect our operations, including as a result of external factors beyond our control such as restrictions on the physical movement of our employees, contract manufacturers, partners, and customers to limit the spread of COVID-19 and the availability and acceptance of a COVID-19 vaccine. Since March 2020, the majority of our global workforce has been working remotely due to shelter-in-place requirements and travel restrictions. We continue to follow the guidance of local and national governments, including monitoring the health of our employees who have returned to our offices and limiting the gathering size of employee groups in indoor spaces.

We continue to support healthy customer demand for our products by working with our suppliers and distributors to address supply chain disruptions as well as travel restrictions that have impacted our operations. We have a global supply chain footprint with our primary manufacturing partners located in China, Taiwan, Malaysia, Mexico, and the United States. Our component suppliers are more geographically distributed with vendors from many countries throughout the world. During 2020, the supply constraints we experienced were due to both constrained manufacturing capacity as well as component parts shortages as our component vendors were also facing manufacturing challenges. These challenges resulted in extended lead-times to our customers, increased logistics costs, and impacted the volume of products we were able to deliver, which negatively impacted our ability to recognize revenue and decreased our gross margins.

Challenges to our supply chain due to the impact of the pandemic remain dynamic, including ongoing shortages of component parts, and increased logistics costs due to air travel and transport restrictions that limited the availability of flights on which we were able to ship products in the fourth quarter. However, we saw improvements in our manufacturing capacity during the second half of 2020. We also believe that we have a robust and fairly flexible supply chain. Our supply chain team has been working to meet our customer needs by executing on a strong risk mitigation plan, including multi-sourcing, pre-ordering components, transforming our logistics network, prioritizing critical customers, working with local government agencies to understand challenges, and partnering on solutions that limit disruptions to our operations while ensuring the safety of our employees, partners and suppliers.

The pandemic has not had a substantial net impact to our consolidated operating results or our liquidity position in 2020. We continue to generate operating cash flows to meet our short-term liquidity needs, and we expect to continue to maintain access to the capital markets enabled by our strong credit ratings. In 2020, we did not observe any material impairments of our assets or a significant change in the fair value of assets due to the pandemic.

We enter the first quarter of fiscal year 2021 with healthy backlog in our Cloud and Service Provider verticals. We intend to continue to work with government authorities and implement safety measures to ensure that we are able to continue manufacturing and distributing our products during the pandemic. We may continue to experience constrained supply and increased logistics costs and could experience curtailed customer demand, any of which could adversely impact our business, results of operations, and overall financial performance in future periods.

Critical Accounting Policies and Estimates

The preparation of the financial statements and related disclosures in conformity with U.S. GAAP requires us to make judgments, assumptions, and estimates that affect the amounts reported in the Consolidated Financial Statements and the accompanying notes. On an ongoing basis, we evaluate our estimates, including those related to sales returns, pricing credits, warranty costs, allowance for doubtful accounts, impairment of long-term assets, especially goodwill and intangible assets, contract manufacturer liabilities, assumptions used in the valuation of share-based compensation, and litigation. We base our estimates and assumptions on current facts, historical experience, and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. For further information about our significant accounting policies, see Note 1, *Description of Business, Basis of Presentation and Significant Accounting Policies*, in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report, which describes the significant accounting policies and methods used in the preparation of the Consolidated Financial Statements. The accounting policies described below are significantly affected by critical accounting estimates. Such accounting policies require significant judgments, assumptions, and estimates used in the preparation of the Consolidated Financial Statements and actual results could differ materially from the amounts reported based on these policies. To the extent there are material differences between our estimates and the actual results, our future consolidated results of operations may be affected.

- *Goodwill and Purchased Intangible Assets:* We make significant estimates, assumptions, and judgments when valuing goodwill and other intangible assets in connection with the initial purchase price allocation of an acquired entity, as well as when evaluating impairment of goodwill and other intangible assets on an ongoing basis. The purchase price of an acquired entity is allocated between intangible assets and the net tangible assets of the acquired business with the residual of the purchase price recorded as goodwill. The determination of the value of the intangible assets acquired involves certain judgments and estimates. Critical estimates include, but are not limited to, historical and projected customer retention rates, anticipated growth in revenue from the acquired customer and product base, and the expected use of the acquired assets. These factors are also considered in determining the useful life of the acquired intangible assets. These estimates are based upon a number of factors, including historical experience, market conditions, and information obtained from the management of the acquired company. These judgments can include, but are not limited to, the cash flows that an asset is expected to generate in future periods and the appropriate weighted average cost of capital.

  Goodwill represents the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recorded. We evaluate goodwill for impairment on an annual basis, as of November 1st, or more frequently if an event occurs or facts and circumstances change that would more likely than not reduce the fair value of our reporting units below their carrying amount. Goodwill is tested for impairment at the reporting unit level, which is one level below the operating segment, by first performing a qualitative assessment to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying value. This initial assessment includes, among others, consideration of macroeconomic conditions and financial performance. If the qualitative assessment indicates that it is more likely than not that an impairment exists, a quantitative analysis is performed by determining the fair value of each reporting unit using a combination of the discounted cash flow and the market approaches. The discounted cash flow approach uses expected future operating results. The market approach uses comparable company information to determine revenue and earnings multiples to value our reporting units. Failure to achieve these expected results or market multiples may cause a future impairment of goodwill of our reporting units. Goodwill is considered impaired if the carrying value of the reporting unit exceeds its fair value. A goodwill impairment loss is recognized for the amount that the carrying amount of a reporting unit, including goodwill, exceeds its fair value, limited to the total amount of goodwill allocated to that reporting unit.

  We conducted our annual impairment test of goodwill during the fourth quarters of 2020 and 2019. For the years ended December 31, 2020 and 2019, we determined that no impairment of the carrying value of goodwill for any reporting units exists. See Note 6, *Goodwill and Purchased Intangible Assets,* in Notes to the Consolidated Financial Statements in Item 8 of Part II of this Report for additional information regarding our Goodwill and Purchased Intangible Assets.

- *Inventory Valuation and Contract Manufacturer Liabilities:* Inventory consists primarily of component parts to be used in the manufacturing process and finished goods in-transit, and is stated at the lower of cost or net realizable value. A provision is recorded when inventory is determined to be in excess of anticipated demand or obsolete, to adjust inventory to its estimated realizable value. In determining the provision, we also consider estimated recovery rates based on the nature of the inventory. As of December 31, 2020 and December 31, 2019, our net inventory balances were $221.9 million and $94.2 million, respectively.

We establish a liability for non-cancelable, non-returnable purchase commitments with our contract manufacturers for quantities in excess of our demand forecasts or obsolete materials charges for components purchased by contract manufacturers based on our demand forecasts or customer orders. We also take estimated recoveries of aged inventory into consideration when determining the liability. As of December 31, 2020 and December 31, 2019, our contract manufacturer liabilities were $15.2 million and $28.6 million, respectively.

Significant judgment is used in establishing our forecasts of future demand, recovery rates based on the nature and age of inventory, and obsolete material exposures. We perform a detailed analysis and review of data used in establishing our demand forecasts. If the actual component usage and product demand are significantly lower than forecast, which may be caused by factors within and outside of our control, or if there were a higher incidence of inventory obsolescence because of rapidly changing technology and our customer requirements, we may be required to increase our inventory write-downs and contract manufacturer liabilities, which could have an adverse impact on our gross margins and profitability. We regularly evaluate our exposure for inventory write-downs and adequacy of our contract manufacturer liabilities. Inventory and supply chain management remains an area of focus as we balance the risk of material obsolescence and supply chain flexibility in order to reduce lead times.

- *Revenue Recognition:* We enter into contracts to sell our products and services, and while some of our sales agreements contain standard terms and conditions, there are agreements that contain non-standard terms and conditions and include promises to transfer multiple goods or services. As a result, significant interpretation and judgment are sometimes required to determine the appropriate accounting for these transactions, including: (1) whether performance obligations are considered distinct that should be accounted for separately versus together, how the price should be allocated among the performance obligations, and when to recognize revenue for each performance obligation; (2) developing an estimate of the stand-alone selling price, or SSP, of each distinct performance obligation; (3) combining contracts that may impact the allocation of the transaction price between product and services; and (4) estimating and accounting for variable consideration, including rights of return, rebates, price protection, expected penalties or other price concessions as a reduction of the transaction price.

  Our estimates of SSP for each performance obligation require judgment that considers multiple factors, including, but not limited to, historical discounting trends for products and services, pricing practices in different geographies and through different sales channels, gross margin objectives, internal costs, competitor pricing strategies, and industry technology lifecycles. Our estimates for rights of return, rebates, and price protection are based on historical sales returns and price protection credits, specific criteria outlined in customer contracts or rebate agreements, and other factors known at the time. Our estimates for expected penalties and other price concessions are based on historical trends and expectations regarding future incurrence.

  Changes in judgments with respect to these assumptions and estimates could impact the timing or amount of revenue recognition.

- *Income Taxes:* We are subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgment is required in evaluating our uncertain tax positions and determining our taxes. Although we believe our reserves are reasonable, no assurance can be given that the final tax outcome of these matters will not be different from that which is reflected in our historical income tax provisions and accruals. We adjust these reserves in light of changing facts and circumstances, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made.

  Significant judgment is also required in determining any valuation allowance recorded against deferred tax assets. In assessing the need for a valuation allowance, we consider all available evidence, including past operating results, estimates of future taxable income, and the feasibility of tax planning strategies. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust our valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

  Our provision for income taxes is subject to volatility and could be adversely affected by earnings being lower than anticipated in countries that have lower tax rates and higher than anticipated in countries that have higher tax rates; by changes in the valuation of our deferred tax assets and liabilities; by expiration of, or lapses in the research and development, or R&D, tax credit laws; by transfer pricing adjustments, including the effect of acquisitions on our intercompany R&D cost-sharing arrangement and legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, including possible U.S. changes to the taxation of earnings of our foreign subsidiaries, the deductibility of expenses attributable to foreign income, or the foreign tax credit rules. In addition, the OECD's recommended changes to numerous long-standing tax principles, as adopted by countries, will increase tax uncertainty and may adversely affect our provision for income taxes. Significant judgment is required to determine the recognition and measurement attributes prescribed in the accounting guidance for uncertainty in income taxes. The accounting guidance for uncertainty in income taxes applies to all income tax positions, including the potential recovery of previously paid taxes, which if settled unfavorably could adversely affect our provision for income taxes or additional paid-in capital. In addition, we are subject to the continuous examination of our income tax returns by the IRS and other tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuous examinations will not have an adverse effect on our operating results and financial condition.

- *Loss Contingencies:* We are involved in various lawsuits, claims, investigations, and proceedings, including those involving our IP, commercial, securities and employment matters, which arise in the ordinary course of business. We use significant judgment and assumptions to estimate the likelihood of loss or impairment of an asset, or the incurrence of a liability, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that an asset has been impaired or a liability has been incurred and the amount of loss can be reasonably estimated. We record a charge equal to the minimum estimated liability for litigation costs or a loss contingency only when both of the following conditions are met: (i) information available prior to issuance of our consolidated financial statements indicates that it is probable that an asset had been impaired or a liability had been incurred at the date of the financial statements and (ii) the range of loss can be reasonably estimated. We regularly evaluate current information available to us to determine whether such accruals should be adjusted and whether new accruals are required.

Recent Accounting Pronouncements

See Note 1, *Description of Business, Basis of Presentation and Significant Accounting Policies*, in Notes to the Consolidated Financial Statements in Item 8 of Part II of this Report for a full description of recent accounting pronouncements, including the expected dates of adoption and estimated effects on financial condition and results of operations, which is incorporated herein by reference.

Results of Operations

A discussion regarding our financial condition and results of operations for the fiscal year ended December 31, 2020 compared to 2019 is presented below. A discussion regarding our financial condition and results of operations for fiscal year ended December 31, 2019 compared to 2018 can be found under Item 7 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed with the SEC on February 20, 2020, which is available on the SEC's website at www.sec.gov and our Investor Relations website at http://investor.juniper.net.

Revenues

The following table presents net revenues by product and service, customer vertical, and geographic region (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Routing	$ 1,612.1	$ 1,623.2	$ (11.1)	(1) %
Switching	918.9	901.0	17.9	2 %
Security	314.0	343.5	(29.5)	(9) %
Total Product	2,845.0	2,867.7	(22.7)	(1) %
Percentage of net revenues	*64.0 %*	*64.5 %*		
Total Service	1,600.1	1,577.7	22.4	1 %
Percentage of net revenues	*36.0 %*	*35.5 %*		
Total net revenues	$ 4,445.1	$ 4,445.4	$ (0.3)	— %
Cloud	$ 1,081.2	$ 1,059.8	$ 21.4	2 %
Percentage of net revenues	*24.3 %*	*23.8 %*		
Service Provider	1,761.7	1,827.8	(66.1)	(4) %
Percentage of net revenues	*39.6 %*	*41.1 %*		
Enterprise	1,602.2	1,557.8	44.4	3 %
Percentage of net revenues	*36.1 %*	*35.1 %*		
Total net revenues	$ 4,445.1	$ 4,445.4	$ (0.3)	— %
Americas:				
United States	$ 2,233.9	$ 2,299.8	$ (65.9)	(3) %
Other	211.2	218.2	(7.0)	(3) %
Total Americas	2,445.1	2,518.0	(72.9)	(3) %
Percentage of net revenues	*55.0 %*	*56.7 %*		
EMEA	1,233.8	1,215.3	18.5	2 %
Percentage of net revenues	*27.8 %*	*27.3 %*		
APAC	766.2	712.1	54.1	8 %
Percentage of net revenues	*17.2 %*	*16.0 %*		
Total net revenues	$ 4,445.1	$ 4,445.4	$ (0.3)	— %

Product net revenues decreased due to decreases in Security and Routing, offset by Switching.

Security revenue decreased primarily driven by Enterprise from lower net revenues in our SRX product family.

Routing revenue decreased primarily driven by Service Provider and to a lesser extent, Enterprise, from lower net revenues in our MX product family. The decrease was partially offset by strength in Cloud.

Switching revenue increased primarily driven by Enterprise and Service Provider, from higher net revenues in our Mist product family.

Service net revenues increased primarily due to strong renewals of support contracts.

Gross Margins

The following table presents gross margins (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Product gross margin	$ 1,566.4	$ 1,640.7	$ (74.3)	(5) %
Percentage of product revenues	*55.1 %*	*57.2 %*		
Service gross margin	1,007.3	976.1	31.2	3 %
Percentage of service revenues	*63.0 %*	*61.9 %*		
Total gross margin	$ 2,573.7	$ 2,616.8	$ (43.1)	(2) %
Percentage of net revenues	*57.9 %*	*58.9 %*		

Our gross margins as a percentage of net revenues have been and will continue to be affected by a variety of factors, including the mix and average selling prices of our products and services, new product introductions and enhancements, manufacturing, component and logistics costs, expenses for inventory obsolescence and warranty obligations, cost of support and service personnel, customer mix as we continue to expand our footprint with certain strategic customers, the mix of distribution channels through which our products and services are sold, and import tariffs. For example, we are subject to tariffs on networking components imported from China, which are included in products that we import into and sell within the United States. In addition, our logistics and other supply chain-related costs have increased due to the COVID-19 pandemic. For more information on the potential impact of tariffs and COVID-19 on our business, see the "Risk Factors" section of Item 1A of Part I of this Report.

Product gross margin

Product gross margin as a percentage of product revenues decreased primarily due to increased logistics and other supply chain-related costs related to the COVID-19 pandemic, customer and product mix, and higher amortization of intangible assets associated with the acquisition of Mist, acquired in the second quarter of 2019. We continue to undertake specific efforts to address certain factors impacting our product gross margin. These efforts include performance and quality improvements through engineering to increase value across our products; optimizing our supply chain and service business; pricing management; and increasing software and solution sales.

Service gross margin

Service gross margin as a percentage of service net revenues increased primarily due to higher revenue and lower delivery costs.

Operating Expenses

The following table presents operating expenses (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Research and development	$ 958.4	$ 955.7	$ 2.7	— %
Percentage of net revenues	*21.6 %*	*21.5 %*		
Sales and marketing	938.8	939.3	(0.5)	— %
Percentage of net revenues	*21.1 %*	*21.1 %*		
General and administrative	255.4	244.3	11.1	5 %
Percentage of net revenues	*5.7 %*	*5.5 %*		
Restructuring charges	68.0	35.3	32.7	93 %
Percentage of net revenues	*1.5 %*	*0.8 %*		
Total operating expenses	$ 2,220.6	$ 2,174.6	$ 46.0	2 %
Percentage of net revenues	*50.0 %*	*48.9 %*		

Our operating expenses have historically been driven in large part by personnel-related costs, including salaries and wages; commissions and bonuses, which we refer to collectively as variable compensation; benefits; share-based compensation; and travel. Facility and information technology, or IT, departmental costs are allocated to each department based on usage and headcount. We had a total of 9,950 and 9,419 employees as of December 31, 2020, and 2019, respectively. Our headcount increased by 531 employees, or 6%, primarily from hiring for the research and development, and sales organizations, and to a lesser extent, from the acquisitions in 2020.

Research and development

Research and development expense, or R&D, increased $2.7 million primarily due to higher personnel-related costs of $26.3 million driven by an increase in headcount and higher professional services spending of $12.4 million. The increase was partially offset by a decrease in share-based compensation expense of $15.2 million, lower engineering costs of $14.3 million due to decreased investments in certain R&D projects, and lower travel costs of $4.0 million due to the COVID-19 pandemic.

General and administrative

General and administrative expense increased $11.1 million primarily due to higher acquisition-related costs of $10.5 million, mainly for our acquisitions during the fourth quarter of 2020.

Restructuring charges

Restructuring charges increased $32.7 million, primarily due to higher severance costs related to voluntary and involuntary workforce reductions recorded under the 2020 Restructuring Plan.

Loss on Extinguishment of Debt

The following table presents the loss on extinguishment of debt (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Loss on extinguishment of debt	$ (55.0)	$ (15.3)	$ (39.7)	259 %
Percentage of net revenues	*(1.2)%*	*(0.3)%*		

During 2020, we incurred a loss on extinguishment of debt of $55.0 million related to the early repayment of a portion of our 2024 and 2025 Senior Notes. The loss primarily consists of a premium on the tender offer and acceleration of unamortized debt discount and fees on the redeemed debt. During 2019, we incurred a loss on extinguishment of debt of $15.3 million related to the early repayment of our 2020 and 2021 Senior Notes.

Other Expense, Net

The following table presents other expense, net (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Interest income	$ 36.3	$ 79.1	$ (42.8)	(54)%
Interest expense	(77.0)	(88.7)	11.7	(13)%
Gain (loss) on investments, net	13.3	(3.8)	17.1	N/M
Other	(5.5)	0.9	(6.4)	N/M
Total other expense, net	$ (32.9)	$ (12.5)	$ (20.4)	163 %
Percentage of net revenues	*(0.7)%*	*(0.3)%*		

N/M - percentage is not meaningful.

Interest income primarily includes interest earned on our cash, cash equivalents, investments, and a promissory note issued to us in connection with the sale of Junos Pulse. Interest expense primarily includes interest, net of capitalized interest expense, from long-term debt and customer financing arrangements. Gain (loss) on investments, net, primarily includes losses from the sale of investments in public and privately-held companies, and any observable changes in fair value and impairment charges recorded on these investments. Other typically consists of foreign exchange gains and losses and other non-operational income and expense items.

Interest Income

Interest income decreased $42.8 million, primarily due to lower yields from our fixed income investment portfolio as a result of a lower interest rates and lower average portfolio balance, and to a lesser extent, lower interest income as a result of the collection of a promissory note receivable in connection with the previously completed sale of Junos Pulse.

Interest Expense

Interest expense decreased $11.6 million primarily due to lower interest rates and savings from our interest rate swap contracts.

Gain (loss) on Investments, Net

During 2020, we had gains related to certain equity investments and other isolated transactions, compared to losses from certain equity investments in 2019.

Income Tax Provision

The following table presents the income tax provision (benefit) (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Income tax provision	$ 7.4	$ 69.4	$ (62.0)	(89) %
Effective tax rate	*2.8 %*	*16.7 %*		

The effective tax rate for fiscal year 2020 was lower than 2019, primarily due to the net difference in discrete items unique to fiscal year 2020 compared to fiscal year 2019. In 2020, our effective rate included a $63.7 million benefit, including interest and penalties, related to a multi-year recognition of previously unrecognized tax benefits and a $20.1 million charge, including interest, for the cumulative impact of cost sharing for share-based compensation. In 2019, our effective rate included a $25.4 million benefit, including interest, related to the recognition of previously unrecognized tax benefits pursuant to the resolution of a tax audit and a $7.5 million benefit, including interest, for a lapse in statute of limitations.

For a complete reconciliation of our effective tax rate to the U.S. federal statutory rate of 21% and further explanation of our income tax provision, see Note 13, *Income Taxes*, in the Notes to Consolidated Financial Statements in Item 8 of Part II of this Report.

Our effective tax rate may fluctuate significantly on a quarterly basis and may be adversely affected to the extent earnings are lower than anticipated in countries that have lower statutory rates and higher than anticipated in countries that have higher statutory rates. Our effective tax rate may also fluctuate due to changes in the valuation of our deferred tax assets or liabilities, or by changes in tax laws, regulations, or accounting principles, as well as certain discrete items. See Item 1A of Part I, "Risk Factors" of this Report for a description of relevant risks which may adversely affect our results.

As a result of recommendations by the OECD on Base Erosion and Profit Shifting, certain countries in EMEA and APAC have either enacted new corporate tax legislation or are considering enacting such legislation in the near future. We expect the effect of these reform measures to potentially impact long-standing tax principles, particularly in regards to transfer pricing. Consequently, we expect global tax authorities to increasingly challenge our cost sharing and other intercompany arrangements, and the related sourcing of taxable profits in global jurisdictions.

Liquidity and Capital Resources

The following sections discuss the effects of changes in our balance sheet, our capital return strategy, including our stock repurchase program and dividends, our contractual obligations, and certain other commitments and activities on our liquidity and capital resources.

We have funded our business primarily through our operating activities and the issuance of our long-term debt. The following table presents our capital resources (in millions, except percentages):

	As of December 31,			
	2020	2019	$ Change	% Change
Working capital	$ 1,110.1	$ 1,665.9	$ (555.8)	(33)%
Cash and cash equivalents	$ 1,361.9	$ 1,215.8	$ 146.1	12 %
Short-term investments	412.1	738.0	(325.9)	(44)%
Long-term investments	656.6	589.8	66.8	11 %
Total cash, cash equivalents, and investments	2,430.6	2,543.6	(113.0)	(4)%
Short-term portion of long-term debt	421.5	—	421.5	(100)%
Long-term debt	1,705.8	1,683.9	21.9	1 %
Cash, cash equivalents, and investments, net of debt	$ 303.3	$ 859.7	$ (556.4)	(65)%

Summary of Cash Flows

The following table summarizes cash flow activity from our Consolidated Statements of Cash Flows (in millions, except percentages):

	Years Ended December 31,			
	2020	2019	$ Change	% Change
Net cash provided by operating activities	$ 612.0	$ 528.9	$ 83.1	16 %
Net cash used in investing activities	$ (288.9)	$ (528.2)	$ 239.3	(45)%
Net cash used in financing activities	$ (222.4)	$ (1,228.8)	$ 1,006.4	(82)%

Operating Activities

Our primary source of operating cash flows is cash collections from our customers. Our primary uses of cash from operating activities are for personnel-related expenditures, payments for suppliers and other general operating expenses, as well as payments related to taxes, interest, and facilities.

Net cash provided by operations increased primarily due to higher invoicing activity and working capital differences related to customer collections, partially offset by higher payments to indirect suppliers and for employee compensation.

Investing Activities

Investing cash flows consist primarily of capital expenditures; purchases, sales, maturities, and redemptions of investments; and cash used for business combinations.

Net cash used in investing activities decreased in 2020, compared to 2019. In 2020, the net payment for acquisitions was $438.1 million and the net proceeds from sales, maturities, and redemptions of investments was $250.7 million. In 2019, the net payment for the acquisition of Mist was $270.9 million and the net purchase of investments was $140.4 million.

Financing Activities

Financing cash flows consist primarily of repurchases and retirement of common stock, payment of cash dividends to stockholders, issuance and repayment of long-term debt, and proceeds from the issuance of shares of common stock through employee equity incentive plans.

Net cash used in financing activities decreased in 2020, compared to 2019, primarily due to $416.2 million net issuance of debt in 2020 compared to $454.8 million net repayment of debt in 2019, and $175 million decrease in stock repurchases as discussed below.

Capital Return

The following table summarizes our dividends paid and stock repurchase activities (in millions, except per share amounts):

	Dividends		Stock Repurchase Program			Total
Year	Per Share	Amount	Shares	Average price per share (*)	Amount	Amount
2020	$ 0.80	$ 264.1	17.9	$ 23.47	$ 375.0	$ 639.1
2019	$ 0.76	$ 260.1	20.1	$ 25.36	$ 550.0	$ 810.1
2018	$ 0.72	$ 249.3	29.3	$ 25.62	$ 750.0	$ 999.3

(*) During 2020, the $23.47 average price per share includes $375.0 million in open market purchases, and settlement of a forward contract of $40.0 million under accelerated share repurchase program (the "ASR"), which was initiated during the fourth quarter of 2019. During 2019, the $25.36 average price per share excludes the forward contract of $40.0 million under the ASR.

In January 2018, our Board of Directors, which we refer to as the Board, approved a $2.0 billion share repurchase program, which we refer to as the 2018 Stock Repurchase Program. In October 2019, the Board authorized a $1.0 billion increase to the 2018 Stock Repurchase Program for a total of $3.0 billion.

As part of the 2018 Stock Repurchase Program, in February 2018 and April 2019, we entered into two ASRs and repurchased $750.0 million and $300.0 million of our common stock, respectively. The aggregate number of shares ultimately repurchased of 29.3 million and 11.6 million shares of our common stock, respectively, was determined based on a volume weighted average repurchase price, less an agreed upon discount, of $25.62 and $25.79 per share, respectively. The shares we received were retired and accounted for as a reduction to stockholder's equity in the Consolidated Balance Sheets, and treated as a repurchase of common stock for purposes of calculating earnings per share.

As part of the 2018 Stock Repurchase Program, on October 28, 2019, we entered into an additional ASR with a financial institution to repurchase an aggregate of $200.0 million of our outstanding common stock. We made an up-front payment of $200.0 million pursuant to the ASR and received and retired an initial 6.4 million shares of our common stock for an aggregate price of $160.0 million based on the market price of $25.15 per share of our common stock on the date of the transaction. In January, 2020, the ASR was completed, and an additional 1.8 million shares were received for a total repurchase of 8.2 million shares of our common stock at a volume weighted average repurchase price, less an agreed upon discount, of $24.44 per share. The shares received by us were retired, accounted for as a reduction to stockholder's equity in the Consolidated Balance Sheets, and treated as a repurchase of common stock for purposes of calculating earnings per share.

During the fiscal year ended December 31, 2020, we repurchased 16.1 million shares of our common stock in the open market for an aggregate purchase price of $375.0 million at an average price of $23.36 per share, under the 2018 Stock Repurchase Program.

As of December 31, 2020, there was $1.3 billion of authorized funds remaining under the 2018 Stock Repurchase Program.

Future share repurchases under the 2018 Stock Repurchase Program will be subject to a review of the circumstances at that time and will be made from time to time in private transactions or open market purchases as permitted by securities laws and other legal requirements. Our 2018 Stock Repurchase Program may be discontinued at any time. See Note 10, *Equity*, in the Notes to Consolidated Financial Statements in Item 8 of Part II of this Report for further discussion of our share purchase program.

In addition, any future dividends, and the establishment of record and payment dates, are subject to approval by the Board or an authorized committee thereof. See Note 17, *Subsequent Events*, in the Notes to Consolidated Financial Statements in Item 8 of Part II of this Report for discussion of our dividend declaration subsequent to December 31, 2020.

Off-Balance Sheet Arrangements

As of December 31, 2020 and 2019, we did not have any off-balance sheet arrangements, as defined in Item 303 (a)(4)(ii) of SEC Regulation S-K. It is not our business practice to enter into off-balance sheet arrangements. However, in the normal course of business, we enter into contracts consisting of guarantees of product and service performance, standby letters of credit for certain lease facilities and insurance programs. See *Guarantees* below for additional information regarding our guarantees.

Contractual Obligations

Our principal commitments consist of obligations outstanding under operating leases, purchase commitments, debt, and other contractual obligations. The following table summarizes our principal contractual obligations as of December 31, 2020 and the effect such obligations are expected to have on our liquidity and cash flow in future periods (in millions):

	Payments Due by Period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Operating leases[1]	$ 232.7	$ 52.9	$ 91.6	$ 67.9	$ 20.3
Purchase commitments with contract manufacturers and suppliers[1]	1,283.0	825.8	457.2	—	—
Long-term debt[2]	2,123.8	423.8	—	400.0	1,300.0
Interest payment on long-term debt[2]	764.9	59.6	110.7	110.7	483.9
Tax liability related to the Tax Act[3]	250.6	—	59.2	191.4	—
Other contractual obligations[1]	156.8	62.3	83.8	10.7	—
Total	$ 4,811.8	$ 1,424.4	$ 802.5	$ 780.7	$ 1,804.2

(1) See Note 15, *Commitments and Contingencies,* in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report for additional information regarding our leases and other contractual commitments.

(2) See Note 9, *Debt and Financing,* in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report for additional information regarding our debt.

(3) See Note 15, *Commitments and Contingencies,* in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report for additional information regarding our tax liability related to the Tax Cuts and Jobs Act of 2017 (“Tax Act”).

As of December 31, 2020, we had $61.9 million included in long-term income taxes payable in the Consolidated Balance Sheets for unrecognized tax positions. At this time, we are unable to make a reasonably reliable estimate of the timing of payments related to this amount due to uncertainties in the timing of tax audit outcomes. As a result, this amount is not included in the table above.

Revolving Credit Facility

We have an unsecured revolving credit facility, which enables borrowings of up to $500.0 million, with an option to increase the amount of the credit facility by up to an additional $200.0 million, subject to the lenders' approval. The credit facility will terminate in April 2024, subject to a one-year maturity extension option. As of December 31, 2020, we were in compliance with all covenants and no amounts were outstanding under our credit facility.

Guarantees

We have financial guarantees consisting of guarantees of product and service performance and standby letters of credit for certain lease facilities, insurance programs, and customs of $29.0 million and $30.6 million, as of December 31, 2020 and December 31, 2019, respectively.

Liquidity and Capital Resources

Liquidity and capital resources may be impacted by our operating activities as well as acquisitions, investments in strategic relationships, repurchases of additional shares of our common stock, and payment of cash dividends on our common stock.

Since the enactment of the Tax Act, we have repatriated a significant amount of cash, cash equivalents, and investments from outside of the U.S., and plan to continue to repatriate on an ongoing basis. We intend to use the repatriated cash to invest in the business, support value-enhancing merger and acquisitions, or M&A, and fund our return of capital to stockholders.

Based on past performance and current expectations, we believe that our existing cash and cash equivalents, short-term, and long-term investments, together with cash generated from operations and access to capital markets and the revolving credit facility will be sufficient to fund our operations; planned stock repurchases and dividends; capital expenditures; commitments and other liquidity requirements; and anticipated growth for at least the next twelve months. However, our future liquidity and capital requirements may vary materially from those now planned depending on many factors, including, but not limited to, our growth rate; the timing and amount we spend to support development efforts; the expansion of sales and marketing activities; the introduction of new and enhanced products and services; the costs to acquire or invest in businesses and technologies; an increase in manufacturing or component costs; and the risks and uncertainties detailed in the “Risk Factors” section of Item 1A of Part I of this Report.

ITEM 7A. ***Quantitative and Qualitative Disclosures about Market Risk***

Interest Rate Risk

Interest Expense Risk - Available-for-Sale Fixed Income Securities

The primary objectives of our investment activities are, in order of priority, to preserve principal, maintain liquidity, and maximize yield. The value of our investments is subject to market price volatility. To minimize this risk, we maintain an investment portfolio of various holdings, types, and maturities, which includes asset-backed securities, certificates of deposit, commercial paper, corporate debt securities, foreign government debt securities, money market funds, mutual funds, time deposits, U.S. government agency securities, and U.S. government securities. At any time, a rise in interest rates could have a material adverse impact on the fair value of our investment portfolio. Conversely, a decline in interest rates could have a material impact on interest income from our investment portfolio. We do not currently hedge these interest rate exposures.

The following tables present hypothetical changes in fair value of our available-for-sale fixed income securities held as of December 31, 2020 and 2019 that are sensitive to changes in interest rates assuming immediate parallel shifts in the yield curve of 50 basis points, or BPS, 100 BPS and 150 BPS, which are representative of the historical movements in the Federal Funds Rate (in millions):

	- 150 BPS	- 100 BPS	- 50 BPS	Fair Value as of December 31, 2020	+ 50 BPS	+ 100 BPS	+ 150 BPS
Available-for-sale fixed income securities	$ 1,411.5	$ 1,406.3	$ 1,401.1	$ 1,395.8	$ 1,390.7	$ 1,385.5	$ 1,380.3

	- 150 BPS	- 100 BPS	- 50 BPS	Fair Value as of December 31, 2019	+ 50 BPS	+ 100 BPS	+ 150 BPS
Available-for-sale fixed income securities	$ 1,630.4	$ 1,625.2	$ 1,620.1	$ 1,614.9	$ 1,609.7	$ 1,604.5	$ 1,599.3

Interest rate swaps

The Company uses interest rate swaps to convert certain of our fixed interest rate notes to floating interest rates based on the London InterBank Offered Rate (LIBOR), resulting in a net increase or decrease in interest expense. These swaps hedge against the interest rate risk exposures of the designated debt issuances. As of December 31, 2020 and December 31, 2019, the aggregate notional amount of the interest rate swaps was $300.0 million. As of December 31, 2020 and December 31, 2019, the aggregate fair value of the interest rate swaps resulted in an asset of $20.3 million and a liability of $3.1 million, respectively. A hypothetical 10% change in the interest rates as of December 31, 2020 would not have had a material impact to our operating results or the fair value of the interest rate swaps.

Interest Rate Locks

In 2020, the Company entered into interest rate locks for an aggregate notional amount of $650.0 million. These derivative instruments hedge the impact of changes in the benchmark interest rate to future interest payments and will be terminated upon closing of our future debt issuance. We record changes in the fair value of these cash flow hedges of interest rate risk in accumulated other comprehensive income (loss) until the anticipated refinancing. Upon refinancing of our debt and termination of the derivative instruments, the fair value of these interest rate locks will be amortized over the term of our new debt to interest expense. As of December 31, 2020, the fair value of these contracts resulted in an asset of $30.7 million. A hypothetical 10% change in the interest rates as of December 31, 2020 would not have had a material impact to the fair value of the interest rate locks.

Foreign Currency Risk and Foreign Exchange Forward Contracts

Periodically, we use derivatives to hedge against fluctuations in foreign exchange rates. We do not enter into derivatives for speculative or trading purposes.

We use foreign currency forward contracts to mitigate variability in gains and losses generated from the re-measurement of certain monetary assets and liabilities denominated in foreign currencies. These foreign exchange forward contracts typically have maturities of approximately one to four months.

Our sales and costs of product revenues are primarily denominated in U.S. Dollars. Our cost of service revenue and operating expenses are denominated in U.S. Dollars as well as other foreign currencies, including the British Pound, Chinese Yuan, Euro, and the Indian Rupee. Approximately 79% of such costs and operating expenses are denominated in U.S. Dollars. Periodically, we use foreign currency forward and/or option contracts to hedge certain forecasted foreign currency transactions to reduce variability in cost of service revenue and operating expenses caused by non-U.S. Dollar denominated operating expense and costs. In designing a specific hedging approach, we consider several factors, including offsetting exposures, significance of exposures, costs associated with entering into a particular hedge instrument, and potential effectiveness of the hedge. These derivatives are designated as cash flow hedges and have maturities of thirty-six months or less. The change in operating expenses including cost of service revenue, research and development, sales and marketing, and general and administrative expenses, due to foreign currency fluctuations was a reduction to operating expenses of $11.6 million, or 0.3% and of $31.6 million, or 0.9% for years ended December 31, 2020 and December 31, 2019, respectively. See Note 5, *Derivative Instruments*, in Notes to Consolidated Financial Statements in Item 8 of Part II of this Report for further discussion of our derivative and hedging activity.

We have performed a sensitivity analysis as of December 31, 2020 and as of December 31, 2019, using a modeling technique that measures the change in the amount of non-U.S. dollar cash, cash equivalents and marketable securities arising from a hypothetical 10% movement in the levels of foreign currency exchange rates relative to the U.S. dollar, with all other variables held constant. The foreign currency exchange rates we used were based on market rates in effect on December 31, 2020 and December 31, 2019, respectively. The sensitivity analysis indicated that a hypothetical 10% movement in foreign currency exchange rates would change the amount of cash, cash equivalents, and investments we would report in U.S. Dollars as of December 31, 2020 and December 31, 2019 by $33.4 million, or 1.4% and by $38.2 million, or 1.5%, respectively.

Equity Price Risk

We have also invested in privately-held companies. Depending on the nature of these investments, some can be carried at cost, adjusted for changes from observable transactions for identical or similar investments of the same issuer, less impairment, and others can be carried at fair value. The carrying values of our investments in privately-held companies were $201.9 million and $189.8 million as of December 31, 2020 and December 31, 2019, respectively. The privately-held companies in which we invest can still be considered to be in the startup or development stages. These investments are inherently risky because the markets for the technologies or products these companies are developing, are typically in the early stages, and may never materialize. We could lose our entire investment in these companies. Our evaluation of investments in privately-held companies is based on the fundamentals of the businesses invested in, including, among other factors, the nature of their technologies and potential for financial return.

ITEM 8. ***Financial Statements and Supplementary Data***

Juniper Network, Inc.
Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Juniper Networks, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Juniper Networks, Inc. (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and the financial statement schedule listed in the Index at Item 15(a)2 (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 12, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

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

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) 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.

	Identification of distinct performance obligations in revenue contracts
Description of the matter	As described in Note 1 to the consolidated financial statements, the Company’s contracts with customers sometimes contain multiple performance obligations, which are accounted for separately if they are distinct. In such cases, the transaction price is then allocated to the distinct performance obligations on a relative standalone selling price basis and revenue is recognized when control of the distinct performance obligation is transferred. For example, product revenue is recognized at the time of hardware shipment or delivery of software license, and support revenue is recognized over time as the services are performed. Auditing the Company’s revenue recognition was challenging, specifically related to the effort required to identify and determine the distinct performance obligations and the associated timing of revenue recognition. For example, there were nonstandard terms and conditions that required judgment to determine the distinct performance obligations and the impact on the timing of revenue recognition.

How we addressed the matter in our audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company’s revenue recognition process, including controls to identify and determine the distinct performance obligations and the timing of revenue recognition. Among the procedures we performed to test the identification and determination of the distinct performance obligations and the timing of revenue recognition, we read the executed contract and purchase order to understand the contract, identified the performance obligation(s), determined the distinct performance obligations, and evaluated the timing and amount of revenue recognized for a sample of individual sales transactions. We evaluated the accuracy of the Company’s contract summary documentation, specifically related to the identification and determination of distinct performance obligations and the timing of revenue recognition.
	Accounting for the acquisition of 128 Technology, Inc.
Description of the matter	During 2020, the Company completed the acquisition of 128 Technology, Inc. for consideration of $448.2 million, as disclosed in Note 2 to the consolidated financial statements. The transaction was accounted for as a business combination. Auditing the Company's accounting for its acquisition of 128 Technology, Inc. was complex due to the significant estimation uncertainty in the Company’s determination of the fair value of identified intangible assets of $116 million, which principally consisted of developed technology ($88 million) and customer relationships ($27 million). The significant estimation uncertainty was primarily due to the sensitivity of the respective fair values to underlying assumptions about the future performance of the acquired business and the limited historical data and market data on which those assumptions were based. The Company used a discounted cash flow model to measure the developed technology and customer relationship intangible assets. The significant assumptions used to estimate the value of the intangible assets included discount rates and certain assumptions that form the basis of the forecasted results (e.g., revenue growth rates, market share and technology migration curves). These significant assumptions are forward looking and could be affected by future economic and market conditions.
How we addressed the matter in our audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company’s accounting for acquisitions. This included testing controls over the estimation process supporting the recognition and measurement of the technology and customer relationships intangible assets, including the valuation models and underlying assumptions used to develop such estimates. To test the estimated fair value of the technology and customer relationships intangible assets, we performed audit procedures that included, among others, evaluating the Company's selection of the valuation methodology, evaluating the methods and significant assumptions used by the Company, and evaluating the completeness and accuracy of the underlying data supporting the significant assumptions and estimates. For example, we compared the significant assumptions to current industry, market and economic trends and to the Company's budgets and forecasts. We involved our valuation specialists to assist with our evaluation of the methodology used by the Company and significant assumptions included in the fair value estimates.

/s/ Ernst & Young LLP

We have served as the Company’s auditor since 1996.
San Jose, California

February 12, 2021

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Juniper Networks, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Juniper Networks, Inc.'s internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Juniper Networks, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control Over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of 128 Technology, Inc. and Netrounds AB, which are included in the 2020 consolidated financial statements of the Company and constituted less than 5.0% of total assets and net assets, respectively as of December 31, 2020 and less than 1.0% of net revenues and less than 2.0% of net income for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of 128 Technology, Inc. and Netrounds AB.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, and the related consolidated statements of operations, comprehensive income, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and the financial statement schedule listed in the Index at Item 15(a)2 and our report dated February 12, 2021, expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP

San Jose, California
February 12, 2021

Management's Report on Internal Control Over Financial Reporting

The management of Juniper Networks, Inc. (the “Company”) is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. The Company's internal control over financial reporting is a process designed under the supervision of the Company's principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's financial statements for external purposes in accordance with U.S. generally accepted accounting principles.

The 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 U.S. 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 Consolidated 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.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2020, based on the framework set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control - Integrated Framework* as published in 2013. Management has excluded from its assessment, the internal control over financial reporting of 128 Technology, Inc. and Netrounds AB, which are included in the December 31, 2020 Consolidated Financial Statements, and constituted less than 5.0% of total assets and net assets, respectively as of December 31, 2020, and less than 1.0% of net revenues and less than 2.0% of net income for the year then ended. Based on that assessment, management concluded that, as of December 31, 2020, the Company's internal control over financial reporting was effective.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2020 has been audited by Ernst & Young LLP, the independent registered public accounting firm that audits the Company's Consolidated Financial Statements, as stated in their report preceding this report, which expresses an unqualified opinion on the effectiveness of the Company's internal control over financial reporting as of December 31, 2020.

Juniper Networks, Inc.

Consolidated Statements of Operations
(In millions, except per share amounts)

	Years Ended December 31,		
	2020	**2019**	**2018**
Net revenues:			
Product	$ 2,845.0	$ 2,867.7	$ 3,107.1
Service	1,600.1	1,577.7	1,540.4
Total net revenues	4,445.1	4,445.4	4,647.5
Cost of revenues:			
Product	1,278.6	1,227.0	1,277.2
Service	592.8	601.6	629.1
Total cost of revenues	1,871.4	1,828.6	1,906.3
Gross margin	2,573.7	2,616.8	2,741.2
Operating expenses:			
Research and development	958.4	955.7	1,003.2
Sales and marketing	938.8	939.3	927.4
General and administrative	255.4	244.3	231.1
Restructuring charges	68.0	35.3	7.3
Total operating expenses	2,220.6	2,174.6	2,169.0
Operating income	353.1	442.2	572.2
Loss on extinguishment of debt	(55.0)	(15.3)	—
Other expense, net[(*)]	(32.9)	(12.5)	(39.5)
Income before income taxes	265.2	414.4	532.7
Income tax provision (benefit)	7.4	69.4	(34.2)
Net income	$ 257.8	$ 345.0	$ 566.9
Net income per share:			
Basic	$ 0.78	$ 1.01	$ 1.62
Diluted	$ 0.77	$ 0.99	$ 1.60
Shares used in computing net income per share:			
Basic	330.4	343.2	349.0
Diluted	335.2	348.2	354.4

(*): The amount for the year ended December 31, 2019 has been reclassified to conform to the current period presentation.

See accompanying Notes to Consolidated Financial Statements

Juniper Networks, Inc.

Consolidated Statements of Comprehensive Income
(In millions)

	Years Ended December 31,		
	2020	**2019**	**2018**
Net income	$ 257.8	$ 345.0	$ 566.9
Other comprehensive income (loss), net of tax:			
Available-for-sale debt securities:			
Change in net unrealized gains and losses, net of tax (provision) benefit of $(1.9), $(1.0), and $1.0 for 2020, 2019, and 2018, respectively	5.7	4.6	0.6
Net realized (gains) losses reclassified into net income, net of tax	(1.3)	(0.4)	0.9
Net change on available-for-sale debt securities, net of tax	4.4	4.2	1.5
Cash flow hedges:			
Change in net unrealized gains and losses, net of tax (provision) benefit of $(9.1), $(2.6), and $2.3 for 2020, 2019, and 2018, respectively	54.4	(8.9)	(6.4)
Net realized losses (gains) reclassified into net income, net of tax benefit (provisions) of $1.4, $(1.7), and $(0.3) for 2020, 2019, and 2018, respectively	7.6	5.5	(1.2)
Net change on cash flow hedges, net of tax	62.0	(3.4)	(7.6)
Change in foreign currency translation adjustments	7.7	(1.1)	(12.4)
Other comprehensive income (loss), net of tax	74.1	(0.3)	(18.5)
Comprehensive income	$ 331.9	$ 344.7	$ 548.4

See accompanying Notes to Consolidated Financial Statements

Juniper Networks, Inc.

Consolidated Balance Sheets
(In millions, except par values)

	December 31, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,361.9	$ 1,215.8
Short-term investments	412.1	738.0
Accounts receivable, net of allowance for doubtful accounts of $9.9 and $5.5 as of December 31, 2020 and 2019, respectively	964.1	879.7
Prepaid expenses and other current assets	533.1	376.3
Total current assets	3,271.2	3,209.8
Property and equipment, net	762.3	830.9
Operating lease assets	184.6	169.7
Long-term investments	656.6	589.8
Purchased intangible assets, net	266.7	185.8
Goodwill	3,669.6	3,337.1
Other long-term assets	567.3	514.6
Total assets	$ 9,378.3	$ 8,837.7
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 277.0	$ 219.5
Accrued compensation	270.7	229.0
Deferred revenue	867.3	812.9
Short-term portion of long-term debt	421.5	—
Other accrued liabilities	324.6	282.5
Total current liabilities	2,161.1	1,543.9
Long-term debt	1,705.8	1,683.9
Long-term deferred revenue	418.5	410.5
Long-term income taxes payable	312.5	372.6
Long-term operating lease liabilities	163.5	158.1
Other long-term liabilities	73.4	58.1
Total liabilities	4,834.8	4,227.1
Commitments and contingencies (Note 15)		
Stockholders' equity:		
Preferred stock, $0.00001 par value; 10.0 shares authorized; none issued and outstanding	—	—
Common stock, $0.00001 par value; 1,000.0 shares authorized; 327.7 shares and 335.9 shares issued and outstanding as of December 31, 2020 and 2019, respectively	—	—
Additional paid-in capital	7,156.9	7,370.5
Accumulated other comprehensive income (loss)	55.6	(18.5)
Accumulated deficit	(2,669.0)	(2,741.4)
Total stockholders' equity	4,543.5	4,610.6
Total liabilities and stockholders' equity	$ 9,378.3	$ 8,837.7

See accompanying Notes to Consolidated Financial Statements

Juniper Networks, Inc.

Consolidated Statements of Cash Flows
(In millions)

	Years Ended December 31,		
	2020	2019	2018
Cash flows from operating activities:			
Net income	$ 257.8	$ 345.0	$ 566.9
Adjustments to reconcile net income to net cash provided by operating activities:			
Share-based compensation expense	190.2	202.2	217.1
Depreciation, amortization, and accretion	212.4	210.3	210.5
Operating lease assets expense	42.3	42.0	—
Loss on extinguishment of debt	55.0	15.3	—
Deferred income taxes	(52.3)	2.9	42.6
Other	(2.9)	3.5	9.6
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable, net	(76.1)	(118.1)	96.3
Prepaid expenses and other assets	(117.8)	(100.7)	(70.9)
Accounts payable	56.0	6.4	3.5
Accrued compensation	38.7	6.5	41.4
Income taxes payable	(57.2)	(40.5)	(269.2)
Other accrued liabilities	4.4	(46.8)	(11.4)
Deferred revenue	61.5	0.9	24.7
Net cash provided by operating activities	612.0	528.9	861.1
Cash flows from investing activities:			
Purchases of property and equipment	(100.4)	(109.6)	(147.4)
Purchases of available-for-sale debt securities	(967.0)	(3,209.8)	(1,228.5)
Proceeds from sales of available-for-sale debt securities	360.4	1,520.0	1,070.2
Proceeds from maturities and redemptions of available-for-sale debt securities	865.0	1,642.3	910.2
Purchases of equity securities	(17.4)	(107.1)	(17.5)
Proceeds from sales of equity securities	9.7	14.2	36.9
Proceeds from Pulse note receivable	50.0	—	—
Payments for business acquisitions, net of cash and cash equivalents acquired	(438.1)	(270.9)	(16.4)
Subsequent payments related to acquisitions in prior years	(45.9)	(7.3)	(42.7)
Other	(5.2)	—	—
Net cash (used in) provided by investing activities	(288.9)	(528.2)	564.8
Cash flows from financing activities:			
Repurchase and retirement of common stock	(381.1)	(554.9)	(756.6)
Proceeds from issuance of common stock	54.7	55.6	56.9
Payment of dividends	(264.1)	(260.1)	(249.3)
Payment of debt	(376.2)	(950.0)	—
Issuance of debt, net	792.4	495.2	—
Payment for debt extinguishment costs	(52.9)	(14.6)	—
Change in customer financing arrangement	—	—	(16.9)
Other	4.8	—	(2.7)
Net cash used in financing activities	(222.4)	(1,228.8)	(968.6)
Effect of foreign currency exchange rates on cash, cash equivalents, and restricted cash	5.8	(1.2)	(10.6)
Net increase in cash, cash equivalents, and restricted cash	106.5	(1,229.3)	446.7
Cash, cash equivalents, and restricted cash at beginning of period	1,276.5	2,505.8	2,059.1
Cash, cash equivalents, and restricted cash at end of period	$ 1,383.0	$ 1,276.5	$ 2,505.8
Supplemental disclosures of cash flow information:			
Cash paid for interest, net of amounts capitalized	$ 87.2	$ 90.6	$ 94.0
Cash paid for income taxes, net	$ 84.1	$ 98.8	$ 181.0

See accompanying Notes to Consolidated Financial Statements

Juniper Networks, Inc.

Consolidated Statements of Changes in Stockholders' Equity
(In millions, except per share amounts)

	Shares	Common Stock and Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2017	365.5	$ 8,042.1	$ (5.4)	$ (3,355.8)	$ 4,680.9
Net income	—	—	—	566.9	566.9
Other comprehensive loss, net	—	—	(18.5)	—	(18.5)
Issuance of common stock	10.4	56.9	—	—	56.9
Repurchase and retirement of common stock	(29.5)	(395.1)	—	(361.5)	(756.6)
Share-based compensation expense	—	218.2	—	—	218.2
Payment of cash dividends ($0.72 per share of common stock)	—	(249.3)	—	—	(249.3)
Cumulative adjustment upon adoption of ASU 2014-09 ("Topic 606"), net	—	—	—	324.7	324.7
Reclassification of tax effects upon adoption of ASU 2018-02 ("Topic 220"), net	—	—	5.7	(5.7)	—
Balance at December 31, 2018	346.4	7,672.8	(18.2)	(2,831.4)	4,823.2
Net income	—	—	—	345.0	345.0
Other comprehensive loss, net	—	—	(0.3)	—	(0.3)
Issuance of common stock	9.8	55.6	—	—	55.6
Common stock assumed upon business combination	—	4.6	—	—	4.6
Repurchase and retirement of common stock	(20.3)	(264.6)	—	(250.3)	(514.9)
Purchase of forward contract under accelerated share repurchase program ("ASR")	—	(40.0)	—	—	(40.0)
Share-based compensation expense	—	202.2	—	—	202.2
Payments of cash dividends ($0.76 per share of common stock)	—	(260.1)	—	—	(260.1)
Cumulative adjustment upon adoption of ASU 2017-12 ("Topic 815"), net	—	—	—	0.1	0.1
Cumulative adjustment upon adoption of ASU 2016-02 ("Topic 842"), net	—	—	—	(4.8)	(4.8)
Balance at December 31, 2019	335.9	7,370.5	(18.5)	(2,741.4)	4,610.6
Net income	—	—	—	257.8	257.8
Other comprehensive loss, net	—	—	74.1	—	74.1
Issuance of common stock	10.0	54.7	—	—	54.7
Common stock assumed upon business combination	—	1.5	—	—	1.5
Repurchase and retirement of common stock	(18.2)	(235.7)	—	(185.4)	(421.1)
Purchase of forward contract under ASR	—	40.0	—	—	40.0
Share-based compensation expense	—	190.0	—	—	190.0
Payments of cash dividends ($0.80 per share of common stock)	—	(264.1)	—	—	(264.1)
Balance at December 31, 2020	327.7	$ 7,156.9	$ 55.6	$ (2,669.0)	$ 4,543.5

See accompanying Notes to Consolidated Financial Statements

Juniper Networks, Inc.
Notes to Consolidated Financial Statements

Note 1. Description of Business, Basis of Presentation and Significant Accounting Policies

Description of Business

Juniper Networks, Inc. (the "Company" or "Juniper") designs, develops, and sells products and services for high-performance networks, to enable customers to build scalable, reliable, secure and cost-effective networks for their businesses, while achieving agility and improved operating efficiency through automation. The Company sells high-performance network products, services, and solutions across routing, switching, and security technologies to customers within its verticals: Cloud, Service Provider, and Enterprise who view the network as critical to their success.

Basis of Presentation

The Consolidated Financial Statements, which include the Company and its wholly-owned subsidiaries, are prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP"). All intercompany balances and transactions have been eliminated.

Use of Estimates

The preparation of the financial statements and related disclosures in accordance with U.S. generally accepted accounting principles ("GAAP") requires the Company to make judgments, assumptions, and estimates that affect the amounts reported in the Consolidated Financial Statements and the accompanying notes. The Company bases its estimates and assumptions on current facts, historical experience, and various other factors that it believes are reasonable under the circumstances, to determine the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from these estimates

Cash, Cash Equivalents, and Investments

Cash and Cash Equivalents

Cash and cash equivalents consist of cash on hand, demand deposits with banks, highly liquid investments in money market funds, commercial paper, government securities, certificates of deposits, time deposits, and corporate debt securities, which are readily convertible into cash. All highly liquid investments with original maturities of three months or less from Juniper's purchase date are classified as cash equivalents.

Investments in Available-for-Sale Debt Securities

The Company's investments in debt securities are classified as available-for-sale and include the Company's fixed income securities and investments in privately-held companies, consisting of debt and redeemable preferred stock securities. Fixed income securities are initially recorded at cost and periodically adjusted to fair value in the Consolidated Balance Sheets. Unrealized gains and losses on these investments are reported as a separate component of accumulated other comprehensive loss in the Consolidated Balance Sheets. Realized gains and losses are determined based on the specific identification method and are reported in the Consolidated Statements of Operations.

Fixed income securities primarily consist of corporate debt securities, U.S. treasury securities, time deposits, asset-backed securities, certificate of deposits, commercial paper, U.S. government agency securities, and foreign government debt securities. The Company periodically evaluates these investments to determine if impairment charges are required. The Company determines whether a credit loss exists for available-for-sale debt securities in an unrealized loss position. When the fair value of a security is below its amortized cost, the amortized cost will be reduced to its fair value and the resulting loss will be recorded in Consolidated Statements of Operations, if it is more likely than not that we are required to sell the impaired security before recovery of its amortized cost basis, or we have the intention to sell the security. If neither of these conditions are met, the Company considers the extent to which the fair value is less than the amortized cost, any changes to the rating of the security by a rating agency, and review of the issuer. If factors indicate a credit loss exists, an allowance for credit loss is recorded through other expense, net, limited by the amount that the fair value is less than the amortized cost basis. The amount of fair value change relating to all other factors will be recognized in other comprehensive income (OCI).

The Company's privately-held debt and redeemable preferred stock securities are included in other long-term assets in the Consolidated Balance Sheets and are recorded at fair value. Fair value is reassessed when the Company is made aware of information indicating a change in the enterprise value of the investee, including known acquisition offers, subsequent funding rounds, and investee's plans for liquidation. The Company periodically evaluates these securities for indicators of impairment, including the inability to recover a portion of or the entire carrying amount of the investment, the inability of the investee to sustain earnings, the reduction in or termination of financial commitment to the investee from other investors, the intention to sell the investment, and whether it is more likely than not that the Company will be required to sell the investment before recovery of the entire amortized cost basis. If the Company determines that the decline in an investment's value indicates credit losses, the difference is recognized as an impairment loss in its Consolidated Statements of Operations.

Investments in Equity Securities

The Company's investments in equity securities with readily determinable fair values consist of money market funds, amounts under the non-qualified compensation plan ("NQDC") that are invested in mutual funds, and investments in public companies. These investments are measured at fair value with changes in fair value recognized in the Consolidated Statements of Operations.

Equity securities without readily determinable fair values include the Company's investments in privately-held companies consisting of non-redeemable preferred stock and common stock securities. The Company accounts for these securities at cost, adjusted for changes from observable transactions for identical or similar investments of the same issuer, less impairments. Fair value of these equity securities is reassessed when the Company identifies observable price changes indicating that an adjustment upward or downward to the carrying value is necessary. Any observable changes in fair value are recognized in earnings as of the date that the observable transaction took place, rather than the current reporting date. In addition, the Company periodically evaluates equity securities without readily determinable fair values to determine if impairment charges are required by evaluating whether an event or change in circumstance has occurred that may have a significant adverse effect on the fair value of the investment. A qualitative assessment is performed each reporting period to assess whether there are any impairment indicators, including, but not limited to, significant deterioration in the investee's earnings performance; credit rating; asset quality or business prospects; adverse change in the regulatory, economic, or technological environment; change in the general market condition of the geographic area or industry; acquisition offers; and the ability to continue as a going concern. If such indicators are present, the Company estimates the fair value of impaired investments and recognizes an impairment loss in the Consolidated Statement of Operations equal to the difference between the carrying value and fair value.

Fair Value

Fair value is defined as the price that would be received upon sale of an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining fair value, the Company considers the principal or most advantageous market in which it transacts, and considers assumptions that market participants would use when pricing the asset or liability. The Company applies the following fair value hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. These inputs are valued using market-based approaches.

Level 3 – Inputs are unobservable inputs based on the Company’s assumptions. These inputs, if any, are valued using internal financial models.

Derivative Instruments

The Company uses derivative instruments, primarily foreign currency forward and interest rate swap contracts, to hedge certain foreign currency and interest rate exposures. The Company does not enter into derivatives for speculative or trading purposes.

The Company uses foreign currency forward contracts to hedge certain forecasted foreign currency transactions relating to operating expenses. These derivatives are designated as cash flow hedges, which are carried at fair value with the derivative's gain or loss initially reported as a component of accumulated other comprehensive loss, and upon occurrence of the forecasted transaction, is subsequently reclassified into the costs of services or operating expense line item to which the hedged transaction relates. Cash flows from such hedges are classified as operating activities.

The Company also uses foreign currency forward contracts to mitigate variability in gains and losses generated from the re-measurement of certain monetary assets and liabilities denominated in non-functional currencies. These derivatives are carried at fair value with changes recorded in other expense, net in the Consolidated Statements of Operations in the same period as the changes in the fair value from the re-measurement of the underlying assets and liabilities. Cash flows from such derivatives are classified as operating activities.

The Company uses interest rate swaps to convert certain of our fixed interest rate notes to floating interest rates based on the London InterBank Offered Rate (LIBOR). All interest rate swaps will expire within nine years or less. The Company recognizes the change in fair value of the derivative instrument, as well as the offsetting change in the fair value of the hedged item, in Other expense, net in the Consolidated Statements of Operations in the period of change. These derivatives are classified in the Consolidated Statements of Cash Flows in the same section as the underlying item.

The Company uses interest rate locks, which fix the benchmark interest rates of future debt issuance. The Company records changes in fair value of interest rate locks in accumulated other comprehensive income (loss) in the consolidated balance sheets, in the period of change. When the forecasted transaction occurs, the Company will start to amortize the accumulated gains or losses included as a component of other comprehensive income (loss) related to the interest rate lock cash flow hedges to interest expense. In the event the underlying forecasted transaction does not occur, or it becomes probable that it will not occur, the gains or losses on the related cash flow hedge from accumulated other comprehensive income (loss) will be reclassified to other income and expense within the income statement.

The Company presents its derivative assets and derivative liabilities on a gross basis in the Consolidated Balance Sheets. However, under agreements containing provisions on netting with certain counterparties of foreign exchange contracts and interest rate derivatives, subject to applicable requirements, the Company is allowed to net-settle transactions on the same date in the same currency, with a single net amount payable by one party to the other. The Company is neither required to pledge nor entitled to receive cash collateral related to these derivative transactions.

Inventory

Inventory consists primarily of component parts to be used in the manufacturing process and finished goods, and is stated at the lower of cost or net realizable value. In addition, the Company purchases and holds inventory to provide adequate component supplies over the life of the underlying products. Cost is computed using standard cost, which approximates actual cost, on a first-in, first-out basis. A charge is recorded to cost of product when inventory is determined to be in excess of anticipated demand or considered obsolete. At the point of loss recognition, a new, lower-cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in the newly established cost basis.

Leases

The Company determines if an arrangement is a lease at inception. The Company evaluates classification of leases as either operating or finance at commencement and, as necessary, at modification. As of December 31, 2020, the Company did not have any finance leases. Operating leases are included in operating lease right-of-use ("ROU") assets, other accrued liabilities, and operating lease liabilities on the Company's Consolidated Balance Sheets. ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease.

Operating lease ROU assets and liabilities are recognized on the commencement date based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The operating lease ROU asset also includes any lease payments made prior to lease commencement and excludes lease incentives. Variable lease payments not dependent on an index or a rate, are expensed as incurred and are not included within the ROU asset and lease liability calculation. Variable lease payments primarily include reimbursements of costs incurred by lessors for common area maintenance and utilities. The Company's lease terms are the noncancelable period, including any rent-free periods provided by the lessor, and include options to extend or terminate the lease when it is reasonably certain that it will exercise that option. At lease inception, and in subsequent periods as necessary, the Company estimates the lease term based on its assessment of extension and termination options that are reasonably certain to be exercised. Lease costs are recognized on a straight-line basis over the lease term.

The Company does not separate non-lease components from lease components for all underlying classes of assets. In addition, the Company does not recognize ROU assets and lease liabilities for short-term leases, which have a lease term of twelve months or less and do not include an option to purchase the underlying asset that the Company is reasonably certain to exercise. Lease cost for short-term leases is recognized on a straight-line basis over the lease term.

Property and Equipment

Property and equipment are recorded at cost less accumulated depreciation. Depreciation is calculated using the straight-line method, over the estimated useful lives of the following assets:

	Estimated Useful Life (years)
Computers, equipment, and software	1.5 to 10
Furniture and fixtures	5 to 7
Building and building improvements	7 to 40
Land improvements	10 to 40
Leasehold improvements	Lease term, not to exceed 10 years

Land is not depreciated. Construction-in-process is related to the construction or development of property and equipment that have not yet been placed in service for their intended use.

Business Combinations

The purchase price of an acquired entity is allocated to tangible assets, liabilities, and intangible assets, including in-process research and development (IPR&D) based on their estimated fair values with the residual of the purchase price recorded as goodwill. The determination of the value of the intangible assets acquired involves certain estimates, such as expected future cash flows, which include consideration of future growth rates and margins, attrition rates, future changes in technology, discount rates, and the expected use of the acquired assets. These factors are also considered in determining the useful life of the acquired intangible assets. IPR&D is initially capitalized at fair value as an intangible asset with an indefinite life and assessed for impairment thereafter. When an IPR&D project is completed, the IPR&D is reclassed as an amortizable purchased intangible asset and amortized over the asset’s estimated useful life. Acquisition related expenses are recognized separately from business combination and are expensed as incurred. The Company's Consolidated Financial Statements include the operating results of acquired businesses from the date of each acquisition.

Goodwill and Intangible Assets

Goodwill is tested for impairment annually during the fourth quarter or more frequently if certain circumstances indicate the carrying value of goodwill is impaired. Goodwill is tested for impairment at the reporting unit level. A qualitative assessment is first performed to determine whether it is necessary to quantitatively test goodwill for impairment. This initial assessment includes, among others, consideration of macroeconomic conditions and financial performance. If the qualitative assessment indicates that it is more likely than not that an impairment exists, a quantitative analysis is performed by determining the fair value of each reporting unit using a combination of the discounted cash flow and the market approaches. Goodwill is considered impaired if the carrying value of the reporting unit exceeds its fair value. A goodwill impairment loss is recognized for the amount that the carrying amount of a reporting unit, including goodwill, exceeds its fair value, limited to the total amount of goodwill allocated to that reporting unit. We conducted our annual impairment test of goodwill during the fourth quarters of 2020 and 2019 and determined that no adjustment to the carrying value of goodwill for any reporting units was required.

Intangible assets consist of existing technology, customer relationships, and trade name, which are amortized over the period of estimated benefit using the straight-line method and estimated useful lives of 4 or 5 years. Other intangible assets acquired in a business combination related to IPR&D projects are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts. Indefinite-lived intangibles are not amortized into the results of operations but instead are evaluated for impairment. If and when development is complete, the associated assets would be deemed finite-lived and would be amortized as cost of revenues over their respective estimated useful lives at that point in time. If the research and development project is abandoned, the acquired IPR&D assets are written off and charged to expense in the period of abandonment.

Impairment of Long-lived Assets

Long-lived assets, such as property, plant, and equipment, ROU assets, and purchased intangible assets subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset, or asset group, to estimated undiscounted future cash flows expected to be generated by the asset, or asset group. An impairment charge is recognized by the amount by which the carrying amount of the asset, or asset group, exceeds its fair value.

Warranty Reserves

The Company generally offers a one-year warranty or limited life-time warranty on most of its hardware products, and a 90-day warranty on the media that contains the software embedded in the products. Warranty costs are recognized as part of the Company's cost of sales based on associated material costs, logistics costs, labor costs, and overhead at the time revenue is recognized. Material costs are estimated primarily based upon the historical costs to repair or replace product returns within the warranty period. Labor, logistics and overhead costs are estimated primarily based upon historical trends in the cost to support customer cases within the warranty period. Warranty reserve is reported within other accrued liabilities in the Consolidated Balance Sheets.

Contract Manufacturer Liabilities

The Company establishes a liability for non-cancelable, non-returnable purchase commitments with its contract manufacturers for carrying charges, quantities in excess of its demand forecasts, or obsolete material charges for components purchased by the contract manufacturers to meet the Company’s demand forecast or customer orders. The demand forecasts are based upon historical trends and analysis from the Company's sales and marketing organizations, adjusted for overall market conditions.

Loss Contingencies

The Company is subject to the possibility of various loss contingencies arising in the ordinary course of business. Management considers the likelihood of loss related to the incurrence of a liability as well as its ability to reasonably estimate the amount of loss, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The Company regularly evaluates current information available to determine whether such accruals should be adjusted and whether new accruals are required.

Foreign Currency

Assets and liabilities of foreign operations with non-U.S. Dollar functional currency are translated to U.S. Dollars using exchange rates in effect at the end of the period. Revenue and expenses are translated to U.S. Dollars using rates that approximate those in effect during the period. The resulting translation adjustments are included in the Company’s Consolidated Balance Sheets in the stockholders’ equity section as a component of accumulated other comprehensive loss. The Company remeasures monetary assets and monetary liabilities in non-functional currencies and records the resulting foreign exchange transaction gains and losses in other expense, net in the Consolidated Statements of Operations.

Revenue Recognition

Revenue is recognized when promised goods or services are transferred to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services by following a five-step process, (1) identify the contract with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price, and (5) recognize revenue when or as the Company satisfies a performance obligation, as further described below.

Identify the contract with a customer. The Company generally considers a sales contract and/or agreement with an approved purchase order as a customer contract provided that collection is considered probable, which is assessed based on the creditworthiness of the customer as determined by credit checks, payment histories, and/or other circumstances. The Company combines contracts with a customer if contracts are negotiated with a single commercial substance or contain price dependencies.

Identify the performance obligations in the contract. Product performance obligations include hardware, software licenses, and service performance obligations including hardware maintenance, software post-contract support and maintenance, Software-as-a-Service ("SaaS"), education and training, and professional services. Certain software licenses and related post-contract support are combined into a single performance obligation when the maintenance updates are critical to the continued delivery of the software functionality.

Determine the transaction price. The transaction price for the Company’s contracts with its customers consists of both fixed and variable consideration provided it is probable that a significant reversal of revenue will not occur when the uncertainty related to variable consideration is resolved. Fixed consideration includes amounts to be contractually billed to the customer while variable consideration includes estimates for rights of return, rebates, and price protection, which are based on historical sales returns and price protection credits, specific criteria outlined in rebate agreements, and other factors known at the time. The Company generally invoices customers for hardware, software licenses and related maintenance arrangements at time of delivery, and professional services either upfront or upon meeting certain milestones. Customer invoices are generally due within 30 to 90 days after issuance. The Company’s contracts with customers typically do not include significant financing components as the period between the transfer of performance obligations and timing of payment are generally within one year.

Allocate the transaction price to the performance obligations in the contract. For contracts that contain multiple performance obligations, the Company allocates the transaction price to the performance obligations on a relative stand-alone selling price ("SSP") basis. SSP is based on multiple factors including, but not limited to historical discounting trends for products and services, pricing practices in different geographies and through different sales channels, gross margin objectives, internal costs, competitor pricing strategies, and industry technology lifecycles.

Recognize revenue when or as the Company satisfies a performance obligation. Revenue for hardware and certain software licenses, are recognized at a point in time, which is generally upon shipment or delivery. Certain software licenses combined with post-contract support and maintenance are recognized over time on a ratable basis over the term of the license. Revenue for maintenance and software post-contract support and maintenance is recognized over time on a ratable basis over the contract term. Revenue from SaaS, education and training, and professional services is recognized over time as services are completed or ratably over the contractual period of generally one year or less.

Deferred product revenue represents unrecognized revenue related to undelivered product commitments and other shipments that have not met revenue recognition criteria. Deferred service revenue represents billed amounts for service contracts, which include technical support, hardware and software maintenance, professional services, SaaS, and education and training, for which services have not been rendered.

Revenue is recognized net of any taxes collected, which are subsequently remitted to governmental authorities.

Deferred Commissions

Sales commissions earned by the Company’s sales force are considered incremental and recoverable costs of obtaining a contract with a customer. These costs are recorded as prepaid expenses or other long-term assets and are deferred and then amortized over a period of benefit which is typically over the term of the customer contracts. Amortization expense is included in sales and marketing expenses in the accompanying Consolidated Statements of Operations.

Research and Development

Costs to research, design, and develop the Company's products are expensed as incurred.

Software Development Costs

Capitalization of software development costs for software to be sold, leased, or otherwise marketed begins when a product's technological feasibility has been established and ends when a product is available for general release to customers. Generally, the Company's products are released soon after technological feasibility has been established. As a result, costs incurred between achieving technological feasibility and product general availability have not been significant.

The Company capitalizes costs associated with internal-use software systems during the application development stage. Such capitalized costs include external direct costs incurred in developing or obtaining the applications and payroll and payroll-related costs for employees, who are directly associated with the development of the applications.

Advertising

Advertising costs are charged to sales and marketing expense as incurred. Advertising expense was $21.7 million, $14.6 million, and $20.0 million, for 2020, 2019, and 2018, respectively.

Share-Based Compensation

The Company measures and recognizes compensation cost for all share-based awards made to employees and directors, including employee stock options, restricted stock awards ("RSAs"), restricted stock units ("RSUs"), performance share awards ("PSAs") and employee stock purchases related to the Employee Stock Purchase Plan ("ESPP"). For service condition only awards, share-based compensation expense is based on the fair value of the underlying awards and amortized on a straight-line basis. For PSAs, share-based compensation expense is amortized on a straight-line basis for each separate vesting portion of the awards. The Company accounts for forfeitures as they occur.

The Company utilizes the Black-Scholes-Merton (“BSM”) option-pricing model to estimate the fair value of its ESPP purchase rights. The BSM model requires various highly subjective assumptions that represent management's best estimates of volatility, risk-free interest rate, expected life, and dividend yield. The Company estimates expected volatility based on the implied volatility of market-traded options, on the Company's common stock, adjusted for other relevant factors including historical volatility of the Company’s common stock over the most recent period commensurate with the estimated expected life of the Company’s ESPP. The expected life of ESPP purchase rights approximates the offering period.

The Company determines the grant date fair value of its RSUs, RSAs, and PSAs based on the closing market price of the Company’s common stock on the date of grant, adjusted by the present value of the dividends expected to be paid on the underlying shares of common stock during the requisite and derived service period as these awards are not entitled to receive dividends until vested.

For market-based RSUs, the Company estimates the fair value and derived service period using the Monte Carlo simulation option pricing model ("Monte Carlo model"). The determination of the grant date fair value and derived service periods using the Monte Carlo model is affected by the Company's stock price, comparative market-based returns, as well as various highly subjective assumptions that represent management's best estimates of volatility, risk-free interest rate, and dividend yield. The Company estimates expected volatility based on the implied volatility of market-traded options, on the Company's common stock, adjusted for other relevant factors, including historical volatility of the Company’s common stock over the contractual life of the Company's market-based RSUs.

Provision for Income Taxes

Deferred tax assets and liabilities are recognized for the expected tax consequences of temporary differences between the tax basis of assets and liabilities and their reported amounts. Valuation allowances are recorded to reduce deferred tax assets to the amount that will more likely than not be realized.

The Company accounts for uncertainty in income taxes using a two-step approach to recognize and measure uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon settlement. The Company classifies the liability for unrecognized tax benefits as current to the extent that the Company anticipates payment (or receipt) of cash within one year. Interest and penalties related to uncertain tax positions are recognized in the provision for income taxes. The Company accounts for the current impacts of U.S. tax on certain foreign subsidiaries income, which is referred to as Global Intangible Low-Taxed Income in the year earned.

Concentrations of Risk

Financial instruments that subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents, investments, derivatives, and accounts receivable. The Company invests only in high-quality credit instruments and maintains its cash, cash equivalents and available-for-sale investments in fixed income securities with several high-quality institutions. Deposits held with banks, including those held in foreign branches of global banks, may exceed the amount of insurance provided on such deposits. We mitigate the concentration of credit risk in our investment portfolio through diversification of the investments in various industries and asset classes, and limits to the amount of credit exposure to any single issuer and credit rating.

The Company's derivatives expose it to credit risk to the extent that counterparties may be unable to meet the terms of the agreement. The Company has a risk assessment and mitigation framework to evaluate the potential risk of loss with any one counterparty resulting from this type of credit risk. As part of this risk mitigation framework, the Company transacts with major financial institutions with high credit ratings and also enters into master netting agreements, which permit net settlement of the transactions with the same counterparty. The Company performs periodic evaluations of the relative credit standing of these financial institutions. Therefore, the Company does not expect material losses as a result of defaults by counterparties.

Generally, credit risk with respect to accounts receivable is diversified due to the number of entities comprising the Company's customer base and their dispersion across different geographic locations throughout the world. The Company performs ongoing credit evaluations of its customers and generally does not require collateral on accounts receivable. During the years ended December 31, 2020, 2019, and 2018, no single customer accounted for 10% or more of net revenues.

The Company relies on sole suppliers for certain critical components such as application-specific integrated circuits. Additionally, the Company relies primarily on a limited number of significant independent contract manufacturers and original design manufacturers for the production of its products. The inability of any supplier or manufacturer to fulfill supply requirements of the Company could negatively impact future operating results.

Recently Adopted Accounting Standards

Fair Value Measurement: On January 1, 2020, the Company adopted ASU No. 2018-13 (Topic 820) Disclosure Framework — Changes to the Disclosure Requirements for Fair Value Measurement, which eliminates, adds, and modifies certain disclosure requirements for fair value measurements under ASC 820. The Company adopted the standard under the prospective approach for certain modified or new disclosure requirements, and all other amendments in the standard under the retrospective approach. See Note 4, *Fair Value Measurements* for required disclosures. Upon adoption, the standard did not have a material impact on the Consolidated Financial Statements.

Simplifying the Test for Goodwill Impairment: On January 1, 2020, the Company adopted ASU No. 2017-04 (Topic 350) Intangibles—Goodwill and Other: Simplifying the Test for Goodwill Impairment, which removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. Under the amended guidance, a goodwill impairment charge will be recognized for the amount by which the carrying value of a reporting unit exceeds its fair value, not to exceed the carrying amount of goodwill. The Company adopted the standard under the prospective approach. Upon adoption, the standard did not have a material impact on the Consolidated Financial Statements.

Credit Losses on Financial Instruments: On January 1, 2020, the Company adopted ASU 2016-13 (Topic 326) Financial Instruments-Credit Losses: Measurement of Credit Losses on Financial Instruments, as further clarified by the Financial Accounting Standards Board (the "FASB") through the issuance of additional related ASUs, which requires the measurement and recognition of current expected credit losses for financial assets held at amortized cost. ASU 2016-13 replaces the existing incurred loss impairment model with an expected loss model, which requires the use of forward-looking information to calculate credit loss estimates. It also eliminates the concept of other-than-temporary impairment and requires credit losses related to available-for-sale debt securities to be recorded through an allowance for credit losses rather than as a reduction in the amortized cost basis of the securities. These changes will result in earlier recognition of credit losses. The Company adopted the standard under the modified retrospective approach. Upon adoption, the standard did not have a material impact on the Consolidated Financial Statements. We continue to monitor the financial implications of the COVID-19 pandemic on expected credit losses.

Recent Accounting Standards Not Yet Adopted

Reference Rate Reform: In March 2020, the FASB issued ASU No. 2020-04 (Topic 848), Reference Rate Reform - Facilitation of the Effects of Reference Rate Reform on Financial Reporting, which provides temporary optional expedients and exceptions to the existing guidance on contract modifications and hedge accounting to ease the financial reporting burdens related to the expected market transition from the London Interbank Offered Rate (LIBOR) and other interbank offered rates to alternative reference rates, such as the Secured Overnight Financing Rate. The standard was effective upon issuance and may generally be applied through December 31, 2022, to any new or amended contracts, hedging relationships, and other transactions that reference LIBOR. The Company is currently evaluating the impact of the transition and disclosure requirements of the standard on its Consolidated Financial Statements.

Simplifying the Accounting for Income Taxes: In December 2019, the FASB issued ASU No. 2019-12 (Topic 740) Income Taxes — Simplifying the Accounting for Income Taxes, which enhances and simplifies various aspects related to accounting for income taxes. This ASU is to be applied on a prospective basis with the exception of certain amendments that are to be applied on either a retrospective or modified retrospective basis. The new standard is effective for interim and annual periods beginning after December 15, 2020. The Company does not expect the adoption to have a material impact on its Consolidated Financial Statements.

Note 2. Business Combinations

The Company acquired 128 Technology, Inc. ("128 Technology") and Netrounds AB ("Netrounds") in 2020 and Mist Systems, Inc. ("Mist") in 2019. Pro forma results of operations for these acquisitions have not been presented as the financial impact to the Company's consolidated results of operations, both individually and in aggregate, is not material. The goodwill recognized for these acquisitions was primarily attributable to expected synergies and is not deductible for U.S. federal income tax purposes. We continue the process of identifying and evaluating pending escrow claims related to certain tax and legal matters. Accordingly, the preliminary purchase price allocations for 128 Technology and Netrounds are subject to potential measurement period adjustments.

2020 Acquisitions

128 Technology

On November 30, 2020, the Company acquired 100% ownership of 128 Technology for $448.2 million. The purchase consideration consisted of cash of $446.8 million and approximately $1.4 million in share-based awards attributable to employee services prior to the acquisition. The acquisition is expected to enhance Juniper's AI-driven enterprise network portfolio by uniting 128 Technology's session-smart networking with Juniper's campus and branch solutions driven by Mist AI.

Under the terms of the acquisition agreement with 128 Technology, the Company assumed certain share-based awards for continuing employees, which were granted in contemplation of future services. The fair value of these share-based awards was $29.3 million, which will be expensed as share-based compensation over the remaining service period.

Netrounds

On October 26, 2020, the Company acquired 100% ownership of Netrounds for $33.6 million of cash. The acquisition of Netrounds, a company that provides a programmable, software-based active test and service assurance platform suitable for fixed and mobile networks, is expected to enhance Juniper's automated WAN solutions by further simplifying operations for service providers and ensuring positive end-user experiences.

2019 Acquisition

Mist

On April 1, 2019, the Company acquired 100% ownership of Mist Systems, Inc. ("Mist") for $359.2 million. The purchase consideration consisted of cash of $354.5 million and approximately $4.6 million in share-based awards attributable to employee services prior to the acquisition. The acquisition of Mist, a company that provides cloud-managed wireless networks powered by artificial intelligence, enhanced Juniper's enterprise networking portfolio by combining Mist's next-generation Wireless LAN platform with Juniper's wired LAN, SD-WAN, and security solutions to deliver integrated end-to-end user and IT experiences.

Under the terms of the acquisition agreement with Mist, the Company assumed certain share-based awards for continuing employees, which were granted in contemplation of future services. The fair value of these share-based awards was $38.5 million, which will be expensed as share-based compensation over the remaining service period.

Acquisition Costs

The Company recognized $24.6 million and $16.6 million of acquisition-related costs during the years ended December 31, 2020 and December 31, 2019, respectively. These acquisition-related costs were expensed in the period incurred within general and administrative expense in the Company's Consolidated Statements of Operations.

The following table summarizes the fair values of the assets acquired and liabilities assumed at the acquisition dates (in millions):

	2020		2019
	128 Technology	Netrounds	Mist
Cash and cash equivalents	$ 29.1	$ 1.0	$ 38.9
Goodwill	298.8	24.7	228.9
Intangible assets	116.7	8.7	102.0
Other assets acquired	14.3	0.8	15.8
Liabilities assumed	(10.7)	(1.6)	(26.4)
Total	$ 448.2	$ 33.6	$ 359.2

The following table summarizes the fair value of the separately identifiable intangible assets at the time of acquisition and the period over which each intangible asset will be amortized (in millions, except years):

	2020				2019	
	128 Technology		Netrounds		Mist	
	Weighted Average Estimated Useful Life (In Years)	Amount	Weighted Average Estimated Useful Life (In Years)	Amount	Weighted Average Estimated Useful Life (In Years)	Amount
Intangible assets:						
Existing technology	5	$ 88.0	4	$ 5.3	5	$ 81.0
Customer relationships	5	27.0	5	3.4	5	15.0
Trade name	—	—	—	—	5	6.0
Backlog	1.5	1.7	—	—	—	—
Total intangible assets acquired		$ 116.7		$ 8.7		$ 102.0

Note 3. Cash Equivalents and Investments

Investments in Available-for-Sale Debt Securities

The following table summarizes the Company's unrealized gains and losses and fair value of investments designated as available-for-sale debt securities as of December 31, 2020 and December 31, 2019 (in millions):

	As of December 31, 2020				As of December 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Fixed income securities:								
Asset-backed securities	$ 76.5	$ 0.2	$ —	$ 76.7	$ 81.3	$ 0.1	$ —	$ 81.4
Certificates of deposit	32.9	—	—	32.9	38.6	—	—	38.6
Commercial paper	89.3	—	—	89.3	168.2	—	—	168.2
Corporate debt securities	632.0	5.5	(0.1)	637.4	604.9	0.7	(0.1)	605.5
Foreign government debt securities	4.6	—	—	4.6	11.4	—	—	11.4
Time deposits	255.6	—	—	255.6	226.3	—	—	226.3
U.S. government agency securities	65.3	0.2	—	65.5	89.0	—	—	89.0
U.S. government securities	232.8	1.0	—	233.8	394.3	0.3	(0.1)	394.5
Total fixed income securities	1,389.0	6.9	(0.1)	1,395.8	1,614.0	1.1	(0.2)	1,614.9
Privately-held debt and redeemable preferred stock securities	18.3	37.4	—	$ 55.7	19.1	37.4	—	56.5
Total available-for-sale debt securities	$ 1,407.3	$ 44.3	$ (0.1)	$ 1,451.5	$ 1,633.1	$ 38.5	$ (0.2)	$ 1,671.4
Reported as:								
Cash equivalents	$ 333.7	$ —	$ —	$ 333.7	$ 290.9	$ —	$ —	$ 290.9
Short-term investments	404.3	1.2	—	405.5	733.7	0.5	—	734.2
Long-term investments	651.0	5.7	(0.1)	656.6	589.4	0.6	(0.2)	589.8
Other long-term assets	18.3	37.4	—	55.7	19.1	37.4	—	56.5
Total	$ 1,407.3	$ 44.3	$ (0.1)	$ 1,451.5	$ 1,633.1	$ 38.5	$ (0.2)	$ 1,671.4

The following table presents the contractual maturities of the Company's total fixed income securities as of December 31, 2020 (in millions):

	Amortized Cost	Estimated Fair Value
Due in less than one year	$ 738.0	$ 739.2
Due between one and five years	651.0	656.6
Total	$ 1,389.0	$ 1,395.8

The following tables present the Company's total fixed income securities that were in an unrealized loss position as of December 31, 2020 and December 31, 2019 (in millions):

	As of December 31, 2020					
	Less than 12 Months		12 Months or Greater		Total	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
Fixed income securities:						
Asset-backed securities	$ 17.5	$ —	$ —	$ —	$ 17.5	$ —
Corporate debt securities	61.0	(0.1)	—	—	61.0	(0.1)
Foreign government debt securities	0.6	—	—	—	0.6	—
U.S. government securities	2.3	—	—	—	2.3	—
Total fixed income securities	$ 81.4	$ (0.1)	$ —	$ —	$ 81.4	$ (0.1)

	As of December 31, 2019					
	Less than 12 Months		12 Months or Greater		Total	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
Fixed income securities:						
Asset-backed securities	$ 21.6	$ —	$ 5.2	$ —	$ 26.8	$ —
Corporate debt securities	142.6	(0.1)	2.1	—	144.7	(0.1)
Foreign government debt securities	4.0	—	4.0	—	8.0	—
U.S. government agency securities	20.0	—	—	—	20.0	—
U.S. government securities	71.6	(0.1)	—	—	71.6	(0.1)
Total fixed income securities	$ 259.8	$ (0.2)	$ 11.3	$ —	$ 271.1	$ (0.2)

For available-for-sale debt securities that have unrealized losses, the Company assesses impairment by evaluating various factors, including whether (i) it has the intention to sell any of these investments and (ii) whether it is more likely than not that it will be required to sell any of these investments before recovery of the entire amortized cost basis. As of December 31, 2020, the Company had 69 investments in unrealized loss positions. The gross unrealized losses related to these investments were primarily due to changes in market interest rates. The Company anticipates that it will recover the entire amortized cost basis of such available-for-sale debt securities and has determined that no allowance for credit losses were required to be recognized during the years ended December 31, 2020, 2019, and 2018.

During the years ended December 31, 2020, 2019, and 2018, there were no material gross realized gains or losses from available-for-sale debt securities.

Investments in Equity Securities

The following table presents the Company's investments in equity securities as of December 31, 2020 and 2019 (in millions):

	As of December 31,	
	2020	2019
Equity investments with readily determinable fair value		
Money market funds	$ 536.6	$ 446.4
Mutual funds	29.3	26.8
Publicly-traded equity securities	6.6	3.8
Equity investments without readily determinable fair value	146.2	133.3
Total equity securities	$ 718.7	$ 610.3
Reported as:		
Cash equivalents	$ 519.8	$ 442.3
Short-term investments	6.6	3.8
Prepaid expenses and other current assets	9.9	4.1
Other long-term assets	182.4	160.1
Total	$ 718.7	$ 610.3

During the years ended December 31, 2020, 2019, and 2018, there were no material unrealized gains or losses recognized for equity investments.

Restricted Cash and Investments

The Company has restricted cash and investments for: (i) amounts held in escrow accounts, as required in connection with certain acquisitions completed primarily in 2019 and 2020; (ii) amounts held under the Company's short-term disability plan in California; and (iii) amounts under the Company's non-qualified deferred compensation plan for senior-level employees. Restricted investments consist of equity investments. As of December 31, 2020, the carrying value of restricted cash and investments was $67.2 million, of which $29.0 million was included in prepaid expenses and other current assets and $38.2 million was included in other long-term assets on the Consolidated Balance Sheets.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash included in the Consolidated Balance Sheets as of December 31, 2020 and December 31, 2019 (in millions):

	As of December 31,	
	2020	2019
Cash and cash equivalents	$ 1,361.9	$ 1,215.8
Restricted cash included in Prepaid expenses and other current assets	19.2	60.5
Restricted cash included in Other long-term assets	1.9	0.2
Total cash, cash equivalents, and restricted cash	$ 1,383.0	$ 1,276.5

Note 4. Fair Value Measurements

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following table provides a summary of assets and liabilities measured at fair value on a recurring basis and as reported in the Consolidated Balance Sheets (in millions):

	Fair Value Measurements at December 31, 2020				Fair Value Measurements at December 31, 2019			
	Quoted Prices in Active Markets For Identical Assets (Level 1)	Significant Other Observable Remaining Inputs (Level 2)	Significant Other Unobservable Remaining Inputs (Level 3)	Total	Quoted Prices in Active Markets For Identical Assets (Level 1)	Significant Other Observable Remaining Inputs (Level 2)	Significant Other Unobservable Remaining Inputs (Level 3)	Total
Assets:								
Available-for-sale debt securities:								
Asset-backed securities	$ —	$ 76.7	$ —	$ 76.7	$ —	$ 81.4	$ —	$ 81.4
Certificates of deposit	—	32.9	—	32.9	—	38.6	—	38.6
Commercial paper	—	89.3	—	89.3	—	168.2	—	168.2
Corporate debt securities	—	637.4	—	637.4	—	605.5	—	605.5
Foreign government debt securities	—	4.6	—	4.6	—	11.4	—	11.4
Time deposits	—	255.6	—	255.6	—	226.3	—	226.3
U.S. government agency securities	—	65.5	—	65.5	—	89.0	—	89.0
U.S. government securities	140.0	93.8	—	233.8	318.9	75.6	—	394.5
Privately-held debt and redeemable preferred stock securities	—	—	55.7	55.7	—	—	56.5	56.5
Total available-for-sale debt securities	140.0	1,255.8	55.7	1,451.5	318.9	1,296.0	56.5	1,671.4
Equity securities:								
Money market funds	536.6	—	—	536.6	446.4	—	—	446.4
Mutual funds	29.3	—	—	29.3	26.8	—	—	26.8
Publicly-traded equity securities	6.6	—	—	6.6	3.8	—	—	3.8
Total equity securities	572.5 —	—	—	572.5	477.0	—	—	477.0
Derivative assets:								
Foreign exchange contracts	—	38.0	—	38.0	—	2.5	—	2.5
Interest rate contracts	—	51.0	—	51.0	—	—	—	—
Total derivative assets	—	89.0	—	89.0	—	2.5	—	2.5
Total assets measured at fair value on a recurring basis	$ 712.5	$ 1,344.8	$ 55.7	$ 2,113.0	$ 795.9	$ 1,298.5	$ 56.5	$ 2,150.9
Liabilities:								
Derivative liabilities:								
Foreign exchange contracts	$ —	$ (0.5)	$ —	$ (0.5)	$ —	$ (6.8)	$ —	$ (6.8)
Interest rate contracts	—	—	—	—	—	(3.1)	—	(3.1)
Total derivative liabilities	—	(0.5)	—	(0.5)	—	(9.9)	—	(9.9)
Total liabilities measured at fair value on a recurring basis	$ —	$ (0.5)	$ —	$ (0.5)	$ —	$ (9.9)	$ —	$ (9.9)
Total assets, reported as:								
Cash equivalents	$ 519.8	$ 333.7	$ —	$ 853.5	$ 442.3	$ 290.9	$ —	$ 733.2
Short-term investments	101.0	311.1	—	412.1	188.8	549.2	—	738.0
Long-term investments	45.6	611.0	—	656.6	133.9	455.9	—	589.8
Prepaid expenses and other current assets	9.9	28.0	—	37.9	4.1	2.5	—	6.6
Other long-term assets	36.2	61.0	55.7	152.9	26.8	—	56.5	83.3
Total assets measured at fair value on a recurring basis	$ 712.5	$ 1,344.8	$ 55.7	$ 2,113.0	$ 795.9	$ 1,298.5	$ 56.5	$ 2,150.9

	Fair Value Measurements at December 31, 2020				Fair Value Measurements at December 31, 2019			
	Quoted Prices in Active Markets For Identical Assets (Level 1)	Significant Other Observable Remaining Inputs (Level 2)	Significant Other Unobservable Remaining Inputs (Level 3)	Total	Quoted Prices in Active Markets For Identical Assets (Level 1)	Significant Other Observable Remaining Inputs (Level 2)	Significant Other Unobservable Remaining Inputs (Level 3)	Total
Total liabilities, reported as:								
Other accrued liabilities	$ —	$ (0.3)	$ —	$ (0.3)	$ —	$ (6.8)	$ —	$ (6.8)
Other long-term liabilities	—	(0.2)	—	(0.2)	—	(3.1)	—	(3.1)
Total liabilities measured at fair value on a recurring basis	$ —	$ (0.5)	$ —	$ (0.5)	$ —	$ (9.9)	$ —	$ (9.9)

The Company's Level 2 available-for-sale debt securities are priced using quoted market prices for similar instruments or non-binding market prices that are corroborated by observable market data. The Company uses inputs such as actual trade data, benchmark yields, broker/dealer quotes, or alternative pricing sources with reasonable levels of price transparency which are obtained from quoted market prices, independent pricing vendors, or other sources, to determine the ultimate fair value of these assets. The Company's derivative instruments are classified as Level 2, as they are not actively traded and are valued using pricing models that use observable market inputs. During the years ended December 31, 2020 and 2019, the Company had no transfers into or out of Level 3 of the fair value hierarchy of its assets or liabilities measured at fair value.

The Company's privately-held debt and redeemable preferred stock securities are classified as Level 3 assets due to the lack of observable inputs to determine fair value. The Company estimates the fair value of its privately-held debt and redeemable preferred stock securities on a recurring basis using an analysis of the financial condition and near-term prospects of the investee, including recent financing activities and the investee's capital structure. During the year ended December 31, 2020, there were no material activities related to privately-held debt and redeemable preferred stock.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

The Company's investments in equity securities without readily determinable fair value are classified as Level 3 assets due to the lack of observable inputs to determine fair value. The Company estimates the fair value on a nonrecurring basis (i.e. when an observable transaction occurs) using an analysis of the financial condition and near-term prospects of the investee, including recent financing activities and the investee's capital structure. As of December 31, 2020 and December 31, 2019, there have been no material adjustments for price changes to the equity securities without readily determinable fair value.

Certain of the Company's assets, including intangible assets and goodwill, are measured at fair value on a nonrecurring basis. There were no significant impairment charges recognized during the years ended December 31, 2020, 2019, and 2018.

As of December 31, 2020 and 2019, the Company had no liabilities measured at fair value on a nonrecurring basis.

Assets and Liabilities Not Measured at Fair Value

The carrying amounts of the Company's accounts receivable, accounts payable, and other accrued liabilities approximate fair value due to their short maturities. As of December 31, 2020 and December 31, 2019, the estimated fair value of the Company's total outstanding debt in the Consolidated Balance Sheets was $2,386.6 million and $1,852.1 million, respectively, based on observable market inputs (Level 2). The carrying value of a contract manufacturer deposit of $43.6 million, reported within other long-term assets in the Consolidated Balance Sheets approximates its fair value as of December 31, 2020. See Note 7, *Other Financial Information,* for further information on contract manufacturer deposit.

Note 5. Derivative Instruments

The notional amount of the Company's derivative instruments is summarized as follows (in millions):

	As of December 31,	
	2020	2019
Designated derivatives:		
Cash flow hedges:		
Foreign currency contracts	$ 722.1	$ 484.0
Interest rate lock contracts	650.0	—
Fair value hedges:		
Interest rate swap contracts	300.0	300.0
Total designated derivatives	$ 1,672.1	$ 784.0
Non-designated derivatives	174.1	162.9
Total	$ 1,846.2	$ 946.9

The fair value of derivative instruments on the Consolidated Balance Sheets was as follows:

		As of December 31,	
	Balance Sheet Location	2020	2019
Derivative assets:			
Derivatives designated as hedging instruments:			
Foreign currency contracts as cash flow hedges	Other current assets	$ 27.8	$ 2.2
Foreign currency contracts as cash flow hedges	Other long-term assets	10.0	0.3
Interest rate lock contracts	Other long-term assets	30.7	—
Interest rate swap contracts	Other long-term assets	20.3	—
Total derivatives designated as hedging instruments		$ 88.8	$ 2.5
Derivatives not designated as hedging instruments	Other current assets	0.2	—
Total derivative assets		$ 89.0	$ 2.5
Derivative liabilities:			
Derivatives designated as hedging instruments:			
Foreign currency contracts	Other accrued liabilities	$ 0.2	$ 6.6
Foreign currency contracts	Other long-term liabilities	0.2	—
Interest rate swap contracts	Other long-term liabilities	—	3.1
Total derivatives designated as hedging instruments		$ 0.4	$ 9.7
Derivatives not designated as hedging instruments	Other accrued liabilities	0.1	0.2
Total derivative liabilities		$ 0.5	$ 9.9

Designated Derivatives

The Company uses foreign currency forward contracts to hedge the Company's planned cost of revenues and operating expenses denominated in foreign currencies. These derivatives are designated as cash flow hedges and typically have maturities of thirty-six months or less.

In 2020, the Company entered into interest rate locks with large financial institutions, which fix the benchmark interest rates of future debt issuance for an aggregate notional amount of $650.0 million. These contracts are designated as cash flow hedges and are expected to terminate within 4 years and 9 months.

In 2019, the Company entered into interest rate swaps with an aggregate notional amount of $300.0 million designated as fair value hedges of our fixed-rate 2041 Notes. These swaps convert the fixed interest rates of the notes to floating interest rates based on the London InterBank Offered Rate (LIBOR). All interest rate swaps will expire within nine years or less.

Effect of Derivative Instruments on the Consolidated Statements of Operations

For cash flow hedges, the Company recognized an unrealized gain of $63.5 million, and unrealized losses of $6.3 million and $8.7 million in accumulated other comprehensive loss for the effective portion of its derivative instruments during the years ended December 31, 2020, 2019, and 2018, respectively.

For foreign currency forward contracts, the Company reclassified losses of $9.0 million and $3.8 million and a gain of $0.9 million out of accumulated other comprehensive loss to cost of revenues and operating expenses in the Consolidated Statement of Operations during the years ended December 31, 2020, 2019, and 2018, respectively. As of December 31, 2020, an estimated $27.7 million of unrealized net gain within accumulated other comprehensive loss is expected to be reclassified into earnings within the next twelve months.

Non-Designated Derivatives

The Company also uses foreign currency forward contracts to mitigate variability in gains and losses generated from the remeasurement of certain monetary assets and liabilities denominated in foreign currencies. These foreign exchange forward contracts typically have maturities of approximately one to four months. The outstanding non-designated derivative instruments are carried at fair value. Changes in the fair value of these derivatives recorded in other expense, net within the Consolidated Statements of Operations were not material during the years ended December 31, 2020, 2019, and 2018, respectively.

See Note 1, *Description of Business, Basis of Presentation and Significant Accounting Policies,* for the Company’s policy regarding the offsetting of derivative assets and derivative liabilities.

Note 6. Goodwill and Purchased Intangible Assets

Goodwill

The Company's goodwill activity was as follows (in millions):

	Total
December 31, 2018	$ 3,108.8
Additions due to business combinations	228.3
December 31, 2019	3,337.1
Additions due to business combinations	332.5
December 31, 2020	$ 3,669.6

In the fourth quarter of 2020, the Company performed its annual goodwill impairment test for the three reporting units: Routing, Switching, and Security. There was no goodwill impairment during the years ended December 31, 2020, 2019, and 2018.

Purchased Intangible Assets

The Company's purchased intangible assets, net, were as follows (in millions):

	As of December 31, 2020				As of December 31, 2019			
	Gross	Accumulated Amortization	Accumulated Impairments and Other Charges	Net	Gross	Accumulated Amortization	Accumulated Impairments and Other Charges	Net
Finite-lived intangible assets:								
Technologies and patents	$ 823.5	$ (598.2)	$ (55.1)	$ 170.2	$ 729.1	$ (564.0)	$ (49.9)	$ 115.2
Customer contracts, support agreements, and related relationships	129.2	(84.4)	(2.8)	42.0	98.6	(79.3)	(2.8)	16.5
Trade names and other	9.6	(4.1)	—	5.5	7.9	(2.8)	—	5.1
Total	962.3	(686.7)	(57.9)	217.7	835.6	(646.1)	(52.7)	136.8
Indefinite-lived intangible assets:								
IPR&D	49.0	—	—	49.0	49.0	—	—	49.0
Total purchased intangible assets	$ 1,011.3	$ (686.7)	$ (57.9)	$ 266.7	$ 884.6	$ (646.1)	$ (52.7)	$ 185.8

Amortization expense related to purchased intangible assets with finite lives was $40.6 million, $34.7 million, and $17.4 million for the years ended December 31, 2020, 2019, and 2018, respectively. There were no significant impairment charges related to purchased intangible assets during the years ended December 31, 2020, 2019, and 2018.

As of December 31, 2020, the estimated future amortization expense of purchased intangible assets with finite lives is as follows (in millions):

Years Ending December 31,	Amount
2021	$ 60.0
2022	54.0
2023	50.8
2024	31.3
2025	21.6
Total	$ 217.7

Note 7. Other Financial Information

Inventory

Total inventory consisted of the following (in millions):

	As of December 31,	
	2020	2019
Production and service materials	$ 158.1	$ 69.0
Finished goods	63.8	25.2
Inventory	$ 221.9	$ 94.2
Reported as:		
Prepaid expenses and other current assets	$ 210.2	$ 90.6
Other long-term assets	11.7	3.6
Total	$ 221.9	$ 94.2

Property and Equipment, Net

Property and equipment, net, consisted of the following (in millions):

	As of December 31,	
	2020	2019
Computers and equipment	$ 1,057.5	$ 1,041.4
Software	231.1	228.6
Leasehold improvements	223.8	216.9
Furniture and fixtures	49.6	48.3
Building and building improvements	256.0	255.0
Land and land improvements	243.5	243.5
Construction-in-process	17.7	12.9
Property and equipment, gross	2,079.2	2,046.6
Accumulated depreciation	(1,316.9)	(1,215.7)
Property and equipment, net	$ 762.3	$ 830.9

Depreciation expense was $166.2 million, $184.0 million, and $193.2 million in 2020, 2019, and 2018, respectively.

Notes Receivable and Deposit

Total outstanding notes receivable and deposit, net of issuance costs, reported within other long-term assets in the Consolidated Balance Sheets were as follows (in millions):

	As of December 31,	
	2020	2019
Pulse Note (including accumulated interest paid in kind)	$ —	$ 78.9
Contract manufacturer deposit (non-interest bearing)	43.6	46.0
Total	$ 43.6	$ 124.9

In 2020, the Company received payment against the promissory note receivable, with a maturity date of September 30, 2022, in connection with the previously completed sale of Junos Pulse ("Pulse Note"). The borrower exercised its prepayment option and paid the outstanding principal of $50.0 million along with the accumulated interest of $37.7 million and other payments of $4.1 million, aggregating to $91.8 million, in full.

The Company has a non-interest bearing deposit balance of $43.6 million, net of an unamortized discount balance of $1.6 million, to a contract manufacturer. The discount is calculated based on an imputed interest rate of 5.0% at December 31, 2020. The imputed interest is amortized over the term of the deposit to interest income along with a corresponding charge to cost of revenues. The deposit was classified as an other long-term asset on the Consolidated Balance Sheets.

The Company considers contract manufacturer deposits to be impaired when, based on current information and events, it is probable that the Company will not be able to collect the outstanding amounts. No impairment charge was required as of December 31, 2020, 2019, and 2018.

Warranties

Changes in the Company’s warranty reserve were as follows (in millions):

	As of December 31,	
	2020	2019
Beginning balance	$ 31.4	$ 28.0
Provisions made during the period, net	37.1	39.0
Actual costs incurred during the period	(38.3)	(35.6)
Ending balance	$ 30.2	$ 31.4

Deferred Revenue

Details of the Company's deferred revenue, as reported in the Consolidated Balance Sheets, were as follows (in millions):

	As of December 31,	
	2020	2019
Deferred product revenue	$ 104.7	$ 132.6
Deferred service revenue	1,181.1	1,090.8
Total	$ 1,285.8	$ 1,223.4
Reported as:		
Current	$ 867.3	$ 812.9
Long-term	418.5	410.5
Total	$ 1,285.8	$ 1,223.4

Revenue

See Note 12, *Segments,* for disaggregated revenue by product and service, customer vertical, and geographic region.

Product revenue of $72.3 million included in deferred revenue at January 1, 2020 was recognized during the year ended December 31, 2020. Service revenue of $717.3 million included in deferred revenue at January 1, 2020 was recognized during the year ended December 31, 2020.

The following table summarizes the transaction price for contracts that have not yet been recognized as revenue as of December 31, 2020 and when the Company expects to recognize the amounts as revenue (in millions):

		Revenue Recognition Expected by Period		
	Total	Less than 1 year	1-3 years	More than 3 years
Product	$ 105.5	$ 85.4	$ 17.0	$ 3.1
Service(*)	1,194.4	789.6	332.0	72.8
Total	$ 1,299.9	$ 875.0	$ 349.0	$ 75.9

(*) Represents unearned service revenue allocated to the performance obligations not delivered or partially delivered as of December 31, 2020. The unearned service revenue is comprised of deferred revenue and non-cancellable contract revenue which has not been invoiced yet.

Deferred Commissions

Deferred commissions were $27.4 million and $24.1 million as of December 31, 2020 and 2019, respectively. During the years ended December 31, 2020 and 2019, amortization expense for the deferred commissions were $145.9 million and $130.9 million, respectively, and there were no impairment charges recognized.

Other Expense, Net

Other expense, net consisted of the following (in millions):

	Years Ended December 31,		
	2020	2019	2018
Interest income	$ 36.3	$ 79.1	$ 72.7
Interest expense	(77.0)	(88.7)	(103.2)
Gain (loss) on investments, net	13.3	(3.8)	(7.4)
Other	(5.5)	0.9	(1.6)
Other expense, net	$ (32.9)	$ (12.5)	$ (39.5)

Interest income primarily includes interest earned on the Company’s cash, cash equivalents, investments, and promissory note issued to the Company in connection with the sale of Junos Pulse. Interest expense primarily includes interest, net of capitalized interest expense, from long-term debt and customer financing arrangements. (Loss) gain on investments, net, primarily includes (loss) gains from the sale of investments in public and privately-held companies, and any observable changes in fair value and impairment charges recorded on these investments. Other typically consists of foreign exchange gains and losses and other non-operational income and expense items.

Note 8. Restructuring Charges

The following table presents restructuring charges included in the Consolidated Statements of Operations (in millions):

	Years Ended December 31,		
	2020	2019	2018
Severance	$ 62.8	$ 21.5	$ 8.3
Contract terminations	—	11.7	(1.0)
Facility consolidations and other	5.2	2.1	—
Total	$ 68.0	$ 35.3	$ 7.3
Reported as:			
Restructuring charges	$ 68.0	$ 35.3	$ 7.3
Total	$ 68.0	$ 35.3	$ 7.3

2020 Restructuring Plan

In 2020, the Company initiated a restructuring plan (the "2020 Restructuring Plan") designed to realign its workforce with the Company's sales strategy, enhance productivity and cost efficiencies, and enable reinvestment in certain key priority areas, which resulted in severance costs of $16.8 million and other exit related costs, including impairment charges, of $5.2 million. In connection with the 2020 Restructuring Plan, during the fourth quarter of 2020, the Company implemented a voluntary early retirement program for employees who met certain eligibility requirements, which resulted in additional severance costs of $46.0 million that were recorded to restructuring charges in the Consolidated Statement of Operations. The 2020 Restructuring Plan related activities are expected to be completed in 2021.

Prior Restructuring Activities

In 2019, the Company initiated a restructuring plan (the "2019 Restructuring Plan") to realign its workforce with the Company's sales strategy, improve productivity, and enhance cost efficiencies, which resulted in severance, facility consolidation, and contract termination costs that were recorded to restructuring charges in the Consolidated Statement of Operations.

In 2018, the Company initiated a restructuring plan to realign its workforce as a result of organizational and leadership changes, which resulted in severance and contract termination costs that were recorded to restructuring charges in the Consolidated Statement of Operations.

Restructuring Liabilities

Restructuring liabilities are reported within other accrued liabilities in the Consolidated Balance Sheets. The following table provides a summary of changes in the restructuring liabilities associated with the 2020 Restructuring Plan and 2019 Restructuring Plan (in millions):

	December 31, 2019	Charges/ (Benefits)	Cash Payments	Other	December 31, 2020
Severance	$ 0.7	$ 62.8	$ (12.3)	$ (0.5)	$ 50.7
Facility consolidations and other	—	5.2	—	(5.2)	—
Total	$ 0.7	$ 68.0	$ (12.3)	$ (5.7)	$ 50.7

Note 9. Debt and Financing

Debt

The following table summarizes the Company's total debt (in millions, except percentages):

	Maturity Date	Effective Interest Rates	As of December 31, 2020	As of December 31, 2019
Senior Notes ("Notes"):				
4.500% fixed-rate notes[1] ("2024 Notes")	March 2024	4.70 %	$ 265.8	$ 500.0
4.350% fixed-rate notes ("2025-I Notes")	June 2025	4.47 %	158.0	300.0
1.200% fixed-rate notes ("2025-II Notes")	December 2025	1.37 %	400.0	—
3.750% fixed-rate notes ("2029 Notes")	August 2029	3.86 %	500.0	500.0
2.000% fixed-rate notes ("2030 Notes")	December 2030	2.12 %	400.0	—
5.950% fixed-rate notes ("2041 Notes")	March 2041	6.03 %	400.0	400.0
Total Notes			2,123.8	1,700.0
Unaccreted discount and debt issuance costs			(16.8)	(13.0)
Hedge accounting fair value adjustments[2]			20.3	(3.1)
Total			$ 2,127.3	$ 1,683.9

(1) 2024 Notes issued in March 2014 and February 2016 form a single series and are fully fungible. The effective interest rate for 2014 and 2016 issuance is 4.63% and 4.87%, respectively, with the weighted average effective interest rate being 4.70%.

(2) Represents the fair value adjustments for interest rate swap contracts with an aggregate notional amount of $300.0 million designated as fair value hedges of our fixed-rate 2041 Notes. See Note 5, *Derivative Instruments*, for a discussion of the Company's interest rate swaps.

In December 2020, the Company issued $400.0 million aggregate principal amount of 1.20% senior notes due 2025 ("2025-II Notes") and $400.0 million aggregate principal amount of 2.00% senior notes due 2030 ("2030 Notes"). The net proceeds from the issuances of the 2025-II Notes and the 2030 Notes, together with cash on hand, were used for the repayment of $500.0 million aggregate principal amount of the Company's 4.50% senior notes due 2024 and $300.0 million aggregate principal amount of the Company's 4.35% senior notes due 2025.

In December 2020, the Company, through a cash tender offer, partly repurchased $234.2 million in aggregate principal amount of 2024 Notes and $142.0 million in aggregate principal amount of 2025-I Notes. The repayments resulted in a loss on extinguishment of debt of $55.0 million, consisting primarily of a premium on the tender offer and acceleration of unamortized debt discount and fees on the redeemed debt, which was recorded within the Consolidated Statements of Operations.

Subsequently in January 2021, the Company redeemed the remaining outstanding 2024 Notes and 2025-I Notes. See Note 17, *Subsequent Events*, for further discussion on the redemption.

The Notes above are the Company’s senior unsecured and unsubordinated obligations, ranking equally in right of payment to all of the Company’s existing and future senior unsecured and unsubordinated indebtedness, and senior in right of payment to any of the Company’s future indebtedness that is expressly subordinated to the Notes.

As of December 31, 2020, the Company's aggregate debt maturities based on outstanding principal were as follows (in millions):

Years Ending December 31,	Amount
2021[*]	$ 423.8
2025	400.0
Thereafter	1,300.0
Total	$ 2,123.8

(*) Represents remaining outstanding 2024 Notes and 2025-I Notes redeemed by the Company in January 2021. See Note 17, *Subsequent Events*, for further discussion on the redemption.

The Company may redeem the Notes, either in whole or in part, at any time at a redemption price equal to the greater of (i) 100% of the aggregate principal amount of the Notes to be redeemed or (ii) the sum of the present values of the remaining scheduled payments discounted to the redemption date, plus, in either case, accrued and unpaid interest, if any.

In the event of a change of control repurchase event, the holders of the Notes may require the Company to repurchase for cash all or part of the Notes at a purchase price equal to 101% of the aggregate principal amount, plus accrued and unpaid interest, if any.

Interest on the Notes is payable in cash semiannually. The effective interest rates for the Notes include the interest on the Notes, accretion of the discount, and amortization of issuance costs. The indentures that govern the Notes also contain various covenants, including limitations on the Company's ability to incur liens or enter into sale-leaseback transactions over certain dollar thresholds.

As of December 31, 2020, the Company was in compliance with all covenants in the indenture governing the Notes.

Revolving Credit Facility

In April 2019, the Company entered into a credit agreement (the "Credit Agreement") with certain institutional lenders that provides for a five-year $500.0 million unsecured revolving credit facility (the "Revolving Credit Facility"), with an option to increase the Revolving Credit Facility by up to an additional $200.0 million, subject to the lenders' approval. Proceeds of loans made under the Revolving Credit Facility may be used by the Company for working capital and general corporate purposes. The Revolving Credit Facility will terminate in April 2024, subject to a one-year maturity extension option, on the terms and conditions as set forth in the credit agreement.

Borrowings under the Revolving Credit Facility will bear interest, at either (i) a floating rate per annum equal to the base rate plus a margin of between 0.00% and 0.375%, depending on the Company's public debt rating or (ii) a per annum rate equal to the reserve adjusted Eurocurrency rate, plus a margin of between 0.910% and 1.375%, depending on the Company's public debt rating. Base rate is defined as the greatest of (A) Citibank's base rate, (B) the federal funds rate plus 0.500% or (C) the ICE Benchmark Administration Settlement Rate applicable to dollars for a period of one month plus 1.00%. The Eurocurrency rate is determined for U.S. dollars and Pounds Sterling as the rate at which deposits in such currency are offered in the London interbank market for the applicable interest period and for Euro as the rate specified for deposits in Euro with a maturity comparable to the applicable interest period.

The Revolving Credit Facility requires the Company to maintain a leverage ratio no greater than 3.0x (provided that if a material acquisition has been consummated, the Company is permitted to maintain a leverage ratio no greater than 3.5x for up to four quarters) and an interest coverage ratio no less than 3.0x during the term of the credit facility.

As of December 31, 2020, the Company had not borrowed any funds under the Credit Agreement and was in compliance with all covenants in the Credit Agreement.

Financing Arrangements

The Company provides certain customers with access to extended financing arrangements that allow for longer payment terms than those typically provided by the Company by factoring accounts receivable to third-party financing providers ("financing providers"). The program does not and is not intended to affect the timing of the Company's revenue recognition. Under the financing arrangements, proceeds from the financing providers are due to the Company within 1 to 90 days from the sale of the receivable. In these transactions with the financing providers, the Company surrenders control over the transferred assets.

Pursuant to the financing arrangements for the sale of receivables, the Company sold receivables of $57.5 million, $64.0 million and $122.8 million during the years ended December 31, 2020, 2019, and 2018, respectively. The Company received cash proceeds from financing providers of $57.4 million, $69.7 million, and $123.2 million during the years ended December 31, 2020, 2019, and 2018, respectively. As of December 31, 2020 and December 31, 2019, the amounts owed by the financing providers were $3.9 million and $5.3 million, respectively, which were recorded in accounts receivable on the Company’s Consolidated Balance Sheets.

Note 10. Equity

The following table summarizes dividends paid, stock repurchases and retirements under the Company's stock repurchase programs, and stock repurchases for tax withholdings (in millions, except per share amounts):

	Dividends		Stock Repurchases				Total
Year	Per Share	Amount	Shares	Average price per share (*)	Amount	Tax Withholding Amount	Amount
2020	$ 0.80	$ 264.1	17.9	$ 23.47	$ 375.0	$ 6.2	$ 645.3
2019	$ 0.76	$ 260.1	20.1	$ 25.36	$ 550.0	$ 5.0	$ 815.1
2018	$ 0.72	$ 249.3	29.3	$ 25.62	$ 750.0	$ 6.6	$ 1,005.9

(*) $23.47 average price per share for 2020 includes $375.0 million in open market purchases, and settlement of the forward contract of $40.0 million under the ASR, which was initiated during the fourth quarter of 2019.

Cash Dividends on Shares of Common Stock

During 2020, 2019, and 2018, the Company declared and paid quarterly cash dividends of $0.20, $0.19 and $0.18 per common share, totaling $264.1 million, $260.1 million, and $249.3 million, respectively, on its outstanding common stock. Any future dividends, and the establishment of record and payment dates, are subject to approval by the Board of Directors (the "Board") of Juniper or an authorized committee thereof. See Note 17, *Subsequent Events,* for discussion of the Company's dividend declaration subsequent to December 31, 2020.

Stock Repurchase Activities

In January 2018, the Board approved a $2.0 billion share repurchase program ("2018 Stock Repurchase Program"). In October 2019, the Board authorized a $1.0 billion increase to the 2018 Stock Repurchase Program for a total of $3.0 billion.

As part of the 2018 Stock Repurchase Program, in February 2018 and April 2019, the Company entered into two accelerated share repurchase programs ("ASR") and repurchased $750.0 million and $300.0 million of the Company's common stock, respectively. The aggregate number of shares ultimately repurchased of 29.3 million and 11.6 million shares of the Company's common stock was determined based on a volume weighted average repurchase price, less an agreed upon discount, of $25.62 and $25.79 per share, respectively. The shares received by the Company were retired, accounted for as a reduction to stockholder’s equity in the Consolidated Balance Sheets, and treated as a repurchase of common stock for purposes of calculating earnings per share.

As part of the 2018 Stock Repurchase Program, in October 2019, the Company entered into an ASR with a financial institution to repurchase an aggregate of $200.0 million of the Company's outstanding common stock. The Company made an up-front payment of $200.0 million pursuant to the ASR and received and retired an initial 6.4 million shares of the Company's common stock for an aggregate price of $160.0 million based on the market price of $25.15 per share of the Company’s common stock on the date of the transaction. In January, 2020, the ASR was completed, and an additional 1.8 million shares were received for a total repurchase of 8.2 million shares of the Company's common stock at a volume weighted average repurchase price, less an agreed upon discount, of $24.44 per share. The shares received by the Company were retired, accounted for as a reduction to stockholder’s equity in the Consolidated Balance Sheets, and treated as a repurchase of common stock for purposes of calculating earnings per share.

During the fiscal year ended December 31, 2020, the Company repurchased 16.1 million shares of its common stock in the open market, for an aggregate purchase price of $375.0 million at an average price of $23.36 per share, under the 2018 Stock Repurchase Program.

As of December 31, 2020, there were $1.3 billion of authorized funds remaining under the 2018 Stock Repurchase Program. See Note 17, *Subsequent Events,* for a discussion of the Company's stock repurchase activity subsequent to December 31, 2020.

Future share repurchases under the 2018 Stock Repurchase Program will be subject to a review of the circumstances at that time and will be made from time to time in private transactions or open market purchases as permitted by securities laws and other legal requirements.

In addition to repurchases under the 2018 Stock Repurchase Program, the Company withholds shares of common stock from certain employees in connection with the vesting of stock awards issued to such employees to satisfy applicable tax withholding requirements. Such withheld shares are treated as common stock repurchases in our financial statements as they reduce the number of shares that would have been issued upon vesting. Repurchases associated with tax withholdings were not material during the years ended December 31, 2020, 2019, and 2018.

Accumulated Other Comprehensive Loss, Net of Tax

The components of accumulated other comprehensive loss, net of related taxes, for the years ended December 31, 2020, 2019, and 2018 were as follows (in millions):

	Unrealized Gains/Losses on Available-for-Sale Debt Securities[(1)]	Unrealized Gains/Losses on Cash Flow Hedges[(2)]	Foreign Currency Translation Adjustments	Total
Balance as of December 31, 2017	$ 19.0	$ 6.0	$ (30.4)	$ (5.4)
Other comprehensive income (loss) before reclassifications	0.6	(6.4)	(12.4)	(18.2)
Amount reclassified from accumulated other comprehensive income (loss)	0.9	(1.2)	—	(0.3)
Other comprehensive income (loss), net	1.5	(7.6)	(12.4)	(18.5)
Reclassification of tax effects upon adoption of ASU 2018-02	5.0	0.7	—	5.7
Balance as of December 31, 2018	$ 25.5	$ (0.9)	$ (42.8)	$ (18.2)
Other comprehensive income (loss) before reclassifications	4.6	(8.9)	(1.1)	(5.4)
Amount reclassified from accumulated other comprehensive income (loss)	(0.4)	5.5	—	5.1
Other comprehensive income (loss), net	4.2	(3.4)	(1.1)	(0.3)
Balance as of December 31, 2019	$ 29.7	$ (4.3)	$ (43.9)	$ (18.5)
Other comprehensive income before reclassifications	5.7	54.4	7.7	67.8
Amount reclassified from accumulated other comprehensive income (loss)	(1.3)	7.6	—	6.3
Other comprehensive income, net	4.4	62.0	7.7	74.1
Balance as of December 31, 2020	$ 34.1	$ 57.7	$ (36.2)	$ 55.6

(1) The reclassifications out of accumulated other comprehensive income (loss) during the years ended December 31, 2020, 2019, and 2018 for realized gains on available-for-sale debt securities were not material, and were included in other expense, net, in the Consolidated Statements of Operations.

(2) The reclassifications out of accumulated other comprehensive income (loss) during the years ended December 31, 2020, 2019, and 2018 for realized gains and losses on cash flow hedges were not material, and were included within cost of revenues, research and development, sales and marketing, and general and administrative in the Consolidated Statements of Operations.

Note 11. Employee Benefit Plans

Equity Incentive Plans

The Company's equity incentive plans include the 2015 Equity Incentive Plan (the "2015 Plan") and the 2008 Employee Stock Purchase Plan (the "ESPP"). The Company has granted RSUs and PSAs under the 2015 Plan and purchase rights under the ESPP. In addition, in connection with certain past acquisitions, the Company has assumed or substituted stock options, RSUs, RSAs, and PSAs granted under the stock plans of the acquired companies. Such awards were converted into or replaced with the Company's stock options, RSUs, RSAs, and PSAs, respectively.

The 2015 Plan was adopted and approved by the Company's stockholders in May 2015 and had an initial authorized share reserve of 38.0 million shares of common stock, plus the addition of any shares subject to outstanding awards under the 2006 Equity Incentive Plan and the Amended and Restated 1996 Stock Plan that were outstanding as of May 19, 2015, and that subsequently expire or otherwise terminate, up to a maximum of an additional 29.0 million shares. In May 2017, the Company's stockholders approved an additional 23.0 million shares of common stock for issuance under the 2015 Plan, and in May 2019, the Company's stockholders approved an additional 3.7 million shares of common stock for issuance under the 2015 Plan. As of December 31, 2020, an aggregate of 15.4 million shares were subject to outstanding equity awards under the 2015 Plan. As of December 31, 2020, 12.1 million shares were available for future issuance under the 2015 Plan.

The ESPP was adopted and approved by the Company's stockholders in May 2008. In May 2020, the Company's stockholders approved an additional 8.0 million shares of common stock for issuance under the ESPP. To date, the Company's stockholders have approved a share reserve of 43.0 million shares of the Company's common stock for issuance under the ESPP. The ESPP permits eligible employees to acquire shares of the Company's common stock at a 15% discount (as determined in the ESPP) through periodic payroll deductions of up to 10% of base compensation, subject to individual purchase limits of 6,000 shares in any twelve-month period or $25,000 worth of stock, determined at the fair market value of the shares at the time the stock purchase option is granted, in one calendar year. The ESPP provides 24 month offering periods with four 6-month purchase periods. A new 24-month offering period will commence every six months thereafter. The purchase price for the Company's common stock under the ESPP is 85% of the lower of the fair market value of the shares at (1) the beginning of the applicable offering period or (2) the end of each 6-month purchase period during such offering period. The ESPP will continue in effect until February 25, 2028, unless terminated earlier under the provisions of the ESPP. As of December 31, 2020, approximately 31.5 million shares have been issued and 11.5 million shares remain available for future issuance under the ESPP.

In connection with the acquisitions of 128 Technology and Mist in 2020 and 2019, respectively, the Company assumed or substituted an aggregate of 7.3 million shares of stock options, RSUs, RSAs, and PSAs. No additional awards can be granted under the stock plans of the acquired companies. As of December 31, 2020, approximately 5.9 million shares of common stock were outstanding under all awards assumed or substituted through the Company's acquisitions.

RSU, RSA, and PSA Activities

RSUs generally vest over three years from the date of grant, and RSAs and PSAs generally vest over a period of two to three years provided that certain annual performance targets and other vesting criteria are met. Until vested, RSUs and PSAs do not have the voting and dividend participation rights of common stock and the shares underlying the awards are not considered issued and outstanding.

The following table summarizes the Company's RSU, RSA, and PSA activity and related information as of and for the year ended December 31, 2020 (in millions, except per share amounts and years):

	Outstanding RSUs, RSAs, and PSAs			
	Number of Shares	Weighted Average Grant-Date Fair Value per Share	Weighted Average Remaining Contractual Term (In Years)	Aggregate Intrinsic Value
Balance at December 31, 2019	17.5	$ 25.30		
Granted[1][2]	8.4	22.13		
Awards assumed upon the acquisition of 128 Technology[2]	3.1	20.15		
Vested[3]	(6.7)	25.92		
Canceled	(2.4)	24.38		
Balance at December 31, 2020	19.9	$ 23.05	1.3	$ 447.7
As of December 31, 2020				
Vested and expected-to-vest RSUs, RSAs, and PSAs	18.6	$ 23.04	1.3	$ 419.1

(1) Includes 7.1 million service-based, 0.9 million performance-based, and 0.4 million market-based RSUs and PSAs, as applicable. The number of shares subject to performance-based and market-based conditions represents the aggregate maximum number of shares that may be issued pursuant to the award over its full term. The grant date fair value of RSUs and PSAs was reduced by the present value of dividends expected to be paid on the underlying shares of common stock during the requisite and derived service period as these awards are not entitled to receive dividends until vested.

(2) The weighted-average grant-date fair value of RSUs, RSAs, and PSAs granted and assumed or substituted during 2020, 2019, and 2018 was $21.59, 25.26, and 25.33, respectively. The grant date fair value of RSUs and PSAs was reduced by the present value of dividends expected to be paid on the underlying shares of common stock during the requisite and derived service period as these awards are not entitled to receive dividends until vested. During 2020, the Company declared a quarterly cash dividend of $0.20 per share of common stock on January 27, 2020, April 28, 2020, July 28, 2020 and October 27, 2020.

(3) Total fair value of RSUs, RSAs, and PSAs vested during 2020, 2019, and 2018 was $174.7 million, $170.0 million, and $200.5 million, respectively.

Shares Available for Grant

The following table presents the stock activity and the total number of shares available for grant under the 2015 Plan (in millions):

	Number of Shares
Balance as of December 31, 2019	16.6
Additional shares authorized	—
RSUs and PSAs granted(*)	(8.4)
RSUs and PSAs canceled(*)	3.9
Balance as of December 31, 2020	12.1

(*) In May 2019, the 2015 Plan was amended, and the amendment removed the fungible share adjustment used to determine shares available for issuance. Under the original terms of the 2015 Plan, RSUs and PSAs with a per share or unit purchase price lower than 100% of the fair market value of the Company's common stock on the day of the grant were counted against shares authorized under the plan as two and one-tenth shares of common stock ("the prior fungible rate") for each share subject to such award. Pursuant to the amendment, beginning on May 14, 2019, each share award granted under the 2015 Plan reduces the share reserve by one share and all share awards granted on May 14, 2019 and thereafter that are later forfeited, canceled or terminated are returned to the share reserve in the same manner. During 2020, among the total 3.9 million of canceled shares, 3.5 million shares represent the shares returned to the share reserve at the prior fungible rate. The number of shares subject to PSAs granted represents the maximum number of shares that may be issued pursuant to the award over its full term.

Employee Stock Purchase Plan

During 2020, 2019, and 2018, employees purchased 2.7 million, 2.4 million and 2.5 million shares of common stock through the ESPP at an average exercise price of $19.59, $22.04, and $22.31 per share, respectively.

Valuation Assumptions

The weighted-average assumptions used and the resulting estimates of fair value for ESPP purchase rights and market-based RSUs were as follows:

	Years Ended December 31,		
	2020	2019	2018
ESPP Purchase Rights:			
Volatility	31%	27%	29%
Risk-free interest rate	0.8%	2.1%	1.9%
Expected life (years)	1.3	1.2	1.2
Dividend yield	3.3%	2.9%	2.7%
Weighted-average fair value per share	$6.34	$6.65	$6.93
Market-based RSUs:			
Volatility	25%	25%	28%
Risk-free interest rate	1.3%	2.4%	2.4%
Dividend yield	3.3%	2.8%	2.6%
Weighted-average fair value per share	$26.32	$27.32	$28.39

Share-Based Compensation Expense

Share-based compensation expense associated with stock options, RSUs, RSAs, PSAs, and ESPP purchase rights was recorded in the following cost and expense categories in the Company's Consolidated Statements of Operations (in millions):

	Years Ended December 31,		
	2020	2019	2018
Cost of revenues - Product	$ 5.4	$ 5.7	$ 6.3
Cost of revenues - Service	15.8	17.3	18.0
Research and development	78.8	94.0	120.6
Sales and marketing	58.2	56.0	51.1
General and administrative	31.4	29.2	21.1
Total	$ 189.6	$ 202.2	$ 217.1

The following table summarizes share-based compensation expense by award type (in millions):

	Years Ended December 31,		
	2020	2019	2018
Stock options	$ 7.3	$ 7.7	$ 0.4
RSUs, RSAs, and PSAs	162.6	176.5	198.2
ESPP Purchase Rights	19.7	18.0	18.5
Total	$ 189.6	$ 202.2	$ 217.1

For the years ended December 31, 2020, 2019 and 2018, the Company recognized tax benefits on total stock-based compensation expense, which are reflected in the income tax provision in the Consolidated Statements of Operations, of $23.5 million, $29.6 million, and $33.8 million, respectively.

For the years ended December 31, 2020, 2019, and 2018, the realized tax benefit related to awards vested or exercised during the period was $21.7 million, $30.6 million and $38.9 million, respectively. These amounts do not include the indirect effects of stock-based awards, which primarily relate to the research and development tax credit.

As of December 31, 2020, the total unrecognized compensation cost related to unvested share-based awards was $333.1 million to be recognized over a weighted-average period of 1.8 years.

401(k) Plan

The Company maintains a savings and retirement plan qualified under Section 401(k) of the Internal Revenue Code of 1986, as amended (the "IRC"). Employees meeting the eligibility requirements, as defined under the IRC, may contribute up to the statutory limits each year. The Company currently matches 30% of all eligible employee contributions which vest immediately. The Company’s matching contributions to the plan totaled $22.0 million, $20.2 million, and $20.2 million during 2020, 2019, and 2018, respectively.

Deferred Compensation Plan

The Company’s NQDC plan is an unfunded and unsecured deferred compensation arrangement. Under the NQDC plan, officers and other senior employees may elect to defer a portion of their compensation and contribute such amounts to one or more investment funds. As of December 31, 2020, the liability of the Company to the plan participants was $29.3 million, of which $3.1 million was included within other accrued liabilities and $26.2 million was included in other long-term liabilities on the Consolidated Balance Sheets. The Company had investments of $29.3 million correlating to the deferred compensation obligations, of which $3.1 million was included within prepaid expenses and other current assets and $26.2 million was included within other long-term assets on the Consolidated Balance Sheets. As of December 31, 2019, the liability of the Company was $26.8 million, of which $4.1 million was included within other accrued liabilities and $22.7 million was included in other long-term liabilities on the Consolidated Balance Sheets. The Company had investments of $26.8 million correlating to the deferred compensation obligations, of which $4.1 million was included within prepaid expenses and other current assets and $22.7 million was included within other long-term assets on the Consolidated Balance Sheets.

Note 12. Segments

The Company operates in one reportable segment. The Company's chief executive officer, who is the chief operating decision maker, reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance, accompanied by disaggregated information about net revenues by product and service, customer vertical, and geographic region as presented below.

The following table presents net revenues by product and service (in millions):

	Years Ended December 31,		
	2020	2019	2018
Routing	$ 1,612.1	$ 1,623.2	$ 1,839.7
Switching	918.9	901.0	934.4
Security	314.0	343.5	333.0
Total product	2,845.0	2,867.7	3,107.1
Total service	1,600.1	1,577.7	1,540.4
Total	$ 4,445.1	$ 4,445.4	$ 4,647.5

The following table presents net revenues by customer vertical (in millions):

	Years Ended December 31,		
	2020	2019	2018
Cloud	$ 1,081.2	$ 1,059.8	$ 1,049.9
Service Provider	1,761.7	1,827.8	2,066.7
Enterprise	1,602.2	1,557.8	1,530.9
Total	$ 4,445.1	$ 4,445.4	$ 4,647.5

The Company attributes revenues to geographic region based on the customer's shipping address. The following table presents net revenues by geographic region (in millions):

	Years Ended December 31,		
	2020	2019	2018
Americas:			
United States	$ 2,233.9	$ 2,299.8	$ 2,339.1
Other	211.2	218.2	202.1
Total Americas	2,445.1	2,518.0	2,541.2
Europe, Middle East, and Africa	1,233.8	1,215.3	1,290.8
Asia Pacific	766.2	712.1	815.5
Total	$ 4,445.1	$ 4,445.4	$ 4,647.5

During the years ended December 31, 2020, 2019, and 2018, no customer accounted for greater than 10% of the Company's net revenues.

The following table presents geographic information for property and equipment, net and purchased intangible assets, net (in millions):

	As of December 31,	
	2020	2019
United States	$ 807.4	$ 815.9
International	221.6	200.8
Property and equipment, net and purchased intangible assets, net	$ 1,029.0	$ 1,016.7

The Company tracks assets by physical location. The majority of the Company's assets, excluding cash and cash equivalents and investments, as of December 31, 2020 and December 31, 2019, were attributable to U.S. operations.

Note 13. Income Taxes

The components of pretax income are summarized as follows (in millions):

	Years Ended December 31,		
	2020	2019	2018
Domestic	$ 204.2	$ 296.2	$ 160.6
Foreign	61.0	118.2	372.1
Total pretax income	$ 265.2	$ 414.4	$ 532.7

The provision (benefit) for income taxes is summarized as follows (in millions):

	Years Ended December 31,		
	2020	2019	2018
Current provision (benefit):			
Federal	$ 73.4	$ 6.2	$ (126.1)
States	20.3	14.4	9.0
Foreign	(21.6)	48.5	38.9
Total current provision (benefit)	72.1	69.1	(78.2)
Deferred (benefit) provision:			
Federal	(58.7)	0.8	36.6
States	(6.6)	2.8	2.2
Foreign	0.6	(3.3)	5.2
Total deferred (benefit) provision	(64.7)	0.3	44.0
Total provision (benefit) for income taxes	$ 7.4	$ 69.4	$ (34.2)

The provision (benefit) for income taxes differs from the amount computed by applying the federal statutory tax rate of 21% to pretax income for each of the years presented as follows (in millions):

	Years Ended December 31,		
	2020	2019	2018
Expected provision at statutory rate	$ 55.7	$ 87.0	$ 111.9
State taxes, net of federal benefit	8.7	9.4	7.4
Foreign income at different tax rates	(5.9)	1.8	(12.8)
R&D tax credits	(16.4)	(18.8)	(22.1)
Share-based compensation	9.0	3.8	4.7
Non-deductible compensation	3.5	3.3	1.9
Temporary differences not currently benefited	(0.9)	12.9	—
Recognition of previously unrecognized tax benefits	(63.7)	(25.4)	—
Cost sharing adjustment- Altera	20.1	—	—
Lapses in federal statutes of limitations	—	(7.5)	(67.6)
Tax accounting method changes	—	—	(65.4)
Impact of the U.S. Tax Cuts and Jobs Act	—	—	2.8
Other	(2.7)	2.9	5.0
Total provision (benefit) for income taxes	$ 7.4	$ 69.4	$ (34.2)

In 2020, the Company recorded a $63.7 million benefit, including interest and penalties, related to a multi-year recognition of previously unrecognized tax benefits and a $20.1 million charge, including interest, for a cumulative impact of cost sharing for share-based compensation described below.

In 2019, the Company recorded a $25.4 million benefit, including interest, related to the recognition of previously unrecognized tax benefits pursuant to the resolution of a tax audit and a $7.5 million benefit, including interest, for a lapse in statute of limitations.

On June 7, 2019, the Ninth Circuit Court of Appeals issued an opinion in Altera Corp. v. Commissioner requiring related parties in an intercompany cost-sharing arrangement to share expenses related to share-based compensation. On February 10, 2020, Altera appealed this decision to the U.S. Supreme Court, which on June 22, 2020, declined to review the decision. Based on the Supreme Court's decision, the Company's share-based compensation is subject to cost sharing, and the Company recorded a $20.1 million charge referenced above during the year ended December 31, 2020.

Deferred income taxes reflect the net tax effects of tax carry-forward items and temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's long-term deferred tax assets and deferred tax liabilities are as follows (in millions):

	As of December 31,	
	2020	**2019**
Deferred tax assets:		
Net operating loss carry-forwards	$ 48.2	$ 27.7
Research and other credit carry-forwards	252.8	236.7
Deferred revenue	43.4	40.0
Share-based compensation	15.0	24.3
Capitalized R&D expenditure	60.5	—
Reserves and accruals not currently deductible	43.5	55.8
Operating lease liabilities	51.3	48.3
Other	10.6	12.0
Total deferred tax assets	525.3	444.8
Valuation allowance	(261.5)	(249.4)
Deferred tax assets, net of valuation allowance	263.8	195.4
Deferred tax liabilities:		
Property and equipment basis differences	(20.1)	(39.2)
Purchased intangible assets	(45.6)	(27.8)
Unremitted foreign earnings	(25.5)	(23.7)
Net unrealized gain	(21.1)	(8.7)
Operating lease assets	(44.9)	(41.1)
Total deferred tax liabilities	(157.2)	(140.5)
Net deferred tax assets	$ 106.6	$ 54.9

As of December 31, 2020 and 2019, the Company had a valuation allowance on its U.S. domestic deferred tax assets of $261.5 million and $249.4 million, respectively. The balance at December 31, 2020 consisted of $225.2 million, $28.6 million and $3.4 million against the Company's California, Massachusetts and Canadian deferred tax assets, respectively, which the Company believes are not more likely than not to be utilized in future years. The remaining deferred tax assets for which the Company recorded a valuation allowance of $1.6 million are related to capital losses that may carry forward to offset future capital gains only. The valuation allowance increased in 2020 and 2019 by $12.1 million and $15.7 million, respectively, primarily related to the changes in California and Massachusetts R&D tax credits.

As of December 31, 2020, the Company had federal and California net operating loss carry-forwards of approximately $172.9 million and $134.0 million, respectively. The California net operating loss carry-forwards of $134.0 million are expected to expire unused. The Company also had federal and California tax credit carry-forwards of approximately $6.3 million and

$266.0 million, respectively. Unused net operating loss carry-forwards will expire at various dates beginning in the year 2021. The California tax credit carry-forwards will carry forward indefinitely.

The Company provides deferred tax liabilities for all tax consequences associated with the undistributed earnings that are expected to be repatriated to subsidiaries' parent unless the subsidiaries' earnings are considered indefinitely reinvested. The Company has made no provision for deferred taxes on approximately $60.2 million of cumulative undistributed earnings of certain foreign subsidiaries through December 31, 2020. These earnings are considered indefinitely invested in operations of the subsidiaries, as the Company intends to utilize these amounts to fund future expansion of its operations. If these earnings were distributed to the parent, the Company would be subject to additional taxes of approximately $12.0 million.

As of December 31, 2020, 2019, and 2018, the total amount of gross unrecognized tax benefits was $116.0 million, $151.3 million, and $178.1 million, respectively. As of December 31, 2020, approximately $92.8 million of the $116.0 million gross unrecognized tax benefits, if recognized, would affect the effective tax rate.

A reconciliation of the beginning and ending amount of the Company's total gross unrecognized tax benefits was as follows (in millions):

	Years Ended December 31,		
	2020	**2019**	**2018**
Balance at beginning of year	$ 151.3	$ 178.1	$ 264.5
Tax positions related to current year:			
Additions	5.3	5.9	4.3
Tax positions related to prior years:			
Additions	18.1	0.8	12.7
Reductions	(52.0)	(3.3)	(33.8)
Settlements	(1.8)	(22.5)	(2.6)
Lapses in statutes of limitations	(4.9)	(7.7)	(67.0)
Balance at end of year	$ 116.0	$ 151.3	$ 178.1

As of December 31, 2020, 2019, and 2018, the Company had accrued interest and penalties related to unrecognized tax benefits of $5.3 million, $29.9 million, and $33.8 million, respectively, as other long-term liabilities in the Consolidated Balance Sheets. Due to the changes in the level of gross unrecognized tax benefits, the Company recognized a benefit for net interest and penalties of $20.7 million, $2.8 million and $5.2 million in its Consolidated Statements of Operations during the years ended December 31, 2020, 2019, and 2018, respectively. The Company recognizes interest and penalties related to unrecognized tax benefits as a component of income tax expense.

In 2020, the Company received final orders from the US and India Competent Authorities, which resolved the Company’s dispute with the India Tax Authorities for the 2010 through 2012 income tax years. The Company also remeasured certain previously unrecognized tax benefits for all open years resulting in a total release of $58.8 million, including $18.4 million of interest and penalties. In addition, the Company closed an administrative procedure with the Joint Committee on Taxation, resulting in the release of a previously unrecognized tax benefit of $9.0 million.

The Company engages in continuous discussions and negotiations with tax authorities regarding tax matters in various jurisdictions. There is a greater than remote likelihood that the balance of the gross unrecognized tax benefits will decrease by up to $10.6 million within the next twelve months due to the completion of tax review cycles in various tax jurisdictions and lapses of applicable statutes of limitation.

The Company conducts business globally and, as a result, Juniper Networks or one or more of its subsidiaries files income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. In the normal course of business, the Company is subject to examination by taxing authorities throughout the world, including such major jurisdictions as the Netherlands, U.K., France, Germany, Japan, China, Australia, India, and the U.S. With few exceptions, the Company is no longer subject to U.S. federal, state and local, and non-U.S. income tax examinations for years before 2009.

The Company is currently under examination by the India tax authorities for the 2009 through 2015 tax years. The examinations by the India tax authorities are ongoing. The Company regularly assesses the likelihood of an adverse outcome resulting from such examinations. As of December 31, 2020, the Company believes the resolution of the audits is unlikely to have a material effect on its consolidated financial condition or results of operations.

The Company is pursuing all available administrative remedies relative to these ongoing matters. The Company believes that it has adequately provided for any reasonably foreseeable outcomes related to these proposed adjustments and the ultimate resolution of these matters is unlikely to have a material effect on its consolidated financial condition or results of operations; however, there is still a possibility that an adverse outcome of these matters could have a material effect on its consolidated financial condition and results of operations.

Note 14. Net Income per Share

The Company computed basic and diluted net income per share as follows (in millions, except per share amounts):

	Years Ended December 31,		
	2020	2019	2018
Numerator:			
Net income	$ 257.8	$ 345.0	$ 566.9
Denominator:			
Weighted-average shares used to compute basic net income per share	330.4	343.2	349.0
Dilutive effect of employee stock awards	4.8	5.0	5.4
Weighted-average shares used to compute diluted net income per share	335.2	348.2	354.4
Net income per share:			
Basic	$ 0.78	$ 1.01	$ 1.62
Diluted	$ 0.77	$ 0.99	$ 1.60
Anti-dilutive shares	5.3	4.7	3.9

Basic net income per share is computed using net income available to common stockholders and the weighted-average number of common shares outstanding for the period. Diluted net income per share is computed using net income available to common stockholders and the weighted-average number of common shares outstanding plus potentially dilutive common shares outstanding during the period. Dilutive potential common shares consist of common shares issuable upon exercise of stock options and purchase rights, and vesting of RSUs, RSAs, and PSAs. The Company includes the common shares underlying PSAs in the calculation of diluted net income per share only when they become contingently issuable. Anti-dilutive shares are excluded from the computation of diluted net income per share.

Note 15. Commitments and Contingencies

Commitments

Unconditional Purchase Obligations

Unconditional purchase obligations consist of agreements that include firm and non-cancelable terms to transfer funds in the future for fixed or minimum amounts or quantities to be purchased at fixed or minimum prices. For obligations with cancellation provisions, the amounts included in the following table were limited to the non-cancelable portion of the agreement terms or the minimum cancellation fee.

The following table summarizes the Company's unconditional purchase obligations for each of the next five years and thereafter as of December 31, 2020 (in millions):

Years Ending December 31,	Unconditional Purchase Obligations
2021	$ 62.3
2022	53.0
2023	30.8
2024	9.0
2025	1.6
Total	$ 156.7

In December 2018, the Company entered into a Master Services Agreement and certain Statements of Work, (collectively, the "Agreement") with International Business Machines Corporation ("IBM"), pursuant to which the Company outsourced significant portions of its IT and other administrative functions to IBM in exchange for a combination of fixed and variable fees, fluctuating based on the Company's actual need for the services utilized. During the second quarter of 2020, the Company amended the Agreement, resulting in a $79.4 million reduction in fees payable to IBM. As of December 31, 2020, the Company expects to pay IBM $183.3 million over the remaining initial term of the Agreement. The table above does not include fees payable to IBM under the contract as the Company is unable to make a reasonably reliable estimate of the amount of the payments related to this contract due to uncertainties in the usage of the services.

In December 2019, the Company entered into a 15-year Energy Services Agreement ("ESA") with a Supplier to purchase energy and environmental attributes generated from a third-party fuel cell systems, which will be installed, operated, and maintained by the Supplier on the Company's premises. Service fees payable to Supplier fluctuate based on the actual amount of electricity delivered to the Company during a given operational year. As of December 31, 2020, the Company expects to pay Supplier approximately $29.0 million over the remaining initial term of the ESA. The table above does not include fees payable to this Supplier due to uncertainties associated with system outputs.

Leases

The Company leases its facilities and certain equipment under non-cancelable operating leases that have remaining lease terms of 1 to 10 years and 1 to 4 years, respectively. Each leased facility is subject to an individual lease or sublease, which could provide various options to extend or terminate the lease agreement. Facilities are primarily comprised of corporate offices, data centers, and R&D facilities. Equipment includes vehicles and various office equipment. The Company also has variable lease payments that are primarily comprised of common area maintenance and utility charges. The Company's lease agreements do not contain any residual value guarantees or restrictive covenants.

The components of lease costs and other information related to leases were as follows (in millions, except years and percentages):

	December 31, 2020	December 31, 2019
Operating lease cost	$ 50.8	$ 50.3
Variable lease cost	13.4	12.6
Total lease cost	$ 64.2	$ 62.9
Operating cash outflows from operating leases	$ 54.2	$ 49.6
ROU assets obtained in exchange for new operating lease liabilities	$ 54.7	$ 14.0
Weighted average remaining lease term (years)	4.9	5.5
Weighted average discount rate	3.7 %	3.9 %

As of December 31, 2020, future operating lease payments for each of the next five years and thereafter is as follows (in millions):

Years Ending December 31,	Amount
2021	$ 52.9
2022	48.8
2023	42.8
2024	38.0
2025	29.9
Thereafter	20.3
Total lease payments	232.7
Less: interest	(20.1)
Total(*)	$ 212.6
Balance Sheet Information	
Other accrued liabilities	$ 49.1
Long-term operating lease liabilities	163.5
Total	$ 212.6

(*) The total does not include one operating lease with a total lease obligation of $10.7 million that has not yet commenced as of December 31, 2020.

Purchase Commitments with Contract Manufacturers and Suppliers

In order to reduce manufacturing lead times and in the interest of having access to adequate component supply, the Company enters into agreements with contract manufacturers and certain suppliers to procure inventory based on the Company's requirements. A significant portion of the Company's purchase commitments arising from these agreements consists of firm and non-cancelable commitments. The following table summarizes the Company’s purchase commitments for each of the next five years and thereafter as of December 31, 2020 (in millions):

Years Ending December 31,	Purchase Commitments
2021	$ 825.8
2022	230.9
2023	226.3
Total	$ 1,283.0

The Company establishes a liability in connection with purchase commitments related to quantities in excess of its demand forecasts or obsolete materials charges for components purchased by the contract manufacturers based on the Company’s demand forecast or customer orders. As of December 31, 2020, the Company had accrued $15.2 million based on its estimate of such charges.

Debt and Interest Payment on Debt

As of December 31, 2020, the Company held total outstanding debt consisting of the Notes with a carrying value of $2,127.3 million. See Note 9, *Debt and Financing*, for further discussion of the Company's long-term debt and expected future principal maturities.

Tax Liability

In the fourth quarter of 2018, the Company completed its analysis to determine the effect of the Tax Act and recorded immaterial adjustments as of December 31, 2018. The Company has elected to pay its transition tax, net of applicable tax refunds, over the eight-year period provided in the Tax Act. The long-term income taxes payable of $250.6 million represents the remaining balance of the Company's transition tax obligation.

As of December 31, 2020, the Company had $61.9 million included in long-term income taxes payable on the Consolidated Balance Sheets for unrecognized tax positions. At this time, the Company is unable to make a reasonably reliable estimate of the timing of payments related to this amount due to uncertainties in the timing of tax audit outcomes.

Guarantees

The Company enters into agreements with customers that contain indemnification provisions relating to potential situations where claims could be alleged that the Company’s products solely, or in combination with other third-party products, infringe the intellectual property rights of a third-party. As of December 31, 2020 and 2019, the Company recorded $6.7 million and $9.0 million, respectively, for such indemnification obligations in other accrued liabilities and other long-term liabilities on the Consolidated Balance Sheets. The Company also has financial guarantees consisting of standby letters of credit for certain lease facilities, insurance programs and customs of $29.0 million and $30.6 million, as of December 31, 2020 and December 31, 2019, respectively.

Legal Proceedings

The Company is involved in investigations, disputes, litigation, and legal proceedings. The Company records an accrual for loss contingencies for legal proceedings when it believes that an unfavorable outcome is both (a) probable and (b) the amount or range of any possible loss is reasonably estimable. The Company intends to aggressively defend itself in these matters, and while there can be no assurances and the outcome of these matters is currently not determinable, the Company currently believes that none of these existing claims or proceedings are likely to have a material adverse effect on its financial position. Notwithstanding the foregoing, there are many uncertainties associated with any litigation and these matters or other third-party claims against the Company may cause the Company to incur costly litigation and/or substantial settlement charges. In addition, the resolution of any intellectual property litigation may require the Company to make royalty payments, which could adversely affect gross margins in future periods. If any of those events were to occur, the Company's business, financial condition, results of operations, and cash flows could be adversely affected. The actual liability in any such matters may be materially different from the Company's estimates, if any, which could result in the need to adjust the liability and record additional expenses.

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Note 16. Selected Quarterly Financial Data (Unaudited)

The table below sets forth selected unaudited financial data for each quarter of the years ended December 31, 2020 and December 31, 2019 (in millions, except per share amounts):

	Year Ended December 31, 2020				Year Ended December 31, 2019			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net revenues	$ 998.0	$ 1,086.3	$ 1,138.2	$ 1,222.6	$ 1,001.7	$ 1,102.5	$ 1,133.1	$ 1,208.1
Gross margin	579.3	619.6	657.8	717.0	582.3	636.8	678.4	719.3
Income before income taxes	28.3	86.1	111.6	39.2	44.5	77.8	118.1	174.0
Net income	$ 20.4	$ 61.2	$ 145.4	$ 30.8	$ 31.1	$ 46.2	$ 99.3	$ 168.4
Net income per share:(*)								
Basic	$ 0.06	$ 0.18	$ 0.44	$ 0.09	$ 0.09	$ 0.13	$ 0.29	$ 0.50
Diluted	$ 0.06	$ 0.18	$ 0.43	$ 0.09	$ 0.09	$ 0.13	$ 0.29	$ 0.49

(*) Net income per share is computed independently. Therefore, the sum of the quarterly net income per share may not equal the total computed for the year or any cumulative interim period.

Note 17. Subsequent Events

Apstra Acquisition

In January 2021, the Company acquired Apstra for approximately $180 million, subject to customary adjustments, in cash and the assumption of equity awards. The acquisition is expected to expand upon the Company's data center networking portfolio to advance its vision to transform data center operations by combining Apstra's full lifecycle management solution for data center networking and fabric automation from initial design to everyday management operations.

Debt Repayment

On January 11, 2021, the Company redeemed, in full, $265.8 million of the remainder of its outstanding 2024 notes and $158.0 million of the remainder of its outstanding 2025-I notes, for a principal redemption amount in the aggregate of approximately $482.1 million, plus accrued interest. The repayments resulted in a loss on extinguishment of debt of $60.6 million, consisting primarily of a premium on the early redemption and acceleration of unamortized debt discount and fees on the redeemed debt.

Dividend Declaration

On January 28, 2021, the Company announced that the Board declared a quarterly cash dividend of $0.20 per share of common stock to be paid on March 22, 2021 to stockholders of record as of the close of business on March 1, 2021.

Stock Repurchase Activities

Subsequent to December 31, 2020, through the date of filing of this Report (the "filing date"), the Company repurchased 2.5 million shares of its common stock in the open market, for an aggregate purchase price of $61.7 million at an average price of $24.94 per share, under the 2018 Stock Repurchase Program. Repurchases of approximately 2.0 million shares were settled prior to the filing of this Report and the remaining shares will be settled after the filing date. The Company has an aggregate of $1.3 billion of authorized funds remaining under the Stock Repurchase Program as of the filing date.

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

Not applicable.

Item 9A. ***Controls and Procedures***

(a) *Management's Annual Report on Internal Control Over Financial Reporting:* See "Management's Annual Report on Internal Control over Financial Reporting" under Item 8 of Part II of this Report, which is incorporated herein by reference.

(b) For the "Report of Independent Registered Public Accounting Firm," see the report under Item 8 of Part II of this Report, which is incorporated herein by reference.

Evaluation of Disclosure Controls and Procedures

Attached, as exhibits to this report are certifications of our principal executive officer and principal financial officer, which are required in accordance with Rule 13a-14 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). This "Controls and Procedures" section includes information concerning the controls and related evaluations referred to in the certifications and it should be read in conjunction with the certifications for a more complete understanding of the topics presented.

We carried out an evaluation, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Based upon that evaluation, our principal executive officer and principal financial officer concluded that, as of the end of the period covered in this Report, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in Securities and Exchange Commission rules and forms and 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 Controls Over Financial Reporting

There were no changes in our internal control over financial reporting during the fourth quarter of 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. We have not experienced any significant impact to our internal controls over financial reporting despite the fact that most of our employees are working remotely due to the COVID-19 pandemic. The design of our processes and controls allow for remote execution with accessibility to secure data. We are continually monitoring and assessing the COVID-19 situation to minimize the impact, if any, on the design and operating effectiveness on our internal controls.

PART III

ITEM 10. ***Directors, Executive Officers and Corporate Governance***

For information with respect to our executive officers, see Part I, Item 1 of this Annual Report on Form 10-K, under “Information about our Executive Officers.”

Information concerning our directors, including director nominations, and our audit committee and audit committee financial expert, is included in our definitive Proxy Statement to be filed with the SEC in connection with our 2021 Annual Meeting of Stockholders (the “Proxy Statement”) under “Corporate Governance Principles and Board Matters” and “Election of Directors” and is incorporated herein by reference.

With regard to the information required by this Item regarding compliance with Section 16(a) of the Exchange Act, we will provide disclosure of delinquent Section 16(a) reports, if any, in our Proxy Statement under “Delinquent Section 16(a) Reports” and such disclosure, if any, is incorporated herein by reference.

Information concerning our worldwide code of business conduct that applies to our principal executive officer and all other employees is included in the Proxy Statement under “Corporate Governance Principles and Board Matters” and is incorporated herein by reference.

ITEM 11. ***Executive Compensation***

Information required by Item 402 of Regulation S-K is included in the Proxy Statement under “Director Compensation,” and “Executive Compensation,” and is incorporated herein by reference.

Information concerning compensation committee interlocks and insider participation appearing in the Proxy Statement under “Compensation Committee Interlocks and Insider Participation” is incorporated herein by reference.

Information concerning the compensation committee report appearing in the Proxy Statement under “Compensation Committee Report” is incorporated herein by reference.

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

Information concerning the security ownership of certain beneficial owners and management is included in the Proxy Statement under “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” and is incorporated herein by reference.

Information concerning our equity compensation plan information is included in the Proxy Statement under “Equity Compensation Plan Information” and is incorporated herein by reference.

ITEM 13. ***Certain Relationships and Related Transactions, and Director Independence***

Information concerning certain relationships and related transactions is included in the Proxy Statement under the heading “Certain Relationships and Related Transactions” and is incorporated herein by reference.

Information concerning director independence is included in the Proxy Statement under the heading “Board Independence” and is incorporated herein by reference.

ITEM 14. ***Principal Accounting Fees and Services***

Information concerning principal accountant fees and services and the audit committee's pre-approval policies and procedures is included in the Proxy Statement under the heading “Principal Accountant Fees and Services” and is incorporated herein by reference.

PART IV

ITEM 15. ***Exhibits and Financial Statement Schedules***

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

1. Consolidated Financial Statements

See Index to Consolidated Financial Statements at Item 8 herein.

2. Financial Statement Schedules

Juniper Networks, Inc.

Schedule II - Valuation and Qualifying Accounts
Years Ended December 31, 2020, 2019, and 2018
(In millions)

Allowance for Doubtful Accounts	Balance at Beginning of Year	Charged to (Reversed from) Costs and Expenses	Write-offs, Net of Recoveries	Balance at End of Year
2020	$ 5.5	$ 4.4	$ —	$ 9.9
2019	$ 4.9	$ 1.7	$ (1.1)	$ 5.5
2018	$ 5.7	$ (0.8)	$ —	$ 4.9

Sales Return Reserve	Balance at Beginning of Year	Charged as a Reduction in Revenues	Used	Balance at End of Year
2020	$ 24.8	$ 60.7	$ (57.1)	$ 28.4
2019	$ 32.7	$ 59.5	$ (67.4)	$ 24.8
2018(*)	$ 44.5	$ 70.7	$ (82.5)	$ 32.7

(*) Upon adoption of Topic 606, the Company recorded a reduction of $10.7 million as part of the cumulative effect adjustment to the January 1, 2018 opening accumulated deficit balance on the Consolidated Balance Sheet.

All other schedules have been omitted as the required information is not applicable or the information is presented in the Consolidated Financial Statements or notes thereto under Item 8 herein.

3. Exhibits

Exhibit No.	Exhibit	Incorporated by Reference			
		Filing	Exhibit No.	File No.	File Date
3.1	Restated Certificate of Incorporation of Juniper Networks, Inc. and Certificate of Amendment	S-8	4.1	333-218344	5/30/2017
3.2	Amended and Restated Bylaws of Juniper Networks, Inc.	8-K	3.2	001-34501	5/30/2017
4.1	Description of Juniper Networks, Inc. Registered Securities	10-K	4.1	001-34501	2/20/2020
4.2	Indenture, dated March 3, 2011, by and between Juniper Networks, Inc. and The Bank of New York Mellon Trust Company, N.A., as trustee	8-K	4.1	001-34501	3/4/2011
4.3	First Supplemental Indenture, dated March 3, 2011, by and between Juniper Networks, Inc. and The Bank of New York Mellon Trust Company, N.A., as trustee	8-K	4.8	001-34501	3/4/2011
4.4	Sixth Supplemental Indenture, dated August 26, 2019, by and between Juniper Networks, Inc. and The Bank of New York Mellon Trust Company, N.A., as trustee	8-K	4.1	001-34501	8/26/2019
4.5	Seventh Supplemental Indenture, dated December 10, 2020, by and between Juniper Networks, Inc. and The Bank of New York Mellon Trust Company, N.A., as trustee	8-K	4.1	001-34501	12/10/2020
4.6	Form of Note for Juniper Networks, Inc.'s 5.950% Senior Notes due 2041	8-K	4.8	001-34501	3/4/2011
4.7	Form of Note for Juniper Networks, Inc.'s 1.200% Senior Notes due 2025	8-K	4.1	001-34501	12/10/2020
4.8	Form of Note for Juniper Networks, Inc.'s 2.000% Senior Notes due 2030	8-K	4.1	001-34501	12/10/2020
4.9	Form of Note for Juniper Networks, Inc.'s 3.750% Senior Notes due 2029	8-K	4.1	001-34501	8/26/2019
10.1	Juniper Networks, Inc. 2006 Equity Incentive Plan, as amended October 2, 2014+	10-Q	10.9	001-34501	11/10/2014
10.2	Juniper Networks, Inc. Performance Bonus Plan (As Amended and Restated Effective February 19, 2020)	10-Q	10.1	001-34501	5/5/2020
10.3	Juniper Networks, Inc. Deferred Compensation Plan+	S-8	4.4	333-151669	6/16/2008
10.4	Amended and Restated Juniper Networks, Inc. 2015 Equity Incentive Plan+	10-Q	10.4	001-34501	8/7/2019
10.5	Mist Systems, Inc. 2014 Equity Incentive Plan+	S-8	99.1	001-34501	4/2/2019
10.6	Amended and Restated Juniper Networks, Inc. 2008 Employee Stock Purchase Plan, as amended and restated as of May 14, 2020	10-Q	10.1	001-34501	8/4/2020
10.7	Form of Restricted Stock Unit Agreement effective as of May 19, 2015+	8-K	10.2	001-34501	5/20/2015
10.8	Form of Performance Share Agreement effective as of May 19, 2015+	8-K	10.3	001-34501	5/20/2015
10.9	Form of Indemnification Agreement entered into by Juniper Networks, Inc. with each of its directors, officers and certain employees, approved for use on August 9, 2018+	8-K	10.1	001-34501	8/10/2018
10.10	Form of Stock Option Agreement effective as of May 19, 2015+	8-K	10.4	001-34501	5/20/2015
10.11	Amended and Restated Juniper Networks, Inc. Form of Restricted Stock Unit Agreement effective as of December 1, 2019+	10-K	10.12	001-34501	2/20/2020
10.12	Amended and Restated Juniper Networks, Inc. Form of Performance Share Agreement effective as of December 1, 2019+	10-K	10.13	001-34501	2/20/2020
10.13	Form of Change of Control Agreement for Certain Officers, approved for use on November 2, 2020+	10-Q	10.1	001-34501	11/2/2020
10.14	Form of Severance Agreement for Certain Officers, approved for use on November 2, 2020+	10-Q	10.2	001-34501	11/2/2020
10.15	Settlement, Release and Cross-License Agreement, dated May 27, 2014, by and between Juniper Networks, Inc. and Palo Alto Networks, Inc.	8-K	10.1	001-34501	5/29/2014
10.16	Credit Agreement, dated as of April 25, 2019, by and among Juniper Networks, Inc., the lenders from time to time party thereto and Citibank, N.A., as administrative agent	10-Q	10.1	001-34501	5/9/2019
10.17	Master Services Agreement, dated December 31, 2018, between Juniper Networks, Inc. and International Business Machines Corporation, and Amendment No.1 dated as of January 4, 2019	10-K	10.29	001-34501	2/22/2019

Exhibit No.	Exhibit	Incorporated by Reference			
		Filing	Exhibit No.	File No.	File Date
10.18	Amendment No.2 to the Master Services Agreement, dated as of December 31, 2018, between Juniper Networks, Inc. and International Business Machines Corporation	10-Q	10.2	001-34501	8/4/2020
10.19	Amendment No.3 to the Master Services Agreement, dated as of December 31, 2018, between Juniper Networks, Inc. and International Business Machines Corporation*				
10.20	Form of Executive Compensation Recovery Agreement for Certain Officers, approved for use in November 2015+	10-K	10.60	001-34501	2/29/2016
21.1	Subsidiaries of the Company*				
23.1	Consent of Independent Registered Public Accounting Firm*				
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934*				
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934*				
32.1	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002**				
32.2	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002**				
101	The following materials from Juniper Networks Inc.'s Annual Report on Form 10-K for the year ended December 31, 2020, formatted in iXBRL (inline eXtensible Business Reporting Language): (i) the Consolidated Statements of Operations, (ii) Consolidated Statements of Comprehensive Income, (iii) Consolidated Balance Sheets, (iv) the Consolidated Statements of Cash Flows, and (v) Consolidated Statements of Changes in Stockholders' Equity, and (iv) Notes to Consolidated Financial Statements, tagged as blocks of text*				
104	The cover page from the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2020, formatted in Inline XBRL (included in Exhibit 101)*				

* Filed herewith

** Furnished herewith

\+ Indicates management contract or compensatory plan, contract or arrangement.

† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment that has been separately filed with the Securities and Exchange Commission.

(b) Exhibits

See Exhibits in Item 15(a)(3) above in this Report.

(c) None

ITEM 16. *Form 10-K Summary*

Not applicable.

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.

Juniper Networks, Inc.

February 12, 2021	By:	/s/ Kenneth B. Miller
		Kenneth B. Miller *Executive Vice President, Chief Financial Officer* (Duly Authorized Officer and Principal Financial Officer)
February 12, 2021	By:	/s/ Thomas A. Austin
		Thomas A. Austin *Vice President, Corporate Controller and Chief Accounting Officer* (Duly Authorized Officer and Principal Accounting Officer)

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

Signature	Title	Date
/s/ Rami Rahim Rami Rahim	Chief Executive Officer and Director (Principal Executive Officer)	February 12, 2021
/s/ Kenneth B. Miller Kenneth B. Miller	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 12, 2021
/s/ Thomas A. Austin Thomas A. Austin	Vice President, Corporate Controller and Chief Accounting Officer (Principal Accounting Officer)	February 12, 2021
/s/ Scott Kriens Scott Kriens	Chairman of the Board	February 12, 2021
/s/ Gary Daichendt Gary Daichendt	Director	February 12, 2021
/s/ Anne T. DelSanto Anne T. DelSanto	Director	February 12, 2021
/s/ Kevin DeNuccio Kevin DeNuccio	Director	February 12, 2021
/s/ James Dolce James Dolce	Director	February 12, 2021
/s/ Christine M. Gorjanc Christine M. Gorjanc	Director	February 12, 2021
/s/ Janet B. Haugen Janet B. Haugen	Director	February 12, 2021
/s/ Rahul Merchant Rahul Merchant	Director	February 12, 2021
/s/ William R. Stensrud William R. Stensrud	Director	February 12, 2021

EXHIBIT 10.19

Amendment No. 3 to
Master Services Agreement

The Master Services Agreement, dated as of December 31, 2018, between Juniper Networks, Inc., (**"Customer"**) and International Business Machines Corporation (**"Provider"**), as previously modified by Change Orders (the **"Agreement"**), is hereby amended as set forth in this amendment (**"Amendment No. 3"**), effective as of December 18, 2020 (the **"Amendment Effective Date"**). All capitalized terms used herein and not otherwise defined herein shall have the meanings given to them in the Agreement.

For good and valuable consideration, the receipt and sufficiency of which consideration is acknowledged, Customer and Provider hereby agree as follows as of the Amendment Effective Date:

1. **INTRODUCTION**

a. The Parties have discussed certain updates to IBM Juniper LSAs - Exhibit 2 - Fees for Local Services by Country and Appendix A to Infrastructure Fees Spreadsheet to Exhibit 2 – Fees for Local Services by Country relating to locations and circuit charges as set forth in this Amendment No.3; and

b. The Parties have determined the following:

2. **GENERAL**

a. The Agreement, as amended by this Amendment No. 3, sets forth the entire agreement and understanding of the Parties with respect to the matters set forth herein and therein, and supersedes all prior negotiations, agreements, arrangements, and undertakings with respect to the matters set forth herein and therein. No representations, warranties, or inducements have been made to any Party concerning the matters set forth in this Agreement, as amended by this Amendment No. 3, other than the representations, warranties, and covenants contained and memorialized in the Agreement, as amended by this Amendment No. 3.

b. In the event of a conflict or inconsistency between the terms of this Amendment No. 3 and those in the Agreement, the terms of this Amendment No. 3 shall control and govern.

3. **CHANGES TO IBM JUNIPER LSAS – EXHIBIT 2 – FEES FOR LOCAL SERVICES BY COUNTRY**

"IBM Juniper LSAs - Exhibit 2 - Fees for Local Services by Country, 6.26.2020" to the Agreement is hereby deleted in its entirety and replaced with the attached "IBM Juniper LSAs - Exhibit 2 - Fees for Local Services by Country, 12.8.2020" to the Agreement.

4. **CHANGES TO APPENDIX A TO INFRASTRUCTURE FEES TO EXHIBIT 2 – FEES FOR LOCAL SERVICES BY COUNTRY**

"Appendix A to Infrastructure Fees to Exhibit 2 - Fees for Local Services by Country, 6.26.2020" to the Agreement is hereby deleted in its entirety and replaced with the attached "Appendix A to

Infrastructure Fees Spreadsheet to Exhibit 2 - Fees for Local Services by Country, November 18, 2020” to the Agreement.

5. LIST OF AMENDMENT NO. 3 ATTACHMENTS

The following documents are attached to, and form a part of, this Amendment No. 3 and the Agreement:

a. IBM Juniper LSAs - Exhibit 2 - Fees for Local Services by Country, 12.8.2020.

b. Appendix A to Infrastructure Fees Spreadsheet to Exhibit 2 – Fees for Local Services by Country, November 18, 2020.

Except for the modifications set forth above, all of the other terms and conditions of the Agreement (including its Schedules and Exhibits) remain in full force and effect. EACH PARTY ACKNOWLEDGES THAT IT HAS READ AND UNDERSTANDS THIS AMENDMENT NO. 3 AND AGREES TO BE BOUND BY THE TERMS HEREOF.

IN WITNESS WHEREOF, Customer and Provider each has caused this Amendment No. 3 to the Agreement to be signed and delivered by its duly authorized officer.

JUNIPER NETWORKS, INC.

Signed: /s/ Meredith McKenzie
Name (print): Meredith McKenzie
Title: Vice President & Deputy General Counsel
Date: December 18, 2020

INTERNATIONAL BUSINESS MACHINES CORPORATION

Signed: /s/ Scott Anderson
Name (print): Scott Anderson
Title: Client Partner Executive
Date: December 18, 2020

Juniper Networks
Legal Department
/s/ Emily Chang
Approved As To Form
Emily Chang

EXHIBIT 21.1

SUBSIDIARIES OF THE COMPANY AS OF DECEMBER 31, 2020*

NAME	JURISDICTION OF INCORPORATION
Juniper Networks International B.V.	The Netherlands
Juniper Networks (US), Inc.	California, USA

* All other subsidiaries would not in the aggregate constitute a “significant subsidiary” as defined in Regulation S-X.

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-3 No. 333-233090) of Juniper Networks, Inc., and

(2) Registration Statements (Form S-8 Nos. 333-252472, 333-251027, 333-240345, 333-233091, 333-230685, 333-229813, 333-221422, 333-218344, 333-216246, 333-213490, 333-211824, 333-204297, 333-183165, 333-151669, and 333-176171) of Juniper Networks, Inc.;

of our reports dated February 12, 2021, with respect to the consolidated financial statements and schedule of Juniper Networks, Inc., and the effectiveness of internal control over financial reporting of Juniper Networks, Inc., included in this Annual Report (Form 10-K) of Juniper Networks, Inc., for the year ended December 31, 2020.

/*s*/ Ernst & Young LLP

San Jose, California
February 12, 2021

EXHIBIT 31.1

Certification of Principal Executive Officer
Pursuant to
Exchange Act Rules 13a-14(a) and 15d-14(a),
As Adopted Pursuant to
Section 302 of the Sarbanes-Oxley Act of 2002

I, Rami Rahim, certify that:

1. I have reviewed this Annual Report on Form 10-K of Juniper Networks, 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 the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 12, 2021

/s/ Rami Rahim
Rami Rahim
Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

Certification of Principal Financial Officer
Pursuant to
Exchange Act Rules 13a-14(a) and 15d-14(a),
As Adopted Pursuant to
Section 302 of the Sarbanes-Oxley Act of 2002

I, Kenneth B. Miller, certify that:

1. I have reviewed this Annual Report on Form 10-K of Juniper Networks, 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 the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 12, 2021

/s/ Kenneth B. Miller
Kenneth B. Miller
Executive Vice President, Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 32.1

Certification of Chief Executive Officer
Pursuant to 18 U.S.C. Section 1350 As Adopted
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, Rami Rahim, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Juniper Networks, Inc. on Form 10-K for the fiscal year ended December 31, 2020, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Juniper Networks, Inc.

/s/ Rami Rahim
Rami Rahim
Chief Executive Officer
February 12, 2021

EXHIBIT 32.2

Certification of Chief Financial Officer
Pursuant to 18 U.S.C. Section 1350 As Adopted
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, Kenneth B. Miller, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Juniper Networks, Inc. on Form 10-K for the fiscal year ended December 31, 2020, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Juniper Networks, Inc.

/s/ Kenneth B. Miller
Kenneth B. Miller
Executive Vice President, Chief Financial Officer
February 12, 2021