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 July 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 001-35594

Palo Alto Networks, Inc.

(Exact name of registrant as specified in its charter)

Delaware	20-2530195
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

3000 Tannery Way
Santa Clara, California 95054
(Address of principal executive offices, including zip code)

(408) 753-4000
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, $0.0001 par value per share	PANW	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 filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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 stock held by non-affiliates of the registrant was $22,950,644,677 as of January 31, 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). Shares of common stock held by each executive officer, director, and holder of 5% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

On August 21, 2020, 96,373,294 shares of the registrant's common stock, $0.0001 par value, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the information called for by Part III of this Annual Report on Form 10-K is hereby incorporated by reference from the definitive proxy statement for the registrant’s 2020 annual meeting of stockholders, which will be filed with the Securities and Exchange Commission not later than 120 days after the registrant’s fiscal year ended July 31, 2020.

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PART I

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K, including the sections entitled "Business," "Risk Factors," and "Management's Discussion and Analysis of Financial Condition and Results of Operations," contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. The words "believe," "may," "will," "potentially," "estimate," "continue," "anticipate," "intend," "could," "would," "project," "plan," "expect," and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward-looking statements.

These forward-looking statements include, but are not limited to, statements concerning the following:

- our expectations regarding the impacts on our business, the business of our customers, suppliers and partners, and the economy as a result of the global COVID-19 pandemic and related public health measures;
- expectations regarding drivers of and factors affecting growth in our business;
- the performance advantages of our products and subscription and support offerings and the potential benefits to our customers;
- trends in and expectations regarding billings, revenue (including our revenue mix), costs of revenue, gross margin, cash flows, interest expense, operating expenses (including future share-based compensation expense), income taxes, investment plans and liquidity;
- our ability to and expectation that we will continue to grow our installed end-customer base;
- expected recurring revenues resulting from expected growth in our installed base and increased adoption of our products and cloud-based subscription services;
- our expectations regarding future investments in research and development, customer support, in our employees and in our sales force, including expectations regarding growth in our sales headcount;
- our ability to develop or acquire new product, subscription, and support offerings, improve our existing product, subscription, and support offerings, and increase the value of our product, subscription, and support offerings, including through deployment of new capabilities via security applications developed by third parties;
- our expectation that we will continue to expand internationally;
- our expectation that we will continue to renew existing contracts and increase sales to our existing customer base;
- seasonal trends in our results of operations;
- expected impact of the adoption of certain recent accounting pronouncements and the anticipated timing of adopting such standards;
- our expectation that we will expand our facilities or add new facilities as we add employees and enter new geographic markets and expectations related to charges incurred in connection with exiting our former headquarter facilities;
- our expectation that we will increase our customer financing activities;
- the sufficiency of our cash flow from operations with existing cash and cash equivalents to meet our cash needs for the foreseeable future;
- future investments in product development, subscriptions, or technologies, and any related delays in the development or release of new product and subscription offerings;
- our ability to successfully acquire and integrate companies and assets, including closing The Crypsis Group acquisition;
- expectations and intentions with respect to the products and technologies that we acquire and introduce;
- the timing and amount of capital expenditures and share repurchases; and
- other statements regarding our future operations, financial condition and prospects, and business strategies.

These forward-looking statements are subject to a number of risks, uncertainties, and assumptions, including those described in "Risk Factors" included in Part I, Item 1A and elsewhere in this Annual Report on Form 10-K. Moreover, we operate in a very competitive and rapidly changing environment, and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties, and assumptions, the forward-looking events and circumstances discussed in this Annual Report on Form

10-K may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. We undertake no obligation to revise or publicly release the results of any revision to these forward-looking statements, except as required by law. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements.

ITEM 1. BUSINESS

General

Palo Alto Networks, Inc. is a global cybersecurity provider with a vision of a world where each day is safer and more secure than the one before. We were incorporated in 2005 and are headquartered in Santa Clara, California.

We empower enterprises, service providers, and government entities to secure all users, applications, data, networks and devices with comprehensive visibility and context continuously across all locations. We deliver cybersecurity products covering a broad range of use cases, enabling our end-customers to secure their networks, remote workforce, access to the service edge, branch locations, public and private clouds, and to advance their Security Operations Centers (“SOC”). We believe our portfolio offers advanced prevention and security, while reducing the total cost of ownership for organizations by improving operational efficiency and eliminating the need for siloed point products. We do this with solutions focused on delivering value in three fundamental areas:

Secure the Enterprise:

- Secure the network through our ML-powered Next-Generation Firewalls, available in a number of form factors, including physical, virtual and containerized appliances, as well as a cloud-delivered service, with Panorama management available as an appliance or as a virtual machine for the public or private cloud. This also includes security services such as Threat Prevention, WildFire, URL Filtering, DNS Security, IoT Security, GlobalProtect, SD-WAN and Data Loss Prevention that are delivered as SaaS subscriptions to our ML-powered Next-Generation Firewalls.

Secure the Cloud:

- Secure the cloud through our Prisma security offerings, such as Prisma Cloud, the industry’s most comprehensive Cloud Native Security Platform (“CNSP”), protecting applications, data and the entire cloud native technology stack, throughout the full development lifecycle and across multi- and hybrid- cloud environments, Prisma SaaS for protecting SaaS applications, Prisma Access, a comprehensive Secure Access Service Edge (“SASE”) offering, that, together with CloudGenix SD-WAN, securing SD-WAN to enable the cloud delivered branch, and VM-Series and CN-Series for in-line network security in multi- and hybrid- cloud environments.

Secure the Future:

- Secure the future of security operations through our Cortex security offerings, which includes Cortex XDR for prevention, detection and response, Cortex XSOAR for security orchestration, automation and response (“SOAR”), AutoFocus for threat intelligence, and Cortex Data Lake to collect and integrate security data for analytics. These products are delivered as software or SaaS subscriptions.

Impact of COVID-19 on our Business

We are actively monitoring, evaluating and responding to developments relating to COVID-19, which has and is expected to result in continued significant global social and business disruption. While we instituted a global work-from-home policy beginning in March 2020, we did not incur significant disruptions in our work operations during fiscal 2020. We are conducting business as usual with restrictions to employee travel and transitioning of in-person marketing events to virtual formats, among other modifications. These changes will substantially remain in effect in the first quarter of fiscal 2021 and are likely to extend to future quarters. We will continue to actively monitor the situation and will make further changes to our business operations as may be required by federal, state or local authorities or that we determine are in the best interests of our employees, end-customers, partners, suppliers and stockholders. Our focus remains on the safety of our employees, striving to protect the health and well-being of the communities in which we operate, and providing technology to our employees, end-customers and partners to help them do their best work while remote.

Although some end-customers adopted Prisma Access as their secure work-from-home solution for the longer term, COVID-19 may curtail our end-customers' spending and could lead them to delay or defer purchasing decisions, and lengthen sales cycles and payment terms, which could materially adversely impact our business, results of operations and overall financial performance. Also, certain of our end-customers or partners may be or may become credit or cash constrained making it difficult for them to fulfill their payment obligations to us. The extent of the impact of COVID-19 on our operational and financial performance will depend on developments, including the duration and spread of the virus, impact on our end-customers’ spending, volume of sales and length of our sales cycles, impact on our partners, suppliers and employees, actions that may be taken by governmental authorities and other factors identified in Part I, Item 1A "Risk Factors" in this Form 10-K. Given the dynamic nature of these circumstances, the full impact of COVID-19 on our ongoing business, results of operations and overall financial performance cannot be reasonably estimated at this time.

Product, Subscription, and Support Offerings

Our products are available in the form of the product, subscription, and support offerings described below.

Firewall Appliances and Software. All of our firewall appliances and software incorporate our PAN-OS operating system and come with the same rich set of features ensuring consistent operation across our entire product line. These features include: App-ID, User-ID, Content-ID, site-to-site virtual private network (“VPN”), remote access Secure Sockets Layer (“SSL”) VPN, and Quality-of-Service (“QoS”). Our appliances and software are designed for different performance requirements throughout an organization and are classified based on throughput, ranging from our PA-220, which is designed for small organizations and remote or branch offices, to our top-of-the-line PA-7080, which is designed for large scale data centers and service provider use. Our firewall appliances come in a physical form factor, in a virtual form factor, called VM-Series, that is available for virtualization and cloud environments from companies such as VMware, Inc. (“VMware”), Microsoft Corporation (“Microsoft”), Amazon.com, Inc. (“Amazon”), and Google, Inc. (“Google”), and in Kernel-based Virtual Machine (“KVM”)/OpenStack environments, as well as in a containerized form factor, called CN-Series.

Panorama. Panorama is our centralized security management solution for global control of all of our firewall appliances and software deployed on an end-customer’s network, as well as in their instances in public or private cloud environments as a virtual appliance or a physical appliance. Panorama is used for centralized policy management, device management, software licensing and updates, centralized logging and reporting, and log storage. Panorama controls the security, network address translation (“NAT”), QoS, policy-based forwarding, decryption, application override, captive portal, and distributed denial of service/denial of service (“DDoS/DoS”) protection aspects of the appliances, software, virtual and containerized systems under management. Panorama centrally manages device software and associated updates, including SSL-VPN clients, SD-WAN, dynamic content updates, and software licenses. Panorama offers network security monitoring through the ability to view logs and run reports from all managed appliances and software in one location without the need to forward the logs and reliably expands log storage for long-term event investigation and analysis.

Virtual System Upgrades. Virtual System Upgrades are available as extensions to the Virtual System capacity that ships with our physical appliances. Virtual Systems provide a mechanism to support multiple distinct security policies and administrative access for tenants on the same hardware device, which is applicable to our large enterprise and service provider end-customers.

Subscription Offerings. We offer a number of subscriptions as part of our portfolio. Of these subscription offerings, Threat Prevention, WildFire, URL Filtering, DNS Security, IoT Security, GlobalProtect, SD-WAN and Data Loss Prevention are sold as options to our firewall appliances and software, whereas AutoFocus, Prisma Access (formerly GlobalProtect cloud service), CloudGenix SD-WAN, Prisma Cloud (formerly Redlock Inc. (“RedLock”), Twistlock LTD. (“Twistlock”), PureSec Ltd. (“PureSec”) and Aporeto Inc. (“Aporeto”)), Prisma SaaS (formerly Aperture), Cortex Data Lake (formerly Logging Service), Cortex XDR (formerly Cortex XDR and Traps) and Cortex XSOAR (formerly Demisto Inc. (“Demisto”)) are sold on a per-user, per-endpoint, or capacity-based basis. Our subscription offerings include:

Secure the Enterprise:

- ***Threat Prevention.*** This subscription provides intrusion detection and prevention capabilities and blocks vulnerability exploits, viruses, spyware, buffer overflows, denial-of-service attacks, and port scans from compromising and damaging enterprise information resources. It includes mechanisms such as protocol decoder-based analysis, protocol anomaly-based protection, stateful pattern matching, statistical anomaly detection, heuristic-based analysis, custom vulnerability and spyware “phone home” signatures, and workflows to manage popular open-source signature formats to extend our leading coverage.
- ***WildFire.*** This cloud-based or appliance-based subscription provides protection against targeted malware and advanced persistent threats and provides a near real-time analysis engine for detecting previously unseen malware while resisting attacker evasion techniques. The core component of this subscription is a sandbox environment that can operate on an end-customers’ private cloud or our public cloud, where files can be run and monitored for more than 100 behavioral characteristics that identify the file as malware. A machine learning module derived from the cloud sandbox environment is now delivered in-line on the ML-powered Next-Generation Firewalls to identify the majority of unknown threats without cloud connectivity. Once identified, whether in the cloud or in-line, preventive measures are automatically generated and delivered to all subscribed devices in seconds or less. By providing this as a cloud-based subscription, all of our end-customers benefit from malware found on any of our end-customer’s networks.
- ***URL Filtering.*** This subscription provides the uniform resource locator (“URL”) filtering capabilities of our portfolio. Our cloud-based URL filtering database consists of millions of URLs across many categories and is designed to analyze web traffic and prevent web-based threats such as phishing, malware, and command-and-control. The curated on-appliance URL database can be augmented to suit the traffic patterns of the local user community with a custom URL database. Our cloud-delivered service features network-based phishing protection, including a machine learning module delivered inline on our ML-powered Next-Generation Firewalls. These machine learning techniques can detect and stop never before seen threats and evasive phishing before they reach users or endpoints. Native integration with our ML-

powered Next-Generation Firewalls eliminates the need for customers to deploy and manage their web security separately from network security.

- ***DNS Security.*** This cloud-based subscription uses machine learning to proactively block malicious domains and stops attacks in progress. Unlike other solutions, it does not require endpoint routing configurations to be maintained and therefore cannot be by-passed. It allows firewalls access to DNS signatures that are generated using advanced predictive analysis, machine learning, and malicious domain data from a growing threat intelligence sharing community of which we are a part. Expanded categorization of DNS traffic and comprehensive analytics allow deep insights into threats, empowering security personnel with the context to optimize their security posture.
- ***IoT Security.*** IoT Security is a new subscription on our ML-powered Next-Generation Firewalls with backward compatibility to older versions of PAN-OS. Using machine learning and our App-ID technology, it can accurately identify and classify various IoT and operational technology ("OT") devices including never-been-seen-before devices, mission critical OT devices and unmanaged legacy systems. It uses machine learning to baseline normal behavior, identify anomalous activity, assess risk, and provide policy recommendations to allow trusted behavior with a new Device-ID policy construct on our ML-powered Next-Generation Firewalls. Our existing subscription-based security services have also been enhanced with IoT context to prevent threats on various devices, including IoT and OT devices.
- ***GlobalProtect.*** This appliance-based subscription provides protection for users of both traditional laptop and mobile devices. It expands the boundaries of the end-users' physical network, effectively establishing a logical perimeter that encompasses remote laptop and mobile device users irrespective of their location. When a remote user logs into the device, GlobalProtect automatically determines the closest gateway available to the roaming device and establishes a secure connection. Regardless of the operating systems, laptops, tablets and phones will stay connected to the corporate network when they are on a network of any kind and as a result, are protected as if they never left the corporate campus. GlobalProtect ensures that the same secure application enablement policies that protect users at the corporate site are enforced for all users, independent of their location.
- ***SD-WAN.*** Our SD-WAN subscription is now integrated with PAN-OS, so that our end-customers can get the security features of our PAN-OS ML-powered Next Generation Firewall together with SD-WAN functionality. The SD-WAN overlay supports dynamic, intelligent path selection based on the applications, services and conditions of the links that each application or service is allowed to use, allowing applications to be prioritized based on criteria such as whether the application is mission-critical, latency-sensitive, or meets certain health criteria.
- ***Data Loss Prevention.*** Our Enterprise Data Loss Prevention service is a cloud service that provides consistent, reliable protection of sensitive data, such as personally identifiable information (PII) and intellectual property, for all traffic types, applications, and users. Native integration with our products makes it simple to deploy, and advanced machine learning minimizes management complexity. Enterprise DLP allows organizations to consistently discover, classify, monitor, and protect sensitive data, wherever it may reside. It helps minimize the risk of a data breach both on-premises and in the cloud—such as in Office/Microsoft 365™, Salesforce®, and Box—and assists in meeting stringent data privacy and compliance regulations, including GDPR, CCPA, PCI DSS, HIPAA, and others.

Secure the Cloud:

- ***Prisma Cloud.*** Prisma Cloud is the industry's most comprehensive CNSP, securing public clouds and cloud native applications. Prisma Cloud delivers cloud security posture management and a cloud workload protection platform that provides comprehensive visibility and threat detection across an organization's hybrid, multi-cloud infrastructure.
- ***Prisma SaaS.*** Prisma SaaS is a multi-mode, cloud access security broker service that helps govern sanctioned SaaS application usage across all users and helps prevent breaches and non-compliance. Specifically, the service enables the discovery and classification of data stored across the supported SaaS applications, protects sensitive data from accidental exposure, identifies and protects against known and unknown malware, and performs user activity monitoring to identify potential misuse or data exfiltration. It delivers complete visibility and granular enforcement across all user, folder, and file activity within sanctioned SaaS applications.
- ***Prisma Access.*** This cloud-based subscription enables our end-customers to utilize the preventive capabilities of our portfolio to secure remote offices and mobile users, providing consistent protection across globally distributed network and cloud environments without the need for firewall appliances or software in the remote locations. With this offering, our end-customers can quickly and easily add or remove remote locations and users, and establish and adjust security policies as needed, using a multi-tenant, cloud-based security infrastructure that we operate on their behalf.
- ***CloudGenix SD-WAN***. Our CloudGenix SD-WAN solution is a next-generation SD-WAN solution that makes the secure cloud-delivered branch possible. Unlike legacy SD-WAN solutions that introduce cost and complexity, Our CloudGenix

SD-WAN ensures exceptional user experience with app defined policies and simplifies network and security operations using machine learning and automation.

Secure the Future:

- ***Cortex XDR.*** This cloud-based subscription enables organizations to identify and stop the most sophisticated attacks by applying AI and machine learning to context rich network, endpoint, and cloud data, to quickly find and stop targeted attacks, insider abuse, and compromised endpoints. Cortex XDR is comprised of XDR Prevent and XDR Pro. XDR Prevent delivers enterprise class endpoint security focused on preventing attacks. XDR Pro encompasses endpoint detection and response (“EDR”) and cross-data source analytics including network and identity data. These capabilities build on each other, such that a customer can start with XDR Prevent, then upgrade to XDR Pro for EDR and then upgrade to XDR Pro for cross-data source analytics.
- ***Cortex XSOAR.*** Available as a cloud-based subscription or an on-premises appliance, Cortex XSOAR is the industry’s first extended SOAR offering that unifies playbook automation, case management, real-time collaboration, and threat intelligence management to serve security teams across the incident lifecycle. With Cortex XSOAR, security teams can standardize processes, automate repeatable tasks and manage incidents across their security product stack to improve response time and analyst productivity. Cortex XSOAR is powered by our machine learning bot, DBot, which ingests information about indicators to determine if they are malicious. It learns from the real-life analyst interactions and past investigations to help SOC teams with analyst assignment suggestions, playbook enhancements, and best next steps for investigations.
- ***AutoFocus.*** This cloud-based subscription provides threat intelligence capabilities to our end-customers’ security operations teams. Indicators of compromise and anomalies that occur on an end-customer’s network can be correlated with similar data that has been centrally collected from all our participating end-customers. This offers our end-customers priority alerts, deep attack context, and high-fidelity threat intelligence across millions of malware samples and tens of billions of file artifacts. This includes a direct pipeline to actionable intelligence from Unit 42, our threat research team. AutoFocus can inform users if adversaries and campaigns discovered by Unit 42 have targeted the end-user’s network, or similar networks.
- ***Cortex Data Lake.*** This cloud-based subscription allows our customers to collect large amounts of context-rich enhanced network logs generated by our security offerings, including those of our ML-powered Next-Generation Firewalls, Prisma Access subscription, and Cortex XDR subscription, without needing to plan for local data storage.

Support. We offer Standard Support, Premium Support, four-hour Premium Support and Platinum Support to our end-customers and channel partners. Our channel partners that operate a Palo Alto Networks Authorized Support Center (“ASC”) typically deliver level-one and level-two support. We provide level-three support 24 hours a day, seven days a week through regional support centers that are located worldwide. We also offer an annual subscription-based Service Account Management (“SAM”) service that provides support for end-customers with unique or complex support requirements. We offer our end-customers ongoing support for both hardware and software in order to receive ongoing security updates, PAN-OS upgrades, bug fixes, and repair. End-customers typically purchase these services for a one-year or longer term at the time of the initial product sale and typically renew for successive one-year or longer periods. Additionally, we provide expedited replacement for any defective hardware. We use a third-party logistics provider to manage our worldwide deployment of spare appliances and other accessories.

Professional Services. Professional services are delivered directly by us and through our authorized channel partners to our end-customers and include on-location and remote, hands-on experts who plan, design, and deploy effective security solutions tailored to our end-customers’ specific requirements. These services include architecture design and planning, configuration, and firewall migrations, as well as Prisma and Cortex deployments. Our education services provide online and in-classroom training and are also primarily delivered through our authorized training partners.

Technology

We provide comprehensive and integrated cybersecurity solutions with a portfolio that eliminates the need for siloed security products.

ML-powered Next-Generation Firewall. Our ML-powered Next-Generation Firewalls embed machine learning in the core of the firewall, empowering our customers to stay ahead of new emerging threats, see and secure their entire enterprise, including IoT, and support speed and error reduction with automatic policy recommendations. Our ML-Powered Next-Generation Firewalls extend visibility and security to all devices connecting to an end-user’s network, including unmanaged IoT devices without the need to deploy additional sensors. Our ML-powered Next-Generation Firewalls inspect all traffic defined by the end-users policies, including all applications, threats, and content, and tie that traffic to the user, regardless of location or device type. The user, application, devices and content—the elements that run a business—become integral components of an enterprise's security policy via our User-ID, App-ID, Device-ID and Content-ID technology. As a result, security aligns with business policies as well as write rules that are easy to understand and maintain. Our ML-powered Next-Generation Firewalls can be deployed in multiple form factors, including hardware, software and cloud service, all managed centrally.

Prisma Access. Prisma Access is a SASE technology that helps organizations deliver consistent security to remote networks and mobile users. Located in more than 100 locations around the world in 76 countries, Prisma Access consistently inspects all traffic across all ports and provides bidirectional networking to enable branch-to-branch and branch-to-headquarter traffic.

Delivering protection at scale, Prisma Access provides global coverage so teams do not have to worry about sizing and deploying hardware firewalls at the branch. Prisma Access uses Cortex Data Lake for centralized analysis, reporting, and forensics.

CloudGenix SD-WAN. CloudGenix SD-WAN provides deep application visibility, with Layer 7 intelligence for network policy creation and traffic engineering, ensuring exceptional user experience by enabling network teams to deliver Service Level Agreements ("SLA"s) for all apps including Cloud, SaaS and Unified communication as a Service ("UCaaS"). Machine learning and data science methodologies automate operations and problems avoidance to simplify network operations and reduce network trouble tickets.

Prisma Cloud. Prisma Cloud is a unified CNSP with broad security and compliance coverage for the entire cloud across hybrid and multi-cloud environments. Prisma Cloud protects cloud native applications and data spanning hosts, containers, serverless deployments, storage, and other platform as a Service ("PaaS") offerings across cloud platforms. It dynamically discovers resources as they are deployed and correlates data cloud services (resource configurations, flow logs, audit logs, host and container logs, etc.) to provide security and compliance insights for cloud applications. It uses machine learning to profile user, workload, and app behaviors to prevent advanced threats.

Prisma Cloud integrates with continuous integration and continuous development ("CI/CD") tool chains to provide full lifecycle vulnerability management, infrastructure-as-code scanning, runtime defense, and cloud native firewalling. With a comprehensive library of compliance frameworks, it vastly simplifies the task of maintaining compliance. Prisma Cloud provides this through deep context-sharing that spans infrastructure, PaaS, users, development platforms, data, and application workloads. Seamless integration with security orchestration tools ensures rapid remediation of vulnerabilities.

Prisma SaaS. *Prisma SaaS* enables safe cloud adoption by providing visibility, compliance controls, and security for cloud applications and sensitive data. It helps minimize the use of shadow IT, secure access to corporate SaaS applications and mitigate the risk of a data breach in the cloud.

Cortex XDR. Cortex XDR is an industry recognized extended detection and response offering that integrates endpoint, network, and cloud data to stop sophisticated attacks. Going beyond EDR, Cortex XDR detects the most complex threats using analytics across key data sources and reveals the root cause, reducing investigation time eighty eight percent compared to manual processes.

Cortex XSOAR. Cortex XSOAR improves SOC efficiency with an industry recognized extended SOAR offering. Security leaders can transform every aspect of their operations with a comprehensive, unified approach to case management, automation, real-time collaboration, and threat intelligence management. Cortex XSOAR enables security teams to manage alerts across all sources, standardize any processes with playbooks, take action on threat intelligence, and automate response for every security use case, and use of which has resulted, for many of our customers, in significantly faster SOC response times and a significant reduction in alerts to the SOC which require human intervention.

Certifications. Many of our products have been awarded Federal Information Processing Standard ("FIPS") 140-2 Level 2, Common Criteria/National Information Assurance Partnership ("NIAP") Evaluation Assurance Level ("EAL") 2, Common Criteria/NIAP EAL4+, Network Equipment-Building System ("NEBS"), and ICSA Firewall certifications.

Research and Development

Our research and development efforts are focused on developing new hardware and software and on enhancing and improving our existing product and subscription offerings. We believe that hardware and software are both critical to expanding our leadership in the enterprise security market. Our engineering team has deep networking, endpoint, and security expertise and works closely with end-customers to identify their current and future needs. In addition to our focus on hardware and software, our research and development team is focused on research into applications and threats, which allows us to respond to the rapidly changing application and threat landscape. We supplement our own research and development efforts with technologies and products that we license from third parties. We test our products thoroughly to certify and ensure interoperability with third-party hardware and software products.

We believe that innovation and timely development of new features and products is essential to meeting the needs of our end-customers and improving our competitive position. During fiscal 2020, we introduced several new offerings, including: PAN-OS 10.0 with over 70 new features; our new ML-powered Next-Generation Firewalls; and our Cortex XSOAR solution that redefines security orchestration and automation with integrated threat intelligence management. Additionally, we acquired productive investments that fit well within our long-term strategy. For example, we acquired Zingbox, Inc. ("Zingbox"), which we believe will accelerate our delivery of IoT security through our ML-powered Next-Generation Firewall and Cortex products, Aporeto, which we believe will strengthen our cloud-native security platform capabilities delivered by Prisma Cloud and CloudGenix Inc. ("CloudGenix"), which we believe will strengthen our SASE offering.

We plan to continue to significantly invest in our research and development effort as we evolve and extend the capabilities of our portfolio.

Intellectual Property

Our industry is characterized by the existence of a large number of patents and frequent claims and related litigation regarding patent and other intellectual property rights. In particular, leading companies in the enterprise security industry have extensive patent portfolios and are regularly involved in both offensive and defensive litigation. We continue to grow our patent portfolio and own intellectual property and related intellectual property rights around the world that relate to our products, services, research and development, and other activities, and our success depends in part upon our ability to protect our core technology and intellectual property. We file patent applications to protect our intellectual property and believe that the duration of our issued patents is sufficient when considering the expected lives of our products.

We actively seek to protect our global intellectual property rights and to deter unauthorized use of our intellectual property by controlling access to and use of our proprietary software and other confidential information through the use of internal and external controls, including contractual protections with employees, contractors, end-customers and partners, and our software is protected by U.S. and international copyright laws. Despite our efforts to protect our intellectual property rights, our rights may not be successfully asserted in the future or may be invalidated, circumvented or challenged. In addition, the laws of various foreign countries where our offerings are distributed may not protect our intellectual property rights to the same extent as laws in the United States. See "Risk Factors-Claims by others that we infringe their proprietary technology or other rights could harm our business," "Risk Factors-Our proprietary rights may be difficult to enforce or protect, which could enable others to copy or use aspects of our products or subscriptions without compensating us," and "Legal Proceedings" below for additional information.

Competition

We operate in the intensely competitive enterprise security market that is characterized by constant change and innovation. Changes in the application, threat, and technology landscape result in evolving customer requirements for the protection from threats and the safe enablement of applications. Our main competitors fall into five categories:

- large companies that incorporate security features in their products, such as Cisco Systems, Inc. ("Cisco") or those that have acquired, or may acquire, large network and endpoint security vendors and have the technical and financial resources to bring competitive solutions to the market;
- independent security vendors such as Check Point Software Technologies Ltd. ("Check Point"), Fortinet, Inc. ("Fortinet"), and Zscaler, Inc. ("Zscaler") that offer a mix of network and endpoint security products;
- startups and single-vertical vendors that offer independent or emerging solutions in network;
- public cloud vendors and startups that offer solutions for cloud security (private, public and hybrid cloud); and
- large and small companies, such as Crowdstrike, Inc ("Crowdstrike") that offer solutions for security operations and endpoint security.

As our market grows, it will attract more highly specialized vendors as well as larger vendors that may continue to acquire or bundle their products more effectively.

The principal competitive factors in our market include:

- product features, reliability, performance, and effectiveness;
- product line breadth, diversity, and applicability;
- product extensibility and ability to integrate with other technology infrastructures;
- price and total cost of ownership;
- adherence to industry standards and certifications;
- strength of sales and marketing efforts; and
- brand awareness and reputation.

We believe we generally compete favorably with our competitors on the basis of these factors as a result of the features and performance of our portfolio, the ease of integration of our products with technological infrastructures, and the relatively low total cost of ownership of our products. However, many of our competitors have substantially greater financial, technical, and other resources, greater name recognition, larger sales and marketing budgets, broader distribution, more diversified product lines, and larger and more mature intellectual property portfolios.

Sales, Customer Support and Marketing

Customers. Our end-customers are predominantly medium to large enterprises, service providers, and government entities. Our end-customers operate in a variety of industries, including education, energy, financial services, government entities, healthcare, Internet and media, manufacturing, public sector, and telecommunications. Our end-customers deploy our portfolio of products for a variety of security functions across a variety of deployment scenarios. Typical deployment scenarios include the enterprise perimeter, the enterprise data center, and the distributed enterprise perimeter. Our end-customer deployments typically involve at least one pair of our products along with one or more of our subscriptions, depending on size, security needs and requirements, and network complexity. No single end-customer accounted for more than 10% of our total revenue in fiscal 2020, 2019, or 2018.

Distribution. We primarily sell our products and subscription and support offerings to end-customers through our channel partners utilizing a two-tier, indirect fulfillment model whereby we sell our products and subscription and support offerings to our distributors, which, in turn, sell to our resellers, which then sell to our end-customers. Sales are generally subject to our standard, non-exclusive distributor agreement, which provides for an initial term of one year, one-year renewal terms, termination by us with 30-90 days written notice prior to the renewal date, and payment to us from the channel partner within 30-45 calendar days of the date we issue an invoice for such sales. For fiscal 2020, 68.8% of our total revenue was derived from sales to four distributors.

We also sell our VM-Series virtual firewalls directly to end-customers through Amazon's AWS Marketplace, Microsoft's Azure Marketplace, and Google's Cloud Platform Marketplace under a usage-based licensing model.

Sales. Our sales organization is responsible for large-account acquisition and overall market development, which includes the management of the relationships with our channel partners, working with our channel partners in winning and supporting end-customers through a direct-touch approach, and acting as the liaison between our end-customers and our marketing and product development organizations. We expect to continue to grow our sales headcount in all of our principal markets and expand our presence into countries where we currently do not have a direct sales presence.

Our sales organization is supported by sales engineers with responsibility for pre-sales technical support, solutions engineering for our end-customers, and technical training for our channel partners.

Channel Program. Our NextWave Channel Partner program is focused on building in-depth relationships with solutions-oriented distributors and resellers that have strong security expertise. The program rewards these partners based on a number of attainment goals, as well as provides them access to marketing funds, technical and sales training, and support. To ensure optimal productivity, we operate a formal accreditation program for our channel partners' sales and technical professionals. As of July 31, 2020, we had more than 5,600 channel partners.

Customer Support. Our customer support organization is responsible for delivering support, professional, and educational services directly to our channel partners and to end-customers. We leverage the capabilities of our channel partners and train them in the delivery of support, professional, and educational services to ensure these services are locally delivered. We believe that a broad range of support services is essential to the successful customer deployment and ongoing support of our products, and we have hired support engineers with proven experience to provide those services.

Marketing. Our marketing is focused on building our brand reputation and the market awareness of our portfolio and driving pipeline and end-customer demand. Our marketing team consists primarily of product marketing, brand, demand, field, communications, including analyst relations and digital and analytics functions. Marketing activities include pipeline development through demand generation, social media and advertising programs, managing the corporate web site and partner portal, trade shows and conferences, analyst relationships, customer advocacy, and customer awareness. Every year we organize our end-customer conference "Ignite." We also publish threat intelligence research such as the Unit 42 Cloud Threat Report and the Unit 42 IoT Threat Report, which are based on data from our global threat intelligence team, Unit 42. These activities and tools benefit both our direct and indirect channels and are available at no cost to our channel partners.

Backlog. Orders for subscription and support offerings for multiple years are generally billed upfront shortly after fulfillment of an order and are included in deferred revenue. Timing of revenue recognition for subscription and support offerings may vary depending on the contractual period or when the subscription and support offerings are rendered. Products are shipped and billed shortly after receipt of an order. The majority of our product revenue comes from orders that are received and shipped in the same quarter. As such, we do not believe that our product backlog at any particular time is meaningful and it is not necessarily indicative of our future operating results.

Seasonality. Our business is affected by seasonal fluctuations in customer spending patterns. We have begun to see seasonal patterns in our business, which we expect to become more pronounced as we continue to grow, with our strongest sequential revenue growth occurring in our fiscal second and fourth quarters.

Manufacturing

We outsource the manufacturing of our security products to various manufacturing partners, which include our electronics manufacturing services provider ("EMS provider") and original design manufacturers. This approach allows us to reduce our costs as it reduces our manufacturing overhead and inventory and also allows us to adjust more quickly to changing end-customer demand. Our EMS provider is Flextronics International, Ltd. ("Flex"), who assembles our products using design specifications, quality assurance programs, and standards that we establish, and procures components and assembles our products based on our demand forecasts. These forecasts represent our estimates of future demand for our products based upon historical trends and analysis from our sales and product management functions as adjusted for overall market conditions.

The component parts within our products are either sourced by our manufacturing partners or by various component suppliers. We do not have any long-term manufacturing contracts that guarantee us any fixed capacity or pricing, which could increase our exposure to supply shortages or price fluctuations related to raw materials.

Employees

As of July 31, 2020, we had 8,014 employees. Competition for qualified personnel in our industry is intense, and we believe that our future success depends in part on our continued ability to hire, motivate, and retain such personnel.

Available Information

Our website is located at www.paloaltonetworks.com, and our investor relations website is located at investors.paloaltonetworks.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), are available free of charge on the Investors portion of our web site as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission ("SEC"). We also provide a link to the section of the SEC's website at www.sec.gov that has all of our public filings, including Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, all amendments to those reports, our Proxy Statements, and other ownership related filings.

We also use our investor relations website as a channel of distribution for important company information. For example, webcasts of our earnings calls and certain events we participate in or host with members of the investment community are on our investor relations website. Additionally, we announce investor information, including news and commentary about our business and financial performance, SEC filings, notices of investor events, and our press and earnings releases, on our investor relations website. Investors and others can receive notifications of new information posted on our investor relations website in real time by signing up for email alerts and RSS feeds. Further corporate governance information, including our corporate governance guidelines, board committee charters, and code of conduct, is also available on our investor relations website under the heading "Governance." The contents of our websites are not incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our websites are intended to be inactive textual references only.

ITEM 1A. RISK FACTORS

Our operations and financial results are subject to various risks and uncertainties including those described below. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, also may become important factors that affect us. If any of the following risks or others not specified below materialize, our business, financial condition, and operating results could be materially adversely affected, and the market price of our common stock could decline. In addition, the impacts of COVID-19 and any worsening of the economic environment may exacerbate the risks described below, any of which could have a material impact on us. This situation is changing rapidly, and additional impacts may arise that we are not currently aware of.

Risks Related to Our Business and Our Industry

The recent global COVID-19 outbreak could harm our business and results of operations.

The novel strain of COVID-19 identified in late 2019 has spread globally, including within the United States, and has resulted in government authorities implementing numerous measures to try to contain the virus, such as travel bans and restrictions, quarantines, shelter in place orders, and shutdowns. This outbreak has negatively impacted and will likely continue to have a negative impact on, worldwide economic activity and financial markets and has impacted, and will further impact, our workforce and operations, the operations of our end-customers, and those of our respective channel partners, vendors and suppliers. In light of the uncertain and rapidly evolving situation relating to the spread of this virus and various government restrictions and guidelines, we have taken measures intended to mitigate the spread of the virus and minimize the risk to our employees, channel partners, end-customers, and the communities in which we operate. These measures include transitioning our employee population to work remotely from home beginning in March 2020, which is planned to continue through the first quarter of fiscal 2021 and is likely to expand into future quarters. Although we continue to monitor the situation and may adjust our current policies as more information and public health guidance become available, these precautionary measures that we have adopted could negatively affect our customer success efforts, sales and marketing efforts, delay and lengthen our sales cycles, and create operational or other challenges, any of which could harm our business and results of operations. In addition, COVID-19 may disrupt the operations of our end-customers and channel partners for an indefinite period of time, including as a result of travel restrictions and/or business shutdowns, all of which could negatively impact our business and results of operations, including cash flows.

The impact of COVID-19 is fluid and uncertain, but it has caused and may continue to cause various negative effects, including an inability to meet with our actual or potential end-customers; our end-customers deciding to delay or abandon their planned purchases; increased requests for delayed payment terms or product discounts by our end-customers and channel partners; us delaying, canceling, or withdrawing from user and industry conferences and other marketing events, including some of our own; changes in the demand of our products, which has caused us to reprioritize our engineering and research and development efforts and make changes to our original offering roadmap; and delays or possible disruptions in our supply chain. As a result, we may experience extended sales cycles; our demand generation activities, and our ability to close transactions with end-customers and partners may be negatively impacted; our ability to provide 24x7 worldwide support and/or replacement parts to our end-customers may be adversely affected; and it has been and, until the COVID-19 outbreak is contained and global economic activity stabilizes, will continue to be more difficult for us to forecast our operating results.

More generally, the outbreak has not only significantly and adversely increased economic and demand uncertainty, but it has caused a global economic slowdown, and it is likely that it will cause a global recession which could likely decrease technology spending and adversely affect demand for our offerings and harm our business and results of operations.

Our business and operations have experienced growth in recent periods, and if we do not effectively manage any future growth or are unable to improve our systems, processes, and controls, our operating results could be adversely affected.

We have experienced growth and increased demand for our products and subscriptions over the last few years. As a result, our employee headcount has increased significantly, and we expect it to continue to grow over the next year. For example, from the end of fiscal 2019 to the end of fiscal 2020, our headcount increased from 7,014 to 8,014 employees. In addition, as we have grown, our number of end-customers has also increased significantly, and we have increasingly managed more complex deployments of our products and subscriptions with larger end-customers. The growth and expansion of our business and product, subscription, and support offerings places a significant strain on our management, operational, and financial resources. To manage any future growth effectively, we must continue to improve and expand our information technology and financial infrastructure, our operating and administrative systems and controls, and our ability to manage headcount, capital, and processes in an efficient manner, all of which may be more difficult to accomplish the longer that our employees must work remotely from home.

We may not be able to successfully implement or scale improvements to our systems, processes, and controls in an efficient or timely manner. In addition, our existing systems, processes, and controls may not prevent or detect all errors, omissions, or fraud. We may also experience difficulties in managing improvements to our systems, processes, and controls or in connection with third-party software licensed to help us with such improvements. Any future growth would add complexity to our organization and require effective coordination throughout our organization. Failure to manage any future growth effectively could result in increased costs, disrupt our existing end-customer relationships, reduce demand for or limit us to smaller deployments of our products, or harm our business performance and operating results.

Our operating results may vary significantly from period to period and be unpredictable, which could cause the market price of our common stock to decline.

Our operating results, in particular, our revenues, gross margins, operating margins, and operating expenses, have historically varied from period to period, and even though we have experienced growth, we expect variation to continue as a result of a number of factors, many of which are outside of our control and may be difficult to predict, including:

- our ability to attract and retain new end-customers or sell additional products and subscriptions to our existing end-customers;
- the budgeting cycles, seasonal buying patterns, and purchasing practices of our end-customers, including the likely slowdown in technology spending due to the recent global economic downturn;
- changes in end-customer, distributor or reseller requirements, or market needs;
- price competition;
- the timing and success of new product and service introductions by us or our competitors or any other change in the competitive landscape of our industry, including consolidation among our competitors or end-customers and strategic partnerships entered into by and between our competitors;
- changes in the mix of our products, subscriptions, and support, including changes in multi-year subscriptions and support;
- our ability to successfully and continuously expand our business domestically and internationally, particularly in the current global economic slowdown;
- changes in the growth rate of the enterprise security market;
- deferral of orders from end-customers in anticipation of new products or product enhancements announced by us or our competitors;
- the timing and costs related to the development or acquisition of technologies or businesses or strategic partnerships;
- lack of synergy or the inability to realize expected synergies, resulting from acquisitions or strategic partnerships;
- our inability to execute, complete or integrate efficiently any acquisitions that we may undertake;
- increased expenses, unforeseen liabilities, or write-downs and any impact on our operating results from any acquisitions we consummate;
- our ability to increase the size and productivity of our distribution channel;
- decisions by potential end-customers to purchase security solutions from larger, more established security vendors or from their primary network equipment vendors;
- changes in end-customer penetration or attach and renewal rates for our subscriptions;
- timing of revenue recognition and revenue deferrals;
- our ability to manage production and manufacturing related costs, global customer service organization costs, inventory excess and obsolescence costs, and warranty costs, especially due to potential disruptions in our supply chain as a result of COVID-19;
- our ability to manage cloud hosting costs and scale the cloud-based subscription offerings;
- insolvency or credit difficulties confronting our end-customers, which could increase due to the effects of COVID-19 and adversely affect their ability to purchase or pay for our products and subscription and support offerings in a timely manner or at all, or confronting our key suppliers, including our sole source suppliers, which could disrupt our supply chain;
- any disruption in our channel or termination of our relationships with important channel partners, including as a result of consolidation among distributors and resellers of security solutions;
- our inability to fulfill our end-customers’ orders due to supply chain delays or events that impact our manufacturers or their suppliers, which may be adversely affected by the effects of COVID-19;
- the cost and potential outcomes of litigation, which could have a material adverse effect on our business;
- seasonality or cyclical fluctuations in our markets;

- future accounting pronouncements or changes in our accounting policies;
- increases or decreases in our expenses caused by fluctuations in foreign currency exchange rates, as an increasing amount of our expenses is incurred and paid in currencies other than the U.S. dollar;
- political, economic and social instability caused by the referendum in June 2016, in which voters in the United Kingdom (the "U.K.") approved an exit from the European Union (the "E.U.") and the U.K. government subsequently notified the E.U. of its withdrawal, which is commonly referred to as "Brexit," continued hostilities in the Middle East, terrorist activities, and any disruption from COVID-19 and any disruption these events may cause to the broader global industrial economy; and
- general macroeconomic conditions, both domestically and in our foreign markets that could impact some or all regions where we operate, including the expected global economic slowdown and potential global recession caused by the COVID-19 pandemic.

Any one of the factors above, or the cumulative effect of some of the factors referred to above, may result in significant fluctuations in our financial and other operating results. This variability and unpredictability could result in our failure to meet our revenue, margin, or other operating result expectations or those of securities analysts or investors for a particular period. If we fail to meet or exceed such expectations for these or any other reasons, the market price of our common stock could fall substantially, and we could face costly lawsuits, including securities class action suits.

The sudden and significant global economic downturn could have an adverse effect on our business and operating results.

We operate globally and as a result our business and revenues are impacted by global macroeconomic conditions. The multinational efforts to contain the spread of COVID-19 have had a significant adverse effect on the global macroeconomic environment that could lead to a global recession. In addition, the instability in the global credit markets, the recent contraction of China's economy, falling demand for oil and other commodities, uncertainties regarding the effects of Brexit, uncertainties related to the timing of the lifting of governmental restrictions to mitigate the spread of COVID-19, uncertainties related to elections and changes in public policies such as domestic and international regulations, taxes, or international trade agreements, international trade disputes, government shutdowns, geopolitical turmoil and other disruptions to global and regional economies and markets could continue to add uncertainty to global economic conditions.

These adverse conditions could result in reductions in sales of our products and subscriptions, longer sales cycles, reductions in subscription or contract duration and value, slower adoption of new technologies, and increased price competition. As a result, any continued or further uncertainty, weakness or deterioration in global macroeconomic and market conditions may cause our end-customers to modify spending priorities or delay purchasing decisions, and result in lengthened sales cycles, any of which could harm our business and operating results.

Our revenue growth rate in recent periods may not be indicative of our future performance.

We have experienced revenue growth rates of 17.5% and 27.5% in fiscal 2020 and fiscal 2019, respectively. Our revenue for any prior quarterly or annual period should not be relied upon as an indication of our future revenue or revenue growth for any future period. If we are unable to maintain consistent or increasing revenue or revenue growth, the market price of our common stock could be volatile, and it may be difficult for us to achieve and maintain profitability or maintain or increase cash flow on a consistent basis.

We have a history of losses, anticipate increasing our operating expenses in the future, and may not be able to achieve or maintain profitability or maintain or increase cash flow on a consistent basis, which could cause our business, financial condition, and operating results to suffer.

Other than fiscal 2012, we have incurred losses in all fiscal years since our inception. As a result, we had an accumulated deficit of $1.2 billion as of July 31, 2020. We anticipate that our operating expenses will continue to increase in the foreseeable future as we continue to grow our business. Our growth efforts may prove more expensive than we currently anticipate, and we may not succeed in increasing our revenues sufficiently, or at all, to offset increasing expenses. Revenue growth may slow or revenue may decline for a number of possible reasons, including the downturn in the global and U.S. economy due to COVID-19, slowing demand for our products or subscriptions, increasing competition, a decrease in the growth of, or a demand shift in, our overall market, or a failure to capitalize on growth opportunities. Any failure to increase our revenue as we grow our business could prevent us from achieving or maintaining profitability or maintaining or increasing cash flow on a consistent basis. In addition, we may have difficulty achieving profitability under U.S. GAAP due to share-based compensation expense and other non-cash charges. If we are unable to navigate these challenges as we encounter them, our business, financial condition, and operating results may suffer.

If we are unable to sell new and additional product, subscription, and support offerings to our end-customers, our future revenue and operating results will be harmed.

Our future success depends, in part, on our ability to expand the deployment of our portfolio with existing end-customers and create demand for our new offerings, including cloud security, AI and analytics offerings. This may require increasingly sophisticated and costly sales efforts that may not result in additional sales. The rate at which our end-customers purchase additional products, subscriptions, and support depends on a number of factors, including the perceived need for additional security products, including subscription and support offerings, as well as general economic conditions. Further, existing end-customers have no contractual obligation to and may not renew their subscription and support contracts after the completion of their initial contract period. Our end-customers' renewal rates may decline or fluctuate as a result of a number of factors, including their level of satisfaction with our subscriptions and our support offerings, the frequency and severity of subscription outages, our product uptime or latency, and the pricing of our, or competing, subscriptions. Additionally, our end-customers may renew their subscription and support agreements for shorter contract lengths or on other terms that are less economically beneficial to us. We also cannot be certain that our end-customers will renew their subscription and support agreements. If our efforts to sell additional products and subscriptions to our end-customers are not successful or our end-customers do not renew their subscription and support agreements or renew them on less favorable terms, our revenues may grow more slowly than expected or decline.

We face intense competition in our market and we may lack sufficient financial or other resources to maintain or improve our competitive position.

The market for enterprise security products is intensely competitive, and we expect competition to increase in the future from established competitors and new market entrants. Our main competitors fall into five categories:

- large companies that incorporate security features in their products, such as Cisco Systems, Inc. ("Cisco") or those that have acquired, or may acquire, large network and endpoint security vendors and have the technical and financial resources to bring competitive solutions to the market;
- independent security vendors such as Check Point Software Technologies Ltd. ("Check Point"), Fortinet, Inc. ("Fortinet"), and Zscaler, Inc. ("Zscaler") that offer a mix of network and endpoint security products;
- startups and single-vertical vendors that offer independent or emerging solutions in network;
- public cloud vendors and startups that offer solutions for cloud security (private, public and hybrid cloud); and
- large and small companies, such as Crowdstrike, Inc ("Crowdstrike") that offer solutions for security operations and endpoint security.

Many of our existing competitors have, and some of our potential competitors could have, substantial competitive advantages such as:

- greater name recognition and longer operating histories;
- larger sales and marketing budgets and resources;
- broader distribution and established relationships with distribution partners and end-customers;
- greater customer support resources;
- greater resources to make strategic acquisitions or enter into strategic partnerships;
- lower labor and development costs;
- newer or disruptive products or technologies;
- larger and more mature intellectual property portfolios; and
- substantially greater financial, technical, and other resources.

In addition, some of our larger competitors have substantially broader and more diverse product and services offerings, which may make them less susceptible to downturns in a particular market and allow them to leverage their relationships based on other products or incorporate functionality into existing products to gain business in a manner that discourages users from purchasing our products and subscriptions, including through selling at zero or negative margins, offering concessions, product bundling, or a closed technology offering. Many of our smaller competitors that specialize in providing protection from a single type of security threat are often able to deliver these specialized security products to the market more quickly than we can.

Organizations that use legacy products and services may believe that these products and services are sufficient to meet their security needs or that our offerings only serve the needs of a portion of the enterprise security market. Accordingly, these organizations may continue allocating their information technology budgets for legacy products and services and may not adopt our security offerings. Further, many organizations have invested substantial personnel and financial resources to design and operate their networks and have established deep relationships with other providers of networking and security products. As a result, these organizations may prefer to purchase from their existing suppliers rather than add or switch to a new supplier such as us regardless of product performance, features, or greater services offerings or may be more willing to incrementally add solutions to their existing security infrastructure from existing suppliers than to replace it wholesale with our solutions.

Conditions in our market could change rapidly and significantly as a result of technological advancements, partnering or acquisitions by our competitors, or continuing market consolidation. New start-up companies that innovate and large competitors that are making significant investments in research and development may invent similar or superior products and technologies that compete with our products and subscriptions. Some of our competitors have made or could make acquisitions of businesses that may allow them to offer more directly competitive and comprehensive solutions than they had previously offered and adapt more quickly to new technologies and end-customer needs. Our current and potential competitors may also establish cooperative relationships among themselves or with third parties that may further enhance their resources.

These competitive pressures in our market or our failure to compete effectively may result in price reductions, fewer orders, reduced revenue and gross margins, and loss of market share. Any failure to meet and address these factors could seriously harm our business and operating results.

A network or data security incident may allow unauthorized access to our network or data, harm our reputation, create additional liability and adversely impact our financial results.

Increasingly, companies are subject to a wide variety of attacks on their networks on an ongoing basis. In addition to traditional computer "hackers," malicious code (such as viruses and worms), phishing attempts, employee theft or misuse, and denial of service attacks, sophisticated nation-state and nation-state supported actors engage in intrusions and attacks (including advanced persistent threat intrusions) and add to the risks to our internal networks, cloud deployed enterprise and customer facing environments and the information they store and process. These risks may increase due to COVID-19. Despite significant efforts to create security barriers to such threats, it is virtually impossible for us to entirely mitigate these risks. We and our third-party service providers may face security threats and attacks from a variety of sources. Our data, corporate systems, third-party systems and security measures may be breached due to the actions of outside parties, employee error, malfeasance, a combination of these, or otherwise, and, as a result, an unauthorized party may obtain access to our data. Furthermore, as a well-known provider of security solutions, we may be a more attractive target for such attacks. A breach in our data security or an attack against our service availability, or that of our third-party service providers, could impact our networks or networks secured by our products and subscriptions, creating system disruptions or slowdowns and exploiting security vulnerabilities of our products, and the information stored on our networks or those of our third-party service providers could be accessed, publicly disclosed, altered, lost, or stolen, which could subject us to liability and cause us financial harm. Although we have not yet experienced significant damages from unauthorized access by a third party of our internal network, any actual or perceived breach of network security in our systems or networks, or any other actual or perceived data security incident we or our third-party service providers suffer, could result in damage to our reputation, negative publicity, loss of channel partners, end-customers and sales, loss of competitive advantages over our competitors, increased costs to remedy any problems and otherwise respond to any incident, regulatory investigations and enforcement actions, costly litigation, and other liability. In addition, we may incur significant costs and operational consequences of investigating, remediating, eliminating and putting in place additional tools and devices designed to prevent actual or perceived security breaches and other security incidents, as well as the costs to comply with any notification obligations resulting from any security incidents. While we maintain cybersecurity insurance, our insurance may be insufficient to cover all liabilities incurred by these incidents, and any incidents may result in loss of, or increased costs of, our cybersecurity insurance. Any of these negative outcomes could adversely impact the market perception of our products and subscriptions and end-customer and investor confidence in our company and could seriously harm our business or operating results.

Reliance on shipments at the end of the quarter could cause our revenue for the applicable period to fall below expected levels.

As a result of end-customer buying patterns and the efforts of our sales force and channel partners to meet or exceed their sales objectives, we have historically received a substantial portion of sales orders and generated a substantial portion of revenue during the last few weeks of each fiscal quarter. If expected revenue at the end of any fiscal quarter is delayed for any reason, including the failure of anticipated purchase orders to materialize (particularly for large enterprise end-customers with lengthy sales cycles), our logistics partners' inability to ship products prior to fiscal quarter-end to fulfill purchase orders received near the end of a fiscal quarter (including due to the effects of COVID-19), our failure to manage inventory to meet demand, any failure of our systems related to order review and processing, or any delays in shipments based on trade compliance requirements (including new compliance requirements imposed by new or renegotiated trade agreements), revenue could fall below our expectations and the estimates of analysts for that quarter, which could adversely impact our business and operating results and cause a decline in the market price of our common stock.

Seasonality may cause fluctuations in our revenue.

We believe there are significant seasonal factors that may cause our second and fourth fiscal quarters to record greater revenue sequentially than our first and third fiscal quarters. We believe that this seasonality results from a number of factors, including:

- end-customers with a December 31 fiscal year-end choosing to spend remaining unused portions of their discretionary budgets before their fiscal year-end, which potentially results in a positive impact on our revenue in our second fiscal quarter;

- our sales compensation plans, which are typically structured around annual quotas and commission rate accelerators, which potentially results in a positive impact on our revenue in our fourth fiscal quarter;
- seasonal reductions in business activity during August in the United States, Europe and certain other regions, which potentially results in a negative impact on our first fiscal quarter revenue; and
- the timing of end-customer budget planning at the beginning of the calendar year, which can result in a delay in spending at the beginning of the calendar year potentially resulting in a negative impact on our revenue in our third fiscal quarter.

As we continue to grow, seasonal or cyclical variations in our operations may become more pronounced, and our business, operating results and financial position may be adversely affected.

If we are unable to hire, integrate, train, retain, and motivate qualified personnel and senior management, our business could suffer.

Our future success depends, in part, on our ability to continue to hire, integrate, train, and retain qualified and highly skilled personnel. We are substantially dependent on the continued service of our existing engineering personnel because of the complexity of our offerings. Additionally, any failure to hire, integrate, train, and adequately incentivize our sales personnel or the inability of our recently hired sales personnel to effectively ramp to target productivity levels could negatively impact our growth and operating margins. Competition for highly skilled personnel, particularly in engineering, is often intense, especially in the San Francisco Bay Area, where we have a substantial presence and need for such personnel. Due to COVID-19, we slowed hiring in the third quarter of 2020, which could adversely affect our ability to retain qualified personnel. Additionally, potential changes in U.S. immigration and work authorization laws and regulations, including in reaction to COVID-19, may make it difficult to renew or obtain visas for any highly skilled personnel that we have hired or are actively recruiting.

In addition, the industry in which we operate generally experiences high employee attrition. Although we have entered into employment offer letters with our key personnel, these agreements have no specific duration and constitute at-will employment. We do not maintain key person life insurance policies on any of our employees. The loss of one or more of our key employees, and any failure to have in place and execute an effective succession plan for key executives, could seriously harm our business. If we are unable to hire, integrate, train, or retain the qualified and highly skilled personnel required to fulfill our current or future needs, our business, financial condition, and operating results could be harmed.

Our future performance also depends on the continued services and continuing contributions of our senior management to execute on our business plan and to identify and pursue new opportunities and product innovations. The loss of services of senior management, the decrease in the effectiveness of such services due to working remotely from home, or the ineffective management of any leadership transitions, especially within our sales organization, could significantly delay or prevent the achievement of our development and strategic objectives, which could adversely affect our business, financial condition, and operating results.

Further, we believe that a critical contributor to our success and our ability to retain highly skilled personnel has been our corporate culture, which we believe fosters innovation, teamwork, passion for end-customers, focus on execution, and the facilitation of critical knowledge transfer and knowledge sharing. As we grow and change, we may find it difficult to maintain these important aspects of our corporate culture. Any failure to preserve our culture as we grow could limit our ability to innovate and could negatively affect our ability to retain and recruit personnel, continue to perform at current levels or execute on our business strategy.

If we are not successful in executing our strategy to increase sales of our products and subscriptions to new and existing medium and large enterprise end-customers, our operating results may suffer.

Our growth strategy is dependent, in part, upon increasing sales of our products, services, subscriptions and offerings to new and existing medium and large enterprise end-customers. Sales to these end-customers involve risks that may not be present, or that are present to a lesser extent, with sales to smaller entities. These risks include:

- competition from competitors, such as Cisco and Check Point, that traditionally target larger enterprises, service providers, and government entities and that may have pre-existing relationships or purchase commitments from those end-customers;
- increased purchasing power and leverage held by large end-customers in negotiating contractual arrangements with us;
- more stringent requirements in our worldwide support contracts, including stricter support response times and penalties for any failure to meet support requirements; and
- longer sales cycles, particularly during the current economic slowdown and in some cases over 12 months, and the associated risk that substantial time and resources may be spent on a potential end-customer that elects not to purchase our products and subscriptions.

In addition, product purchases by large enterprises are frequently subject to budget constraints, multiple approvals, and unplanned administrative, processing, and other delays. Finally, large enterprises typically have longer implementation cycles, require greater product functionality and scalability and a broader range of services, demand that vendors take on a larger share of risks, sometimes require acceptance provisions that can lead to a delay in revenue recognition, and expect greater payment flexibility from vendors. All of these factors can add further risk to business conducted with these end-customers. If we fail to realize an expected sale from a large end-customer in a particular quarter or at all, our business, operating results, and financial condition could be materially and adversely affected.

We rely on revenue from subscription and support offerings, and because we recognize revenue from subscription and support over the term of the relevant service period, downturns or upturns in sales of these subscription and support offerings are not immediately reflected in full in our operating results.

Subscription and support revenue accounts for a significant portion of our revenue, comprising 68.8% of total revenue in fiscal 2020, 62.2% of total revenue in fiscal 2019, and 61.3% of total revenue in fiscal 2018. Sales of new or renewal subscription and support contracts may decline and fluctuate as a result of a number of factors, including end-customers' level of satisfaction with our products and subscriptions (including newly integrated products and services), the prices of our products and subscriptions, the prices of products and services offered by our competitors, and reductions in our end-customers' spending levels. If our sales of new or renewal subscription and support contracts decline, our total revenue and revenue growth rate may decline, and our business will suffer. In addition, we recognize subscription and support revenue over the term of the relevant service period, which is typically one to five years. As a result, much of the subscription and support revenue we report each fiscal quarter is the recognition of deferred revenue from subscription and support contracts entered into during previous fiscal quarters. Consequently, a decline in new or renewed subscription or support contracts in any one fiscal quarter will not be fully or immediately reflected in revenue in that fiscal quarter but will negatively affect our revenue in future fiscal quarters. Also, it is difficult for us to rapidly increase our subscription and support revenue through additional subscription and support sales in any period, as revenue from new and renewal subscription and support contracts must be recognized over the applicable service period.

Defects, errors, or vulnerabilities in our products, subscriptions, or support offerings, the failure of our products or subscriptions to block a virus or prevent a security breach, misuse of our products, or risks of product liability claims could harm our reputation and adversely impact our operating results.

Because our products and subscriptions are complex, they have contained and may contain design or manufacturing defects or errors that are not detected until after their commercial release and deployment by our end-customers. For example, from time to time, certain of our end-customers have reported defects in our products related to performance, scalability, and compatibility. Additionally, defects may cause our products or subscriptions to be vulnerable to security attacks, cause them to fail to help secure networks, or temporarily interrupt end-customers' networking traffic. Because the techniques used by computer hackers to access or sabotage networks change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques and provide a solution in time to protect our end-customers' networks. Furthermore, as a well-known provider of security solutions, our networks, products, including cloud-based technology, and subscriptions could be targeted by attacks specifically designed to disrupt our business and harm our reputation. In addition, defects or errors in our subscription updates or our products could result in a failure of our subscriptions to effectively update end-customers' hardware and cloud-based products. Our data centers and networks may experience technical failures and downtime, may fail to distribute appropriate updates, or may fail to meet the increased requirements of a growing installed end-customer base, any of which could temporarily or permanently expose our end-customers' networks, leaving their networks unprotected against the latest security threats. Moreover, our products must interoperate with our end-customers' existing infrastructure, which often have different specifications, utilize multiple protocol standards, deploy products from multiple vendors, and contain multiple generations of products that have been added over time. As a result, when problems occur in a network, it may be difficult to identify the sources of these problems.

The occurrence of any such problem in our products and subscriptions, whether real or perceived, could result in:

- expenditure of significant financial and product development resources in efforts to analyze, correct, eliminate, or work-around errors or defects or to address and eliminate vulnerabilities;
- loss of existing or potential end-customers or channel partners;
- delayed or lost revenue;
- delay or failure to attain market acceptance;
- an increase in warranty claims compared with our historical experience, or an increased cost of servicing warranty claims, either of which would adversely affect our gross margins; and
- litigation, regulatory inquiries, or investigations, each of which may be costly and harm our reputation.

Further, our products and subscriptions may be misused by end-customers or third parties that obtain access to our products and subscriptions. For example, our products and subscriptions could be used to censor private access to certain information on the Internet. Such use of our products and subscriptions for censorship could result in negative press coverage and negatively affect our reputation.

The limitation of liability provisions in our standard terms and conditions of sale may not fully or effectively protect us from claims as a result of federal, state, or local laws or ordinances, or unfavorable judicial decisions in the United States or other countries. The sale and support of our products and subscriptions also entails the risk of product liability claims. Although we may be indemnified by our third-party manufacturers for product liability claims arising out of manufacturing defects, because we control the design of our products and subscriptions, we may not be indemnified for product liability claims arising out of design defects. We maintain insurance to protect against certain claims associated with the use of our products and subscriptions, but our insurance coverage may not adequately cover any claim asserted against us. In addition, even claims that ultimately are unsuccessful could result in our expenditure of funds in litigation, divert management's time and other resources, and harm our reputation.

False detection of applications, viruses, spyware, vulnerability exploits, data patterns, or URL categories could adversely affect our business.

Our classifications of application type, virus, spyware, vulnerability exploits, data, or URL categories may falsely detect, report and act on applications, content, or threats that do not actually exist. This risk is heightened by the inclusion of a "heuristics" feature in our products and subscriptions, which attempts to identify applications and other threats not based on any known signatures but based on characteristics or anomalies which indicate that a particular item may be a threat. These false positives may impair the perceived reliability of our products and subscriptions and may therefore adversely impact market acceptance of our products and subscriptions. If our products and subscriptions restrict important files or applications based on falsely identifying them as malware or some other item that should be restricted, this could adversely affect end-customers' systems and cause material system failures. Any such false identification of important files or applications could result in damage to our reputation, negative publicity, loss of channel partners, end-customers and sales, increased costs to remedy any problem, and costly litigation.

We rely on our channel partners to sell substantially all of our products, including subscriptions and support, and if these channel partners fail to perform, our ability to sell and distribute our products and subscriptions will be limited, and our operating results will be harmed.

Substantially all of our revenue is generated by sales through our channel partners, including distributors and resellers. We provide our channel partners with specific training and programs to assist them in selling our products, including subscriptions and support offerings, but there can be no assurance that these steps will be utilized or effective. In addition, our channel partners may be unsuccessful in marketing, selling, and supporting our products and subscriptions. We may not be able to incentivize these channel partners to sell our products and subscriptions to end-customers and in particular, to large enterprises. These channel partners may also have incentives to promote our competitors' products and may devote more resources to the marketing, sales, and support of competitive products. Our channel partners operations may also be negatively impacted by other effects COVID-19 is having on the global economy, such as increased credit risk of end-customers and the uncertain credit markets. Our agreements with our channel partners may generally be terminated for any reason by either party with advance notice prior to each annual renewal date. We cannot be certain that we will retain these channel partners or that we will be able to secure additional or replacement channel partners. In addition, any new channel partner requires extensive training and may take several months or more to achieve productivity. Our channel partner sales structure could subject us to lawsuits, potential liability, and reputational harm if, for example, any of our channel partners misrepresent the functionality of our products or subscriptions to end-customers or violate laws or our corporate policies. If we fail to effectively manage our sales channels or channel partners, our ability to sell our products and subscriptions and operating results will be harmed.

If we do not accurately predict, prepare for, and respond promptly to rapidly evolving technological and market developments and successfully manage product and subscription introductions and transitions to meet changing end-customer needs in the enterprise security market, our competitive position and prospects will be harmed.

The enterprise security market has grown quickly and is expected to continue to evolve rapidly. Moreover, many of our end-customers operate in markets characterized by rapidly changing technologies and business plans, which require them to add numerous network access points and adapt increasingly complex enterprise networks, incorporating a variety of hardware, software applications, operating systems, and networking protocols. We must continually change our products and expand our business strategy in response to changes in network infrastructure requirements, including the expanding use of cloud computing. For example, organizations are moving portions of their data to be managed by third parties, primarily infrastructure, platform and application service providers, and may rely on such providers' internal security measures. In 2019, we announced our new cloud security offerings, for securing access to the cloud (Prisma), and our security offerings for securing the future of security operations (Cortex). While we have historically been successful in developing, acquiring, and marketing new products and product enhancements that respond to technological change and evolving industry standards, we may not be able to continue to do so and there can be no assurance that our new or future offerings will be successful or will achieve widespread market acceptance. If we fail to accurately predict end-customers' changing needs and emerging technological trends in the enterprise security industry, including in the areas of mobility, virtualization, cloud computing, and software defined networks ("SDN"), our business could be harmed. In addition, COVID-19 and the resulting increase in customer demand for work-from-home technologies and other technologies have caused us to reprioritize our engineering and R&D efforts and there can be no assurance that any product enhancements or new features will be successful or address our end-customer needs.

The technology in our portfolio is especially complex because it needs to effectively identify and respond to new and increasingly sophisticated methods of attack, while minimizing the impact on network performance. Additionally, some of our new features and related enhancements may require us to develop new hardware architectures that involve complex, expensive, and time-consuming research and development processes. The development of our portfolio is difficult and the timetable for commercial release and availability is uncertain as there can be long time periods between releases and availability of new features. If we experience unanticipated delays in the availability of new products, features, and subscriptions, and fail to meet customer expectations for such availability, our competitive position and business prospects will be harmed.

Additionally, we must commit significant resources to developing new features and new cloud security, AI/analytics and other offerings before knowing whether our investments will result in products, subscriptions, and features the market will accept. The success of new features depends on several factors, including appropriate new product definition, differentiation of new products, subscriptions, and features from those of our competitors, and market acceptance of these products, services and features. Moreover, successful new product introduction and transition depends on a number of factors including, our ability to manage the risks associated with new product production ramp-up issues, the availability of application software for new products, the effective management of purchase commitments and inventory, the availability of products in appropriate quantities and costs to meet anticipated demand, and the risk that new products may have quality or other defects or deficiencies, especially in the early stages of introduction. There can be no assurance that we will successfully identify opportunities for new products and subscriptions, develop and bring new products and subscriptions to market in a timely manner, or achieve market acceptance of our products and subscriptions, including our product enhancement efforts in connection with COVID-19, or that products, subscriptions, and technologies developed by others will not render our products, subscriptions, or technologies obsolete or noncompetitive.

Our current research and development efforts may not produce successful products, subscriptions, or features that result in significant revenue, cost savings or other benefits in the near future, if at all.

Developing our products, subscriptions, features, and related enhancements is expensive. Our investments in research and development may not result in significant design improvements, marketable products, subscriptions, or features, or may result in products, subscriptions, or features that are more expensive than anticipated. Additionally, we may not achieve the cost savings or the anticipated performance improvements we expect, and we may take longer to generate revenue, or generate less revenue, than we anticipate. Our future plans include significant investments in research and development and related product and subscription opportunities. We believe that we must continue to dedicate a significant amount of resources to our research and development efforts to maintain our competitive position. However, we may not receive significant revenue from these investments in the near future, if at all, or these investments may not yield the expected benefits, either of which could adversely affect our business and operating results.

We may acquire other businesses, which could require significant management attention, disrupt our business, dilute stockholder value, and adversely affect our operating results.

As part of our business strategy, we may acquire or make investments in complementary companies, products, or technologies. For example, in March 2018, we acquired Evident.io, Inc., in April 2018, we acquired Cyber Secdo Ltd. ("Secdo"), in October 2018, we acquired RedLock, in March 2019, we acquired Demisto, in June 2019, we acquired PureSec, in July 2019, we acquired Twistlock, in September 2019, we acquired Zingbox, in December 2019, we acquired Aporeto and in April 2020, we acquired CloudGenix. The identification of suitable acquisition candidates is difficult, and we may not be able to complete such acquisitions on favorable terms, if at all. If we do complete future acquisitions, we may not ultimately strengthen our competitive position or achieve our goals and business strategy; we may be subject to claims or liabilities assumed from an acquired company, product, or technology; acquisitions we complete could be viewed negatively by our end-customers, investors, and securities analysts; and we may incur costs and expenses necessary to address an acquired company's failure to comply with laws and governmental rules and regulations. Additionally, we may be subject to litigation or other claims in connection with the acquired company, including claims from terminated employees, customers, former stockholders or other third parties, which may differ from or be more significant than the risks our business faces. If we are unsuccessful at integrating past or future acquisitions in a timely manner, or the technologies and operations associated with such acquisitions, into our company, the revenue and operating results of the combined company could be adversely affected. Any integration process may require significant time and resources, which may disrupt our ongoing business and divert management's attention, and we may not be able to manage the integration process successfully or in a timely manner. We may not successfully evaluate or utilize the acquired technology or personnel, realize anticipated synergies from the acquisition, or accurately forecast the financial impact of an acquisition transaction and integration of such acquisition, including accounting charges and any potential impairment of goodwill and intangible assets recognized in connection with such acquisitions. We may have to pay cash, incur debt, or issue equity or equity-linked securities to pay for any future acquisitions, each of which could adversely affect our financial condition or the market price of our common stock. Furthermore, the sale of equity or issuance of equity-linked debt to finance any future acquisitions could result in dilution to our stockholders. See the risk factors entitled "Our failure to raise additional capital or generate the significant capital necessary to expand our operations and invest in new products and subscriptions could reduce our ability to compete and could harm our business" and "The issuance of additional stock in connection with financings, acquisitions, investments, our stock incentive plans, the conversion of our Notes or exercise of the related Warrants, or otherwise will dilute all other stockholders." The occurrence of any of these risks could harm our business, operating results, and financial condition.

Because we depend on manufacturing partners to build and ship our products, we are susceptible to manufacturing and logistics delays and pricing fluctuations that could prevent us from shipping customer orders on time, if at all, or on a cost-effective basis, which may result in the loss of sales and end-customers.

We depend on manufacturing partners, primarily Flex, our EMS provider, as our sole source manufacturers for our product lines. Our reliance on these manufacturing partners reduces our control over the manufacturing process and exposes us to risks, including reduced control over quality assurance, product costs, product supply, timing and transportation risk. Our products are manufactured by our manufacturing partners at facilities located in the United States. Some of the components in our products are sourced either through Flex or directly by us from component suppliers outside the United States. The portion of our products that are sourced outside the United States may subject us to additional logistical risks (which may increase due to the global impact of COVID-19) or risks associated with complying with local rules and regulations in foreign countries. Significant changes to existing international trade agreements could lead to sourcing or logistics disruption resulting from import delays or the imposition of increased tariffs on our sourcing partners. For example, the United States and Chinese governments have each enacted, and discussed additional, import tariffs. These tariffs, depending on their ultimate scope and how they are implemented, could negatively impact our business by increasing our costs. For example, some components that we import for final manufacturing in the United States have been impacted by these recent tariffs. As a result, our costs have increased and we have raised, and may be required to further raise, prices on our hardware products. Each of these factors could severely impair our ability to fulfill orders.

In addition, we are subject to requirements under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the “Dodd-Frank Act”) to diligence, disclose, and report whether or not our products contain minerals originating from the Democratic Republic of the Congo and adjoining countries, or conflict minerals. Although the SEC has provided guidance with respect to a portion of the conflict minerals filing requirements that may somewhat reduce our reporting practices, we have incurred and expect to incur additional costs to comply with these disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. These requirements could adversely affect the sourcing, availability, and pricing of minerals used in the manufacture of semiconductor devices or other components used in our products. We may also encounter end-customers who require that all of the components of our products be certified as conflict free. If we are not able to meet this requirement, such end-customers may choose not to purchase our products.

Our manufacturing partners typically fulfill our supply requirements on the basis of individual purchase orders. We do not have long-term contracts with these manufacturers that guarantee capacity, the continuation of particular pricing terms, or the extension of credit limits. Accordingly, they are not obligated to continue to fulfill our supply requirements and the prices we pay for manufacturing services could be increased on short notice. Our contract with Flex permits them to terminate the agreement for their convenience, subject to prior notice requirements. If we are required to change manufacturing partners, our ability to meet our scheduled product deliveries to our end-customers could be adversely affected, which could cause the loss of sales to existing or potential end-customers, delayed revenue or an increase in our costs which could adversely affect our gross margins. COVID-19 has resulted in certain cases to cause delays and challenges in obtaining components and inventory, as well as increases to freight and shipping costs, and may result in a material adverse effect on our results of operations. Any production interruptions for any reason, such as a natural disaster, epidemic or pandemic such as COVID-19, capacity shortages, or quality problems, at one of our manufacturing partners would negatively affect sales of our product lines manufactured by that manufacturing partner and adversely affect our business and operating results.

Managing the supply of our products and product components is complex. Insufficient supply and inventory may result in lost sales opportunities or delayed revenue, while excess inventory may harm our gross margins.

Our manufacturing partners procure components and build our products based on our forecasts, and we generally do not hold inventory for a prolonged period of time. These forecasts are based on estimates of future demand for our products, which are in turn based on historical trends and analyses from our sales and product management organizations, adjusted for overall market conditions. COVID-19 has made forecasting more difficult and we may experience increased challenges to our supply chain due to the unpredictability of the impacts of COVID-19. In order to reduce manufacturing lead times and plan for adequate component supply, from time to time we may issue forecasts for components and products that are non-cancelable and non-returnable.

Our inventory management systems and related supply chain visibility tools may be inadequate to enable us to forecast accurately and effectively manage supply of our products and product components. If we ultimately determine that we have excess supply, we may have to reduce our prices and write-down inventory, which in turn could result in lower gross margins. If our actual component usage and product demand are lower than the forecast, we provide to our manufacturing partners, we accrue for losses on manufacturing commitments in excess of forecasted demand. Alternatively, insufficient supply levels may lead to shortages that result in delayed product revenue or loss of sales opportunities altogether as potential end-customers turn to competitors’ products that are readily available. If we are unable to effectively manage our supply and inventory, our operating results could be adversely affected.

Because some of the key components in our products come from limited sources of supply, we are susceptible to supply shortages or supply changes, which could disrupt or delay our scheduled product deliveries to our end-customers and may result in the loss of sales and end-customers.

Our products rely on key components, including integrated circuit components, which our manufacturing partners purchase on our behalf from a limited number of component suppliers, including sole source providers. The manufacturing operations of some of our component suppliers are geographically concentrated in Asia and elsewhere, which makes our supply chain vulnerable to regional disruptions, such as natural disasters, fire, political instability, civil unrest, a power outage, or health risks, such as epidemics and pandemics like COVID-19, and as a result could impair the volume of components that we are able to obtain. Lead times for components may also be adversely impacted by factors outside of our control including COVID-19.

Further, we do not have volume purchase contracts with any of our component suppliers, and they could cease selling to us at any time. If we are unable to obtain a sufficient quantity of these components in a timely manner for any reason, sales of our products could be delayed or halted or, we could be forced to expedite shipment of such components or our products at dramatically increased costs. Our component suppliers also change their selling prices frequently in response to market trends, including industry-wide increases in demand, and because we do not have volume purchase contracts with these component suppliers, we are susceptible to price fluctuations related to raw materials and components and may not be able to adjust our prices accordingly. Additionally, poor quality in any of the sole-sourced components in our products could result in lost sales or sales opportunities.

If we are unable to obtain a sufficient volume of the necessary components for our products on commercially reasonable terms or the quality of the components do not meet our requirements, we could also be forced to redesign our products and qualify new components from alternate component suppliers. The resulting stoppage or delay in selling our products and the expense of redesigning our products could result in lost sales opportunities and damage to customer relationships, which would adversely affect our business and operating results.

The sales prices of our products and subscriptions may decrease, which may reduce our gross profits and adversely impact our financial results.

The sales prices for our products and subscriptions may decline for a variety of reasons, including competitive pricing pressures, discounts, a change in our mix of products and subscriptions, anticipation of the introduction of new products or subscriptions, or promotional programs or pricing pressures as a result to the economic downturn resulting from COVID-19. Competition continues to increase in the market segments in which we participate, and we expect competition to further increase in the future, thereby leading to increased pricing pressures. Larger competitors with more diverse product and service offerings may reduce the price of products or subscriptions that compete with ours or may bundle them with other products and subscriptions. Additionally, although we price our products and subscriptions worldwide in U.S. dollars, currency fluctuations in certain countries and regions may negatively impact actual prices that channel partners and end-customers are willing to pay in those countries and regions. Furthermore, we anticipate that the sales prices and gross profits for our products could decrease over product life cycles. We cannot guarantee that we will be successful in developing and introducing new offerings with enhanced functionality on a timely basis, or that our product and subscription offerings, if introduced, will enable us to maintain our prices and gross profits at levels that will allow us to achieve and maintain profitability.

We generate a significant amount of revenue from sales to distributors, resellers, and end-customers outside of the United States, and we are therefore subject to a number of risks associated with international sales and operations.

We have a limited history of marketing, selling, and supporting our products and subscriptions internationally. We may experience difficulties in recruiting, training, managing, and retaining an international staff, and specifically staff related to sales management and sales personnel. We also may not be able to maintain successful strategic distributor relationships internationally or recruit additional companies to enter into strategic distributor relationships. Business practices in the international markets that we serve may differ from those in the United States and may require us in the future to include terms other than our standard terms related to payment, warranties, or performance obligations in end-customer contracts.

Additionally, our international sales and operations are subject to a number of risks, including the following:

- political, economic and social uncertainty around the world, health risks such as epidemics and pandemics like COVID-19, macroeconomic challenges in Europe, terrorist activities, and continued hostilities in the Middle East;
- greater difficulty in enforcing contracts and accounts receivable collection and longer collection periods;
- the uncertainty of protection for intellectual property rights in some countries;
- greater risk of unexpected changes in foreign and domestic regulatory practices, tariffs, and tax laws and treaties, including regulatory and trade policy changes adopted by the current administration or foreign countries in response to regulatory changes adopted by the current administration;

- risks associated with trade restrictions and foreign legal requirements, including the importation, certification, and localization of our products required in foreign countries;
- greater risk of a failure of foreign employees, channel partners, distributors, and resellers to comply with both U.S. and foreign laws, including antitrust regulations, the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, U.S. or foreign sanctions regimes and export or import control laws, and any trade regulations ensuring fair trade practices, which non-compliance could include increased costs;
- heightened risk of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements;
- increased expenses incurred in establishing and maintaining office space and equipment for our international operations;
- management communication and integration problems resulting from cultural and geographic dispersion; and
- fluctuations in exchange rates between the U.S. dollar and foreign currencies in markets where we do business and related impact on sales cycles.

These and other factors could harm our future international revenues and, consequently, materially impact our business, operating results, and financial condition. The expansion of our existing international operations and entry into additional international markets will require significant management attention and financial resources. Our failure to successfully manage our international operations and the associated risks effectively could limit the future growth of our business.

Further, we are subject to risks associated with changes in economic and political conditions in countries in which we operate or sell our products and subscriptions. For instance, Brexit creates an uncertain political and economic environment in the U.K. and across E.U. member states for the foreseeable future, including during the transition period connected to Brexit. Any agreements arising out of negotiations which the U.K. government makes to retain access to E.U. markets may lead to greater restrictions on the free movement of goods, services, people and capital between the U.K. and the remaining E.U. member states. Our financial condition and operating results in the U.K. and the E.U. may be impacted by such uncertainty with potential disruptions to our relationships with existing and future customers, suppliers and employees all possibly having a material adverse impact on our business, prospects, financial condition and/or operating results.

We are exposed to fluctuations in currency exchange rates, which could negatively affect our financial condition and operating results.

Our sales contracts are primarily denominated in U.S. dollars, and therefore, substantially all of our revenue is not subject to foreign currency risk. However, there has been, and may continue to be, significant volatility in global stock markets and foreign currency exchange rates that result in the strengthening of the U.S. dollar against foreign currencies in which we conduct business. The strengthening of the U.S. dollar increases the real cost of our products to our end-customers outside of the United States and may lead to delays in the purchase of our products, subscriptions, and support, and the lengthening of our sales cycle. If the U.S. dollar continues to strengthen, this could adversely affect our financial condition and operating results. In addition, increased international sales in the future, including through our channel partners and other partnerships, may result in greater foreign currency denominated sales, increasing our foreign currency risk.

Our operating expenses incurred outside the United States and denominated in foreign currencies are increasing and are subject to fluctuations due to changes in foreign currency exchange rates. If we are not able to successfully hedge against the risks associated with foreign currency fluctuations, our financial condition and operating results could be adversely affected. We have entered into forward contracts in an effort to reduce our foreign currency exchange exposure related to our foreign currency denominated expenditures. As of July 31, 2020, the total notional amount of our outstanding foreign currency forward contracts was $443.6 million. For more information on our hedging transactions, refer to Note 5. Derivative Instruments in Part II, Item 8 of this Annual Report on Form 10-K. The effectiveness of our existing hedging transactions and the availability and effectiveness of any hedging transactions we may decide to enter into in the future may be limited and we may not be able to successfully hedge our exposure, which could adversely affect our financial condition and operating results.

We are exposed to the credit and liquidity risk of some of our channel partners and end-customers, and to credit exposure in weakened markets, which could result in material losses.

Most of our sales are made on an open credit basis. Beyond our open credit arrangements, we have also experienced demands for customer financing due to COVID-19 and our competitors' offerings. The majority of these demands are currently facilitated by leasing and other financing arrangements provided by our distributors and resellers. To respond to this demand, we expect to increase our customer financing activities in the future.

We believe customer financing is a competitive factor in obtaining business. The loan financing arrangements provided by our distributors and resellers may include not only financing the acquisition of our products and services but also providing additional funds for other costs associated with network installation and integration of our products and services.

Our exposure to the credit risks relating to the financing activities described above may increase if our customers are adversely affected by a global economic downturn or periods of economic uncertainty. Although we have programs in place with our distributors and resellers that are designed to monitor and mitigate these risks, we cannot guarantee these programs will be effective in reducing the credit risks, especially as we expand our business internationally. If we are unable to adequately control these risks, our business, operating results, and financial condition could be harmed.

In the past, we have experienced non-material losses due to bankruptcies among customers. If these losses increase due to COVID-19 or global economic conditions, they could harm our business and financial condition. A material portion of our sales is derived through our distributors. For fiscal 2020, four distributors represented 68.8% of our total revenue and as of July 31, 2020, one distributor represented 31.5% of our gross accounts receivable. Additionally, to the degree that turmoil in the credit markets makes it more difficult for some customers to obtain financing, those customers' ability to pay could be adversely impacted, which in turn could have a material adverse impact on our business, operating results, and financial condition.

A portion of our revenue is generated by sales to government entities, which are subject to a number of challenges and risks.

Sales to government entities are subject to a number of risks. Selling to government entities can be highly competitive, expensive, and time-consuming, often requiring significant upfront time and expense without any assurance that these efforts will generate a sale. The substantial majority of our sales to date to government entities have been made indirectly through our channel partners. Government certification requirements for products and subscriptions like ours may change, thereby restricting our ability to sell into the federal government sector until we have attained the revised certification. If our products and subscriptions are late in achieving or fail to achieve compliance with these certifications and standards, or our competitors achieve compliance with these certifications and standards, we may be disqualified from selling our products and subscriptions to such governmental entity, or be at a competitive disadvantage, which would harm our business, operating results, and financial condition. Government demand and payment for our products and subscriptions may be impacted by government shutdowns, public sector budgetary cycles, contracting requirements, and funding authorizations, with funding reductions or delays adversely affecting public sector demand for our products and subscriptions. Government entities may have statutory, contractual, or other legal rights to terminate contracts with our distributors and resellers for convenience or due to a default, and any such termination may adversely impact our future operating results. Governments routinely investigate and audit government contractors' administrative processes, and any unfavorable audit could result in the government refusing to continue buying our products and subscriptions, a reduction of revenue, or fines or civil or criminal liability if the audit uncovers improper or illegal activities, which could adversely impact our operating results in a material way. Additionally, the U.S. government may require certain of the products that it purchases to be manufactured in the United States and other relatively high cost manufacturing locations, and we may not manufacture all products in locations that meet such requirements, affecting our ability to sell these products and subscriptions to the U.S. government.

Our ability to sell our products and subscriptions is dependent on the quality of our technical support services and those of our channel partners, and the failure to offer high-quality technical support services could have a material adverse effect on our end-customers' satisfaction with our products and subscriptions, our sales, and our operating results.

After our products and subscriptions are deployed within our end-customers' networks, our end-customers depend on our technical support services, as well as the support of our channel partners, to resolve any issues relating to our products. Our channel partners often provide similar technical support for third parties' products and may therefore have fewer resources to dedicate to the support of our products and subscriptions. If we or our channel partners do not effectively assist our end-customers in deploying our products and subscriptions, succeed in helping our end-customers quickly resolve post-deployment issues, or provide effective ongoing support, our ability to sell additional products and subscriptions to existing end-customers would be adversely affected and our reputation with potential end-customers could be damaged. While we have been able to meet increased demand for support services in fiscal 2020, failure to do so in the future could have a material adverse effect on our business.

Many larger enterprise, service provider, and government entity end-customers have more complex networks and require higher levels of support than smaller end-customers. If we or our channel partners fail to meet the requirements of these larger end-customers, it may be more difficult to execute on our strategy to increase our coverage with larger end-customers. Additionally, if our channel partners do not effectively provide support to the satisfaction of our end-customers, we may be required to provide direct support to such end-customers, which would require us to hire additional personnel and to invest in additional resources. It can take several months to recruit, hire, and train qualified technical support employees. We may not be able to hire such resources fast enough to keep up with unexpected demand, particularly if the sales of our products exceed our internal forecasts. As a result, our ability, and the ability of our channel partners to provide adequate and timely support to our end-customers will be negatively impacted, and our end-customers' satisfaction with our products and subscriptions will be adversely affected. Additionally, to the extent that we may need to rely on our sales engineers to provide post-sales support while we are ramping our support resources, our sales productivity will be negatively impacted, which would harm our revenues. Our failure or our channel partners' failure to provide and maintain high-quality support services could have a material adverse effect on our business, financial condition, and operating results.

Claims by others that we infringe their proprietary technology or other rights could harm our business.

Companies in the enterprise security industry own large numbers of patents, copyrights, trademarks, domain names, and trade secrets and frequently enter into litigation based on allegations of infringement, misappropriation, or other violations of intellectual property or other rights. Third parties have asserted and may in the future assert claims of infringement of intellectual property rights against us. For example, in December 2011, Juniper, one of our competitors, filed a lawsuit against us alleging patent infringement. In September 2013, we filed a lawsuit against Juniper alleging patent infringement. In May 2014, we entered into a Settlement, Release and Cross-License Agreement with Juniper to resolve all pending disputes between Juniper and us, including dismissal of all pending litigation.

Third parties may also assert such claims against our end-customers or channel partners, whom our standard license and other agreements obligate us to indemnify against claims that our products and subscriptions infringe the intellectual property rights of third parties. In addition, to the extent we hire personnel from competitors, we may be subject to allegations that they have been improperly solicited, that they have divulged proprietary or other confidential information, or that their former employers own their inventions or other work product. Furthermore, we may be unaware of the intellectual property rights of others that may cover some or all of our technology or products and subscriptions. As the number of products and competitors in our market increases and overlaps occur, infringement claims may increase. While we intend to increase the size of our patent portfolio, our competitors and others may now and in the future have significantly larger and more mature patent portfolios than we have. In addition, litigation may involve patent holding companies or other adverse patent owners who have no relevant product revenue and against whom our own patents may therefore provide little or no deterrence or protection. In addition, we have not registered our trademarks in all of our geographic markets and failure to secure those registrations could adversely affect our ability to enforce and defend our trademark rights. Any claim of infringement by a third party, even those without merit, could cause us to incur substantial costs defending against the claim, could distract our management from our business, and could require us to cease use of such intellectual property. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. A successful claimant could secure a judgment, or we may agree to a settlement that prevents us from distributing certain products or performing certain services or that requires us to pay substantial damages, royalties, or other fees. Any of these events could seriously harm our business, financial condition, and operating results.

Our proprietary rights may be difficult to enforce or protect, which could enable others to copy or use aspects of our products or subscriptions without compensating us.

We rely and expect to continue to rely on a combination of confidentiality and license agreements with our employees, consultants, and third parties with whom we have relationships, as well as trademark, copyright, patent, and trade secret protection laws, to protect our proprietary rights. We have filed various applications for certain aspects of our intellectual property. Valid patents may not issue from our pending applications, and the claims eventually allowed on any patents may not be sufficiently broad to protect our technology or products and subscriptions. We cannot be certain that we were the first to make the inventions claimed in our pending patent applications or that we were the first to file for patent protection, which could prevent our patent applications from issuing as patents or invalidate our patents following issuance. Additionally, the process of obtaining patent protection is expensive and time-consuming, and we may not be able to prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. Any issued patents may be challenged, invalidated or circumvented, and any rights granted under these patents may not actually provide adequate defensive protection or competitive advantages to us. Additional uncertainty may result from changes to patent-related laws and court rulings in the United States and other jurisdictions. As a result, we may not be able to obtain adequate patent protection or effectively enforce any issued patents.

Despite our efforts to protect our proprietary rights, unauthorized parties may attempt to copy aspects of our products or subscriptions or obtain and use information that we regard as proprietary. We generally enter into confidentiality or license agreements with our employees, consultants, vendors, and end-customers, and generally limit access to and distribution of our proprietary information. However, we cannot be certain that we have entered into such agreements with all parties who may have or have had access to our confidential information or that the agreements we have entered into will not be breached. We cannot guarantee that any of the measures we have taken will prevent misappropriation of our technology. Because we may be an attractive target for computer hackers, we may have a greater risk of unauthorized access to, and misappropriation of, our proprietary information. In addition, the laws of some foreign countries do not protect our proprietary rights to as great an extent as the laws of the United States, and many foreign countries do not enforce these laws as diligently as government agencies and private parties in the United States. From time to time, we may need to take legal action to enforce our patents and other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement or invalidity. Such litigation could result in substantial costs and diversion of resources and could negatively affect our business, operating results, and financial condition. Attempts to enforce our rights against third parties could also provoke these third parties to assert their own intellectual property or other rights against us or result in a holding that invalidates or narrows the scope of our rights, in whole or in part. If we are unable to protect our proprietary rights (including aspects of our software and products protected other than by patent rights), we may find ourselves at a competitive disadvantage to others who need not incur the additional expense, time, and effort required to create the innovative products that have enabled us to be successful to date. Any of these events would have a material adverse effect on our business, financial condition, and operating results.

Our use of open source software in our products and subscriptions could negatively affect our ability to sell our products and subscriptions and subject us to possible litigation.

Our products and subscriptions contain software modules licensed to us by third-party authors under “open source” licenses. Some open source licenses contain requirements that we make available applicable source code for modifications or derivative works we create based upon the type of open source software we use. If we combine our proprietary software with open source software in a certain manner, we could, under certain open source licenses, be required to release the source code of our proprietary software to the public. This would allow our competitors to create similar products or subscriptions with lower development effort and time and ultimately could result in a loss of product sales for us.

Although we monitor our use of open source software to avoid subjecting our products and subscriptions to conditions we do not intend, the terms of many open source licenses have not been interpreted by United States courts, and there is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our products and subscriptions. From time to time, there have been claims against companies that distribute or use open source software in their products and subscriptions, asserting that open source software infringes the claimants’ intellectual property rights. We could be subject to suits by parties claiming infringement of intellectual property rights in what we believe to be licensed open source software. If we are held to have breached the terms of an open source software license, we could be required to seek licenses from third parties to continue offering our products and subscriptions on terms that are not economically feasible, to reengineer our products and subscriptions, to discontinue the sale of our products and subscriptions if reengineering could not be accomplished on a timely basis, or to make generally available, in source code form, our proprietary code, any of which could adversely affect our business, operating results, and financial condition.

In addition to risks related to license requirements, usage of open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or assurance of title or controls on origin of the software. In addition, many of the risks associated with usage of open source software, such as the lack of warranties or assurances of title, cannot be eliminated, and could, if not properly addressed, negatively affect our business. We have established processes to help alleviate these risks, including a review process for screening requests from our development organizations for the use of open source software, but we cannot be sure that our processes for controlling our use of open source software in our products and subscriptions will be effective.

We license technology from third parties, and our inability to maintain those licenses could harm our business.

We incorporate technology that we license from third parties, including software, into our products and subscriptions. We cannot be certain that our licensors are not infringing 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 and subscriptions. In addition, some licenses may be non-exclusive, and therefore our competitors may have access to the same technology licensed to us. Some of our agreements with our licensors may be terminated for convenience by them. We may also be subject to additional fees or be required to obtain new licenses if any of our licensors allege that we have not properly paid for such licenses or that we have improperly used the technologies under such licenses, and such licenses may not be available on terms acceptable to us or at all. If we are unable to continue to license any of this technology because of intellectual property infringement claims brought by third parties against our licensors or against us, or claims against us by our licensors, or if we are unable to continue our license agreements or enter into new licenses on commercially reasonable terms, our ability to develop and sell products and subscriptions containing such technology would be severely limited, and our business could be harmed. Additionally, if we are unable to license necessary technology from third parties, we may be forced to acquire or develop alternative technology, which we may be unable to do in a commercially feasible manner or at all, and we may be required to use alternative technology of lower quality or performance standards. This would limit and delay our ability to offer new or competitive products and subscriptions and increase our costs of production. As a result, our margins, market share, and operating results could be significantly harmed.

We face risks associated with having operations and employees located in Israel.

As a result of various of our acquisitions, including Secdo, PureSec and Twistlock, we have offices and employees located in Israel. Accordingly, political, economic, and military conditions in Israel directly affect our operations. The future of peace efforts between Israel and its Arab neighbors remains uncertain. There has been a significant increase in hostilities and political unrest between Hamas and Israel in the past few years. The effects of these hostilities and violence on the Israeli economy and our operations in Israel are unclear, and we cannot predict the effect on us of further increases in these hostilities or future armed conflict, political instability or violence in the region. Current or future tensions and conflicts in the Middle East could adversely affect our business, operating results, financial condition and cash flows.

In addition, many of our employees in Israel are obligated to perform annual reserve duty in the Israeli military and are subject to being called for active duty under emergency circumstances. We cannot predict the full impact of these conditions on us in the future, particularly if emergency circumstances or an escalation in the political situation occurs. If many of our employees in Israel are called for active duty for a significant period of time, our operations and our business could be disrupted and may not be able to function at full capacity. Any disruption in our operations in Israel could adversely affect our business.

Our failure to adequately protect personal information could have a material adverse effect on our business.

A wide variety of provincial, state, national, and international laws and regulations apply to the collection, use, retention, protection, disclosure, transfer, and other processing of personal data. These data protection and privacy-related laws and regulations are evolving and being tested in courts and may result in ever-increasing regulatory and public scrutiny as well as escalating levels of enforcement and sanctions. Further, the interpretation and application of foreign laws and regulations in many cases is uncertain, and our legal and regulatory obligations in foreign jurisdictions are subject to frequent and unexpected changes, including the potential for various regulatory 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 significantly.

For example, the E.U. General Data Protection Regulation ("GDPR"), which became effective in May 2018, imposes more stringent data protection requirements, and provides for greater penalties for noncompliance, than E.U. laws that previously applied. The GDPR requires, among other things, that personal data only be transferred outside of the E.U. to certain jurisdictions, including the United States, if steps are taken to legitimize those data transfers. We have relied on the E.U.-U.S. and Swiss-U.S. Privacy Shield programs, and the use of model contractual clauses approved by the E.U. Commission, to legitimize these transfers. Both the E.U.-U.S. Privacy Shield and these model contractual clauses have been subject to legal challenge. We are in the process of analyzing the recent "Schrems II" decision by the Court of Justice of the European Union and its impact on our data transfer mechanisms. The effects of this decision are highly uncertain and difficult to predict. Among other effects, we may experience additional costs associated with increased compliance burdens and new contract negotiations with third parties that aid in processing data on our behalf. We may experience reluctance or refusal by current or prospective European customers to use our products, and we may find it necessary or desirable 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 taken in response, may cause us to assume additional liabilities or incur additional costs and could result in our business, operating results and financial condition being harmed. Additionally, 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.

In the U.K., a Data Protection Act that substantially implements the GDPR also became law in May 2018. It remains unclear, however, how this act and other U.K. data protection laws or regulations will develop in the medium to longer term and how data transfers to and from the United Kingdom will be regulated after Brexit.

California recently enacted the California Consumer Privacy Act ("CCPA"), which requires, among other things, covered companies to provide new disclosures to California consumers, and afford such consumers new abilities to opt-out of certain sales of personal information, and also affords a private right of action to individuals affected by a data breach, if the breach was caused by a lack of reasonable security. The enforcement of the CCPA by the California Attorney General commenced on July 1, 2020. The CCPA has been amended on multiple occasions and is the subject of proposed regulations of the California Attorney General that have yet to be finalized. It remains unclear what, if any, additional modifications will be made to this legislation or how it will be interpreted and enforced. The effects of the CCPA potentially are significant, however, and may require us to modify our data processing practices and policies and to incur substantial costs and expenses for compliance. Moreover, a new privacy law, the California Privacy Rights Act ("CPRA") was recently certified by the California Secretary of State to appear on the ballot for the November 3, 2020 election. If this initiative is approved by California voters, the CPRA would significantly modify the CCPA, potentially resulting in further uncertainty and requiring us to incur additional costs and expenses in an effort to comply.

We may also from time to time be subject to, or face assertions that we are subject to, additional obligations relating to personal data by contract or due to assertions that self-regulatory obligations or industry standards apply to our practices. Other states have also expanded their data protection laws. Additionally, 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. Further, 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. Each of these privacy, security, and data protection laws and regulations, and any other such changes or new laws or regulations, could impose significant limitations, or require changes to our business model or practices or growth strategy, which may increase our compliance expenses and make our business more costly or less efficient to conduct.

Our actual or perceived failure to comply with applicable laws and regulations or other obligations to which we are now or which we may be subject relating to personal data, or to protect personal data from unauthorized acquisition, use or other processing, could result in consequences such as enforcement actions and regulatory investigations against us, fines, public censure, claims for damages by end-customers and other affected individuals, damage to our reputation and loss of goodwill (both in relation to existing end-customers and prospective end-customers), any of which could have a material adverse effect on our operations, financial performance, and business. Evolving and changing definitions of personal data and personal information, within the E.U., the United

States, and elsewhere, especially relating to classification of Internet Protocol (“IP”) addresses, machine identification, location data, and other information, may limit or inhibit our ability to operate or expand our business, including limiting strategic partnerships that may involve the sharing or uses of data, and may require significant expenditures and efforts in order to comply. Even the perception of privacy, data protection or information security concerns, whether or not valid, may harm our reputation and inhibit adoption of our products and subscriptions by current and future end-customers.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets.

Because we incorporate encryption technology into our products, certain of our products are subject to U.S. export controls and may be exported outside the United States only with the required export license or through an export license exception. If we were to fail to comply with U.S. export licensing requirements, U.S. customs regulations, U.S. economic sanctions, or other laws, we could be subject to substantial civil and criminal penalties, including fines, incarceration for responsible employees and managers, and the possible loss of export or import privileges. Obtaining the necessary export license for a particular sale may be time-consuming and may result in the delay or loss of sales opportunities. Furthermore, U.S. export control laws and economic sanctions prohibit the shipment of certain products to U.S. embargoed or sanctioned countries, governments, and persons. Even though we take precautions to ensure that our channel partners comply with all relevant regulations, any failure by our channel partners to comply with such regulations could have negative consequences for us, including reputational harm, government investigations, and penalties.

In addition, various countries regulate the import of certain encryption technology, including through import permit and license requirements, and have enacted laws that could limit our ability to distribute our products or could limit our end-customers’ ability to implement our products in those countries. Changes in our products or changes in export and import regulations may create delays in the introduction of our products into international markets, prevent our end-customers with international operations from deploying our products globally or, in some cases, prevent or delay the export or import of our products to certain countries, governments, or persons altogether. Any change in export or import regulations, economic sanctions or related legislation, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons, or technologies targeted by such regulations, could result in decreased use of our products by, or in our decreased ability to export or sell our products to, existing or potential end-customers with international operations. Any decreased use of our products or limitation on our ability to export to or sell our products in international markets would likely adversely affect our business, financial condition, and operating results.

Our failure to raise additional capital or generate the significant capital necessary to expand our operations and invest in new products and subscriptions could reduce our ability to compete and could harm our business.

We intend to continue to make investments to support our business growth and may require additional funds to respond to business challenges, including the need to develop new features to enhance our portfolio improve our operating infrastructure, or acquire complementary businesses and technologies. Accordingly, we may need to engage in equity or debt financings to secure additional funds. If we raise additional equity or equity-linked financing, our stockholders may experience significant dilution of their ownership interests and the market price of our common stock could decline. For example, in June 2014, we issued our 2019 Notes (the “2019 Notes”), in July 2018, we issued our 2023 Notes (the “2023 Notes”) and in June 2020 we issued our 2025 Notes (the “2025 Notes”). None of our 2019 Notes remained outstanding as of July 31, 2019. However, any conversion of the outstanding 2023 Notes and 2025 Notes (the “2023 Notes” together with the “2025 Notes”, the “Notes”) into common stock will dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of such Notes. See the risk factor entitled “The issuance of additional stock in connection with financings, acquisitions, investments, our stock incentive plans, the conversion of our Notes or exercise of the related Warrants, or otherwise will dilute all other stockholders.” The holders of our Notes have priority over holders of our common stock, and if we engage in future debt financings, the holders of such additional debt would also have priority over the holders of our common stock. Current and future indebtedness may also contain terms that, among other things, restrict our ability to incur additional indebtedness. We may also be required to take other actions that would otherwise be in the interests of the debt holders and would require us to maintain specified liquidity or other ratios, any of which could harm our business, operating results, and financial condition. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our business growth and to respond to business challenges could be significantly impaired, and our business may be adversely affected.

We have a corporate structure aligned with the international nature of our business activities, and if we do not achieve increased tax benefits as a result of our corporate structure, our financial condition and operating results could be adversely affected.

We have reorganized our corporate structure and intercompany relationships to more closely align with the international nature of our business activities. This corporate structure may allow us to reduce our overall effective tax rate through changes in how we use our intellectual property, international procurement, and sales operations. This corporate structure may also allow us to obtain financial and operational efficiencies. These efforts require us to incur expenses in the near term for which we may not realize related benefits. If the structure is not accepted by the applicable tax authorities, if there are any changes in, or interpretations of, domestic and international tax laws that negatively impact the structure, or if we do not operate our business consistent with the structure and applicable tax provisions, we may fail to achieve the reduction in our overall effective tax rate and the other financial and operational efficiencies that we anticipate as a result of the structure and our future financial condition and operating results may be negatively impacted. In addition, we continue to evaluate our corporate structure in light of current and pending tax legislation, and any changes to our corporate structure may require us to incur additional expenses and may impact our overall effective tax rate.

We may have exposure to greater than anticipated tax liabilities.

Our income tax obligations are based in part on our corporate structure and intercompany arrangements, including the manner in which we develop, value, and use our intellectual property and the valuations of our intercompany transactions. The tax laws applicable to our business, including the laws of the United States and other jurisdictions, are subject to interpretation and certain jurisdictions may aggressively interpret their laws in an effort to raise additional tax revenue. The tax authorities of the jurisdictions in which we operate may challenge our methodologies for valuing developed technology or intercompany arrangements, which could increase our worldwide effective tax rate and harm our financial position and operating results. It is possible that tax authorities may disagree with certain positions we have taken, and any adverse outcome of such a review or audit could have a negative effect on our financial position and operating results. Further, 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.

In addition, our future income tax obligations could be adversely affected by changes in, or interpretations of, tax laws in the United States or in other jurisdictions in which we operate.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our operating results could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in our consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue, and expenses that are not readily apparent from other sources. For more information, refer to the section entitled "Critical Accounting Estimates" in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of this Annual Report on Form 10-K. In general, if our estimates, judgments or assumptions relating to our critical accounting policies change or if actual circumstances differ from our estimates, judgments or assumptions, including uncertainty in the current economic environment due to COVID-19, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

Failure to comply with governmental laws and regulations could harm our business.

Our business is subject to regulation by various federal, state, local, and foreign governmental agencies, including agencies responsible for monitoring and enforcing employment and labor laws, workplace safety, product safety, environmental laws, consumer protection laws, privacy and data-protection laws, anti-bribery laws (including the U.S. Foreign Corrupt Practices Act and the U.K. Anti-Bribery Act), import/export controls, federal securities laws, and tax laws and regulations. In certain jurisdictions, these regulatory requirements may be more stringent than those in the United States. Noncompliance with applicable regulations or requirements could subject us to investigations, sanctions, mandatory product recalls, enforcement actions, disgorgement of profits, fines, damages, civil and criminal penalties, or injunctions. If any governmental sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation resulting from any alleged noncompliance, our business, operating results, and financial condition could be materially adversely affected. In addition, responding to any action will likely result in a significant diversion of management's attention and resources and an increase in professional fees. Enforcement actions, litigation, and sanctions could harm our business, operating results, and financial condition.

If we fail to comply with environmental requirements, our business, financial condition, operating results, and reputation could be adversely affected.

We are subject to various environmental laws and regulations including laws governing the hazardous material content of our products and laws relating to the collection of and recycling of electrical and electronic equipment. Examples of these laws and regulations include the E.U. Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive ("RoHS") and the E.U. Waste Electrical and Electronic Equipment Directive ("WEEE Directive"), as well as the implementing legislation of the E.U. member states. Similar laws and regulations have been passed or are pending in China, South Korea, Norway, and Japan and may be enacted in other regions, including in the United States, and we are, or may in the future be, subject to these laws and regulations.

The E.U. RoHS and the similar laws of other jurisdictions limit the content of certain hazardous materials such as lead, mercury, and cadmium in the manufacture of electrical equipment, including our products. Our current products comply with the E.U.

RoHS requirements. However, if there are changes to this or other laws (or their interpretation) or if new similar laws are passed in other jurisdictions, we may be required to reengineer our products to use components compatible with these regulations. This reengineering and component substitution could result in additional costs to us or disrupt our operations or logistics.

The WEEE Directive requires electronic goods producers to be responsible for the collection, recycling, and treatment of such products. Changes in interpretation of the directive may cause us to incur costs or have additional regulatory requirements to meet in the future in order to comply with this directive, or with any similar laws adopted in other jurisdictions.

We are also subject to environmental laws and regulations governing the management of hazardous materials, which we use in small quantities in our engineering labs. Our failure to comply with past, present, and future similar laws could result in reduced sales of our products, substantial product inventory write-offs, reputational damage, penalties, and other sanctions, any of which could harm our business and financial condition. We also expect that our products will be affected by new environmental laws and regulations on an ongoing basis. To date, our expenditures for environmental compliance have not had a material impact on our operating results or cash flows, and although we cannot predict the future impact of such laws or regulations, they will likely result in additional costs and may increase penalties associated with violations or require us to change the content of our products or how they are manufactured, which could have a material adverse effect on our business, operating results, and financial condition.

Our business is subject to the risks of earthquakes, fire, power outages, floods, health risks and other catastrophic events, and to interruption by man-made problems such as terrorism.

Both our corporate headquarters and the location where our products are manufactured are located in the San Francisco Bay Area, a region known for seismic activity. In addition, other natural disasters, such as fire or floods, a significant power outage, telecommunications failure, terrorism, an armed conflict, cyberattacks, epidemics and pandemics such as COVID-19, or other geo-political unrest could affect our supply chain, manufacturers, logistics providers, channel partners, or end-customers or the economy as a whole and such disruption could impact our shipments and sales. These risks may be further increased if the disaster recovery plans for us and our suppliers prove to be inadequate. To the extent that any of the above should result in delays or cancellations of customer orders, the loss of customers, or the delay in the manufacture, deployment, or shipment of our products, our business, financial condition, and operating results would be adversely affected.

Risks Related to Our Notes

We may not have the ability to raise the funds necessary to settle conversions of our Notes, repurchase our Notes upon a fundamental change or repay our Notes in cash at their maturity, and our future debt may contain limitations on our ability to pay cash upon conversion or repurchase of our Notes.

We will need to make cash payments (1) if holders of our Notes require us to repurchase all or a portion of their Notes upon the occurrence of a fundamental change (e.g. a change of control of Palo Alto Networks, Inc.) before the maturity date, (2) upon conversion of our Notes, (3) to repay our Notes in cash at their maturity, unless earlier converted or repurchased. However, we may not have enough available cash or be able to obtain financing at the time we are required to make payments.

In addition, our ability to repurchase or to pay cash upon conversion of our Notes may be limited by law, regulatory authority or agreements governing our future indebtedness. Our failure to repurchase our Notes at a time when the repurchase is required by the applicable indenture governing such Notes or to pay cash upon conversion of such Notes as required by the applicable indenture would constitute a default under the indenture. A default under the applicable indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the payment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase our Notes or to pay cash upon conversion of our Notes.

We may still incur substantially more debt or take other actions that would diminish our ability to make payments on our Notes when due.

We and our subsidiaries may be able to incur substantial additional debt in the future, subject to the restrictions contained in our debt instruments, some of which may be secured debt. We are not restricted under the terms of the indenture governing our Notes from incurring additional debt, securing existing or future debt, recapitalizing our debt or taking a number of other actions that are not limited by the terms of such indenture governing our Notes that could have the effect of diminishing our ability to make payments on our Notes when due. While the terms of any future indebtedness we may incur could restrict our ability to incur additional indebtedness, any such restrictions will indirectly benefit holders of our Notes only to the extent any such indebtedness or credit facility is not repaid or does not mature while our Notes are outstanding.

Risks Related to Our Common Stock

Our actual operating results may differ significantly from our guidance.

From time to time, we have released, and may continue to release, guidance in our quarterly earnings releases, quarterly earnings conference calls, or otherwise, regarding our future performance that represents our management's estimates as of the date of release. This guidance, which includes forward-looking statements, has been and will be based on projections prepared by our management. These projections are not prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, and neither our registered public accountants nor any other independent expert or outside party compiles or examines the projections. Accordingly, no such person expresses any opinion or any other form of assurance with respect to the projections.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control, such as COVID-19, and are based upon specific assumptions with respect to future business decisions, some of which will change. The rapidly evolving market in which we operate may make it difficult to evaluate our current business and our future prospects, including our ability to plan for and model future growth. We intend to state possible outcomes as high and low ranges which are intended to provide a sensitivity analysis as variables are changed. However, actual results will vary from our guidance and the variations may be material. The principal reason that we release guidance is to provide a basis for our management to discuss our business outlook as of the date of release with analysts and investors. We do not accept any responsibility for any projections or reports published by any such persons. Investors are urged not to rely upon our guidance in making an investment decision regarding our common stock.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in this “Risk Factors” section in this Annual Report on Form 10-K could result in our actual operating results being different from our guidance, and the differences may be adverse and material.

The market price of our common stock historically has been volatile and the value of your investment could decline.

The market price of our common stock has been volatile since our initial public offering (“IPO”) in July 2012. The reported high and low sales prices of our common stock during the last 12 months have ranged from $275.03 to $125.47 per share, as measured through August 21, 2020. The market price of our common stock may fluctuate widely in response to various factors, some of which are beyond our control. These factors include:

- announcements of new products, subscriptions or technologies, commercial relationships, strategic partnerships, acquisitions or other events by us or our competitors;
- price and volume fluctuations in the overall stock market from time to time;
- news announcements that affect investor perception of our industry, including reports related to the discovery of significant cyberattacks;
- significant volatility in the market price and trading volume of technology companies in general and of companies in our industry;
- fluctuations in the trading volume of our shares or the size of our public float;
- actual or anticipated changes in our operating results or fluctuations in our operating results;
- whether our operating results meet the expectations of securities analysts or investors;
- actual or anticipated changes in the expectations of securities analysts or investors, whether as a result of our forward- looking statements, our failure to meet such expectations or otherwise;
- inaccurate or unfavorable research reports about our business and industry published by securities analysts or reduced coverage of our company by securities analysts;
- litigation involving us, our industry, or both;
- actions instituted by activist shareholders or others;
- regulatory developments in the United States, foreign countries or both;
- major catastrophic events, such as COVID-19;
- sales or repurchases of large blocks of our common stock or substantial future sales by our directors, executive officers, employees and significant stockholders;
- sales of our common stock by investors who view our Notes as a more attractive means of equity participation in us;
- hedging or arbitrage trading activity involving our common stock as a result of the existence of our Notes;
- departures of key personnel; or
- economic uncertainty around the world.

The market price of our common stock could decline for reasons unrelated to our business, operating results, or financial condition and as a result of events that do not directly affect us. In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been brought against that company. Securities litigation could result in substantial costs and divert our management's attention and resources from our business. This could have a material adverse effect on our business, operating results, and financial condition.

The convertible note hedge and warrant transactions may affect the value of our common stock.

In connection with the sale of our 2019 Notes, 2023 Notes and 2025 Notes, we entered into convertible note hedge transactions (the "Note Hedges") with certain counterparties. In connection with each such sale of the Notes, we also entered into warrant transactions with the counterparties pursuant to which we sold warrants (the "Warrants") for the purchase of our common stock. The Note Hedges for our 2019 Notes have expired. The Note Hedges for our 2023 Notes and 2025 Notes are expected generally to reduce the potential dilution to our common stock upon any conversion of our Notes and/or offset any cash payments we are required to make in excess of the principal amount of any such converted Notes. The Warrants could separately have a dilutive effect to the extent that the market price per share of our common stock exceeds the applicable strike price of the Warrants unless, subject to certain conditions, we elect to cash settle such Warrants.

The applicable counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions prior to the maturity of the outstanding Notes (and are likely to do so during any applicable observation period related to a conversion of our Notes). This activity could also cause or avoid an increase or a decrease in the market price of our common stock or our Notes, which could affect a note holder's ability to convert its Notes and, to the extent the activity occurs during any observation period related to a conversion of our Notes, it could affect the amount and value of the consideration that the note holder will receive upon conversion of our Notes.

We do not make any representation or prediction as to the direction or magnitude of any potential effect that the transactions described above may have on the price of our Notes or our common stock. In addition, we do not make any representation that the counterparties or their respective affiliates will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

The issuance of additional stock in connection with financings, acquisitions, investments, our stock incentive plans, the conversion of our Notes or exercise of the related Warrants, or otherwise will dilute all other stockholders.

Our amended and restated certificate of incorporation authorizes us to issue up to 1.0 billion shares of common stock and up to 100.0 million shares of preferred stock with such rights and preferences as may be determined by our board of directors. Subject to compliance with applicable rules and regulations, we may issue shares of common stock or securities convertible into shares of our common stock from time to time in connection with a financing, acquisition, investment, our stock incentive plans, the conversion of our Notes, the settlement of our Warrants related to each such series of Notes, or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and cause the market price of our common stock to decline.

We cannot guarantee that our share repurchase program will be fully consummated, or that it will enhance shareholder value, and share repurchases could affect the price of our common stock.

In February 2019, our board of directors authorized a $1.0 billion share repurchase program which will be funded from available working capital. The repurchase authorization will expire on December 31, 2020. In February 2020, our board of directors approved the repurchase of $1.0 billion of our common stock through an accelerated share repurchase ("ASR") transaction, which was completed in fiscal 2020. This ASR transaction is in addition to our share repurchase program. Although our board of directors has authorized a share repurchase program, we are not obligated to repurchase any specific dollar amount or to acquire any specific number of shares under the program. The share repurchase program could affect the price of our common stock, increase volatility and diminish our cash reserves. In addition, the program may be suspended or terminated at any time, which may result in a decrease in the price of our common stock.

We are subject to risks associated with our strategic investments. Impairments in the value of our investments could negatively impact our financial results.

In July 2017, we formed the $20.0 million Palo Alto Networks Venture Fund. The fund is aimed at seed-, early-, and growth-stage security companies with a cloud-based application approach. We may not realize a return on our capital investments. Many such private companies generate net losses and the market for their products, services or technologies may be slow to develop, and, therefore, are dependent on the availability of later rounds of financing from banks or investors on favorable terms to continue their operations. The financial success of our investment in any company is typically dependent on a liquidity event, such as a public offering, acquisition or other favorable market event reflecting appreciation in the cost of our initial investment. The capital markets for public offerings and acquisitions are dynamic and the likelihood of liquidity events for the companies we have invested in, and intend to invest in, could significantly change. Further, valuations of privately-held companies are inherently complex due to the lack of readily available market data and as such, the basis for these valuations is subject to the timing and accuracy of the data received from these companies. If we determine that any of our investments in such companies have experienced a decline in value, we may be required to record an impairment, which could be material and negatively impact our financial results. All of our investments are subject to a risk of a partial or total loss of investment capital.

We do not intend to pay dividends for the foreseeable future.

We have never declared or paid any dividends on our common stock. We intend to retain any earnings to finance the operation and expansion of our business, and we do not anticipate paying any cash dividends in the future. As a result, you may only receive a return on your investment in our common stock if the market price of our common stock increases.

The requirements of being a public company may strain our resources, divert management's attention, and affect our ability to attract and retain qualified board members.

As a public company, we are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Act, the listing requirements of the New York Stock Exchange ("NYSE"), and other applicable securities rules and regulations. Compliance with these rules and regulations have increased our legal and financial compliance costs, made some activities more difficult, time-consuming or costly, and increased demand on our systems and resources. Among other things, the Exchange Act requires that we file annual, quarterly, and current reports with respect to our business and operating results. In addition, the Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. In order to meet the requirements of this standard, significant resources and management oversight may be required. As a result, management's attention may be diverted from other business concerns, which could harm our business and operating results. Although we have already hired additional employees to comply with these requirements, we may need to hire even more employees in the future, which will increase our costs and expenses.

In addition, changing laws, regulations, and standards related to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs, and making some activities more time-consuming. These laws, regulations, and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We intend to invest resources to comply with evolving laws, regulations, and standards, and this investment may result in increased general and administrative expense and a diversion of management's time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new laws, regulations, and standards differ from the activities intended by regulatory or governing bodies, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

We are obligated to maintain proper and effective internal control over financial reporting. We may not complete our analysis of our internal control over financial reporting in a timely manner, or this internal control may not be determined to be effective, which may adversely affect investor confidence in our company and, as a result, the value of our common stock.

While we were able to determine in our management's report for fiscal 2020 that our internal control over financial reporting is effective, as well as provide an unqualified attestation report from our independent registered public accounting firm to that effect, we may not be able to complete our evaluation, testing, and any required remediation in a timely fashion, may be unable to assert that our internal controls are effective, or our independent registered public accounting firm may not be able to formally attest to the effectiveness of our internal control over financial reporting in the future. In the event that our chief executive officer, chief financial officer, or independent registered public accounting firm determines in the future that our internal control over financial reporting is not effective as defined under Section 404, we could be subject to one or more investigations or enforcement actions by state or federal regulatory agencies, stockholder lawsuits or other adverse actions requiring us to incur defense costs, pay fines, settlements or judgments and causing investor perceptions to be adversely affected and potentially resulting in a decline in the market price of our stock.

Our charter documents and Delaware law, as well as certain provisions contained in the indentures governing our Notes, could discourage takeover attempts and lead to management entrenchment, which could also reduce the market price of our common stock.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a change in control of our company or changes in our management. Our amended and restated certificate of incorporation and amended and restated bylaws include provisions that:

- establish that our board of directors is divided into three classes, Class I, Class II and Class III, with three-year staggered terms;
- authorize our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval;
- provide our board of directors with the exclusive right to elect a director to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director;

- prohibit our stockholders from taking action by written consent;
- specify that special meetings of our stockholders may be called only by the chairman of our board of directors, our president, our secretary, or a majority vote of our board of directors;
- require the affirmative vote of holders of at least 66 2/3% of the voting power of all of the then outstanding shares of the voting stock, voting together as a single class, to amend the provisions of our amended and restated certificate of incorporation relating to the issuance of preferred stock and management of our business or our amended and restated bylaws;
- authorize our board of directors to amend our bylaws by majority vote; and
- establish advance notice procedures with which our stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for our stockholders to replace members of our board of directors, which is responsible for appointing the members of management. In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. Additionally, certain provisions contained in the indenture governing our Notes could make it more difficult or more expensive for a third party to acquire us. The application of Section 203 or certain provisions contained in the indenture governing our Notes also could have the effect of delaying or preventing a change in control of us. Any of these provisions could, under certain circumstances, depress the market price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

Our corporate headquarters is located in Santa Clara, California where we lease approximately 941,000 square feet of space under three lease agreements that expire in July 2028, with options to extend the lease terms through July 2046. We also lease space for personnel in Israel. In addition, we provide our cloud-based subscription offerings through data centers operated under co-location arrangements in the United States, Europe, and Asia. Refer to Note 11. Leases in Part II, Item 8 of this Annual Report on Form 10-K for more information on our operating leases. Additionally, we own 5.8 acres of land adjacent to our headquarters in Santa Clara, California, which we intend to develop to accommodate future expansion, the speed of which development has been slowed due to the current environment.

We believe that our current facilities are adequate to meet our current needs. We intend to expand our facilities or add new facilities as we add employees and enter new geographic markets, and we believe that suitable additional or alternative space will be available as needed to accommodate ongoing operations and any such growth. However, we expect to incur additional expenses in connection with such new or expanded facilities.

ITEM 3. LEGAL PROCEEDINGS

The information set forth under the "Litigation" subheading in Note 12. Commitments and Contingencies in Part II, Item 8 of this Annual Report on Form 10-K 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

Our common stock, $0.0001 par value per share, began trading on the NYSE on July 20, 2012, where its prices are quoted under the symbol "PANW."

Holders of Record

As of August 21, 2020, there were 151 holders of record of our common stock. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Securities Authorized for Issuance under Equity Compensation Plans

See Part III, Item 12 "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" of this Annual Report on Form 10-K for more information regarding securities authorized for issuance.

Recent Sale of Unregistered Securities

During fiscal 2020, we issued a total of 22,724 shares of our unregistered common stock in connection with the acquisition of Zingbox ("Zingbox Transaction") and a total of 11,983 shares of our unregistered common stock in connection with the acquisition of Aporeto ("Aporeto Transaction").

None of the Zingbox Transaction or Aporeto Transaction involved any underwriters, any underwriting discounts or commissions, or any public offering. We believe the offers, sales, and issuances of the securities pursuant to the Zingbox Transaction, were exempt from registration under the Securities Act of 1933, as amended (the "Act") by virtue of Section 4(a)(2) of the Act and Rule 506 of Regulation D promulgated thereunder, because the issuance of securities to the recipients did not involve a public offering. The recipients of the securities in the Zingbox Transaction represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed upon the stock certificates issued in these transactions. All recipients had adequate access, through their relationships with us or otherwise, to information about us. The issuances of these securities were made without any general solicitation or advertising.

During fiscal 2020, we also issued 2.0 million shares of our common stock to certain financial counterparties that were holders of warrants that we issued in connection with the issuance of our 2019 Notes. The shares of common stock issued upon exercise of these warrants were issued in reliance on an exemption from registration provided by Section 3(a)(9) of the Securities Act of 1933, as amended.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

The following table summarizes stock repurchases during the three months ended July 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[1]	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs[1]
May 1, 2020 to May 31, 2020[2]	0.0	$ 195.15	0.0	$ 801.9
June 1, 2020 to June 30, 2020[2][3]	1.0	$ 209.28	1.0	$ 801.9
July 1, 2020 to July 31, 2020[2]	0.0	$ 251.79	0.0	$ 801.9
Total	1.0	$ 209.82	1.0	

(1) On February 26, 2019, we announced that our board of directors authorized a $1.0 billion share repurchase program which will be funded from available working capital. Repurchases may be made at management's discretion from time to time on the open market, through privately negotiated transactions, transactions structured through investment banking institutions, block purchase techniques, 10b5-1 trading plans, or a combination of the foregoing. The repurchase authorization will expire on December 31, 2020 and may be suspended or discontinued at any time. On February 24, 2020, we announced that our board of directors approved the repurchase of $1.0 billion of our common stock through an accelerated share repurchase ("ASR") transaction, which was completed in fiscal 2020. This ASR was in addition to our above-mentioned share repurchase authorization.

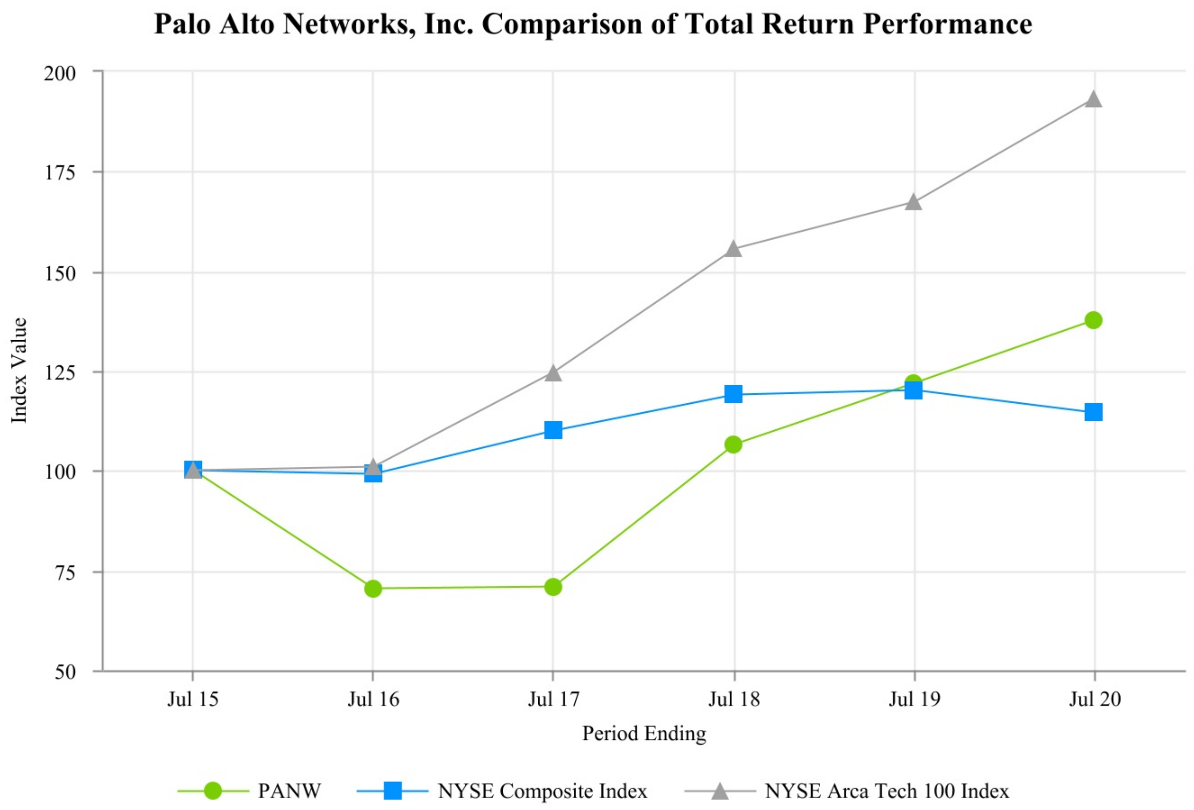
(2) Includes shares of restricted common stock delivered by certain employees upon vesting of equity awards to satisfy tax withholding requirements. The number of shares delivered by these employees to satisfy tax withholding requirements during the period was not significant.

(3) Includes repurchases under our ASR transaction. During the three months ended July 31, 2020, we purchased approximately 1.0 million shares out of the 5.2 million shares of our common stock purchased under the ASR transaction, to conclude the program.

Stock Price Performance Graph

This performance graph shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or incorporated by reference into any filing of Palo Alto Networks, Inc. under the Securities Act of 1933, as amended, or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

This performance graph compares the cumulative total return on our common stock with that of the NYSE Composite Index and the NYSE Arca Tech 100 Index for the five years ended July 31, 2020. This performance graph assumes $100 was invested on July 31, 2015, in each of the common stock of Palo Alto Networks, Inc., the NYSE Composite Index, and the NYSE Arca Tech 100 Index, and assumes the reinvestment of any dividends. The stock price performance on this performance graph is not necessarily indicative of future stock price performance.



Company/Index	7/31/2015	7/31/2016	7/31/2017	7/31/2018	7/31/2019	7/31/2020
Palo Alto Networks, Inc.	$ 100.00	$ 70.44	$ 70.91	$ 106.69	$ 121.91	$ 137.72
NYSE Composite Index	$ 100.00	$ 99.11	$ 109.97	$ 119.12	$ 120.07	$ 114.54
NYSE Arca Tech 100 Index	$ 100.00	$ 101.00	$ 124.57	$ 155.55	$ 167.37	$ 193.31

ITEM 6. SELECTED FINANCIAL DATA

The selected consolidated statement of operations data for fiscal 2020, 2019, and 2018 and consolidated balance sheet data as of July 31, 2020 and 2019 are derived from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The selected consolidated statement of operations data for fiscal 2017 and 2016 and consolidated balance sheet data as of July 31, 2018, 2017, and 2016 are derived from audited financial statements not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of the results that may be expected in the future. The selected consolidated financial data below should be read in conjunction with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Part II, Item 7 of this Annual Report on Form 10-K and our consolidated financial statements and related notes included in Part II, Item 8 of this Annual Report on Form 10-K.

	Year Ended July 31,				
	2020	2019	2018	2017	2016
	(in millions, except per share data)				
Selected Consolidated Statements of Operations Data:					
Total revenue[1]	$ 3,408.4	$ 2,899.6	$ 2,273.6	$ 1,755.1	$ 1,378.5
Total gross profit[1]	2,408.9	2,091.2	1,628.5	1,278.7	1,008.5
Operating loss[1]	(179.0)	(54.1)	(104.2)	(165.8)	(157.3)
Net loss[1]	$ (267.0)	$ (81.9)	$ (122.2)	$ (203.0)	$ (192.7)
Net loss per share, basic and diluted[1]	$ (2.76)	$ (0.87)	$ (1.33)	$ (2.24)	$ (2.21)
Weighted-average shares used to compute net loss per share, basic and diluted	96.9	94.5	91.7	90.6	87.1

	July 31,				
	2020	2019	2018	2017	2016
	(in millions)				
Selected Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 2,958.0	$ 961.4	$ 2,506.9	$ 744.3	$ 734.4
Investments	1,344.2	2,417.1	1,444.0	1,420.0	1,204.0
Working capital[1][2]	2,437.5	1,611.5	2,036.8	818.1	927.2
Total assets[1]	9,065.4	6,592.2	5,948.9	3,538.5	2,858.2
Total deferred revenue[1]	3,810.2	2,888.7	2,279.3	1,692.4	1,240.8
Convertible senior notes, net[2]	3,084.1	1,430.0	1,920.1	524.7	500.2
Long-term operating lease liabilities[3]	336.6	—	—	—	—
Common stock and additional paid-in capital	2,259.2	2,490.9	1,967.4	1,599.7	1,515.5
Total stockholders' equity[1]	$ 1,101.8	$ 1,586.3	$ 1,160.3	$ 927.8	$ 894.9

(1) The amounts for fiscal 2018 and 2017 have been adjusted due to our adoption of the new revenue recognition standard. Fiscal year 2016 has not been adjusted.

(2) The net carrying amount of the 2019 Notes was classified as a current liability in our consolidated balance sheets as of July 31, 2018 and was classified as a long-term liability for all other prior periods presented. The net carrying amounts of the 2023 Notes and 2025 Notes were classified as a long-term liability in the periods they were presented. Refer to Note 10. Debt in Part II, Item 8 of this Annual Report on Form 10-K for more information on the Notes.

(3) We adopted the new lease accounting standard effective August 1, 2019 on a modified retrospective basis, under which financial results reported in periods prior to fiscal 2020 were not adjusted.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. The following discussion and analysis contains forward-looking statements based on current expectations and assumptions that are subject to risks and uncertainties, which could cause our actual results to differ materially from those anticipated or implied by any forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in this Annual Report on Form 10-K, and in particular, the risks discussed under the caption "Risk Factors" in Part I, Item 1A of this report.

Our Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is organized as follows:

- ***Overview.*** A discussion of our business and overall analysis of financial and other highlights in order to provide context for the remainder of MD&A.
- ***Key Financial Metrics.*** A summary of our GAAP and non-GAAP key financial metrics, which management monitors to evaluate our performance.
- ***Results of Operations.*** A discussion of the nature and trends in our financial results and an analysis of our financial results comparing fiscal 2020 to 2019. For discussion and analysis related to our financial results comparing fiscal 2019 to 2018, refer to Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for fiscal 2019, which was filed with the Securities and Exchange Commission on September 9, 2019.
- ***Liquidity and Capital Resources.*** An analysis of changes in our balance sheets and cash flows, and a discussion of our financial condition and our ability to meet cash needs.
- ***Contractual Obligations and Commitments.*** An overview of our contractual obligations, contingent liabilities, commitments, and off-balance sheet arrangements outstanding as of July 31, 2020, including expected payment schedules.
- ***Critical Accounting Estimates.*** A discussion of our accounting policies that require critical estimates, assumptions, and judgments.
- ***Recent Accounting Pronouncements.*** A discussion of expected impacts of impending accounting changes on financial information to be reported in the future.

Overview

We empower enterprises, service providers, and government entities to secure all users, applications, data, networks and devices with comprehensive visibility and context continuously across all locations. We deliver cybersecurity products covering a broad range of use cases, enabling our end-customers to secure their networks, remote workforce, access to the service edge, branch locations, public and private clouds, and to advance their Security Operations Centers ("SOC"). We believe our portfolio offers advanced prevention and security, while reducing the total cost of ownership for organizations by improving operational efficiency and eliminating the need for siloed point products. We do this with solutions focused on delivering value in three fundamental areas:

Secure the Enterprise:

- Secure the network through our ML-powered Next-Generation Firewalls, available in a number of form factors, including physical, virtual and containerized appliances, as well as a cloud-delivered service, with Panorama management available as an appliance or as a virtual machine for the public or private cloud. This also includes security services such as Threat Prevention, WildFire, URL Filtering, DNS Security, IoT Security, GlobalProtect, SD-WAN and Data Loss Prevention that are delivered as SaaS subscriptions to our ML-powered Next-Generation Firewalls.

Secure the Cloud:

- Secure the cloud through our Prisma security offerings, such as Prisma Cloud, the industry's most comprehensive Cloud Native Security Platform ("CNSP"), protecting applications, data and the entire cloud native technology stack, throughout the full development lifecycle and across multi- and hybrid- cloud environments, Prisma SaaS for protecting SaaS applications, Prisma Access, a comprehensive Secure Access Service Edge ("SASE") offering, that, together with CloudGenix SD-WAN, securing SD-WAN to enable the cloud delivered branch, and VM-Series and CN-Series for in-line network security in multi- and hybrid- cloud environments. CloudGenix SD-WAN autonomous networking and integrated security is available as a combination of physical, virtual and cloud-delivered appliances and services.

Secure the Future:

- Secure the future of security operations through our Cortex security offerings, which includes Cortex XDR for prevention, detection and response, Cortex XSOAR for security orchestration, automation and response ("SOAR"), AutoFocus for threat intelligence, and Cortex Data Lake to collect and integrate security data for analytics. These products are delivered as software or SaaS subscriptions.

For fiscal 2020 and 2019, total revenue was $3.4 billion and $2.9 billion, respectively, representing year-over-year growth of 17.5%. Our growth reflects the increased adoption of our portfolio, which consists of product, subscriptions, and support. We believe our portfolio will enable us to benefit from recurring revenues as we continue to grow our installed end-customer base. As of July 31, 2020, we had end-customers in over 170 countries. Our end-customers represent a broad range of industries including education, energy, financial services, government entities, healthcare, Internet and media, manufacturing, public sector, and telecommunications, and include some of the largest Fortune 100 and Global 2000 companies in the world. We maintain a field sales force that works closely with our channel partners in developing sales opportunities. We use a two-tiered, indirect fulfillment model whereby we sell our products, subscriptions, and support to our distributors, which, in turn, sell to our resellers, which then sell to our end-customers.

Our product revenue was $1.1 billion or 31.2% of total revenue for fiscal 2020, representing a slight decrease year-over-year of 2.9%. Product revenue is generated from sales of our appliances, primarily our ML-powered Next-Generation Firewall, which is available in a number of form factors, including as physical, virtual and containerized appliances. Our ML-powered Next-Generation Firewall incorporates our PAN-OS operating system, which provides a consistent set of capabilities across our entire product line. Our products are designed for different performance requirements throughout an organization, ranging from our PA-220, which is designed for small organizations and remote or branch offices, to our top-of-the-line PA-7080, which is designed for large scale data centers and service provider use. The same firewall functionality that is delivered in our physical appliances is also available in our VM-Series virtual firewalls, which secure virtualized and cloud-based computing environments and in our CN-Series container firewalls, which secures container environments and traffic.

Our subscription and support revenue grew to $2.3 billion or 68.8% of total revenue for fiscal 2020, representing year-over-year growth of 30.0%. Our subscriptions provide our end-customers with near real-time access to the latest antivirus, intrusion prevention, web filtering, and modern malware prevention capabilities across the network, endpoints, and the cloud. When end-customers purchase our physical, virtual or container firewall appliances, they typically purchase support in order to receive ongoing security updates, upgrades, bug fixes, and repairs. In addition to the subscriptions purchased with these appliances, end-customers may also purchase other subscriptions on a per-user, per-endpoint, or capacity-based basis.

We continue to invest in innovation and acquire businesses as we evolve and further extend the capabilities of our portfolio, as we believe that innovation and timely development of new features and products is essential to meeting the needs of our end-customers and improving our competitive position. During fiscal 2020, we introduced several new offerings, including: PAN-OS 10.0 with over 70 new features; our new ML-powered Next-Generation Firewalls; and our Cortex XSOAR solution that redefines security orchestration and automation with integrated threat intelligence management. Additionally, we acquired productive investments that fit well within our long-term strategy. For example, in September 2019, we acquired Zingbox, which we believe will accelerate our delivery of IoT security through our Next-Generation Firewall and Cortex offerings; in December 2019, we acquired Aporeto, which we believe will strengthen our cloud-native security platform capabilities delivered by Prisma Cloud; and in April 2020, we acquired CloudGenix, which we believe will strengthen our SASE offering.

We believe that the growth of our business and our short-term and long-term success are dependent upon many factors, including our ability to extend our technology leadership, grow our base of end-customers, expand deployment of our portfolio and support offerings within existing end-customers, and focus on end-customer satisfaction. To manage any future growth effectively, we must continue to improve and expand our information technology and financial infrastructure, our operating and administrative systems and controls, and our ability to manage headcount, capital, and processes in an efficient manner. While these areas present significant opportunities for us, they also pose challenges and risks that we must successfully address in order to sustain the growth of our business and improve our operating results. For additional information regarding the challenges and risks we face, see the "Risk Factors" section in Part I, Item 1A of this Annual Report on Form 10-K.

Impact of COVID-19 on our Business

We are actively monitoring, evaluating and responding to developments relating to COVID-19, which has and is expected to result in continued significant global social and business disruption. As described in "Impacts of COVID-19 on our Business" included in Part I, Item 1 Business in this Annual Report, we have made some changes to our business that include instituting a global work-from-home policy beginning in March 2020 that did not incur significant disruptions in our work operations during fiscal 2020. We will continue to actively monitor the situation and will make further changes to our business operations as may be required by federal, state or local authorities or that we determine are in the best interests of our employees, end-customers, partners, suppliers and stockholders. Our focus remains on the safety of our employees, striving to protect the health and well-being of the communities in which we operate, and providing technology to our employees, end-customers and partners to help them do their best work while remote.

Although some end-customers adopted Prisma Access as their secure work-from-home solution for the longer term, COVID-19 may curtail our end-customers' spending and could lead them to delay or defer purchasing decisions, and lengthen sales cycles and payment terms, which could materially adversely impact our business, results of operations and overall financial performance. Also, certain of our end-customers or partners may be or may become credit or cash constrained making it difficult for them to fulfill their payment obligations to us. The extent of the impact of COVID-19 on our operational and financial performance will depend on developments, including the duration and spread of the virus, impact on our end-customers' spending, volume of sales and length of our sales cycles, impact on our partners, suppliers and employees, actions that may be taken by governmental authorities and other factors identified in Part I, Item 1A "Risk Factors" in this Form 10-K. Given the dynamic nature of these circumstances, the full impact of COVID-19 on our ongoing business, results of operations and overall financial performance cannot be reasonably estimated at this time.

Key Financial Metrics

We monitor the key financial metrics set forth in the tables below to help us evaluate growth trends, establish budgets, measure the effectiveness of our sales and marketing efforts, and assess operational efficiencies. We discuss revenue, gross margin, and the components of operating loss and margin below under "—Results of Operations."

	July 31,	
	2020	2019
	(in millions)	
Total deferred revenue	$ 3,810.2	$ 2,888.7
Cash, cash equivalents, and investments	$ 4,302.2	$ 3,378.5

	Year Ended July 31,		
	2020	2019	2018
	(dollars in millions)		
Total revenue	$ 3,408.4	$ 2,899.6	$ 2,273.6
Total revenue year-over-year percentage increase	17.5 %	27.5 %	29.5 %
Gross margin	70.7 %	72.1 %	71.6 %
Operating loss	$ (179.0)	$ (54.1)	$ (104.2)
Operating margin	(5.3)%	(1.9)%	(4.6)%
Billings	$ 4,301.7	$ 3,489.8	$ 2,856.2
Billings year-over-year percentage increase	23.3 %	22.2 %	26.8 %
Cash flow provided by operating activities	$ 1,035.7	$ 1,055.6	$ 1,038.1
Free cash flow (non-GAAP)	$ 821.3	$ 924.4	$ 926.1

- ***Deferred Revenue.*** Our deferred revenue primarily consists of amounts that have been invoiced but have not been recognized as revenue as of the period end. The majority of our deferred revenue balance consists of subscription and support revenue that is recognized ratably over the contractual service period. We monitor our deferred revenue balance because it represents a significant portion of revenue to be recognized in future periods.
- ***Billings.*** We define billings as total revenue plus the change in total deferred revenue, net of acquired deferred revenue, during the period. We consider billings to be a key metric used by management to manage our business. We believe billings provides investors with an important indicator of the health and visibility of our business because it includes subscription and support revenue, which is recognized ratably over the contractual service period, and product revenue, which is recognized at the time of shipment, provided that all other conditions for revenue recognition have been met. We consider billings to be a useful metric for management and investors, particularly if we continue to experience increased sales of subscriptions and strong renewal rates for subscription and support offerings, and as we monitor our near-term cash flows. While we believe that billings provides useful information to investors and others in understanding and evaluating our operating results in the same manner as our management, it is important to note that other companies, including companies in our industry, may not use billings, may calculate billings differently, may have different billing frequencies, or may use other financial measures to evaluate their performance, all of which could reduce the usefulness of billings as a comparative measure. We calculate billings in the following manner:

	Year Ended July 31,		
	2020	2019	2018
	(in millions)		
Billings:			
Total revenue	$ 3,408.4	$ 2,899.6	$ 2,273.6
Add: change in total deferred revenue, net of acquired deferred revenue	893.3	590.2	582.6
Billings	$ 4,301.7	$ 3,489.8	$ 2,856.2

- ***Cash Flow Provided by Operating Activities.*** We monitor cash flow provided by operating activities as a measure of our overall business performance. Our cash flow provided by operating activities is driven in large part by sales of our products and from up-front payments for subscription and support offerings. Monitoring cash flow provided by operating activities enables us to analyze our financial performance without the non-cash effects of certain items such as depreciation, amortization, and share-based compensation costs, thereby allowing us to better understand and manage the cash needs of our business.
- ***Free Cash Flow (non-GAAP).*** We define free cash flow, a non-GAAP financial measure, as cash provided by operating activities less purchases of property, equipment, and other assets. We consider free cash flow to be a profitability and liquidity measure that provides useful information to management and investors about the amount of cash generated by the business after necessary capital expenditures. A limitation of the utility of free cash flow as a measure of our financial performance and liquidity is that it does not represent the total increase or decrease in our cash balance for the period. In addition, it is important to note that other companies, including companies in our industry, may not use free cash flow, may calculate free cash flow in a different manner than we do, or may use other financial measures to evaluate their performance, all of which could reduce the usefulness of free cash flow as a comparative measure. A reconciliation of free cash flow to cash flow provided by operating activities, the most directly comparable financial measure calculated and presented in accordance with GAAP, is provided below:

	Year Ended July 31,		
	2020	2019	2018
	(in millions)		
Free cash flow (non-GAAP):			
Net cash provided by operating activities	$ 1,035.7	$ 1,055.6	$ 1,038.1
Less: purchases of property, equipment, and other assets	214.4	131.2	112.0
Free cash flow (non-GAAP)	$ 821.3	$ 924.4	$ 926.1
Net cash provided by (used in) investing activities	$ 288.0	$ (1,825.9)	$ (520.0)
Net cash provided by (used in) financing activities	$ 673.0	$ (773.9)	$ 1,245.6

Results of Operations

The following table summarizes our results of operations for the periods presented and as a percentage of our total revenue for those periods based on our consolidated statements of operations data. The period to period comparison of results is not necessarily indicative of results for future periods.

	Year Ended July 31,					
	2020		2019		2018	
	Amount	% of Revenue	Amount	% of Revenue	Amount	% of Revenue
	(dollars in millions)					
Revenue:						
Product	$ 1,064.2	31.2 %	$ 1,096.2	37.8 %	$ 879.8	38.7 %
Subscription and support	2,344.2	68.8 %	1,803.4	62.2 %	1,393.8	61.3 %
Total revenue	3,408.4	100.0 %	2,899.6	100.0 %	2,273.6	100.0 %
Cost of revenue:						
Product	294.4	8.6 %	315.9	10.9 %	272.4	12.0 %
Subscription and support	705.1	20.7 %	492.5	17.0 %	372.7	16.4 %
Total cost of revenue(1)	999.5	29.3 %	808.4	27.9 %	645.1	28.4 %
Total gross profit	2,408.9	70.7 %	2,091.2	72.1 %	1628.5	71.6 %
Operating expenses:						
Research and development	768.1	22.5 %	539.5	18.6 %	400.7	17.6 %
Sales and marketing	1,520.2	44.7 %	1,344.0	46.4 %	1074.2	47.3 %
General and administrative	299.6	8.8 %	261.8	9.0 %	257.8	11.3 %
Total operating expenses(1)	2,587.9	76.0 %	2,145.3	74.0 %	1732.7	76.2 %
Operating loss	(179.0)	(5.3)%	(54.1)	(1.9)%	(104.2)	(4.6)%
Interest expense	(88.7)	(2.6)%	(83.9)	(2.9)%	(29.6)	(1.3)%
Other income, net	35.9	1.1 %	63.4	2.2 %	28.5	1.3 %
Loss before income taxes	(231.8)	(6.8)%	(74.6)	(2.6)%	(105.3)	(4.6)%
Provision for income taxes	35.2	1.0 %	7.3	0.2 %	16.9	0.8 %
Net loss	$ (267.0)	(7.8)%	$ (81.9)	(2.8)%	$ (122.2)	(5.4)%

(1) Includes share-based compensation as follows:

	Year Ended July 31,		
	2020	2019	2018
	(in millions)		
Cost of product revenue	$ 5.7	$ 5.6	$ 7.0
Cost of subscription and support revenue	77.7	71.3	66.7
Research and development	274.6	186.8	145.2
Sales and marketing	214.5	221.9	208.0
General and administrative	92.0	102.1	77.0
Total share-based compensation	$ 664.5	$ 587.7	$ 503.9

Revenue

Our revenue consists of product revenue and subscription and support revenue. Revenue is recognized upon transfer of control of the corresponding promised products and subscriptions and support to our customers in an amount that reflects the consideration we expect to be entitled in exchange for those products and subscriptions and support. We expect our revenue to vary from quarter to quarter based on seasonal and cyclical factors.

Product Revenue

Product revenue is derived primarily from sales of our appliances. Product revenue also includes revenue derived from software licenses of Panorama and the VM-Series. Our appliances and software licenses include a broad set of built-in networking and security features and functionalities. We recognize product revenue at the time of hardware shipment or delivery of software license.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Product	$ 1,064.2	$ 1,096.2	$ (32.0)	(2.9)%	$ 1,096.2	$ 879.8	$ 216.4	24.6 %

Product revenue decreased slightly for fiscal 2020 compared to fiscal 2019 primarily due to product mix and pricing, partially offset by an increase in product unit volume.

Subscription and Support Revenue

Subscription and support revenue is derived primarily from sales of our subscription and support offerings. Our contractual subscription and support contracts are typically one to five years. We recognize revenue from subscriptions and support over time as the services are performed. As a percentage of total revenue, we expect our subscription and support revenue to vary from quarter to quarter and increase over the long term as we introduce new subscriptions, renew existing subscription and support contracts, and expand our installed end-customer base.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Subscription	$ 1,405.3	$ 1,032.7	$ 372.6	36.1 %	$ 1,032.7	$ 758.1	$ 274.6	36.2 %
Support	938.9	770.7	168.2	21.8 %	770.7	635.7	135.0	21.2 %
Total subscription and support	$ 2,344.2	$ 1,803.4	$ 540.8	30.0 %	$ 1,803.4	$ 1,393.8	$ 409.6	29.4 %

Subscription and support revenue increased year-over-year for fiscal 2020 due to increased demand for our subscription and support offerings from both new and existing end-customers, reflecting increased adoption of our portfolio. The mix between subscription revenue and support revenue will fluctuate over time, depending on the introduction of new subscription offerings, renewals of support services, and our ability to increase sales to new and existing end-customers. The change in subscription and support revenue due to changes in pricing was not significant for fiscal 2020.

Revenue by Geographic Theater

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Americas	$ 2,327.9	$ 1,982.3	$ 345.6	17.4 %	$ 1,982.3	$ 1,558.7	$ 423.6	27.2 %
EMEA	664.8	564.8	100.0	17.7 %	564.8	439.6	125.2	28.5 %
APAC	415.7	352.5	63.2	17.9 %	352.5	275.3	77.2	28.0 %
Total revenue	$ 3,408.4	$ 2,899.6	$ 508.8	17.5 %	$ 2,899.6	$ 2,273.6	$ 626.0	27.5 %

With respect to geographic theaters, the Americas contributed the largest portion of the year-over-year increases in revenue for fiscal 2020 due to its larger and more established sales force compared to our other theaters. Revenue from both Europe, the Middle East, and Africa ("EMEA") and Asia Pacific and Japan ("APAC") increased year-over-year for fiscal 2020 due to our increasing investment in global sales force to maintain our growth and innovation.

Cost of Revenue

Our cost of revenue consists of cost of product revenue and cost of subscription and support revenue.

Cost of Product Revenue

Cost of product revenue primarily includes costs paid to our manufacturing partners. Our cost of product revenue also includes personnel costs, which consist of salaries, benefits, bonuses, share-based compensation, and travel and entertainment associated with our operations organization, amortization of intellectual property licenses, product testing costs, shipping and tariff costs, and allocated costs. Allocated costs consist of certain facilities, depreciation, benefits, recruiting, and information technology costs that we allocate based on headcount. We expect our cost of product revenue to fluctuate with our product revenue.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
				(dollars in millions)				
Cost of product revenue	$ 294.4	$ 315.9	$ (21.5)	(6.8)%	$ 315.9	$ 272.4	$ 43.5	16.0 %
Number of employees at period end	117	102	15	14.7 %	102	97	5	5.2 %

Cost of product revenue decreased for fiscal 2020 compared to fiscal 2019 primarily due to a decrease in product revenue, reductions in cost of materials and lower amortization of intellectual property licenses.

Cost of Subscription and Support Revenue

Cost of subscription and support revenue includes personnel costs for our global customer support and technical operations organizations, customer support and repair costs, third-party professional services costs, data center and cloud hosting costs, amortization of acquired intangible assets and capitalized software development costs, and allocated costs. We expect our cost of subscription and support revenue to increase as our installed end-customer base grows and adoption of our cloud-based subscription offerings increases.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
				(dollars in millions)				
Cost of subscription and support revenue	$ 705.1	$ 492.5	$ 212.6	43.2 %	$ 492.5	$ 372.7	$ 119.8	32.1 %
Number of employees at period end	1,402	1,219	183	15.0 %	1,219	932	287	30.8 %

Cost of subscription and support revenue increased for fiscal 2020 compared to fiscal 2019 primarily due to increased costs to support the growth of our subscription and support offerings. Cloud hosting costs to support the adoption of our cloud-based subscription offerings increased $82.4 million for fiscal 2020 compared to fiscal 2019, and personnel costs grew $60.8 million to $315.3 million for fiscal 2020 compared to fiscal 2019 due to headcount growth. The remaining increase was primarily due to an increase in amortization of purchased intangible assets as a result of our recent acquisitions.

Gross Margin

Gross margin, or gross profit as a percentage of revenue, has been and will continue to be affected by a variety of factors, including the introduction of new products, manufacturing costs, tariff costs, the average sales price of our products, cloud hosting costs, personnel costs, the mix of products sold, and the mix of revenue between product and subscription and support offerings. For sales of our products, our higher-end firewall products generally have higher gross margins than our lower-end firewall products within each product series. We expect our gross margins to fluctuate over time depending on the factors described above.

	Year Ended July 31,					
	2020		2019		2018	
	Amount	Gross Margin	Amount	Gross Margin	Amount	Gross Margin
			(dollars in millions)			
Product	$ 769.8	72.3 %	$ 780.3	71.2 %	$ 607.4	69.0 %
Subscription and support	1,639.1	69.9 %	1,310.9	72.7 %	1,021.1	73.3 %
Total gross profit	$ 2,408.9	70.7 %	$ 2,091.2	72.1 %	$ 1,628.5	71.6 %

Product gross margin increased for fiscal 2020 compared to fiscal 2019 primarily due to reductions in cost of materials.

Subscription and support gross margin decreased for fiscal 2020 compared to fiscal 2019, primarily due to an increase in costs to support the adoption of our cloud-based subscription offerings and higher amortization of purchased intangible assets as a result of our recent acquisitions, partially offset by increased leverage of our global customer support organization.

Operating Expenses

Our operating expenses consist of research and development, sales and marketing, and general and administrative expense. Personnel costs are the most significant component of operating expenses and consist of salaries, benefits, bonuses, share-based compensation, travel and entertainment, and with regard to sales and marketing expense, sales commissions. Our operating expenses also include allocated costs, which consist of certain facilities, depreciation, benefits, recruiting, and information technology costs that we allocate based on headcount. We expect operating expenses generally to increase in absolute dollars and decrease over the long term as a percentage of revenue as we continue to scale our business. In response to COVID-19, we instituted a global work-from-home policy and limited employee travel beginning in March 2020. Further, we have canceled in-person events and either replaced them with virtual events or postponed them to future periods. Although we did not conduct any employee layoffs related to COVID-19, we slowed hiring in our third and fourth quarter of fiscal 2020. As of July 31, 2020, we expect to recognize approximately $1.5 billion of share-based compensation expense over a weighted-average period of approximately 2.5 years, excluding additional share-based compensation expense related to any future grants of share-based awards. Share-based compensation expense is generally recognized on a straight-line basis over the requisite service periods of the awards.

Research and Development

Research and development expense consists primarily of personnel costs. Research and development expense also includes prototype related expenses and allocated costs. We expect research and development expense to increase in absolute dollars as we continue to invest in our future products and services, although our research and development expense may fluctuate as a percentage of total revenue.

	Year Ended July 31,				Year Ended July 31,			
	2020	2019	Change		2019	2018	Change	
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Research and development	$ 768.1	$ 539.5	$ 228.6	42.4 %	$ 539.5	$ 400.7	$ 138.8	34.6 %
Number of employees at period end	1,821	1,507	314	20.8 %	1,507	947	560	59.1 %

Research and development expense increased for fiscal 2020 compared to fiscal 2019 due to an increase in personnel costs, which grew $181.5 million to $589.8 million for fiscal 2020 compared to fiscal 2019. The increase in personnel costs was primarily due to headcount growth. The remaining increase was primarily driven by an increase in allocated costs.

Sales and Marketing

Sales and marketing expense consists primarily of personnel costs, including commission expense. Sales and marketing expense also includes costs for market development programs, promotional and other marketing costs, professional services, and allocated costs. We continue to thoughtfully invest in headcount and have substantially grown our sales presence internationally. We expect sales and marketing expense to continue to increase in absolute dollars as we increase the size of our sales and marketing organizations to increase touch points with end-customers and to expand our international presence, although our sales and marketing expense may fluctuate as a percentage of total revenue.

	Year Ended July 31,				Year Ended July 31,			
	2020	2019	Change		2019	2018	Change	
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Sales and marketing	$ 1,520.2	$ 1,344.0	$ 176.2	13.1 %	$ 1,344.0	$ 1,074.2	$ 269.8	25.1 %
Number of employees at period end	3,800	3,382	418	12.4 %	3,382	2,704	678	25.1 %

Sales and marketing expense increased for fiscal 2020 compared to fiscal 2019 primarily due to an increase in personnel costs, which grew $129.6 million to $1.1 billion for fiscal 2020 compared to fiscal 2019. The increase in personnel costs was largely due to headcount growth. The increase in personnel costs was partially offset by savings related to decreased travel as a response to COVID-19. The remaining increase was driven by an increase in costs associated with marketing-related activities, including costs to cancel in-person events, replace them with virtual events or postpone them to future periods due to COVID-19, and costs related to go-to-market initiatives.

General and Administrative

General and administrative expense consists primarily of personnel costs for our executive, finance, human resources, legal, and information technology organizations, and professional services costs, which consist primarily of legal, auditing, accounting, and other consulting costs. General and administrative expense also includes certain non-recurring general expenses and impairment losses. Certain facilities, depreciation, benefits, recruiting, and information technology costs are allocated to other organizations based on headcount. We expect general and administrative expense to increase in absolute dollars due to additional costs associated with accounting, compliance, and insurance, although our general and administrative expense may fluctuate as a percentage of total revenue.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
General and administrative	$ 299.6	$ 261.8	$ 37.8	14.4 %	$ 261.8	$ 257.8	$ 4.0	1.6 %
Number of employees at period end	874	804	70	8.7 %	804	668	136	20.4 %

General and administrative expenses increased for fiscal 2020 compared to fiscal 2019 primarily due to personnel costs, which grew $21.3 million to $195.1 million for fiscal 2020 compared to fiscal 2019, due primarily to headcount growth, and partially offset by a decrease in stock based compensation expense related to accelerated vesting of certain equity awards in connection with business acquisitions. The remaining increase in general and administrative expense was primarily due to increases in other costs to support our business growth, partially offset by a net decrease in facility exit related charges.

Interest Expense

Interest expense primarily consists of non-cash interest expense from the amortization of the debt discount and debt issuance costs related to our 0.0% Convertible Senior Notes due 2019 (the “2019 Notes”), the 0.75% Convertible Senior Notes due 2023 (the “2023 Notes”) and the 0.375% Convertible Senior Notes due 2025 (the “2025 Notes”, and together with “2023 Notes”, the “Notes”), and also includes the contractual interest expense related to our Notes.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Interest expense	$ 88.7	$ 83.9	$ 4.8	5.7 %	$ 83.9	$ 29.6	$ 54.3	183.4 %

Interest expense increased for fiscal 2020 compared to fiscal 2019 due to the issuance of our 2025 Notes during fiscal 2020, partially offset by a decrease due to conversions of our 2019 Notes before and upon maturity in July 2019. Refer to Note 10. Debt in Part II, Item 8 of this Annual Report on Form 10-K for more information on our series of Notes.

Other Income, Net

Other income, net includes interest income earned on our cash, cash equivalents, and investments, foreign currency remeasurement gains and losses, and foreign currency transaction gains and losses.

	Year Ended July 31,		Change		Year Ended July 31,		Change	
	2020	2019			2019	2018		
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Other income, net	$ 35.9	$ 63.4	$ (27.5)	(43.4)%	$ 63.4	$ 28.5	$ 34.9	122.5 %

Other income, net decreased for fiscal 2020 compared to fiscal 2019 primarily driven by lower interest income earned on our investments.

Provision for Income Taxes

Provision for income taxes consists primarily of income taxes in foreign jurisdictions in which we conduct business and withholding taxes. We maintain a full valuation allowance for domestic and certain foreign deferred tax assets, including net operating loss carryforwards and certain domestic tax credits. In recent years, we reorganized our corporate structure and intercompany relationships to more closely align with the international nature of our business activities. Our corporate structure has caused, and may continue to cause, disproportionate relationships between our overall effective tax rate and other jurisdictional measures. To the extent we revisit our corporate structure, it may have an impact on our tax provision.

	Year Ended July 31,				Year Ended July 31,			
	2020	2019	Change		2019	2018	Change	
	Amount	Amount	Amount	%	Amount	Amount	Amount	%
	(dollars in millions)							
Provision for income taxes	$ 35.2	$ 7.3	$ 27.9	382.2 %	$ 7.3	$ 16.9	$ (9.6)	(56.8)%
Effective tax rate	(15.2)%	(9.8)%			(9.8)%	(16.0)%		

We recorded an income tax provision for fiscal 2020. The provision for income taxes for fiscal 2020 was primarily due to income taxes in profitable foreign jurisdictions and foreign withholding taxes. Our provision for income taxes increased for fiscal 2020 compared to fiscal 2019, due to an increase in foreign income as a result of increased business operations and withholding taxes from an increase in billings in the relevant jurisdictions. We also had a change in our valuation allowance related to acquisitions completed during fiscal 2019. Refer to Note 15. Income Taxes in Part II, Item 8 of this Annual Report on Form 10-K for more information.

Liquidity and Capital Resources

	July 31, 2020	July 31, 2019
	(in millions)	
Working capital	$ 2,437.5	$ 1,611.5
Cash, cash equivalents, and investments:		
Cash and cash equivalents	$ 2,958.0	$ 961.4
Investments	1,344.2	2,417.1
Total cash, cash equivalents, and investments	$ 4,302.2	$ 3,378.5

As of July 31, 2020, our total cash, cash equivalents, and investments of $4.3 billion were held for general corporate purposes, of which approximately $399.7 million was held outside of the United States. As of July 31, 2020, we had no unremitted earnings when evaluating our outside basis difference relating to our U.S. investment in foreign subsidiaries. However, there could be local withholding taxes payable due to various foreign countries if certain lower tier earnings are distributed. Withholding taxes that would be payable upon remittance of these lower tier earnings are not expected to be material.

In June 2014, we issued the 2019 Notes with an aggregate principal amount of $575.0 million. The 2019 Notes were converted prior to or settled on the maturity date of July 1, 2019. During fiscal 2019, we repaid in cash $575.0 million in aggregate principal amount of the 2019 Notes and issued 2.5 million shares of common stock to the holders for the conversion value in excess of the principal amount of the 2019 Notes converted, which were fully offset by shares received from our exercise of the associated note hedges. In July 2018, we issued the 2023 Notes with an aggregate principal amount of $1.7 billion. In June 2020, we issued the 2025 Notes with an aggregate principal amount of $2.0 billion. The 2023 Notes mature on July 1, 2023 and the 2025 Notes mature on June 1, 2025; however, under certain circumstances, holders may surrender their Notes of a series for conversion prior to the applicable maturity date. Upon conversion of the Notes of a series, we will pay cash equal to the aggregate principal amount of the Notes of such series to be converted, and, at our election, will pay or deliver cash and/or shares of our common stock for the amount of our conversion obligation in excess of the aggregate principal amount of the Notes of such series being converted. As of July 31, 2020, all of our 2023 Notes and 2025 Notes remained outstanding. Refer to Note 10. Debt in Part II, Item 8 of this Annual Report on Form 10-K for more information on the Notes.

In September 2018, we entered into a credit agreement (the “Credit Agreement”) that provides for a $400.0 million unsecured revolving credit facility (the “Credit Facility”), with an option to increase the amount of the credit facility by up to an additional $350.0 million, subject to certain conditions. As of July 31, 2020, there were no amounts outstanding, and we were in compliance with all covenants under the Credit Agreement. Refer to Note 10. Debt in Part II, Item 8 of this Annual Report on Form 10-K for more information on the Credit Agreement.

In February 2019, our board of directors authorized a $1.0 billion share repurchase program. Repurchases will be funded from available working capital and may be made at management’s discretion from time to time. This repurchase program will expire on December 31, 2020 and may be suspended or discontinued at any time. As of July 31, 2020, $801.9 million remained available for future share repurchases under the repurchase authorization. In February 2020, our board of directors approved the repurchase of $1.0 billion of our common stock through an accelerated share repurchase (“ASR”) transaction, which was in addition to our $1.0 billion share repurchase program that our board of directors authorized in February 2019. During fiscal 2020, we completed the ASR transaction with an aggregate of 5.2 million shares of our common stock repurchased and retired. Refer to Note 13. Stockholders’ Equity in Part II, Item 8 of this Annual Report on Form 10-K for information on the repurchase programs.

The following table summarizes our cash flows for the years ended July 31, 2020, 2019, and 2018:

	Year Ended July 31,		
	2020	2019	2018
		(in millions)	
Net cash provided by operating activities	$ 1,035.7	$ 1,055.6	$ 1,038.1
Net cash provided by (used in) investing activities	288.0	(1,825.9)	(520.0)
Net cash provided by (used in) financing activities	673.0	(773.9)	1,245.6
Net increase (decrease) in cash, cash equivalents, and restricted cash	$ 1,996.7	$ (1,544.2)	$ 1,763.7

Cash from operations could be affected by various risks and uncertainties, including, but not limited to, the effects of COVID-19 and other risks detailed in Part I, Item 1A "Risk Factors" in this Form 10-K. We believe that our cash flow from operations with existing cash and cash equivalents will be sufficient to meet our anticipated cash needs for the foreseeable future. Our future capital requirements will depend on many factors including our growth rate, the timing and extent of spending to support development efforts, the expansion of sales and marketing activities, the introduction of new and enhanced products and subscription and support offerings, the costs to acquire or invest in complementary businesses and technologies, the costs to ensure access to adequate manufacturing capacity, the investments in our infrastructure to support the adoption of our cloud-based subscription offerings, the investments in our new corporate headquarters, the continuing market acceptance of our products and subscription and support offerings and macroeconomic events such as COVID-19. In addition, from time to time we may incur additional tax liability in connection with certain corporate structuring decisions.

We may also choose to seek additional equity or debt financing. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us or at all. If we are unable to raise additional capital when desired, our business, operating results, and financial condition may be adversely affected.

Operating Activities

Our operating activities have consisted of net losses adjusted for certain non-cash items and changes in assets and liabilities.

Cash provided by operating activities during fiscal 2020 was $1.0 billion, a slight decrease of $19.9 million compared to fiscal 2019. The decrease was primarily due to higher cash expenditure during fiscal 2020. The decrease was partially offset by growth of our business, as reflected by an increase in billings during fiscal 2020, and repayments of the 2019 Notes attributable to the debt discount during fiscal 2019.

Investing Activities

Our investing activities have consisted of capital expenditures, net investment purchases, sales, and maturities, and business acquisitions. We expect to continue such activities as our business grows.

Cash provided by investing activities during fiscal 2020 was $288.0 million, a change of $2.1 billion compared to fiscal 2019. The change was primarily due to lower purchases of investments, a decrease in net cash payments for business acquisitions and higher proceeds from maturities and sales of investments during fiscal 2020.

Financing Activities

Our financing activities have consisted of net proceeds from the issuance of the 2025 Notes and related transactions, repayments of the 2019 Notes, proceeds from sales of shares through employee equity incentive plans, cash used to repurchase shares of our common stock, and payments for tax withholding obligations of certain employees related to the net share settlement of equity awards.

Cash provided by financing activities during fiscal 2020 was $673.0 million, an increase of $1.4 billion compared to fiscal 2019. The change was primarily due to net proceeds of $1.8 billion from the issuance of our 2025 Notes, issuance of warrants, and purchase of note hedges, partially offset by an increase in repurchases of our common stock during fiscal 2020.

Contractual Obligations and Commitments

The following summarizes our contractual obligations and commitments as of July 31, 2020:

	Payments Due by Period				
	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
	(in millions)				
0.75% Convertible Senior Notes due 2023	$ 1,693.0	$ —	$ 1,693.0	$ —	$ —
0.375% Convertible Senior Notes due 2025	2,000.0	—	—	2,000.0	—
Operating lease obligations	453.3	72.2	132.8	102.5	145.8
Purchase obligations[(1)]	421.9	156.8	100.1	145.0	20.0
Total[(2)]	$ 4,568.2	$ 229.0	$ 1,925.9	$ 2,247.5	$ 165.8

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(1) Consists of minimum purchase commitments of products and components with our manufacturing partners and component suppliers, as well as minimum or fixed purchase commitments for our use of certain cloud and other services with third-party providers. Obligations under contracts that we can cancel without a significant penalty are not included in the table above.

(2) No amounts related to income taxes are included. As of July 31, 2020, we had approximately $74.2 million of tax liabilities recorded related to uncertainty in income tax positions.

Off-Balance Sheet Arrangements

As of July 31, 2020, we did not have any relationships with unconsolidated organizations or financial partnerships, such as structured finance or special purpose entities that would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical Accounting Estimates

Our consolidated financial statements have been prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses, and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances. We evaluate our estimates and assumptions on an ongoing basis. Actual results could differ materially from those estimates due to risks and uncertainties, including uncertainty in the current economic environment due to the global impact of COVID-19. To the extent that there are material differences between these estimates and our actual results, our future financial statements will be affected.

We believe that of our significant accounting policies described in Note 1. Description of Business and Summary of Significant Accounting Policies in Part II, Item 8 of this Annual Report on Form 10-K, the critical accounting policies requiring estimates, assumptions, and judgments that have the most significant impact on our consolidated financial statements are described below.

Revenue Recognition

The majority of our contracts with our customers include various combinations of our products and subscriptions and support. Our appliances and software licenses have significant standalone functionalities and capabilities and, accordingly, are distinct from our subscriptions and support services, as the customer can benefit from the product without these services and such services are separately identifiable within the contract. We account for multiple agreements with a single customer as a single contract if the contractual terms and/or substance of those agreements indicate that they may be so closely related that they are, in effect, parts of a single contract. The amount we are due in exchange for delivering on the contract is allocated to each performance obligation based on its relative standalone selling price.

We establish standalone selling price using the prices charged for a deliverable when sold separately. If not observable through past transactions, we estimate the standalone selling price based on our pricing model and our go-to-market strategy, which include factors such as type of sales channel (reseller, distributor, or end-customer), the geographies in which our offerings were sold (domestic or international) and offering type (products, subscriptions, or support). As our business offerings evolve over time, we may be required to modify our estimated standalone selling prices, and as a result the timing and classification of our revenue could be affected.

Deferred Contract Costs

We defer contract costs that are recoverable and incremental to obtaining customer sales contracts. Contract costs, which primarily consist of sales commissions, are amortized on a systematic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates. Sales commissions for initial contracts that are not commensurate with renewal commissions are amortized over a benefit period of five years, consistent with the revenue recognition pattern of the performance obligations in the related contracts including expected renewals. The benefit period is determined by taking into consideration contract length, technology life, and other quantitative and qualitative factors. The expected renewals are estimated based on historical renewal trends. Sales commissions for initial contracts that are commensurate and sales commissions for renewal contracts are amortized over the related contractual period in proportion to the revenue recognized.

Income Taxes

We account for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in our financial statements or tax returns. In addition, deferred tax assets are recorded for the future benefit of utilizing net operating losses and research and development credit carryforwards. Valuation allowances are provided when necessary to reduce deferred tax assets to the amount expected to be realized.

Significant judgment is 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.

We apply the authoritative accounting guidance prescribing a threshold and measurement attribute for the financial recognition and measurement of a tax position taken or expected to be taken in a tax return. We recognize liabilities for uncertain tax positions based on a two-step process. 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 requires us to estimate and measure the tax benefit as the largest amount that is more likely than not to be realized upon ultimate settlement.

Significant judgment is also required in evaluating our uncertain tax positions and determining our provision for income 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 may impact the provision for income taxes in the period in which such determination is made.

Manufacturing Partner and Supplier Liabilities

We outsource most of our manufacturing, repair, and supply chain management operations to our EMS provider, which procures components and assembles our products based on our demand forecasts. These forecasts of future demand are based upon historical trends and analysis from our sales and product management functions as adjusted for overall market conditions. We accrue for costs for manufacturing purchase commitments in excess of our forecasted demand, including costs for excess components or for carrying costs incurred by our manufacturing partners and component suppliers. Actual component usage and product demand may be materially different from our forecast and could be caused by factors outside of our control, which could have an adverse impact on our results of operations. To date, we have not accrued significant costs associated with this exposure.

Loss Contingencies

We are subject to the possibility of various loss contingencies arising in the ordinary course of business. We accrue for loss contingencies 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. If we determine that a loss is possible and the range of the loss can be reasonably determined, then we disclose the range of the possible loss. We regularly evaluate current information available to us to determine whether an accrual is required, an accrual should be adjusted, or a range of possible loss should be disclosed.

From time to time, we are involved in disputes, litigation, and other legal actions. However, there are many uncertainties associated with any litigation, and these actions or other third-party claims against us may cause us to incur substantial settlement charges, which are inherently difficult to estimate and could adversely affect our results of operations. The actual liability in any such matters may be materially different from our estimates, which could result in the need to adjust our liability and record additional expenses.

Goodwill, Intangibles, and Other Long-Lived Assets

We make significant estimates, assumptions, and judgments when valuing goodwill and other purchased intangible assets in connection with the initial purchase price allocation of an acquired entity, as well as when evaluating impairment of goodwill and other purchased intangible assets on an ongoing basis. These estimates are based upon a number of factors, including historical experience, market conditions, and information obtained from the management of the acquired company. Critical estimates in valuing certain intangible assets include, but are not limited to, cash flows that an asset is expected to generate in the future, discount rates, the time and expense that would be necessary to recreate the assets, and the profit margin a market participant would receive. The amounts and useful lives assigned to identified intangible assets impacts the amount and timing of future amortization expense.

We evaluate goodwill for impairment on an annual basis in our fourth fiscal quarter or more frequently if we believe impairment indicators exist. We have elected to first assess qualitative factors to determine whether it is more likely than not that the fair value of our reporting unit is less than its carrying amount, including goodwill. The qualitative assessment includes our evaluation of relevant events and circumstances affecting our single reporting unit, including macroeconomic, industry, and market conditions, our overall financial performance, and trends in the market price of our common stock. If qualitative factors indicate that it is more likely than not that our reporting unit's fair value is less than its carrying amount, then we will perform the quantitative impairment test by comparing our reporting unit's carrying amount, including goodwill, to its fair value. If the carrying amount of our reporting unit exceeds its fair value, an impairment loss will be recognized in an amount equal to that excess. To date, the results of our qualitative assessment have indicated that the quantitative goodwill impairment test is not necessary.

We evaluate long-lived assets, such as property, equipment, and purchased intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Such events or changes in circumstances include, but are not limited to, a significant decrease in the fair value of the underlying asset or asset group, a significant decrease in the benefits realized from the acquired assets, difficulty and delays in integrating the business, or a significant change in the operations of the acquired assets or use of an asset or asset group. A long-lived asset is considered impaired if its carrying amount exceeds the estimated future undiscounted cash flows the asset or asset group is expected to generate. Critical estimates in determining whether a long-lived asset is considered impaired include the amount and timing of future cash flows that the asset or asset group is expected to generate. If a long-lived asset is considered to be impaired, the impairment to be recognized is the amount by which the carrying amount of the asset exceeds the fair value of the asset or asset group, which is estimated using a present value technique. Critical estimates in determining the fair value of an asset or asset group and the amount of impairment to recognize include, but are not limited to, the amount and timing of future cash flows that the asset or asset group is expected to generate and the discount rate. Determining the fair value of an asset or asset group is highly judgmental in nature and involves the use of significant estimates and assumptions for market participants. We base our fair value estimates on assumptions we believe to be reasonable but that are unpredictable and inherently uncertain. Actual future results may differ from those estimates.

Convertible Senior Notes

In accounting for the issuance of our convertible senior notes, we separate the notes into liability and equity components. The carrying amount of the liability component is calculated by measuring the fair value of a similar liability that does not have an associated convertible feature, using a discounted cash flow model with a risk adjusted yield. The carrying amount of the equity component representing the conversion option is determined by deducting the fair value of the liability component from the par value of the notes as a whole. This difference represents a debt discount that is amortized to interest expense using the effective interest method over the term of the notes. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. In accounting for the transaction costs related to the issuance of the notes, we allocate the total amount incurred to the liability and equity components using the same proportions as the proceeds from the notes. Transaction costs attributable to the liability component are netted with the liability component and amortized to interest expense using the effective interest method over the term of the notes. Transaction costs attributable to the equity component are netted with the equity component of the notes in additional paid-in capital in the consolidated balance sheets.

Recent Accounting Pronouncements

Refer to "Recently Issued Accounting Pronouncements" in Note 1. Description of Business and Summary of Significant Accounting Policies in Part II, Item 8 of this Annual Report on Form 10-K for a description of recent accounting pronouncements and our expectation of their impact, if any, on our results of operations and financial condition.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Foreign Currency Exchange Risk

Our sales contracts are primarily denominated in U.S. dollars. A portion of our operating expenses are incurred outside of the United States and are denominated in foreign currencies and are subject to fluctuations due to changes in foreign currency exchange rates, particularly changes in the euro, British pound, Singapore dollar, Israeli shekel and Japanese yen. Additionally, fluctuations in foreign currency exchange rates may cause us to recognize transaction gains and losses in our statement of operations. The effect of an immediate 10% adverse change in foreign exchange rates on monetary assets and liabilities at July 31, 2020 would not be material to our financial condition or results of operations. As of July 31, 2020, foreign currency transaction gains and losses and exchange rate fluctuations have not been material to our financial statements. We enter into foreign currency derivative contracts with maturities of 15 months or less which we designate as cash flow hedges to manage the foreign currency exchange rate risk associated with our foreign currency denominated expenditures. The effectiveness of our existing hedging transactions and the availability and effectiveness of any hedging transactions we may decide to enter into in the future may be limited, and we may not be able to successfully hedge our exposure, which could adversely affect our financial condition and operating results. Refer to Note 5. Derivative Instruments in Part II, Item 8 of this Annual Report on Form 10-K for more information.

As our international operations grow, our risks associated with fluctuation in currency rates will become greater, and we will continue to reassess our approach to managing this risk. In addition, a weakening U.S. dollar can increase the costs of our international expansion and a strengthening U.S. dollar can increase the real cost of our products to our end-customers outside of the United States, leading to delays in the purchase of our products and services. For additional information, see the risk factor entitled “We are exposed to fluctuations in currency exchange rates, which could negatively affect our financial condition and operating results” in Part 1, Item 1A of this Annual Report on Form 10-K.

Interest Rate Risk

The primary objectives of our investment activities are to preserve principal, provide liquidity, and maximize income without significantly increasing risk. Some of the securities we invest in are subject to interest risk. To minimize this risk, we maintain our portfolio of cash, cash equivalents, and short-term investments in a variety of securities, including commercial paper, money market funds, U.S. government and agency securities, and corporate debt securities. Due to the short duration and conservative nature of our investment portfolio, a movement of 10% in market interest rates would not have a material impact on our operating results and the total value of the portfolio. The effect of an immediate 10% change in interest rates at July 31, 2020 would not have been material to our operating results and the total value of the portfolio assuming consistent investment levels.

Market Risk and Market Interest Risk

In July 2018, we issued $1.7 billion aggregate principal amount of 0.75% Convertible Senior Notes due 2023 (the “2023 Notes”) and in June 2020, we issued $2.0 billion aggregate principal amount of 0.375% Convertible Senior Notes due 2025 (the "2025 Notes"). We carry these instruments at face value less unamortized discount and unamortized issuance costs on our consolidated balance sheets. As these instruments have a fixed annual interest rate, we have no financial and economic interest exposure associated with changes in interest rates. However, the fair value of fixed rate instruments fluctuates when interest rates change, and additionally, in the case of either series of Notes, when the market price of our common stock fluctuates.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Palo Alto Networks, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Palo Alto Networks, Inc. (the Company) as of July 31, 2020 and 2019, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended July 31, 2020, and the related notes (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 July 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended July 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 July 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 September 4, 2020 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.

	Revenue Recognition
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 subscription and support revenue is recognized over time as the services are performed. Auditing the Company's revenue recognition was complex, including the identification and determination of distinct performance obligations and the 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 the Company's process and controls to identify and determine the distinct performance obligations and the timing of revenue recognition. To test the identification and determination of the distinct performance obligations and the timing of revenue recognition, our audit procedures included, among others, reading the executed contract and purchase order to understand the contract, identifying the performance obligation(s), determining the distinct performance obligations, and evaluating the timing of revenue recognition 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.
	Business Combinations
Description of the Matter	As described in Note 6 to the consolidated financial statements, the Company completed an acquisition of CloudGenix, Inc. for net consideration of $402.7 million in the year ended July 31, 2020. The Company accounted for this acquisition as a business combination. Auditing the accounting for the acquisition was complex due to the significant estimation uncertainty in determining the fair values of identified intangible assets, which consisted of developed technology of $67.2 million and customer relationships of $42.7 million. The significant estimation uncertainty was primarily due to the sensitivity of the respective fair values to underlying assumptions about future performance of the acquired business and due to the limited historical data on which to base these assumptions. The significant assumptions used to form the basis of the forecasted results included revenue growth rates and technology migration curves. These significant assumptions were 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 the Company's controls over its accounting for the acquisition. This included testing controls over the estimation process supporting the recognition and measurement of identified intangible assets, and management's judgment and evaluation of underlying assumptions and estimates with regards to the fair values of the identified intangible assets. To test the estimated fair values of the identified intangible assets, our audit procedures included, among others, reading the underlying agreements, testing management's application of the relevant accounting guidance, and involving a specialist to assist us in the evaluation of the Company's valuation methodology and testing of the significant assumptions. For example, we compared the revenue growth rates and technology migration curves to current industry, market and economic trends. Additionally, we tested the completeness and accuracy of the underlying data supporting the significant assumptions and estimates.
	Convertible Notes
Description of the Matter	As described in Note 10 to the consolidated financial statements, the Company issued $2.0 billion of convertible senior notes due in 2025 (Convertible Notes) in the year ended July 31, 2020. The accounting for the transaction was complex, as it required assessment as to whether features, other than the conversion feature, required bifurcation and separate valuation. Additionally, the transaction was complex as it required valuation of the conversion feature in the debt instrument, which involved estimation of the fair value of the debt instrument absent of any conversion feature, and evaluation of the appropriate classification of the conversion feature in the financial statements. Auditing the Company's accounting for the Convertible Notes was complex due to the significant judgment required in determining the liability component of the Convertible Notes as well as the balance sheet classification of the elements of the Convertible Notes. The Company estimated the fair value of the liability component of the Convertible Notes, absent any embedded conversion features, using an income approach which considers the instrument's discounted cash flow model with a risk adjusted yield. Additionally, the Company performed a detailed analysis of the terms of the Convertible Notes to identify whether any derivatives that required separate mark-to-market accounting under applicable accounting guidance were present.

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 Convertible Notes. For example, we tested the Company's controls over the initial recognition and measurement of the Convertible Notes, including the recording of the associated liability and equity components. We also tested the evaluation of the Convertible Notes and the identification and evaluation of specific features and the related accounting. To test the accounting for the Convertible Notes, our audit procedures included, among others, reading the underlying Convertible Notes agreements, testing management's application of the relevant accounting guidance, and involving a specialist to assist us in the evaluation of the Company's valuation methodology and testing of the significant assumptions. Our testing of the fair value of the liability component, included, among other procedures, evaluating the Company's selection of the valuation methodology and significant assumptions used by the Company, and evaluating the completeness and accuracy of the underlying data supporting the significant assumptions. Specifically, when assessing the key assumptions, we evaluated the appropriateness of the Company's estimates of its credit risk, volatility, dividend yield and the market risk free rate as well as its analysis of comparable issuances of debt securities by companies with a similar credit risk rating.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2009.

San Jose, California
September 4, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Palo Alto Networks, Inc.

Opinion on Internal Control Over Financial Reporting

We have audited Palo Alto Networks, Inc.'s internal control over financial reporting as of July 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, Palo Alto Networks, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of July 31, 2020, based on the COSO criteria.

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 July 31, 2020 and 2019, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended July 31, 2020, and the related notes and our report dated September 4, 2020 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
September 4, 2020

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management's Report on Internal Control Over Financial Reporting

The management of Palo Alto Networks, Inc. (the "Company") is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934 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 July 31, 2020, based on the framework set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in Internal Control - Integrated Framework (2013 framework). Based on that assessment, management concluded that, as of July 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 July 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 July 31, 2020.

PALO ALTO NETWORKS, INC.

CONSOLIDATED BALANCE SHEETS
(In millions, except per share data)

	July 31, 2020	July 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 2,958.0	$ 961.4
Short-term investments	789.8	1,841.7
Accounts receivable, net of allowance for doubtful accounts of $2.3 and $0.8 at July 31, 2020 and July 31, 2019, respectively	1,037.1	582.4
Prepaid expenses and other current assets	344.3	279.3
Total current assets	5,129.2	3,664.8
Property and equipment, net	348.1	296.0
Operating lease right-of-use assets	258.7	—
Long-term investments	554.4	575.4
Goodwill	1,812.9	1,352.3
Intangible assets, net	358.2	280.6
Other assets	603.9	423.1
Total assets	$ 9,065.4	$ 6,592.2
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 63.6	$ 73.3
Accrued compensation	322.2	235.5
Accrued and other liabilities	256.8	162.4
Deferred revenue	2,049.1	1,582.1
Total current liabilities	2,691.7	2,053.3
Convertible senior notes, net	3,084.1	1,430.0
Long-term deferred revenue	1,761.1	1,306.6
Long-term operating lease liabilities	336.6	—
Other long-term liabilities	90.1	216.0
Commitments and contingencies (Note 12)		
Stockholders' equity:		
Preferred stock; $0.0001 par value; 100.0 shares authorized; none issued and outstanding at July 31, 2020 and July 31, 2019	—	—
Common stock and additional paid-in capital; $0.0001 par value; 1,000.0 shares authorized; 96.3 and 96.8 shares issued and outstanding at July 31, 2020 and July 31, 2019, respectively	2,259.2	2,490.9
Accumulated other comprehensive income (loss)	10.5	(3.7)
Accumulated deficit	(1,167.9)	(900.9)
Total stockholders' equity	1,101.8	1,586.3
Total liabilities and stockholders' equity	$ 9,065.4	$ 6,592.2

See notes to consolidated financial statements.

PALO ALTO NETWORKS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(In millions, except per share data)

	Year Ended July 31,		
	2020	2019	2018
Revenue:			
Product	$ 1,064.2	$ 1,096.2	$ 879.8
Subscription and support	2,344.2	1,803.4	1,393.8
Total revenue	3,408.4	2,899.6	2,273.6
Cost of revenue:			
Product	294.4	315.9	272.4
Subscription and support	705.1	492.5	372.7
Total cost of revenue	999.5	808.4	645.1
Total gross profit	2,408.9	2,091.2	1,628.5
Operating expenses:			
Research and development	768.1	539.5	400.7
Sales and marketing	1,520.2	1,344.0	1,074.2
General and administrative	299.6	261.8	257.8
Total operating expenses	2,587.9	2,145.3	1,732.7
Operating loss	(179.0)	(54.1)	(104.2)
Interest expense	(88.7)	(83.9)	(29.6)
Other income, net	35.9	63.4	28.5
Loss before income taxes	(231.8)	(74.6)	(105.3)
Provision for income taxes	35.2	7.3	16.9
Net loss	$ (267.0)	$ (81.9)	$ (122.2)
Net loss per share, basic and diluted	$ (2.76)	$ (0.87)	$ (1.33)
Weighted-average shares used to compute net loss per share, basic and diluted	96.9	94.5	91.7

See notes to consolidated financial statements.

PALO ALTO NETWORKS, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In millions)

	Year Ended July 31,		
	2020	2019	2018
Net loss	$ (267.0)	$ (81.9)	$ (122.2)
Other comprehensive income (loss), net of tax:			
Change in unrealized gains (losses) on investments	1.0	10.4	(7.5)
Change in unrealized gains (losses) on cash flow hedges	13.2	2.3	(5.5)
Other comprehensive income (loss)	14.2	12.7	(13.0)
Comprehensive loss	$ (252.8)	$ (69.2)	$ (135.2)

See notes to consolidated financial statements.

PALO ALTO NETWORKS, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In millions)

	Common Stock and Additional Paid-In Capital		Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount			
Balance as of July 31, 2017	91.5	$ 1,599.7	$ (3.4)	$ (668.5)	$ 927.8
Net loss	—	—		(122.2)	(122.2)
Other comprehensive loss	—	—	(13.0)	—	(13.0)
Issuance of common stock in connection with employee equity incentive plans	3.8	55.0	—	—	55.0
Taxes paid related to net share settlement of equity awards	—	(43.7)	—	—	(43.7)
Share-based compensation for equity-based awards	—	502.5	—	—	502.5
Repurchase and retirement of common stock	(1.7)	(250.0)			(250.0)
Temporary equity reclassification	—	(21.9)	—	—	(21.9)
Equity component of convertible senior notes, net	—	312.4	—	—	312.4
Issuance of warrants	—	145.4	—	—	145.4
Purchase of note hedges	—	(332.0)	—	—	(332.0)
Balance as of July 31, 2018	93.6	1,967.4	(16.4)	(790.7)	1,160.3
Cumulative-effect adjustment from adoption of new accounting pronouncement	—	—	—	(28.3)	(28.3)
Net loss	—	—	—	(81.9)	(81.9)
Other comprehensive income	—	—	12.7	—	12.7
Issuance of common stock in connection with employee equity incentive plans	3.8	72.0	—	—	72.0
Taxes paid related to net share settlement of equity awards	—	(33.2)	—	—	(33.2)
Share-based compensation for equity-based awards	—	575.5	—	—	575.5
Repurchase and retirement of common stock	(1.9)	(330.0)			(330.0)
Temporary equity reclassification	—	21.9	—	—	21.9
Settlement of convertible notes	2.5	(12.2)	—	—	(12.2)
Common stock received from exercise of note hedges	(2.5)	—	—	—	—
Issuance of common and restricted common stock in connection with acquisitions	1.3	229.5	—	—	229.5
Balance as of July 31, 2019	96.8	2,490.9	(3.7)	(900.9)	1,586.3
Net loss	—	—	—	(267.0)	(267.0)
Other comprehensive income	—	—	14.2	—	14.2
Issuance of common stock in connection with employee equity incentive plans	3.6	84.0	—	—	84.0
Taxes paid related to net share settlement of equity awards	—	(22.7)	—	—	(22.7)
Share-based compensation for equity-based awards	—	674.4	—	—	674.4
Repurchase and retirement of common stock	(6.1)	(1,198.1)	—	—	(1,198.1)
Settlement of warrants	2.0	—	—	—	—
Equity component of convertible senior notes, net	—	398.7	—	—	398.7
Issuance of warrants	—	202.8	—	—	202.8
Purchase of note hedges	—	(370.8)	—	—	(370.8)
Balance as of July 31, 2020	96.3	$ 2,259.2	$ 10.5	$ (1,167.9)	$ 1,101.8

See notes to consolidated financial statements.

PALO ALTO NETWORKS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In millions)

	Year Ended July 31,		
	2020	**2019**	**2018**
Cash flows from operating activities			
Net loss	$ (267.0)	$ (81.9)	$ (122.2)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Share-based compensation for equity-based awards	658.4	567.7	496.7
Depreciation and amortization	206.1	153.8	96.4
(Gain) loss related to facility exit	(3.1)	7.0	41.1
Amortization of deferred contract costs	254.4	223.8	149.8
Amortization of debt discount and debt issuance costs	73.9	70.2	28.8
Amortization of operating lease right-of-use assets	47.4	—	—
Amortization of investment premiums, net of accretion of purchase discounts	(6.2)	(17.5)	0.5
Loss on conversions of convertible senior notes	—	2.6	—
Repayments of convertible senior notes attributable to debt discount	—	(97.6)	—
Changes in operating assets and liabilities, net of effects of acquisitions:			
Accounts receivable, net	(435.6)	(108.7)	(33.7)
Prepaid expenses and other assets	(409.0)	(332.5)	(299.1)
Accounts payable	(12.8)	32.3	3.7
Accrued compensation	75.7	66.8	44.2
Accrued and other liabilities	(39.8)	(20.6)	49.3
Deferred revenue	893.3	590.2	582.6
Net cash provided by operating activities	1,035.7	1,055.6	1,038.1
Cash flows from investing activities			
Purchases of investments	(1,180.8)	(2,984.6)	(725.7)
Proceeds from sales of investments	314.0	6.5	—
Proceeds from maturities of investments	1,952.7	2,057.1	691.8
Business acquisitions, net of cash acquired	(583.5)	(773.7)	(374.1)
Purchases of property, equipment, and other assets	(214.4)	(131.2)	(112.0)
Net cash provided by (used in) investing activities	288.0	(1,825.9)	(520.0)
Cash flows from financing activities			
Repayments of convertible senior notes attributable to principal and equity component	—	(477.4)	—
Payments for debt issuance costs	—	(3.7)	—
Proceeds from borrowings on convertible senior notes, net	1,979.1	—	1,682.4
Proceeds from issuance of warrants	202.8	—	145.4
Purchase of note hedges	(370.8)	—	(332.0)
Repurchases of common stock	(1,198.1)	(330.0)	(259.1)
Proceeds from sales of shares through employee equity incentive plans	84.0	71.7	52.6
Payments for taxes related to net share settlement of equity awards	(22.7)	(33.2)	(43.7)
Payment of deferred consideration related to prior year business acquisition	(1.3)	(1.3)	—
Net cash provided by (used in) financing activities	673.0	(773.9)	1,245.6
Net increase (decrease) in cash, cash equivalents, and restricted cash	1,996.7	(1,544.2)	1,763.7
Cash, cash equivalents, and restricted cash—beginning of period	965.0	2,509.2	745.5
Cash, cash equivalents, and restricted cash—end of period	$ 2,961.7	$ 965.0	$ 2,509.2

	Year Ended July 31,		
	2020	2019	2018
Reconciliation of cash, cash equivalents, and restricted cash to the consolidated balance sheets			
Cash and cash equivalents	$ 2,958.0	$ 961.4	$ 2,506.9
Restricted cash included in prepaid expenses and other current assets	2.8	1.9	1.1
Restricted cash included in other assets	0.9	1.7	1.2
Total cash, cash equivalents, and restricted cash	$ 2,961.7	$ 965.0	$ 2,509.2
Non-cash investing and financing activities			
Equity consideration for business acquisitions	$ (11.0)	$ (229.5)	$ —
Property and equipment acquired through lease incentives	$ —	$ —	$ 37.8
Supplemental disclosures of cash flow information			
Cash paid for income taxes	$ 17.2	$ 22.0	$ 11.2
Cash paid for contractual interest	$ 13.5	$ 13.5	$ 0.8

See notes to consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Description of Business and Summary of Significant Accounting Policies

Description of Business

Palo Alto Networks, Inc. (the "Company," "we," "us," or "our"), located in Santa Clara, California, was incorporated in March 2005 under the laws of the State of Delaware and commenced operations in April 2005. We empower enterprises, service providers, and government entities to secure all users, applications, data, networks and devices with comprehensive context at all times, across all locations.

Basis of Presentation

The accompanying consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles ("GAAP"). The consolidated financial statements include all adjustments necessary for a fair presentation of our annual results. All adjustments are of a normal recurring nature.

Principles of Consolidation

The consolidated financial statements include our accounts and our wholly owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Such management estimates include, but are not limited to the standalone selling price for our products and services, share-based compensation, fair value of assets acquired and liabilities assumed in business combinations, identified intangibles and goodwill, valuation allowance against deferred tax assets, manufacturing partner and supplier liabilities, fair value of debt component of convertible notes, interest rate for operating lease liabilities, deferred contract cost benefit period, and loss contingencies. We base our estimates on historical experience and also on assumptions that we believe are reasonable. Actual results could differ materially from those estimates due to risks and uncertainties, including uncertainty in the current economic environment due to the global impact of COVID-19.

Concentrations

Financial instruments that subject us to concentrations of credit risk consist primarily of cash and cash equivalents, investments, accounts receivable, derivative contracts and financing receivable.

We invest only in high-quality credit instruments and maintain our cash and cash equivalents and available-for-sale investments in fixed income securities. Management believes that the financial institutions that hold our investments are financially sound and, accordingly, are subject to minimal credit risk. Deposits held with banks may exceed the amount of insurance provided on such deposits.

Our derivative contracts expose us to credit risk to the extent that the counterparties may be unable to meet the terms of the arrangement. We mitigate this credit risk by transacting with major financial institutions with high credit ratings and also enter into master netting arrangements, which permit net settlement of transactions with the same counterparty. We are not required to pledge, and are not entitled to receive, cash collateral related to these derivative instruments. We do not enter into derivative contracts for trading or speculative purposes.

Our accounts receivables are primarily derived from our distributors in various geographical locations. We perform ongoing credit evaluations and generally do not require collateral on accounts receivable. As of July 31, 2020, one distributor accounted for over 10% of our gross accounts receivable representing 31.5%. For fiscal 2020, four distributors accounted for over 10% of our total revenue, representing 34.4%, 12.1%, 11.8%, and 10.5% each.

We rely on an electronics manufacturing services provider ("EMS provider") to assemble most of our products and sole source component suppliers for a certain number of our components.

Comprehensive Loss

Comprehensive loss is comprised of net loss and other comprehensive income (loss). Our other comprehensive income (loss) includes unrealized gains and losses on available-for-sale investments and unrealized gains and losses on cash flow hedges.

Foreign Currency Transactions

The functional currency of our foreign subsidiaries is the U.S. dollar. Monetary assets and liabilities denominated in foreign currencies have been remeasured into U.S. dollars using the exchange rates in effect at the balance sheet dates. Foreign currency denominated income and expenses have been remeasured using the average exchange rates in effect during each period. Foreign currency remeasurement gains and losses and foreign currency transaction gains and losses are not significant to the financial statements.

Fair Value

We define fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities which are required to be recorded at fair value, we consider the principal or most advantageous market in which to transact and the market-based risk. We apply fair value accounting for all financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a recurring basis. Goodwill, intangible assets, and other long-lived assets are measured at fair value on a nonrecurring basis, only if impairment is indicated. The carrying amounts reported in the consolidated financial statements approximate the fair value for cash and cash equivalents, accounts receivable, accounts payable, and accrued liabilities, due to their short-term nature.

Cash, Cash Equivalents, and Investments

We consider all highly liquid investments with original maturities of three months or less at date of purchase to be cash equivalents. Investments not considered cash equivalents and with maturities one year or less from the consolidated balance sheet date are classified as short-term investments. Investments with maturities greater than one year from the consolidated balance sheet date are classified as long-term investments.

We classify our investments in marketable debt securities as available-for-sale at the time of purchase. These investments are considered impaired when a decline in fair value is judged to be other-than-temporary. We consult with our investment managers and consider available quantitative and qualitative evidence in evaluating potential impairment of our investments on a quarterly basis. If the cost of an individual investment exceeds its fair value, we evaluate, among other factors, general market conditions, the duration and extent to which the fair value is less than cost, and our intent and ability to hold the investment. Once a decline in fair value is determined to be other-than-temporary, an impairment charge is recorded and a new cost basis in the investment is established.

Accounts Receivable

Trade accounts receivable are recorded at the invoiced amount, net of allowances for doubtful accounts. The allowance for doubtful accounts is based on our assessment of the collectability of accounts. Management regularly reviews the adequacy of the allowance for doubtful accounts by considering the age of each outstanding invoice, each customer's expected ability to pay, and the collection history with each customer, when applicable, to determine whether a specific allowance is appropriate. Accounts receivable deemed uncollectible are charged against the allowance for doubtful accounts when identified. As of July 31, 2020 and 2019, the allowance for doubtful accounts activity was not significant.

Financing Receivables

We provide financing arrangements, primarily loans, for certain qualified end-user customers to purchase our products. We determine the adequacy of our allowance for credit loss by assessing the risks and losses inherent in our financing receivables on either an individual or a collective basis. Our assessment considers various factors, including our historical experience, credit quality and age of the receivable balances, and economic conditions that may affect a customer's ability to pay. Financing receivables are written off when they are considered uncollectible, and all outstanding balances will be reversed and charged against the allowance for credit loss. Short-term financing receivables are included in prepaid expenses and other current assets and long-term financing receivables are included in other assets on our consolidated balance sheets. As of July 31, 2020, financing receivables were not significant to our consolidated balance sheet. As of July 31, 2019, there were no financing receivables on our consolidated balance sheet.

Derivatives

As a global business, we are exposed to currency exchange rate risk. Substantially all of our revenue is transacted in U.S. dollars, however, a portion of our operating expenditures are incurred outside of the United States and are denominated in foreign currencies, making them subject to fluctuations in foreign currency exchange rates. We enter into foreign currency derivative contracts with maturities of 15 months or less, which we designate as cash flow hedges, to manage the foreign currency exchange rate risk associated with these expenditures.

Our derivative financial instruments are recorded at fair value, on a gross basis, as either assets or liabilities in our consolidated balance sheets. Gains or losses related to our cash flow hedges are recorded as a component of accumulated other comprehensive income (loss) ("AOCI") in our consolidated balance sheets and are reclassified into the financial statement line item associated with the underlying hedged transaction in our consolidated statements of operations when the underlying hedged transaction is recognized in earnings. If it becomes probable that the hedged transaction will not occur, the cumulative unrealized gain or loss is reclassified immediately from AOCI into the financial statement line item associated with the underlying hedged transaction in our consolidated statements of operations. Gains or losses related to non-designated derivative instruments are recognized in other income, net in our consolidated statements of operations for each period until the instrument matures, is terminated, is re-designated as a qualified cash flow hedge, or is sold. Derivatives designated as cash flow hedges are classified in our consolidated statements of cash flows in the same manner as the underlying hedged transaction, primarily within cash flows from operating activities.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally three to ten years. Leasehold improvements are depreciated over the shorter of the estimated useful lives of the improvements or the remaining lease term. Land is not depreciated.

Business Combinations

We include the results of operations of the businesses that we acquire as of the respective dates of acquisition. We allocate the fair value of the purchase price of our acquisitions to the tangible assets acquired, liabilities assumed, and intangible assets acquired, based on their estimated fair values. The excess of the purchase price over the fair values of these identifiable assets and liabilities is recorded as goodwill. Additional information existing as of the acquisition date but unknown to us may become known during the remainder of the measurement period, not to exceed 12 months from the acquisition date, which may result in changes to the amounts and allocations recorded.

Intangible Assets

Purchased intangible assets with finite lives are carried at cost, less accumulated amortization. Amortization is computed over the estimated useful lives of the respective assets. Acquisition-related in-process research and development represents the fair value of incomplete research and development projects that have not reached technological feasibility as of the date of acquisition. Initially, these assets are not subject to amortization. Assets related to projects that have been completed are transferred to developed technology, which are subject to amortization.

Impairment of Goodwill, Intangible Assets, and Other Long-Lived Assets

Goodwill is evaluated for impairment on an annual basis in the fourth quarter of our fiscal year, and whenever events or changes in circumstances indicate the carrying amount of goodwill may not be recoverable. We have elected to first assess qualitative factors to determine whether it is more likely than not that the fair value of our single reporting unit is less than its carrying amount, including goodwill. If we determine that it is more likely than not that the fair value of our single reporting unit is less than its carrying amount, then the quantitative impairment test will be performed. Under the quantitative impairment test, if the carrying amount of our single reporting unit exceeds its fair value, we will recognize an impairment loss in an amount equal to that excess but limited to the total amount of goodwill.

We evaluate events and changes in circumstances that could indicate carrying amounts of purchased intangible assets and other long-lived assets may not be recoverable. When such events or changes in circumstances occur, we assess the recoverability of these assets by determining whether or not the carrying amount will be recovered through undiscounted expected future cash flows. If the total of the future undiscounted cash flows is less than the carrying amount of an asset, we record an impairment loss for the amount by which the carrying amount of the asset exceeds the fair value of the asset.

We did not recognize any impairment losses on our goodwill, intangible assets or other long-lived assets during the years ended July 31, 2020, 2019 and 2018.

Manufacturing Partner and Supplier Liabilities

We outsource most of our manufacturing, repair, and supply chain management operations to our EMS provider and payments to it are a significant portion of our cost of product revenue. Although we could be contractually obligated to purchase manufactured products and components, we generally do not own the manufactured products and components. Product title transfers from our EMS provider to us and immediately to our customers upon shipment. Our EMS provider assembles our products using design specifications, quality assurance programs, and standards that we establish, and it procures components and assembles our products based on our demand forecasts. These forecasts represent our estimates of future demand for our products based upon historical trends and analysis from our sales and product management functions as adjusted for overall market conditions. If the actual component usage and product demand are significantly lower than forecast, we record a liability for manufacturing purchase commitments in excess of our forecasted demand including costs for excess components or for carrying costs incurred by our manufacturing partners and component suppliers. Through July 31, 2020, we have not accrued any significant costs associated with this exposure.

Convertible Senior Notes

In accounting for the issuance of our convertible senior notes, we separate the notes into liability and equity components. The carrying amount of the liability component is calculated by measuring the fair value of a similar liability that does not have an associated convertible feature, using a discounted cash flow model with a risk adjusted yield. The carrying amount of the equity component representing the conversion option is determined by deducting the fair value of the liability component from the par value of the notes as a whole. This difference represents a debt discount that is amortized to interest expense using the effective interest method over the term of the notes. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. In accounting for the transaction costs related to the issuance of the notes, we allocate the total amount incurred to the liability and equity components using the same proportions as the proceeds from the notes. Transaction costs attributable to the liability component are netted with the liability component and amortized to interest expense using the effective interest method over the term of the notes. Transaction costs attributable to the equity component are netted with the equity component of the notes in additional paid-in capital in the consolidated balance sheets. When the notes are convertible, the net carrying amount of the notes is classified as a current liability and a portion of the equity component representing the conversion option is reclassified to temporary equity in our consolidated balance sheets. The portion of the equity component classified as temporary equity is measured as the difference between the principal and net carrying amount of the notes, excluding debt issuance costs.

Revenue Recognition

Our revenue consists of product revenue and subscription and support revenue. Revenue is recognized when control of promised products, subscriptions and support services are transferred to customers, in an amount that reflects the expected consideration in exchange for those products and services.

We determine revenue recognition through the following steps:

- Identification of the contract, or contracts, with a customer.
- Identification of the performance obligations in the contract.
- Determination of the transaction price.
- Allocation of the transaction price to the performance obligations in the contract.
- Recognition of revenue when, or as, we satisfy a performance obligation.

Revenues are reported net of sales taxes. Shipping charges billed to channel partners are included in revenues and related costs are included in cost of revenue.

Product Revenue

Product revenue is derived primarily from sales of our appliances. Product revenue also includes revenue derived from software licenses of Panorama and the VM-Series. Our appliances and software licenses include a broad set of built-in networking and security features and functionalities. We recognize product revenue at the time of hardware shipment or delivery of software license.

Subscription and Support Revenue

Subscription and support revenue is derived primarily from sales of our subscription and support offerings. We recognize subscription and support revenue over time as the services are performed. Our contractual subscription and support contracts are typically one to five years.

Contracts with Multiple Performance Obligations

The majority of our contracts with our customers include various combinations of our products and subscriptions and support. Our appliances and software licenses have significant standalone functionalities and capabilities. Accordingly, these appliances and software licenses are distinct from our subscriptions and support services as the customer can benefit from the product without these services and such services are separately identifiable within the contract. We account for multiple agreements with a single customer as a single contract if the contractual terms and/or substance of those agreements indicate that they may be so closely related that they are, in effect, parts of a single contract. The amount of consideration we expect to receive in exchange for delivering on the contract is allocated to each performance obligation based on its relative standalone selling price. If a contract contains a single performance obligation, no allocation is required.

We establish standalone selling price using the prices charged for a deliverable when sold separately. If the standalone selling price is not observable through past transactions, we estimate the standalone selling price based on our pricing model and our go-to-market strategy, which include factors such as type of sales channel (reseller, distributor, or end-customer), the geographies in which our offerings were sold (domestic or international), and offering type (products, subscriptions, or support).

Deferred Revenue

We record deferred revenue when cash payments are received or due in advance of our performance. Our payment terms typically require payment within 30 to 45 days of the date we issue an invoice. The current portion of deferred revenue represents the amounts that are expected to be recognized as revenue within one year of the consolidated balance sheet date.

Deferred Contract Costs

We defer contract costs that are recoverable and incremental to obtaining customer sales contracts. Contract costs, which primarily consist of sales commissions, are amortized on a systematic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates. Sales commissions paid for initial contracts are generally not commensurate with the commissions paid for renewal contracts, given the substantive difference in commission rates in proportion to their respective contract values. Sales commissions for initial contracts that are not commensurate are amortized over a benefit period of five years, consistent with the revenue recognition pattern of the performance obligations in the related contracts including expected renewals. The benefit period is determined by taking into consideration contract length, technology life, and other quantitative and qualitative factors. The expected renewals are estimated based on historical renewal trends. Sales commissions for initial contracts that are commensurate and sales commissions for renewal contracts are amortized over the related contractual period in proportion to the revenue recognized.

We classify deferred contract costs as short-term or long-term based on when we expect to recognize the expense. Short-term deferred contract costs are included in prepaid expenses and other current assets and long-term deferred contract costs are included in other assets on our consolidated balance sheets. Deferred contract costs are periodically reviewed for impairment. The amortization of deferred contract costs is included in sales and marketing expense in our consolidated statements of operations.

Software Development Costs

Internally developed software includes security software developed to meet our internal needs to provide cloud-based subscription offerings to our end-customers and business software that we customize to meet our specific operational needs. These capitalized costs consist of internal compensation related costs and external direct costs incurred during the application development stage and will be amortized over a useful life of three to five years. As of July 31, 2020 and 2019, we capitalized as other assets on our consolidated balance sheets $90.1 million and $44.9 million in costs, respectively, net of accumulated amortization, for security software developed to meet our internal needs to provide our cloud-based subscription offerings. We recognized amortization expense of $31.3 million, $12.9 million, and $4.3 million related to these capitalized costs as cost of subscription and support revenue in our consolidated statements of operations during the years ended July 31, 2020, 2019, and 2018, respectively.

The costs to develop software that is marketed externally have not been capitalized as we believe our current software development process is essentially completed concurrent with the establishment of technological feasibility. As such, all related software development costs are expensed as incurred and included in research and development expense in our consolidated statements of operations.

Share-Based Compensation

Compensation expense related to share-based transactions, including employee and non-employee director awards, is measured and recognized in the financial statements based on fair value on the grant date. We recognize share-based compensation expense for awards with only service conditions on a straight-line basis over the requisite service period of the related award. We recognize share-based compensation expense for awards with market conditions and awards with performance conditions on a straight-line basis over the requisite service period for each separately vesting portion of the award and, for awards with performance conditions, when it is probable that the performance condition will be achieved. We account for forfeitures of all share-based payment awards when they occur.

Leases

We determine if an arrangement is a lease at inception. We evaluate the classification of leases at commencement and, as necessary, at modification. Operating leases are included in operating lease right-of-use assets, accrued and other liabilities, and long-term operating lease liabilities on our consolidated balance sheets beginning August 1, 2019. We did not have any material finance leases in any of the periods presented.

Operating lease right-of-use assets represent our right to use an underlying asset for the lease term. Operating lease liabilities represent our obligation to make payments arising from the lease. Operating lease right-of-use assets and liabilities are recognized at the present value of the future lease payments at the lease commencement date. The interest rate used to determine the present value of the future lease payments is our incremental borrowing rate, because the interest rates implicit in most of our leases are not readily determinable. Our incremental borrowing rate is estimated to approximate the interest rate on a collateralized basis with similar terms and payments, and in economic environments where the leased asset is located. Operating lease right-of-use assets also include adjustments related to lease incentives, prepaid or accrued rent and initial direct lease costs. Operating lease right-of-use assets are subject to evaluation for impairment or disposal on a basis consistent with other long-lived assets.

Our lease terms may include periods under options to extend or terminate the lease when it is reasonably certain that we will exercise that option. We generally use the base, non-cancelable lease term when determining the lease assets and liabilities. Operating lease cost is recognized on a straight-line basis over the lease term.

We account for lease and non-lease components as a single lease component and do not recognize right-of-use assets and lease liabilities for leases with a term of 12 months or less. Payments under our lease arrangements are primarily fixed, however, certain lease agreements contain variable payments, which are expensed as incurred and not included in the operating lease right-of-use assets and liabilities. Variable lease payments are primarily comprised of real estate taxes, common area maintenance, and insurance.

Income Taxes

We account for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in our financial statements or tax returns. In addition, deferred tax assets are recorded for the future benefit of utilizing net operating losses and research and development credit carryforwards. Valuation allowances are provided when necessary to reduce deferred tax assets to the amount expected to be realized.

Significant judgment is 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.

We apply the authoritative accounting guidance prescribing a threshold and measurement attribute for the financial recognition and measurement of a tax position taken or expected to be taken in a tax return. We recognize liabilities for uncertain tax positions based on a two-step process. 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 requires us to estimate and measure the tax benefit as the largest amount that is more likely than not to be realized upon ultimate settlement.

Loss Contingencies

We are subject to the possibility of various loss contingencies arising in the ordinary course of business. In determining loss contingencies, we consider the likelihood of loss or impairment of an asset, or the incurrence of a liability, as well as our ability to reasonably estimate the amount of loss. 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. If we determine that a loss is possible and the range of the loss can be reasonably determined, then we disclose the range of the possible loss. We regularly evaluate current information available to us to determine whether an accrual is required, an accrual should be adjusted, or a range of possible loss should be disclosed.

Recently Adopted Accounting Pronouncements

Leases

In February 2016, the Financial Accounting Standards Board ("FASB") issued new authoritative guidance on lease accounting. Among its provisions, the standard requires lessees to recognize right-of-use assets and lease liabilities on the balance sheet for operating leases and also requires additional qualitative and quantitative disclosures about lease arrangements.

We adopted this standard effective August 1, 2019 on a modified retrospective basis, under which financial results reported in periods prior to fiscal 2020 were not adjusted. We elected the package of practical expedients, which allowed us to carry forward our historical assessments of whether contracts are or contain leases, lease classification, and initial direct costs. Additionally, we elected to account for lease and non-lease components as a single lease component and to not recognize right-of-use assets and lease liabilities for leases with a term of 12 months or less.

The most significant impact of adopting this guidance was the recognition of $286.4 million of operating lease right-of-use assets and $442.4 million of operating lease liabilities on our consolidated balance sheet as of August 1, 2019, which included reclassifying previously recognized $129.0 million in lease incentives, deferred or prepaid rent, as well as $27.0 million in cease-use liabilities to operating lease right-of-use assets.

The adoption of this standard had no impact on our consolidated statements of operations and consolidated statements of cash flows. Refer to Note 11. Leases for further discussion.

Recently Issued Accounting Pronouncements

Debt with Conversion Options

In August 2020, the FASB issued new authoritative guidance to simplify the accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts on an entity's own equity. The standard eliminates beneficial conversion feature and cash conversion models resulting in more convertible instruments being accounted for as a single unit; and simplifies classification of debt on the balance sheet and earnings per share calculation. The standard is effective for us in our first quarter of fiscal 2023 and will be applied on a modified retrospective basis. Early adoption is permitted from our first quarter of fiscal 2022. We are currently evaluating whether this standard will have a material impact on our consolidated financial statements.

Financial Instruments - Credit Losses

In June 2016, the FASB issued new authoritative guidance on the accounting for credit losses on most financial assets and certain financial instruments. The standard replaces the existing incurred loss model with an expected credit loss model for financial assets measured at amortized cost, including trade receivables and financing receivables, and requires that credit losses on available-for-sale debt securities be presented as an allowance rather than as a write-down. The standard is effective for us in our first quarter of fiscal 2021 and will be applied on a modified retrospective basis. We do not expect the adoption of the standard will have a material impact on our consolidated financial statements.

2. Revenue

Disaggregation of Revenue

The following table presents revenue by geographic theater (in millions):

	Year Ended July 31,		
	2020	2019	2018
Revenue:			
Americas			
United States	$ 2,168.6	$ 1,830.3	$ 1,446.7
Other Americas	159.3	152.0	112.0
Total Americas	2,327.9	1,982.3	1,558.7
Europe, the Middle East, and Africa (“EMEA”)	664.8	564.8	439.6
Asia Pacific and Japan (“APAC”)	415.7	352.5	275.3
Total revenue	$ 3,408.4	$ 2,899.6	$ 2,273.6

The following table presents revenue for groups of similar products and services (in millions):

	Year Ended July 31,		
	2020	2019	2018
Revenue:			
Product	$ 1,064.2	$ 1,096.2	$ 879.8
Subscription and support			
Subscription	1,405.3	1,032.7	758.1
Support	938.9	770.7	635.7
Total subscription and support	2,344.2	1,803.4	1,393.8
Total revenue	$ 3,408.4	$ 2,899.6	$ 2,273.6

Deferred Revenue

During the year ended July 31, 2020, we recognized approximately $1.5 billion of revenue pertaining to amounts that were deferred as of July 31, 2019.

Remaining Performance Obligations

Revenue expected to be recognized from remaining performance obligations was $4.3 billion as of July 31, 2020, of which we expect to recognize approximately $2.2 billion over the next 12 months and the remainder thereafter.

3. Fair Value Measurements

We categorize assets and liabilities recorded or disclosed at fair value on our consolidated balance sheets based upon the level of judgment associated with inputs used to measure their fair value. The categories are as follows:

- Level 1—Inputs are unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2—Inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the assets or liabilities, either directly or indirectly through market corroboration, for substantially the full term of the financial instruments.
- Level 3—Inputs are unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value. The inputs require significant management judgment or estimation.

The following table presents the fair value of our financial assets and liabilities measured at fair value on a recurring basis using the above input categories as of July 31, 2020 and July 31, 2019 (in millions):

	July 31, 2020				July 31, 2019			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash equivalents:								
Money market funds	$ 1,589.5	$ —	$ —	$ 1,589.5	$ 369.1	$ —	$ —	$ 369.1
Certificates of deposit	—	—	—	—	—	12.0	—	12.0
Commercial paper	—	—	—	—	—	19.3	—	19.3
U.S. government and agency securities	—	342.0	—	342.0	—	54.4	—	54.4
Total cash equivalents	1,589.5	342.0	—	1,931.5	369.1	85.7	—	454.8
Short-term investments:								
Certificates of deposit	—	26.9	—	26.9	—	17.5	—	17.5
Commercial paper	—	—	—	—	—	8.9	—	8.9
Corporate debt securities	—	100.2	—	100.2	—	375.5	—	375.5
U.S. government and agency securities	—	645.6	—	645.6	—	1,439.8	—	1,439.8
Non-U.S. government and agency securities	—	17.1	—	17.1	—	—	—	—
Total short-term investments	—	789.8	—	789.8	—	1,841.7	—	1,841.7
Long-term investments:								
Corporate debt securities	—	91.7	—	91.7	—	214.3	—	214.3
Certificates of deposit	—	5.0	—	5.0	—	—	—	—
U.S. government and agency securities	—	447.4	—	447.4	—	361.1	—	361.1
Non-U.S. government and agency securities	—	10.3	—	10.3	—	—	—	—
Total long-term investments	—	554.4	—	554.4	—	575.4	—	575.4
Prepaid expenses and other current assets:								
Foreign currency forward contracts	—	13.6	—	13.6	—	1.3	—	1.3
Total prepaid expenses and other current assets	—	13.6	—	13.6	—	1.3	—	1.3
Other assets:								
Foreign currency forward contracts	—	1.4	—	1.4	—	—	—	—
Total other assets	—	1.4	—	1.4	—	—	—	—
Total assets measured at fair value	$ 1,589.5	$ 1,701.2	$ —	$ 3,290.7	$ 369.1	$ 2,504.1	$ —	$ 2,873.2
Accrued and other liabilities:								
Foreign currency forward contracts	$ —	$ —	$ —	$ —	$ —	$ 3.8	$ —	$ 3.8
Total accrued and other liabilities	—	—	—	—	—	3.8	—	3.8
Total liabilities measured at fair value	$ —	$ —	$ —	$ —	$ —	$ 3.8	$ —	$ 3.8

Refer to Note 10. Debt, for the carrying amount and estimated fair value of our convertible senior notes as of July 31, 2020 and July 31, 2019.

4. Cash Equivalents and Investments

Available-for-sale Debt Securities

The following tables summarize the amortized cost, unrealized gains and losses, and fair value of our available-for-sale debt securities as of July 31, 2020 and July 31, 2019 (in millions):

	July 31, 2020			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
U.S. government and agency securities	$ 342.0	$ —	$ —	$ 342.0
Total available-for-sale cash equivalents	$ 342.0	$ —	$ —	$ 342.0
Investments:				
Certificates of deposit	$ 31.9	$ —	$ —	$ 31.9
Corporate debt securities	190.1	1.8	—	191.9
U.S. government and agency securities	1,090.3	2.8	(0.1)	1,093.0
Non-U.S. government and agency securities	27.4	—	—	27.4
Total available-for-sale investments	$ 1,339.7	$ 4.6	$ (0.1)	$ 1,344.2

	July 31, 2019			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
Certificates of deposit	$ 12.0	$ —	$ —	$ 12.0
Commercial paper	19.3	—	—	19.3
U.S. government and agency securities	54.4	—	—	54.4
Total available-for-sale cash equivalents	$ 85.7	$ —	$ —	$ 85.7
Investments:				
Certificates of deposit	$ 17.5	$ —	$ —	$ 17.5
Commercial paper	8.9	—	—	8.9
Corporate debt securities	587.8	2.3	(0.3)	589.8
U.S. government and agency securities	1,799.5	2.6	(1.2)	1,800.9
Total available-for-sale investments	$ 2,413.7	$ 4.9	$ (1.5)	$ 2,417.1

We do not intend to sell any of the securities in an unrealized loss position and it is not likely that we would be required to sell these securities before recovery of their amortized cost basis, which may be at maturity. As a result, there were no other-than-temporary impairments for these securities at July 31, 2020 and 2019.

The following table summarizes the amortized cost and fair value of our available-for-sale debt securities as of July 31, 2020, by contractual years-to-maturity (in millions):

	Amortized Cost	Fair Value
Due within one year	$ 1,129.9	$ 1,131.8
Due between one and three years	551.8	554.4
Total	$ 1,681.7	$ 1,686.2

Marketable Equity Securities

Marketable equity securities consist of money market funds and are included in cash and cash equivalents in our consolidated balance sheets. As of July 31, 2020 and 2019, the carrying value of our marketable equity securities were $1.6 billion and $369.1 million, respectively. There were no unrealized gains or losses recognized for these securities during the years ended July 31, 2020, 2019, and 2018.

5. Derivative Instruments

As of July 31, 2020 and 2019, the total notional amount of our outstanding foreign currency forward contracts was $443.6 million and $307.2 million, respectively. Refer to Note 3. Fair Value Measurements for the fair value of our derivative instruments as reported on our consolidated balance sheets as of July 31, 2020.

During the years ended July 31, 2020, 2019, and 2018, both unrealized gains and losses recognized in AOCI related to our cash flow hedges and amounts reclassified into earnings were not material. Unrealized gains and losses in AOCI related to our cash flow hedges as of July 31, 2020 and 2019 were not material.

6. Acquisitions

Fiscal 2020

CloudGenix Inc.

On April 21, 2020, we completed our acquisition of CloudGenix Inc. (“CloudGenix”), a privately-held company. We believe the acquisition will strengthen our secure access service edge (“SASE”) offering. The total purchase consideration for the acquisition of CloudGenix was $402.7 million, which consisted of the following (in millions):

	Amount
Cash	$ 396.1
Fair value of replacement awards	6.6
Total	$ 402.7

As part of the acquisition, we issued $30.3 million of replacement awards, of which the portion attributable to services performed prior to the acquisition date was allocated to purchase consideration. The remaining fair value was allocated to future services and will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 301.2
Identified intangible assets	109.9
Cash	8.3
Net liabilities assumed	(16.7)
Total	$ 402.7

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating CloudGenix technology into our portfolio. The goodwill is not deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 67.2	5 years
Customer relationships	42.7	10 years
Total	$ 109.9	

Aporeto, Inc.

On December 23, 2019, we completed our acquisition of Aporeto, Inc. (“Aporeto”), a privately-held machine identity-based microsegmentation company. We believe the acquisition will strengthen our cloud-native security platform capabilities delivered by Prisma Cloud. The total purchase consideration for the acquisition of Aporeto was $144.1 million, which consisted of the following (in millions):

	Amount
Cash	$ 139.8
Fair value of replacement awards	4.3
Total	$ 144.1

As part of the acquisition, we issued $16.4 million of replacement awards, of which the portion attributable to services performed prior to the acquisition date was allocated to purchase consideration. The remaining fair value was allocated to future services and will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 111.3
Identified intangible assets	23.8
Cash	10.5
Net liabilities assumed	(1.5)
Total	$ 144.1

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating Aporeto's technology into our platform. The goodwill is not deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 20.5	7 years
Customer relationships	3.3	4 years
Total	$ 23.8	

Zingbox, Inc.

On September 20, 2019, we completed our acquisition of Zingbox, Inc. ("Zingbox"), a privately-held Internet of Things ("IoT") security company. We believe the acquisition will accelerate our delivery of IoT security through our ML-powered Next-Generation Firewall and Cortex offerings. The total purchase consideration for the acquisition of Zingbox was $66.4 million in cash.

As part of the acquisition, we issued replacement equity awards with a total fair value of $5.7 million, which will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 48.1
Identified intangible assets	20.4
Net liabilities assumed	(2.1)
Total	$ 66.4

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating Zingbox's technology into our portfolio. The goodwill is not deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 18.6	5 years
Customer relationships	1.8	8 years
Total	$ 20.4	

Fiscal 2019

Twistlock Ltd.

On July 9, 2019, we completed our acquisition of Twistlock Ltd. ("Twistlock"), a privately-held company specializing in container security. The acquisition extends our cloud security strategy with the addition of Twistlock to our Prisma cloud security offerings. The total purchase consideration for the acquisition of Twistlock was $378.1 million, which consisted of the following (in millions):

	Amount
Cash	$ 375.4
Fair value of replacement equity awards	2.7
Total purchase consideration	$ 378.1

As part of the acquisition, we issued replacement equity awards, which included 0.1 million shares of our restricted common stock. The total fair value of the replacement equity awards was $51.8 million, of which the portion attributable to services performed prior to the acquisition date was allocated to the purchase consideration. The remaining fair value was allocated to future services and will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 300.6
Identified intangible assets	54.1
Cash and cash equivalents	14.0
Net assets acquired	9.4
Total	$ 378.1

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating Twistlock's product into our platform. The goodwill is deductible for U.S. income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 51.5	7 years
Customer relationships	2.6	8 years
Total	$ 54.1	

PureSec Ltd.

On June 12, 2019, we completed our acquisition of PureSec Ltd. ("PureSec"), a privately-held company specializing in cybersecurity solutions for serverless architectures. The acquisition extends our cloud security strategy with the addition of PureSec to our Prisma cloud security offerings. The total purchase consideration for the acquisition of PureSec was $36.8 million, which consisted of the following (in millions):

	Amount
Cash	$ 35.9
Fair value of replacement equity awards	0.9
Total purchase consideration	$ 36.8

As part of the acquisition, we issued replacement equity awards. The total fair value of the replacement equity awards was $9.1 million, of which the portion attributable to services performed prior to the acquisition date was allocated to the purchase consideration. The remaining fair value was allocated to future services and will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 24.4
Identified intangible assets	7.4
Cash	4.0
Net assets acquired	1.0
Total	$ 36.8

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating PureSec's product into our platform. The goodwill is deductible for U.S. income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 7.4	5 years
Total	$ 7.4	

Demisto, Inc.

On March 28, 2019, we completed our acquisition of Demisto, Inc. ("Demisto"), a privately-held security company specializing in security orchestration, automation and response ("SOAR"). The acquisition expands the functionality of our portfolio with the addition of Demisto's SOAR product. The total purchase consideration for the acquisition of Demisto was $474.2 million, which consisted of the following (in millions):

	Amount
Cash	$ 250.0
Common stock (0.9 million shares)	214.7
Fair value of replacement equity awards	9.5
Total purchase consideration	$ 474.2

As part of the acquisition, we issued replacement equity awards, which included 0.3 million shares of our restricted common stock. The total fair value of the replacement equity awards was $105.2 million, of which the portion attributable to services performed prior to the acquisition date was allocated to the purchase consideration. The remaining fair value was allocated to future services and will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 387.8
Identified intangible assets	76.3
Cash	25.9
Net liabilities assumed	(15.8)
Total	$ 474.2

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating Demisto's product into our portfolio. The goodwill is not deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 56.6	6 years
Customer relationships	19.7	6 years
Total	$ 76.3	

RedLock Inc.

On October 12, 2018, we completed our acquisition of RedLock Inc. ("RedLock"), a privately-held cloud security company. The acquisition expands our security capabilities for the public cloud with the addition of RedLock's cloud security analytics technology. The total purchase consideration for the acquisition of RedLock was $158.2 million, which consisted of $155.0 million in cash paid upon closing and $3.2 million in fair value of unvested equity awards attributable to services performed prior to the acquisition date.

As part of the acquisition, we assumed RedLock equity awards with a total fair value of $57.4 million. Of the total fair value, a portion was allocated to the purchase consideration and the remainder was allocated to future services and will be expensed over the remaining service periods as share-based compensation.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on preliminary estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 113.6
Identified intangible assets	54.8
Net liabilities assumed	(10.2)
Total	$ 158.2

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating RedLock's technology into our platform. The goodwill is not deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 48.6	4 years
Customer relationships	5.3	8 years
Trade name and trademarks	0.9	6 months
Total	$ 54.8	

Fiscal 2018

Cyber Secdo Ltd.

On April 24, 2018, we completed our acquisition of Cyber Secdo Ltd. ("Secdo"), a privately-held company specializing in endpoint detection and response ("EDR"). The acquisition expands the functionality of our portfolio by adding EDR capabilities. The total purchase consideration for the acquisition of Secdo was $82.7 million in cash.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on their estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 68.6
Identified intangible assets	17.3
Net liabilities assumed	(3.2)
Total	$ 82.7

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating Secdo's technology into our advanced endpoint protection offering and our portfolio. The goodwill is deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 16.4	5 years
Customer relationships	0.9	2 years
Total	$ 17.3	

Evident.io, Inc.

On March 26, 2018, we completed our acquisition of Evident.io, Inc. ("Evident.io"), a privately-held cloud security company. The acquisition expanded our API-based security capabilities for the public cloud with the addition of Evident.io's cloud services infrastructure protection technology. The total purchase consideration for the acquisition of Evident.io was $292.9 million in cash, of which $4.0 million was accrued and was paid over a period of five months from the acquisition date.

We have accounted for this transaction as a business combination and allocated the purchase consideration to assets acquired and liabilities assumed based on their estimated fair values, as presented in the following table (in millions):

	Amount
Goodwill	$ 209.8
Identified intangible assets	85.1
Net liabilities assumed	(2.0)
Total	$ 292.9

Goodwill generated from this business combination is primarily attributable to the assembled workforce and expected post-acquisition synergies from integrating Evident.io's technology into our platform and sales opportunities of Evident.io's software as a service ("SaaS") offerings. The goodwill is not deductible for income tax purposes.

The following table presents details of the identified intangible assets acquired (in millions, except years):

	Fair Value	Estimated Useful Life
Developed technology	$ 68.4	4.5 years
Trade name and trademarks	8.5	1 year
Customer relationships	8.2	8 years
Total	$ 85.1	

Additional Acquisition-Related Information

The operating results of the acquired companies are included in our consolidated statements of operations from the respective dates of acquisition. Pro forma results of operations have not been presented because the effects of the acquisitions were not material to our consolidated statements of operations.

Additional information related to our acquisitions completed in fiscal 2020, such as that related to income tax and other contingencies, existing as of the acquisition date but unknown to us may become known during the remainder of the measurement period, not to exceed 12 months from the respective acquisition date, which may result in changes to the amounts and allocations recorded.

A portion of the goodwill from prior year foreign acquisitions may be deductible in future periods.

7. Goodwill and Intangible Assets

Goodwill

The following table presents details of our goodwill during the year ended July 31, 2020 (in millions):

	Amount
Balance as of July 31, 2019	$ 1,352.3
Goodwill acquired	460.6
Balance as of July 31, 2020	$ 1,812.9

Purchased Intangible Assets

The following table presents details of our purchased intangible assets as of July 31, 2020 and July 31, 2019 (in millions):

	July 31,					
	2020			2019		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Intangible assets subject to amortization:						
Developed technology	$ 425.9	$ (146.6)	$ 279.3	$ 318.8	$ (78.7)	$ 240.1
Customer relationships	87.6	(12.4)	75.2	39.8	(4.7)	35.1
Acquired intellectual property	6.3	(3.2)	3.1	8.9	(5.1)	3.8
Trade name and trademarks	9.4	(9.4)	—	9.4	(9.4)	—
Other	3.1	(2.5)	0.6	2.2	(2.2)	—
Total intangible assets subject to amortization	532.3	(174.1)	358.2	379.1	(100.1)	279.0
Intangible assets not subject to amortization:						
In-process research and development	—	—	—	1.6	—	1.6
Total purchased intangible assets	$ 532.3	$ (174.1)	$ 358.2	$ 380.7	$ (100.1)	$ 280.6

We recognized amortization expense of $77.3 million, $53.6 million, and $16.3 million for the years ended July 31, 2020, 2019, and 2018, respectively.

The following table summarizes estimated future amortization expense of our intangible assets as of July 31, 2020 (in millions):

	Amount
Years ending July 31:	
2021	$ 90.3
2022	85.2
2023	59.1
2024	51.0
2025	37.8
2026 and thereafter	34.8
Total future amortization expense	$ 358.2

8. Deferred Contract Costs

The following table presents details of our short-term and long-term deferred contract costs as of July 31, 2020 and July 31, 2019 (in millions):

	July 31,	
	2020	2019
Short-term deferred contract costs	$ 206.0	$ 151.1
Long-term deferred contract costs	422.3	324.2
Total deferred contract costs	$ 628.3	$ 475.3

We recognized amortization expense for our deferred contract costs of $254.4 million, $223.8 million, and $149.8 million during the years ended July 31, 2020, 2019, and 2018, respectively. We did not recognize any impairment losses on our deferred contract costs during the years ended July 31, 2020, 2019, or 2018.

9. Property and Equipment

The following table presents details of our property and equipment, net as of July 31, 2020 and July 31, 2019 (in millions):

	July 31,	
	2020	2019
Computers, equipment, and software	$ 306.8	$ 264.1
Leasehold improvements	229.5	204.8
Land	49.6	—
Demonstration units	43.3	40.7
Furniture and fixtures	39.9	30.6
Total property and equipment	669.1	540.2
Less: accumulated depreciation	(321.0)	(244.2)
Total property and equipment, net	$ 348.1	$ 296.0

We recognized depreciation expense of $96.0 million, $86.2 million, and $74.7 million related to property and equipment during the years ended July 31, 2020, 2019, and 2018, respectively.

10. Debt

Convertible Senior Notes

In June 2014, we issued $575.0 million aggregate principal amount of 0.0% Convertible Senior Notes due 2019 (the “2019 Notes”), in July 2018, we issued $1.7 billion aggregate principal amount of 0.75% Convertible Senior Notes due 2023 (the “2023 Notes”) and, in June 2020, we issued $2.0 billion aggregate principal amount of 0.375% Convertible Senior Notes due 2025 (the “2025 Notes”, and together with the 2023 Notes, the “Notes”). The 2019 Notes were converted prior to or settled on the maturity date of July 1, 2019, in accordance with their terms. The 2023 Notes bear interest at a fixed rate of 0.75% per year, payable semi-annually in arrears on January 1 and July 1 of each year, beginning on January 1, 2019. The 2025 Notes bear interest at a fixed rate of 0.375% per year, payable semi-annually in arrears on June 1 and December 1 of each year, beginning on December 1, 2020. Each series of the convertible notes is governed by an indenture between us, as the issuer, and U.S. Bank National Association, as Trustee (individually, each an “Indenture,” and together, the “Indentures”). The Notes of each series are unsecured, unsubordinated obligations and the applicable Indenture governing each series of Notes does not contain any financial covenants or restrictions on the payments of dividends, the incurrence of indebtedness, or the issuance or repurchase of securities by us or any of our subsidiaries. The 2023 Notes and the 2025 Notes mature on July 1, 2023 and June 1, 2025, respectively. We cannot redeem the 2023 Notes prior to maturity. We may redeem for cash all or any portion of the 2025 Notes, at our option, on or after June 5, 2023, and prior to the 31st scheduled trading day immediately preceding the maturity date if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days during any 30 consecutive trading day period ending on and including the trading day preceding the date on which we provide notice of redemption. The redemption will be at a price equal to 100% of the principal amount of the 2025 Notes and adjusted for interest. If we call any or all of the 2025 Notes for redemption, holders may convert such 2025 Notes called for redemption at any time prior to the close of business on the second scheduled trading day immediately preceding the redemption date.

The following table presents details of our convertible senior notes (number of shares in millions):

	Conversion Rate per $1,000 Principal	Initial Conversion Price	Convertible Date	Initial Number of Shares
2019 Notes	9.0680	$ 110.28	January 1, 2019	5.2
2023 Notes	3.7545	$ 266.35	April 1, 2023	6.4
2025 Notes	3.3602	$ 297.60	March 1, 2025	6.7

Holders of the Notes may surrender their Notes for conversion at their option at any time prior to the close of business on the business day immediately preceding their respective convertible dates only under the following circumstances:

- during any fiscal quarter commencing after the fiscal quarters ending on October 31, 2018 and October 31, 2020 for the 2023 Notes and the 2025 Notes respectively (and only during such fiscal quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding fiscal quarter is greater than or equal to 130% of the applicable conversion price for the respective Notes on each applicable trading day (the “sale price condition”);
- during the five business day period after any five consecutive trading day period (the “measurement period”) in which the trading price per $1,000 principal amount of the applicable series of Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the applicable conversion rate for the respective Notes on each such trading day; or

- upon the occurrence of specified corporate events.

On or after the respective convertible date, holders may surrender all or any portion of their Notes for conversion at any time prior to the close of business on the second scheduled trading day immediately preceding the applicable maturity date regardless of the foregoing conditions, and such conversions will be settled upon the applicable maturity date. Upon conversion, holders of the Notes of a series will receive cash equal to the aggregate principal amount of the Notes of such series to be converted, and, at our election, cash and/or shares of our common stock for any amounts in excess of the aggregate principal amount of the Notes of such series being converted.

The conversion price will be subject to adjustment in some events. Holders of the Notes of a series who convert their Notes of such series in connection with certain corporate events that constitute a “make-whole fundamental change” under the applicable Indenture are, under certain circumstances, entitled to an increase in the conversion rate for such series of Notes. Additionally, upon the occurrence of a corporate event that constitutes a “fundamental change” under the applicable Indenture, holders of the Notes of such series may require us to repurchase for cash all or a portion of the Notes of such series at a repurchase price equal to 100% of the principal amount of the Notes of such series plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

The sale price condition was not met for the 2023 Notes during the fiscal quarters ended July 31, 2020 or July 31, 2019, and the sale price condition was not met for the 2025 Notes during the fiscal quarter ended July 31, 2020. Since our Notes were not convertible, the net carrying amount of the Notes was classified as a long-term liability and the equity component was included in additional paid-in capital in our consolidated balance sheets in the periods they each were presented.

During the year ended July 31, 2019, we repaid $575.0 million in aggregate principal amount of the 2019 Notes, of which $415.6 million in aggregate principal amount pertained to early conversions submitted by the holders prior to January 1, 2019.

The following table presents details of early conversions of the 2019 Notes during the year ended July 31, 2019 (in millions):

	Year Ended July 31, 2019
2019 Notes principal early converted and repaid in cash:	
Allocated to liability component[1]	$ 403.4
Allocated to equity component[2]	12.2
Total principal early converted and repaid in cash	$ 415.6
Loss on early conversions of convertible senior notes[3]	$ 2.6

(1) Recorded as a reduction to convertible senior notes, net in our consolidated balance sheets and calculated by measuring the fair value of a similar liability that did not have an associated convertible feature.

(2) Recorded as a reduction to additional paid-in capital in our consolidated balance sheets.

(3) Represents the difference between the cash consideration allocated to the liability component and the net carrying amount of the liability component on the respective settlement dates. The amount is included in other income, net in our consolidated statement of operations.

The remaining $159.4 million in aggregate principal amount was repaid on the July 1, 2019 maturity date. We issued 2.5 million shares of common stock to the holders of the 2019 Notes for the conversion value in excess of the principal amount during the year ended July 31, 2019. These shares were fully offset by shares received from the corresponding exercise of the associated note hedges.

The following table sets forth the components of the Notes as of July 31, 2020 and July 31, 2019 (in millions):

	July 31, 2020			July 31, 2019	
	2023 Notes	2025 Notes	Total	2023 Notes	Total
Liability component:					
Principal	$ 1,693.0	$ 2,000.0	$ 3,693.0	$ 1,693.0	$ 1,693.0
Less: debt discount and debt issuance costs, net of amortization	200.0	408.9	608.9	263.0	263.0
Net carrying amount	$ 1,493.0	$ 1,591.1	$ 3,084.1	$ 1,430.0	$ 1,430.0
Equity component	$ 315.0	$ 403.0	$ 718.0	$ 315.0	$ 315.0

The total estimated fair value of the Notes was $4.1 billion at July 31, 2020. The total estimated fair value of the 2023 Notes was $1.9 billion at July 31, 2019. The fair value was determined based on the closing trading price per $100 of the Notes as of the last day of trading for the period. We consider the fair value of the Notes at July 31, 2020 and July 31, 2019 to be a Level 2 measurement. The fair value of the Notes is primarily affected by the trading price of our common stock and market interest rates. Based on the closing price of our common stock on July 31, 2020, the if-converted value of the 2023 Notes and the 2025 Notes each was less than its principal amount.

The following table sets forth interest expense recognized related to our convertible senior notes (dollars in millions):

	Year Ended July 31, 2020			Year Ended July 31, 2019			Year Ended July 31, 2018		
	2023 Notes	2025 Notes	Total	2019 Notes	2023 Notes	Total	2019 Notes	2023 Notes	Total
Contractual interest expense	$ 12.7	$ 1.1	$ 13.8	$ —	$ 12.7	$ 12.7	$ —	$ 0.7	$ 0.7
Amortization of debt discount	60.9	10.5	71.4	8.7	58.5	67.2	22.9	3.0	25.9
Amortization of debt issuance costs	2.1	0.4	2.5	1.1	1.9	3.0	2.8	0.1	2.9
Total interest expense recognized	$ 75.7	$ 12.0	$ 87.7	$ 9.8	$ 73.1	$ 82.9	$ 25.7	$ 3.8	$ 29.5
Effective interest rate of the liability component	5.2 %	5.4 %		4.8 %	5.2 %		4.8 %	5.2 %	

Note Hedges

To minimize the impact of potential economic dilution upon conversion of our convertible senior notes, we entered into separate convertible note hedge transactions (the “2019 Note Hedges,” with respect to the 2019 Notes, the “2023 Note Hedges,” with respect to the 2023 Notes, the “2025 Note Hedges,” with respect to the 2025 Notes and the 2023 Notes Hedgers together with 2025 Note Hedges, the “Note Hedges”) with respect to our common stock concurrent with the issuance of each series of our convertible senior notes.

The following table presents details of our note hedges (in millions):

	Initial Number of Shares	Aggregate Purchase
2019 Note Hedges	5.2	$ 111.0
2023 Note Hedges	6.4	$ 332.0
2025 Note Hedges	6.7	$ 370.8

Upon the settlement of the 2019 Notes, we exercised the corresponding portion of our 2019 Note Hedges during the year ended July 31, 2019 and received shares of our common stock that fully offset the shares issued in excess of the principal amount of the converted 2019 Notes. The 2019 Note Hedges expired upon maturity of the 2019 Notes.

The Note Hedges cover shares of our common stock at a strike price per share that corresponds to the initial applicable conversion price of the applicable series of Notes, which are also subject to adjustment, and are exercisable upon conversion of the applicable series of the Notes. The Note Hedges will expire upon maturity of the applicable series of Notes. The Note Hedges are separate transactions and are not part of the terms of the applicable series of the Notes. Holders of the Notes of either series will not have any rights with respect to the Note Hedges. Any shares of our common stock receivable by us under the Note Hedges are excluded from the calculation of diluted earnings per share as they are antidilutive. The aggregate amounts paid for the Note Hedges are included in additional paid-in capital in our consolidated balance sheets.

Warrants

Separately, but concurrently with the issuance of each series of our convertible senior notes, we entered into transactions whereby we sold warrants (the “2019 Warrants,” with respect to the 2019 Notes, the “2023 Warrants,” with respect to the 2023 Notes, the “2025 Warrants,” with respect to the 2025 Notes and the 2023 Warrants together with the 2025 Warrants, the “Warrants”) to acquire shares of our common stock, subject to anti-dilution adjustments. The 2019 Warrants were exercisable as of October 2019, and the 2023 Warrants and 2025 Warrants are exercisable beginning October 2023 and September 2025, respectively.

The following table presents details of all our warrants (in millions, except per share data):

	Initial Number of Shares	Strike Price per Share	Aggregate Proceeds
2019 Warrants	5.2	$ 137.85	$ 78.3
2023 Warrants	6.4	$ 417.80	$ 145.4
2025 Warrants	6.7	$ 408.47	$ 202.8

During the year ended July 31, 2020, we net settled all 2019 Warrants with 2.0 million shares or $462.0 million in fair value of our common stock. The number of net shares issued was determined based on the number of 2019 Warrants exercised multiplied by the difference between the strike price of the 2019 Warrants and their daily volume weighted-average stock price.

The shares issuable under the Warrants will be included in the calculation of diluted earnings per share when the average market value per share of our common stock for the reporting period exceeds the applicable strike price for such series of Warrants. The Warrants are separate transactions and are not part of either series of Notes or Note Hedges and are not remeasured through earnings each reporting period. Holders of the Notes of either series will not have any rights with respect to the Warrants. The aggregate proceeds received from the sale of the Warrants are included in additional paid-in capital in our consolidated balance sheets.

Revolving Credit Facility

On September 4, 2018, we entered into a credit agreement (the “Credit Agreement”) with certain institutional lenders that provides for a $400.0 million unsecured revolving credit facility (the “Credit Facility”), with an option to increase the amount of the Credit Facility by up to an additional $350.0 million, subject to certain conditions. The Credit Facility matures on the earlier of (i) September 4, 2023 and (ii) the date that is 91 days prior to the stated maturity of our 2023 Notes if (a) any of the 2023 Notes are still outstanding and (b) our unrestricted cash and cash equivalents are less than the then outstanding principal amount of our 2023 Notes plus $400.0 million.

The borrowings under the Credit Facility currently bear interest, at our option, at a base rate plus a spread of 0.00% to 0.75%, or an adjusted LIBO rate plus a spread of 1.00% to 1.75%, in each case with such spread being determined based on our leverage ratio. We are obligated to pay an ongoing commitment fee on undrawn amounts at a rate of 0.125% to 0.250%, depending on our leverage ratio. Regulatory authorities that oversee financial markets have announced that after the end of 2021, they would no longer compel banks currently reporting information used to set the LIBO Rate to continue to make rate submissions. As a result, it is possible that beginning in 2022, the LIBO Rate will no longer be available as a reference rate. Under the terms of our Credit Facility, in the event of the discontinuance of the LIBO Rate, a mutually agreed-upon alternative benchmark rate will be established to replace the LIBO Rate, which may include the Secured Overnight Financing Rate ("SOFR"). We do not anticipate that the discontinuance of the LIBO Rate will materially impact our liquidity or financial position.

As of July 31, 2020, there were no amounts outstanding, and we were in compliance with all covenants under the Credit Agreement.

11. Leases

We have entered into various non-cancelable operating leases primarily for our facilities with original lease periods expiring through the year ending July 31, 2028.

In May 2015 and October 2015, we entered into a total of three lease agreements for approximately 941,000 square feet of corporate office space in Santa Clara, California, which serves as our new corporate headquarters. The leases contain rent holiday periods, scheduled rent increases, lease incentives, and renewal options which allow the lease terms to be extended beyond their expiration dates of July 2028 through July 2046. In September 2017, per the terms of the lease agreements, the landlords exercised their option to amend our lease payment schedules and eliminate our rent holiday periods, which increased our rental payments by $24.4 million, $11.8 million, and $2.0 million for fiscal 2018, 2019, and 2020, respectively. In exchange, we received an upfront cash reimbursement of $38.2 million during the three months ended October 31, 2017, which we have applied against the future additional rental payments when due. As amended, rental payments under the three lease agreements are approximately $412.0 million over the lease term.

In May 2015, we also entered into a lease agreement for approximately 122,000 square feet of space in Santa Clara, California to serve as an extension of our previous corporate headquarters. The lease contains scheduled rent increases, lease incentives, and renewal options which allow the lease term to be extended beyond the expiration date of April 2021 through July 2046. Rental payments under the lease agreement are approximately $23.1 million over the lease term. In December 2017, we entered into an agreement to sublease this office space for the remaining lease term. Proceeds from this sublease are approximately $16.3 million over the sublease term.

In September 2012, we entered into two lease agreements for a total of approximately 300,000 square feet of space in Santa Clara, California, which served as our previous corporate headquarters through August 2017, when we relocated to our new corporate campus. The leases contain rent holiday periods and two separate five-year options to extend the lease term beyond their expiration dates of July 2023. Rental payments under these lease agreements are approximately $94.3 million over the lease term. In August 2017, we exited our previous corporate headquarter facilities and relocated to our new corporate campus, which resulted in the recognition of a cease-use loss of $39.2 million during the year ended July 31, 2018. Due to changes in market conditions, and the resulting changes to the amount and timing of estimated cash flows from sublease rentals that could be reasonably obtained, we recognized an additional cease-use loss of $7.0 million as general and administrative expense in our consolidated statements of operations during the year ended July 31, 2019. In December 2019, we terminated these leases prior to their expiration date. The early termination fee is $25.0 million, payable in equal quarterly installments from April 2020 through July 2023. Upon termination, we recorded a decrease of $13.6 million in operating lease liabilities based on the payment schedule of the early termination fee discounted by the incremental borrowing rate for the remaining payment term. We also decreased right-of-use assets by $8.7 million upon surrendering possession of the properties. As a result, during the year ended July 31, 2020, we recorded a gain of $3.1 million net of other related fees of $1.8 million in general and administrative expense in our consolidated statements of operations.

During the year ended July 31, 2020, our net cost for operating leases was $80.4 million and primarily consisted of operating lease costs of $63.5 million, in addition to variable lease costs, short-term lease costs and sublease income. We recognized rent expense of $43.0 million, and $35.2 million for the years ended July 31, 2019, and 2018, respectively prior to our adoption of the new lease guidance.

The following tables present additional information for our operating leases (in millions, except for years and percentages):

	Year Ended July 31, 2020
Operating cash flows used in payments of operating lease liabilities	$ 78.3
Right-of-use assets obtained in exchange for new operating lease liabilities	$ 28.4

	July 31, 2020
Weighted-average remaining lease term	7.0 years
Weighted-average discount rate	3.9 %

The following table presents maturities of operating lease liabilities as of July 31, 2020 (in millions):

	Amount
Fiscal years ending July 31:	
2021	$ 72.2
2022	70.4
2023	62.4
2024	51.6
2025	50.9
2026 and thereafter	145.8
Total operating lease payments	453.3
Less: imputed interest	58.8
Present value of operating lease liabilities	$ 394.5
Current portion of operating lease liabilities[1]	$ 57.9
Long-term operating lease liabilities	$ 336.6

(1) Current portion of operating lease liabilities is included in accrued and other liabilities on our consolidated balance sheet.

12. Commitments and Contingencies

Manufacturing Purchase Commitments

Our EMS provider procures components and assembles our products based on our forecasts. These forecasts are based on estimates of demand for our products primarily for the next 12 months, which are in turn based on historical trends and an analysis from our sales and product management organizations, adjusted for overall market conditions. In order to reduce manufacturing lead times and plan for adequate supply, we may issue non-cancelable orders for products and components to our manufacturing partners or component suppliers. As of July 31, 2020, our purchase commitments under such orders were $108.5 million, excluding obligations under contracts that we can cancel without a significant penalty.

Other Purchase Commitments

We have entered into various non-cancelable agreements with third-party providers for our use of certain cloud and other services, under which we are committed to minimum or fixed purchases through the year ending July 31, 2026. The following table presents details of the aggregate future non-cancelable purchase commitments under these agreements as of July 31, 2020 (in millions):

	Amount
Fiscal years ending July 31:	
2021	$ 48.3
2022	48.3
2023	51.8
2024	67.5
2025	77.5
2026 and thereafter	20.0
Total other purchase commitments	$ 313.4

Mutual Covenant Not to Sue and Release Agreement

In January 2020, we executed a Mutual Covenant Not to Sue and Release Agreement for $50.0 million to extend an existing covenant not to sue for seven years. As the primary benefit of the arrangement was attributable to future use, the amount was recorded in other assets on our consolidated balance sheets and is amortized to cost of product revenue in our consolidated statements of operations over the estimated period of benefit of seven years.

Litigation

We are subject to legal proceedings, claims, and litigation arising in the ordinary course of business, including intellectual property litigation. Such matters are subject to many uncertainties and outcomes are not predictable with assurance. We accrue for contingencies when we believe that a loss is probable and that we can reasonably estimate the amount of any such loss.

To the extent there is a reasonable possibility that a loss exceeding amounts already recognized may be incurred and the amount of such additional loss would be material, we will either disclose the estimated additional loss or state that such an estimate cannot be made. As of July 31, 2020, we have not recorded any significant accruals for loss contingencies associated with such legal proceedings, determined that an unfavorable outcome is probable or reasonably possible, or determined that the amount or range of any possible loss is reasonably estimable.

Indemnification

Under the indemnification provisions of our standard sales related contracts, we agree to defend our end-customers against third-party claims asserting infringement of certain intellectual property rights, which may include patents, copyrights, trademarks, or trade secrets, and to pay judgments entered on such claims. Our exposure under these indemnification provisions is generally limited to payments made to us for the alleged infringing products over the preceding twelve months under the agreement. However, certain agreements include indemnification provisions that could potentially expose us to losses in excess of these payments. In addition, we indemnify our officers, directors, and certain key employees while they are serving in good faith in their company capacities. To date, we have not recorded any accruals for loss contingencies associated with indemnification claims or determined that an unfavorable outcome is probable or reasonably possible.

13. Stockholders' Equity

Share Repurchase Program

In August 2016, our board of directors authorized a $500.0 million share repurchase program and in February 2017 authorized a $500.0 million increase to the repurchase program, bringing the total authorization to $1.0 billion (our "original authorization"). This repurchase program expired on December 31, 2018. In February 2019, our board of directors authorized a new $1.0 billion share repurchase program which is funded from available working capital (our "current authorization"). This repurchase program will expire on December 31, 2020 and may be suspended or discontinued at any time. Repurchases may be made at management's discretion from time to time on the open market, through privately negotiated transactions, transactions structured through investment banking institutions, block purchase techniques, 10b5-1 trading plans, or a combination of the foregoing.

During the years ended July 31, 2019 and 2018, we repurchased and retired 1.9 million shares and 1.7 million shares, respectively, of our common stock under our original authorization for an aggregate purchase price of $330.0 million, and $250.0 million, respectively, including transaction costs. During the fiscal year ended July 31, 2020, we repurchased and retired 0.9 million shares of our common stock under our current authorization for an aggregate purchase price of $198.1 million, including transaction costs. As of July 31, 2020, $801.9 million remained available for future share repurchases under our current repurchase authorization. The total price of the shares repurchased and related transaction costs are reflected as a reduction to common stock and additional paid-in capital on our consolidated balance sheets.

Accelerated Stock Repurchase

In February 2020, our board of directors approved the repurchase of $1.0 billion of our common stock through an accelerated share repurchase ("ASR") transaction with a financial institution. This ASR transaction was in addition to our share repurchase program.

During the fiscal year ended July 31, 2020, we completed the ASR transaction with an aggregate of 5.2 million shares of our common stock repurchased and retired. The total price of the ASR transaction is reflected as a reduction to common stock and additional paid-in capital on our consolidated balance sheet.

14. Equity Award Plans

Share-Based Compensation Plans

2012 Equity Incentive Plan

Our 2012 Equity Incentive Plan (our "2012 Plan") was adopted by our board of directors and approved by the stockholders on June 5, 2012 and was effective one business day prior to the effectiveness of our registration statement for our initial public offering ("IPO"). Our 2012 Plan replaced our 2005 Equity Incentive Plan (our "2005 Plan"), which terminated upon the completion of our IPO, however, awards that were outstanding upon termination remained outstanding pursuant to their original terms. Our 2012 Plan provides for the granting of stock options, restricted stock award ("RSA"), restricted stock unit ("RSU"), stock appreciation rights, performance-based stock units ("PSUs"), performance shares ("PSAs"), and performance stock options ("PSOs") to our employees, directors, and consultants.

Awards granted under our 2012 Plan vest over the periods determined by the board of directors, generally three to four years from the date of grant, and our options expire no more than ten years after the date of grant. Since our IPO in 2012, awards granted under our 2012 Plan consist primarily of RSUs. Until vested, RSUs do not have the voting and dividend participation rights of common stock and the shares underlying the awards are not considered issued and outstanding.

We grant awards with performance conditions (PSAs and PSUs) to certain employees, which vest over a period of one to four years from the date of grant. The actual number of PSAs and PSUs earned and eligible to vest is determined based on the level of achievement against revenue growth, pre-established billings and operating margin goals, or pre-defined individual performance targets for the fiscal year.

We have also granted PSOs with both a market condition and a service condition to certain executives. The market condition requires the price of our common stock to equal or exceed $297.75, $397.00, $496.25, and $595.50 (the "stock price targets") during the four-, five-, six-, and seven-year periods following the date of grant in fiscal year 2018 and 2019, respectively. To the extent that the stock price targets have been met, one-fourth of the PSOs will vest on the anniversary date of the grant date for such PSOs, subject to continued service. All outstanding PSOs may be exercised prior to vesting ("early exercised"). Shares of common stock issued upon early exercise of the PSOs will be restricted and, at our option, subject to repurchase if the option holder ceases to be a service provider. The contractual term of our PSOs is seven to seven and a half years from the date of grant, depending on vesting period. As of July 31, 2020, the market condition for the PSOs has not been met.

We net-share settle equity awards held by certain employees by withholding shares upon vesting to satisfy tax withholding obligations. The shares withheld to satisfy employee tax withholding obligations are returned to our 2012 Plan and will be available for future issuance. Payments for employees' tax obligations to the tax authorities are recognized as a reduction to additional paid-in capital and reflected as financing activities in our consolidated statements of cash flows.

A total of 20.3 million shares of our common stock are reserved for issuance pursuant to our 2012 Plan as of July 31, 2020. This includes shares that are (i) reserved but unissued under our 2005 Plan on the effective date of our 2012 Plan or (ii) returned to our 2005 Plan as a result of expiration or termination of options. On the first day of each fiscal year, the number of shares in the reserve may be increased by the lesser of (i) 8,000,000 shares, (ii) 4.5% of the outstanding shares of common stock on the last day of our immediately preceding fiscal year, or (iii) such other amount as determined by our board of directors.

2012 Employee Stock Purchase Plan

Our 2012 Employee Stock Purchase Plan was adopted by our board of directors and approved by the stockholders on June 5, 2012, and was effective upon completion of our IPO. On August 29, 2017, we amended and restated our 2012 Employee Stock Purchase Plan (our "2012 ESPP") to extend the length of our offering periods from 6 to 24 months.

Our 2012 ESPP permits eligible employees to acquire shares of our common stock at 85% of the lower of the fair market value of our common stock on the first trading day of each offering period or on the purchase date. If the fair market value of our common stock on the purchase date is lower than the first trading day of the offering period, the current offering period will be cancelled after purchase and a new 24-month offering period will begin. Under our 2012 ESPP, each 24-month offering period consists of four consecutive 6-month purchase periods, with purchase dates on the first trading day on or after February 28 and August 31 of each year. Participants may purchase shares of common stock through payroll deductions of up to 15% of their eligible compensation, subject to purchase limits of 625 shares per six-month purchase period and $25,000 worth of stock for each calendar year. During the year ended July 31, 2020, employees purchased 0.6 million shares of common stock under our 2012 ESPP at an average exercise price of $146.90 per share.

A total of 4.3 million shares of our common stock are available for sale under our 2012 ESPP as of July 31, 2020. On the first day of each fiscal year, the number of shares in the reserve may be increased by the lesser of (i) 2,000,000 shares, (ii) 1% of the outstanding shares of our common stock on the first day of the fiscal year, or (iii) such other amount as determined by our board of directors.

Acquisition-related Activities

Assumed Share-based Compensation Plans

In connection with our acquisitions of CloudGenix, Aporeto, and Zingbox during the year ended July 31, 2020, we assumed CloudGenix's 2013 Equity Incentive Plan, Aporeto's Amended and Restated 2015 Stock Option and Grant Plan and Zingbox's Stock Incentive Plan, as amended and restated (together, the "2020 assumed Plans"). The equity awards assumed in connection with each acquisition were granted from their respective assumed plans. The assumed equity awards will be settled in shares of our common stock and will retain the terms and conditions under which they were originally granted. No additional equity awards will be granted under and forfeited awards will not be returned to the 2020 assumed Plans.

In connection with our acquisitions of RedLock, Demisto, and Twistlock during the year ended July 31, 2019, we assumed RedLock's 2015 Stock Plan, as amended, Demisto's 2015 Stock Option Plan, as amended, and Twistlock's 2015 Share Option Plan, as amended and restated (together, the "2019 assumed Plans"). The equity awards assumed in connection with each acquisition were granted from their respective assumed plans. The assumed equity awards will be settled in shares of our common stock and will retain the terms and conditions under which they were originally granted. No additional equity awards will be granted under and forfeited awards will not be returned to the 2019 assumed Plans.

Refer to Note 6. Acquisitions for more information on our acquisitions and the related equity awards assumed.

Restricted Stock Issuances

In connection with our acquisition of Zingbox during the year ended July 31, 2020, we issued a total of 0.1 million shares of restricted common stock as replacement equity awards which are subject to additional time-based vesting requirements and continued service by the award holder.

In connection with our acquisitions of RedLock, Demisto, PureSec, and Twistlock during the year ended July 31, 2019, we issued a total of 0.5 million shares of restricted common stock as replacement equity awards which are subject to additional time-based vesting requirements and continued service by the award holder.

Stock Option Activities

The following table summarizes the stock option and PSO activity under our stock plans during the years ended July 31, 2020, 2019, and 2018 (in millions, except per share amounts):

	Stock Options Outstanding				PSOs Outstanding			
	Number of Shares	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value	Number of Shares	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Balance—July 31, 2017	1.6	$ 13.11	4.2	$ 190.6	—	$ —	0.0	$ —
Granted	—	$ —			1.2	$ 198.50		
Exercised	(0.6)	$ 12.76			—	$ —		
Balance—July 31, 2018	1.0	$ 13.28	3.1	$ 199.8	1.2	$ 198.50	7.0	$ —
Granted	—	$ —			2.6	$ 191.97		
Exercised	(0.7)	$ 12.61			—	$ —		
Forfeited	—	$ 1.24			(0.1)	$ 193.51		
Balance—July 31, 2019	0.3	$ 14.53	2.2	$ 81.4	3.7	$ 193.99	6.2	$ 120.1
Exercised	(0.2)	$ 11.46			—	$ —		
Forfeited	—	$ —			(0.9)	$ 193.51		
Balance—July 31, 2020	0.1	$ 19.59	1.5	$ 34.2	2.8	$ 194.14	5.2	$ 170.9
Exercisable—July 31, 2020	0.1	$ 19.59	1.5	$ 34.2	2.8	$ 194.14	5.2	$ 170.9

The weighted-average grant-date fair value of PSOs granted during the years ended July 31, 2019 and 2018 was $59.11, and $56.14 per share, respectively. The intrinsic value of options exercised during the years ended July 31, 2020, 2019, and 2018 was $50.2 million, $139.5 million and $85.0 million, respectively.

RSA and PSA Activities

The following table summarizes the RSA and PSA activity under our stock plans during the years ended July 31, 2020, 2019, and 2018 (in millions, except per share amounts):

	RSAs Outstanding		PSAs Outstanding	
	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share
Balance—July 31, 2017	0.8	$ 166.86	0.2	$ 148.54
Vested	(0.5)	$ 169.38	0.0	$ 148.54
Forfeited	(0.1)	$ 166.05	(0.1)	$ 148.54
Balance—July 31, 2018	0.2	$ 163.14	0.1	$ 148.54
Vested	(0.2)	$ 166.83	0.0	$ 148.54
Forfeited	0.0	$ 152.09	0.0	$ 148.54
Balance—July 31, 2019	0.0	$ 148.54	0.1	$ 148.54
Vested	0.0	$ 148.54	0.0	$ 148.54
Forfeited	0.0	$ 148.54	0.0	$ 148.54
Balance—July 31, 2020	0.0	$ 148.54	0.1	$ 148.54

The aggregate fair value, as of respective vesting dates, of RSAs vested during the years ended July 31, 2020, 2019, and 2018, was $7.0 million, $41.1 million and $65.0 million, respectively. The aggregate fair value, as of the respective vesting dates, of PSAs vested during the years ended July 31, 2020, 2019, and 2018 was $3.8 million, $4.5 million and $2.5 million, respectively.

RSU and PSU Activities

The following table summarizes the RSU and PSU activity under our stock plans during the years ended July 31, 2020, 2019, and 2018 (in millions, except per share amounts):

	RSUs Outstanding			PSUs Outstanding		
	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share	Aggregate Intrinsic Value	Number of Shares	Weighted-Average Grant-Date Fair Value Per Share	Aggregate Intrinsic Value
Balance—July 31, 2017	6.5	$ 141.16	$ 854.1	—	$ —	$ —
Granted[(1)]	3.9	$ 171.74		0.2	$ 149.73	
Vested	(3.3)	$ 138.93		—	$ —	
Forfeited	(0.6)	$ 144.33		—	$ —	
Balance—July 31, 2018	6.5	$ 160.70	$ 1,291.4	0.2	$ 149.73	$ 43.7
Granted[(1)(2)]	3.9	$ 210.14		0.2	$ 215.64	
Vested[(3)]	(2.7)	$ 160.87		(0.1)	$ 149.73	
Forfeited	(0.8)	$ 162.73		—	$ 155.38	
Balance—July 31, 2019	6.9	$ 188.16	$ 1,554.0	0.3	$ 197.86	$ 67.0
Granted[(2)]	3.5	$ 211.38		0.4	$ 248.55	
Vested[(3)]	(2.8)	$ 181.19		(0.1)	$ 166.90	
Forfeited	(1.0)	$ 188.18		0.0	$ 175.88	
Balance—July 31, 2020	6.6	$ 203.30	$ 1,688.1	0.6	$ 231.42	$ 147.2

(1) For PSUs, shares granted represent the aggregate maximum number of shares that may be earned and issued with respect to these awards over their full terms.

(2) Includes 0.1 million RSUs assumed in connection with the acquisitions of Zingbox, Aporeto and CloudGenix, with weighted-average grant-date fair value of $208.25, $231.30 and $181.48, respectively for the year ended July 31, 2020; and includes 0.4 million RSUs assumed and 0.1 million replacement RSUs granted in connection with the acquisitions of RedLock, Demisto, PureSec, and Twistlock, with weighted-average grant-date fair values of $218.69 and $224.31 per share, respectively for the year ended July 31, 2019.

(3) Includes time-based vesting for PSUs.

The aggregate fair value, as of the respective vesting dates, of RSUs vested during the years ended July 31, 2020, 2019, and 2018 was $615.7 million, $566.4 million, and $546.3 million, respectively. The aggregate fair value, as of the respective vesting dates, of PSUs vested during the year ended July 31, 2020 and 2019 was $11.9 million and $17.2 million.

Shares Available for Grant

The following table presents the stock activity and the total number of shares available for grant under our stock plans as of July 31, 2020 (in millions):

	Number of shares
Balance—July 31, 2019	7.8
Authorized	4.5
PSOs, RSUs, and PSUs granted	(3.9)
Options, PSOs, RSAs, PSAs, RSUs, and PSUs forfeited	2.0
Shares withheld for taxes	0.1
Balance—July 31, 2020	10.5

Share-Based Compensation

We record share-based compensation awards based on estimated fair value as of the grant date. The fair value of RSUs, PSUs, RSAs, and PSAs is based on the closing market price of our common stock on the date of grant.

The fair value of PSOs is estimated on the grant date using a Monte Carlo simulation model, which predicts settlement of the options midway between the vesting term and the contractual term. No new PSOs were granted during the year ended July 31, 2020. The following table summarizes the assumptions used and the resulting grant-date fair values of our PSOs granted during the years ended July 31, 2019 and 2018:

	Year Ended July 31,	
	2019	2018
Volatility	35.6% - 36.5%	33.3 %
Dividend yield	— %	— %
Risk-free interest rate	3.1% - 3.2%	2.9 %
Weighted-average grant-date fair value per share	$ 59.11	$ 56.14

The expected volatility is based on a combination of implied volatility from traded options on our common stock and the historical volatility of our common stock. The dividend yield assumption is based on our current expectations about our anticipated dividend policy. The risk-free interest rate is based on the implied yield available on U.S. Treasury zero-coupon issues with terms equal to the contractual terms of each tranche.

The fair value of shares issued under our 2012 ESPP are estimated on the grant date using the Black-Scholes option pricing model. The following table summarizes the assumptions used and the resulting grant-date fair values of our ESPP:

	Year Ended July 31,		
	2020	2019	2018
Volatility	31.0% - 35.7%	30.0% - 34.5%	26.8% - 43.6%
Expected term (in years)	0.5 - 2.0	0.5 - 2.0	0.5 - 2.0
Dividend yield	— %	— %	— %
Risk-free interest rate	0.9% - 1.9%	2.3% - 2.6%	1.2% - 2.3%
Grant-date fair value per share	$46.75 - $66.47	$55.03 - $87.04	$34.94 - $65.04

The expected volatility is based on a combination of implied volatility from traded options on our common stock and the historical volatility of our common stock. The expected term represents the term from the first day of the offering period to the purchase dates within each offering period. The dividend yield assumption is based on our expectations about our anticipated dividend policy. The risk-free interest rate is based on the implied yield available on U.S. Treasury zero-coupon issues with maturities that approximate the expected term.

The following table summarizes share-based compensation included in costs and expenses (in millions):

	Year Ended July 31,		
	2020	2019	2018
Cost of product revenue	$ 5.7	$ 5.6	$ 7.0
Cost of subscription and support revenue	77.7	71.3	66.7
Research and development	274.6	186.8	145.2
Sales and marketing	214.5	221.9	208.0
General and administrative	92.0	102.1	77.0
Total share-based compensation	$ 664.5	$ 587.7	$ 503.9

During the year ended July 31, 2020, we accelerated the vesting of certain equity awards in connection with our acquisitions of Zingbox, Aporeto and CloudGenix and recorded $1.3 million, $4.4 million and $0.3 million, respectively, and during the year ended July 31, 2019, we accelerated the vesting of certain equity awards in connection with our acquisitions of RedLock and Twistlock and recorded $14.2 million and $5.8 million, respectively, of share-based compensation within general and administrative expense. During the year ended July 31, 2018, we paid $6.6 million in cash to settle certain Evident.io stock options, for which vesting was accelerated in connection with the acquisition and the subsequent termination of the option holders' services. This amount was recorded as post-acquisition share-based compensation included in general and administrative expense.

As of July 31, 2020, total compensation cost related to unvested share-based awards not yet recognized was $1.5 billion. This cost is expected to be amortized over a weighted-average period of approximately 2.5 years. Future grants will increase the amount of compensation expense to be recorded in these periods.

15. Income Taxes

The following table presents the components of income (loss) before income taxes (in millions):

	Year Ended July 31,		
	2020	2019	2018
United States	$ (56.1)	$ (198.1)	$ (181.1)
Foreign	(175.7)	123.5	75.8
Total	$ (231.8)	$ (74.6)	$ (105.3)

The following table summarizes our provision for income taxes (in millions):

	Year Ended July 31,		
	2020	2019	2018
Federal:			
Current	$ 3.8	$ (1.3)	$ (0.6)
Deferred	(1.3)	(11.3)	(3.3)
State:			
Current	1.3	(0.9)	1.6
Deferred	0.1	(3.0)	(1.3)
Foreign:			
Current	39.2	27.5	23.3
Deferred	(7.9)	(3.7)	(2.8)
Total	$ 35.2	$ 7.3	$ 16.9

For the year ended July 31, 2020, our provision for income taxes increased compared to the year ended July 31, 2019, primarily due to an increase in foreign income as a result of increased business operations and withholding taxes from an increase in billings in the relevant jurisdictions. We also had a change in our valuation allowance related to acquisitions completed during fiscal 2019.

For the year ended July 31, 2019, our provision for income taxes decreased compared to the year ended July 31, 2018, primarily due to changes in our valuation allowance related to acquisitions completed during fiscal 2019 and our adoption of accounting guidance requiring the recognition of income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. These decreases were partially offset by an increase in our foreign taxes due to growth in non-U.S. operations.

The following table presents the items accounting for the difference between income taxes computed at the federal statutory income tax rate and our provision for income taxes:

	Year Ended July 31,		
	2020	2019	2018
Federal statutory rate	21.0 %	21.0 %	26.8 %
Effect of:			
State taxes, net of federal tax benefit	3.0	7.9	5.7
Effects of non-U.S. operations	667.5	89.3	19.9
Change in valuation allowance	(714.1)	(196.9)	39.2
Effect of U.S. tax law change	—	0.6	(129.3)
Share-based compensation	(5.1)	44.9	10.6
Amortization of deferred tax charges	—	—	(8.0)
Research credits	17.9	35.0	31.4
Non-deductible expenses	(3.9)	(11.5)	(6.1)
Other, net	(1.5)	(0.1)	(6.2)
Total	(15.2)%	(9.8)%	(16.0)%

In December 2019, we transferred certain intellectual property rights to a wholly owned United Kingdom subsidiary, primarily to align our legal structure to our evolving operations. The tax benefit from an increase in the tax basis of intellectual property rights resulted in an increase in effects of non-U.S. operations and was fully offset by a full valuation.

The following table presents the components of our deferred tax assets and liabilities as of July 31, 2020 and July 31, 2019 (in millions):

	July 31,	
	2020	2019
Deferred tax assets:		
Accruals and reserves	$ 116.5	$ 53.3
Deferred revenue	272.5	212.8
Net operating loss carryforwards	348.0	269.9
Research and development and foreign tax credits	179.6	143.3
Share-based compensation	33.7	25.9
Fixed assets and intangible assets	1,458.8	—
Gross deferred tax assets	2,409.1	705.2
Valuation allowance	(2,240.4)	(561.9)
Total deferred tax assets	168.7	143.3
Deferred tax liabilities:		
Fixed assets and intangible assets	—	(26.0)
Deferred commissions	(130.8)	(94.6)
Other deferred tax liabilities	(28.9)	(15.7)
Total deferred tax liabilities	(159.7)	(136.3)
Net deferred tax assets	$ 9.0	$ 7.0

Our increase in deferred tax assets relating to fixed assets and intangibles is largely due to transferring our intellectual property rights to a wholly owned United Kingdom subsidiary, primarily to align our legal structure to our evolving operations. This resulted in an increase in the tax basis of these intellectual property rights and a corresponding increase in foreign deferred tax assets. As of July 31, 2020, it is not more likely than not that these additional deferred tax assets will be realizable, and therefore, are offset by a full valuation allowance.

A valuation allowance is provided when it is more likely than not that the deferred tax asset will not be realized. Realization of deferred tax assets is dependent upon future taxable income, if any, the amount and timing of which are uncertain. At such time, if it is determined that it is more likely than not that the deferred tax assets are realizable, the valuation allowance will be adjusted. As of July 31, 2020, we have provided a valuation allowance for our federal, state, UK and certain other foreign deferred tax assets that we believe will, more likely than not, be unrealizable. The net valuation allowance increased by $1.7 billion from the year ended July 31, 2019 to the year ended July 31, 2020, primarily due to an increase in intangible tax basis as discussed above.

As of July 31, 2020, we had federal, state, and foreign NOL carryforwards of approximately $1.6 billion, $0.7 billion, and $0.6 billion, respectively, as reported on our tax returns, available to reduce future taxable income, if any. If not utilized, our federal and state NOL carryforwards will expire in various amounts at various dates beginning in the years ending July 31, 2027 and July 31, 2021, respectively. Our foreign NOL will carry forward indefinitely.

As of July 31, 2020, we had federal and state research and development tax credit carryforwards of approximately $116.9 million and $105.7 million, respectively, as reported on our tax returns. If not utilized, the federal credit carryforwards will expire in various amounts at various dates beginning in the year ending July 31, 2026. The state credit will carry forward indefinitely.

As of July 31, 2020, we had foreign tax credit carryforwards of $3.7 million as reported on our tax returns. If not utilized, the foreign tax credit carryforwards will expire in various amounts at various dates beginning in the year ending July 31, 2021.

Utilization of the NOL carryforwards and credits may be subject to a substantial annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended, and similar state provisions. The annual limitation may result in the expiration of NOLs and credits before utilization.

As of July 31, 2020, we had $326.4 million of unrecognized tax benefits, $63.9 million of which would affect income tax expense if recognized, after consideration of our valuation allowance in the United States and other assets. As of July 31, 2019, we had $314.5 million of unrecognized tax benefits, $68.0 million of which would affect income tax expense if recognized, after consideration of our valuation allowance in the United States and other assets. As of July 31, 2020, our federal, state, and foreign returns for the tax years 2009 through the current period remain subject to adjustment due to current and future examinations. Fiscal years outside the normal statute of limitation remain open to audit by tax authorities due to tax attributes generated in earlier years, which have been carried forward and may be audited in subsequent years when utilized. We do not expect the amount of unrecognized tax benefits as of July 31, 2020 to change significantly over the next 12 months. We recognize both interest and penalties associated with uncertain tax positions as a component of income tax expense. During the years ended July 31, 2020, 2019, and 2018, we recognized income tax expense related to interest and penalties of $1.6 million, $2.3 million, and $2.9 million, respectively. We had accrued interest and penalties on our consolidated balance sheets related to unrecognized tax benefits of $12.2 million and $10.6 million as of July 31, 2020 and 2019, respectively. The ultimate amount and timing of any future cash settlements cannot be predicted with reasonable certainty.

The following table presents a reconciliation of the beginning and ending amount of our gross unrecognized tax benefits (in millions):

	Year Ended July 31,		
	2020	2019	2018
Unrecognized tax benefits at the beginning of the period	$ 314.5	$ 337.7	$ 301.3
Additions for tax positions taken in prior years	3.2	0.3	3.1
Reductions for tax positions taken in prior years	(1.6)	(33.4)	(6.3)
Additions for tax positions taken in the current year	10.3	9.9	39.6
Unrecognized tax benefits at the end of the period	$ 326.4	$ 314.5	$ 337.7

During the years ended July 31, 2020 and July 31, 2019, our additions for tax positions taken in the given year were primarily attributable to intercompany transactions.

During the year ended July 31, 2018, our additions for tax positions taken in the current year were primarily attributable to uncertain tax positions related to federal and state research and development credits, withholding taxes, and intercompany transactions.

As of July 31, 2020, we had no unremitted earnings when evaluating our outside basis difference relating to our U.S. investment in foreign subsidiaries. However, there could be local withholding taxes payable due to various foreign countries if certain lower tier earnings are distributed. Withholding taxes that would be payable upon remittance of these lower tier earnings are not material.

16. Net Loss Per Share

Basic net loss per share is computed by dividing net loss by basic weighted-average shares outstanding during the period. Diluted net loss per share is computed by dividing net loss by diluted weighted-average shares outstanding, including potentially dilutive securities.

The following table presents the computation of basic and diluted net loss per share of common stock (in millions, except per share data):

	Year Ended July 31,		
	2020	2019	2018
Net loss	$ (267.0)	$ (81.9)	$ (122.2)
Weighted-average shares used to compute net loss per share, basic and diluted	96.9	94.5	91.7
Net loss per share, basic and diluted	$ (2.76)	$ (0.87)	$ (1.33)

The following securities were excluded from the computation of diluted net loss per share of common stock for the periods presented as their effect would have been antidilutive (in millions):

	Year Ended July 31,		
	2020	2019	2018
Convertible senior notes	13.1	6.4	11.6
Warrants related to the issuance of convertible senior notes	13.1	11.6	11.6
RSUs and PSUs	7.2	7.2	6.7
Options to purchase common stock, including PSOs	2.9	4.0	2.2
RSAs and PSAs	0.1	0.1	0.3
ESPP shares	0.3	0.2	0.2
Total	36.7	29.5	32.6

17. Other Income, Net

The following table sets forth the components of other income, net (in millions):

	Year Ended July 31,		
	2020	2019	2018
Interest income	$ 41.4	$ 69.8	$ 27.1
Foreign currency exchange gains (losses), net	(6.7)	(3.5)	1.7
Other	1.2	(2.9)	(0.3)
Total other income, net	$ 35.9	$ 63.4	$ 28.5

18. Employee Benefit Plan

We have established a 401(k) tax-deferred savings plan which permits participants to make contributions by salary deduction pursuant to Section 401(k) of the Internal Revenue Code. We make matching contributions based upon the amount of employees' contributions, subject to certain limitations. Our matching contributions to the plan were immaterial for the years ended July 31, 2020, 2019, and 2018.

19. Segment Information

We conduct business globally and are primarily managed on a geographic theater basis. Our chief operating decision maker reviews financial information presented on a consolidated basis accompanied by information about revenue by geographic region for purposes of allocating resources and evaluating financial performance. We have one business activity and there are no segment managers who are held accountable for operations, operating results, and plans for levels, components, or types of products or services below the consolidated unit level. Accordingly, we are considered to be in a single reportable segment and operating unit structure.

The following table presents our long-lived assets, which consist of property and equipment, net and operating lease right-of-use assets, by geographic region (in millions):

	Year Ended July 31, 2020	Year Ended July 31, 2019
Long-lived assets:		
United States	$ 502.3	$ 240.5
International	104.5	55.5
Total long-lived assets	$ 606.8	$ 296.0

Refer to Note 2. Revenue for revenue by geographic theater and revenue for groups of similar products and services for the years ended July 31, 2020, 2019, and 2018.

20. Selected Quarterly Financial Data (Unaudited)

The following tables set forth selected unaudited quarterly financial data for the years ended July 31, 2020 and 2019 (in millions, except per share amounts):

	Three Months Ended October 31, 2019	January 31, 2020	April 30, 2020	July 31, 2020
Revenue:				
Product	$ 231.2	$ 246.5	$ 280.9	$ 305.6
Subscription and support	540.7	570.2	588.5	644.8
Total revenue	771.9	816.7	869.4	950.4
Cost of revenue:				
Product	65.1	68.7	73.3	87.3
Subscription and support	152.6	164.4	185.0	203.1
Total cost of revenue	217.7	233.1	258.3	290.4
Total gross profit	554.2	583.6	611.1	660.0
Operating expenses:				
Research and development	170.5	185.4	196.3	215.9
Sales and marketing	365.7	374.9	388.4	391.2
General and administrative	69.8	76.2	82.9	70.7
Total operating expenses	606.0	636.5	667.6	677.8
Operating loss	(51.8)	(52.9)	(56.5)	(17.8)
Interest expense	(18.9)	(19.0)	(19.4)	(31.4)
Other income, net	16.2	10.8	8.1	0.8
Loss before income taxes	(54.5)	(61.1)	(67.8)	(48.4)
Provision for income taxes	5.1	12.6	7.0	10.5
Net loss	$ (59.6)	$ (73.7)	$ (74.8)	$ (58.9)
Net loss per share, basic and diluted	$ (0.62)	$ (0.75)	$ (0.77)	$ (0.61)

	Three Months Ended			
	October 31, 2018	January 31, 2019	April 30, 2019	July 31, 2019
Revenue:				
Product	$ 240.5	$ 271.6	$ 278.4	$ 305.7
Subscription and support	415.5	439.6	448.2	500.1
Total revenue	656.0	711.2	726.6	805.8
Cost of revenue:				
Product	73.2	82.5	78.0	82.2
Subscription and support	110.3	120.1	126.9	135.2
Total cost of revenue	183.5	202.6	204.9	217.4
Total gross profit	472.5	508.6	521.7	588.4
Operating expenses:				
Research and development	113.4	128.3	139.1	158.7
Sales and marketing	314.6	320.0	339.0	370.4
General and administrative	76.6	53.7	62.3	69.2
Total operating expenses	504.6	502.0	540.4	598.3
Operating income (loss)	(32.1)	6.6	(18.7)	(9.9)
Interest expense	(22.7)	(20.6)	(20.6)	(20.0)
Other income, net	13.0	16.0	18.2	16.2
Income (loss) before income taxes	(41.8)	2.0	(21.1)	(13.7)
Provision for (benefit from) income taxes	(3.5)	4.6	(0.9)	7.1
Net loss	$ (38.3)	$ (2.6)	$ (20.2)	$ (20.8)
Net loss per share, basic and diluted	$ (0.41)	$ (0.03)	$ (0.21)	$ (0.22)

21. Related Party Transactions

Certain members of our board of directors are affiliated with Greylock Partners (“Greylock”), a venture capital firm. Entities affiliated with Greylock owned a portion of the outstanding shares of Demisto immediately prior to completion of our acquisition of Demisto on March 28, 2019 and, as a result, received purchase consideration valued at $85.6 million during the year ended July 31, 2019. Refer to Note 6. Acquisitions for more information on our acquisition of Demisto.

22. Subsequent Event

Business Combination

In August 2020, we entered into a definitive agreement to acquire The Crypsis Group, an incident response, risk management and digital forensics consulting firm, in exchange for total consideration of $265.0 million in cash, subject to adjustments. We expect the acquisition will expand our capabilities and strengthen our Cortex strategy. The acquisition is expected to close during our first quarter of fiscal 2021, subject to regulatory approvals and other customary closing conditions.

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

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Based on our evaluation, our chief executive officer and chief financial officer concluded that, as of July 31, 2020, our disclosure controls and procedures are designed at a reasonable assurance level and are effective to provide reasonable assurance that information we are required to disclose 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 (“SEC”) rules and forms, and that such information is accumulated and communicated to our management, including our chief executive officer and chief financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Management’s Annual Report on Internal Control over Financial Reporting

For “Management’s Annual Report on Internal Control Over Financial Reporting” see the report under Part II, Item 8 of this Annual Report on Form 10-K, which report is incorporated herein by reference.

For the “Report of Independent Registered Public Accounting Firm,” see the report under Part II, Item 8 of this Annual Report on Form 10-K, which report is incorporated herein by reference.

Changes in Internal Control over Financial Reporting

As a result of COVID-19, most of our workforce has been working from home since March 2020. However there were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended July 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item will be contained in our definitive proxy statement to be filed with the SEC in connection with our 2020 annual meeting of stockholders (the "Proxy Statement"), which is expected to be filed not later than 120 days after the end of our fiscal year ended July 31, 2020, and is incorporated in this report by reference.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

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

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

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

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item will be set forth in the Proxy Statement and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

Documents filed as part of this Annual Report on Form 10-K are as follows:

1. Consolidated Financial Statements

   Our Consolidated Financial Statements are listed in the "Index to Consolidated Financial Statements" under Part II, Item 8 of this Annual Report on Form 10-K.

2. Financial Statement Schedules

   Financial statement schedules have been omitted because they are not required, not applicable, not present in amounts sufficient to require submission of the schedule, or the required information is shown in the Consolidated Financial Statements or the notes thereto.

3. Exhibits

   The following documents are incorporated by reference or are filed with this Annual Report on Form 10-K, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference			
		Form	File No.	Exhibit	Filing Date
3.1	Restated Certificate of Incorporation of the Registrant.	10-K	001-35594	3.1	October 4, 2012
3.2	Amended and Restated Bylaws of the Registrant.	10-Q	001-35594	3.2	February 25, 2020
3.3	Certificate of Change of Location of Registered Agent and/or Registered Office.	8-K	001-35594	3.1	August 30, 2016
4.1	Indenture between the Registrant and U.S. Bank National Association, dated as of July 12, 2018.	8-K	001-35594	4.1	July 13, 2018
4.2	Indenture between the Registrant and U.S. Bank National Association, dated as of June 8, 2020.	8-K	001-35594	4.1	June 8, 2020
4.3	Form of Global 0.75% Convertible Senior Note due 2023 (included in Exhibit 4.1).	8-K	001-35594	4.2	July 13, 2018
4.4	Form of Global 0.375% Convertible Senior Note due 2023 (included in Exhibit 4.2).	8-K	001-35594	4.2	June 8, 2020
4.5	Description of Registrant's Securities.				
10.1*	Form of Indemnification Agreement between the Registrant and its directors and officers.	S-1/A	333-180620	10.1	July 9, 2012
10.2*	2005 Equity Incentive Plan and related form agreements under 2005 Equity Incentive Plan.	S-1/A	333-180620	10.2	July 9, 2012
10.3*	2012 Equity Incentive Plan and related form agreements under 2012 Equity Incentive Plan, as amended.	10-Q	001-35594	10.2	November 26, 2019
10.4*	2012 Employee Stock Purchase Plan and related form agreements under 2012 Employee Stock Purchase Plan, as amended and restated.	10-K	001-35594	10.4	September 7, 2017
10.5*	RedLock Inc. 2015 Stock Plan, as amended, and related form agreements under RedLock Inc. 2015 Stock Plan, as amended.	S-8	333-227901	99.1	October 19, 2018
10.6*	Demisto, Inc. 2015 Stock Option Plan, as amended.	S-8	333-230663	99.1	April 1, 2019
10.7*	Twistlock Ltd. Amended and Restated 2015 Share Option Plan.	S-8	333-232672	99.1	July 16, 2019
10.8*	Zingbox, Inc. Stock Incentive Plan, as amended and restated.	S-8	333-234059	99.1	October 2, 2019

Exhibit Number	Exhibit Description	Incorporated by Reference			
		Form	File No.	Exhibit	Filing Date
10.9*	Aporeto, Inc. Amended and Restated 2015 Stock Option and Grant Plan.	S-8	333-235854	99.1	January 8, 2020
10.10*	CloudGenix Inc. 2013 Equity Incentive Plan.	S-8	333-238014	99.1	May 5, 2020
10.11*	Employee Incentive Compensation Plan, as amended and restated.	10-Q	001-35594	10.2	November 25, 2014
10.12*	Clawback Policy, adopted as of August 29, 2017.	10-Q	001-35594	10.3	November 21, 2017
10.13*	Executive Incentive Plan effective December 8, 2017.	10-Q	001-35594	10.2	February 27, 2018
10.14*	Letter Agreement between the Registrant and Nir Zuk, dated December 19, 2011.	S-1	333-180620	10.8	April 6, 2012
10.15*	Offer Letter between the Registrant and Mary Pat McCarthy, dated October 13, 2016.	8-K	001-35594	10.1	October 24, 2016
10.16*	Offer Letter between the Registrant and Jean Compeau, dated February 22, 2018.	8-K	001-35594	10.1	February 26, 2018
10.17*	New Offer Letter between the Registrant and Mark D. McLaughlin, dated May 31, 2018.	8-K	001-35594	10.1	June 4, 2018
10.18*	Offer Letter between the Registrant and Nikesh Arora, dated May 30, 2018.	8-K	001-35594	10.2	June 4, 2018
10.19*	Offer Letter between the Registrant and Amit K. Singh, dated October 11, 2018.	8-K	001-35594	10.1	October 15, 2018
10.20*	Confirmatory Employment Letter between the Registrant and Lee Klarich, dated December 19, 2011.	10-Q	001-35594	10.4	November 30, 2018
10.21*	Offer Letter between the Registrant and Lorraine Twohill, dated April 10, 2019.	8-K	001-35594	10.1	April 15, 2019
10.22*	Offer Letter between the Registrant and Rt Hon Sir John Key, dated April 10, 2019.	8-K	001-35594	10.2	April 15, 2019
10.23*	Offer Letter between the Registrant and Luis Felipe Visoso, dated June 19, 2020.	8-K	001-35594	10.1	June 23, 2020
10.24*	Offer Letter between the Registrant and John Donovan, dated September 14, 2012.	8-K	001-35594	10.1	September 20, 2012
10.25*	Offer Letter between the Registrant and Daniel J. Warmenhoven, dated February 14, 2012.	S-1	333-180620	10.13	April 6, 2012
10.26*	Offer Letter between the Registrant and Carl Eschenbach, dated May 9, 2013.	8-K	001-35594	10.1	May 30, 2013
10.27**	Amended and Restated Flextronics Manufacturing Services Agreement, by and between the Registrant and Flextronics Telecom Systems Ltd., dated April 1, 2019.	10-Q	001-35594	10.1	May 30, 2019
10.28	Settlement, Release and Cross-License Agreement, dated May 27, 2014, by and between the Registrant and Juniper Networks, Inc.	8-K	001-35594	10.1	May 28, 2014
10.29	Purchase Agreement, dated July 10, 2018, by and among the Registrant and Citigroup Global Markets Inc. and Wells Fargo Securities, LLC, as representatives of the several Initial Purchasers named therein.	8-K	001-35594	10.1	July 13, 2018
10.30	Form of Convertible Note Hedge Confirmation.	8-K	001-35594	10.2	July 13, 2018
10.31	Form of Warrant Confirmation.	8-K	001-35594	10.3	July 13, 2018

Exhibit Number	Exhibit Description	Incorporated by Reference			
		Form	File No.	Exhibit	Filing Date
10.32	Purchase Agreement, dated June 3, 2020, by and among the Registrant and Morgan Stanley & Co. LLC and Citigroup Global Markets Inc., as representatives of the several Initial Purchasers named therein.	8-K	001-35594	10.1	June 8, 2020
10.33	Form of Convertible Note Hedge Confirmation.	8-K	001-35594	10.2	June 8, 2020
10.34	Form of Warrant Confirmation.	8-K	001-35594	10.3	June 8, 2020
10.35	Lease between the Registrant and Santa Clara Campus Property Owner I LLC, dated May 28, 2015.	10-K	001-35594	10.29	September 17, 2015
10.36	Lease between the Registrant and Santa Clara Campus Property Owner I LLC, dated May 28, 2015.	10-K	001-35594	10.30	September 17, 2015
10.37	Lease between the Registrant and Santa Clara Campus Property Owner I LLC, dated May 28, 2015.	10-K	001-35594	10.31	September 17, 2015
10.38	Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated October 7, 2015.	8-K	001-35594	10.1	October 19, 2015
10.39	Amendment No. 1 to Lease by and between the Registrant and Santa Clara Phase I Property LLC, dated November 9, 2015.	10-Q	001-35594	10.2	November 24, 2015
10.40	Amendment No. 1 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated November 9, 2015.	10-Q	001-35594	10.3	November 24, 2015
10.41	Amendment No. 1 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated September 16, 2016.	10-Q	001-35594	10.1	November 22, 2016
10.42	Amendment No. 1 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated September 16, 2016.	10-Q	001-35594	10.2	November 22, 2016
10.43	Amendment No. 2 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated September 16, 2016.	10-Q	001-35594	10.3	November 22, 2016
10.44	Amendment No. 2 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated November 16, 2016.	10-Q	001-35594	10.1	March 1, 2017
10.45	Amendment No. 2 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated November 16, 2016.	10-Q	001-35594	10.2	March 1, 2017
10.46	Amendment No. 3 to Lease by and between the Registrant and Santa Clara Campus Property Owner I LLC, dated November 16, 2016.	10-Q	001-35594	10.3	March 1, 2017
10.47	Amendment No. 3 to Lease by and between the Registrant and Santa Clara EFH LLC, dated June 22, 2017.	10-K	001-35594	10.40	September 7, 2017
10.48	Amendment No. 3 to Lease by and between the Registrant and Santa Clara G LLC, dated June 22, 2017.	10-K	001-35594	10.41	September 7, 2017
10.49	Amendment No. 4 to Lease by and between the Registrant and Santa Clara EFH LLC, dated June 22, 2017.	10-K	001-35594	10.42	September 7, 2017
10.50	Amendment No. 4 to Lease by and between the Registrant and Santa Clara Phase III EFH LLC, dated September 29, 2017.	10-Q	001-35594	10.5	November 21, 2017

Exhibit Number	Exhibit Description	Incorporated by Reference Form	File No.	Exhibit	Filing Date
10.51	Amendment No. 4 to Lease by and between the Registrant and Santa Clara Phase III G LLC, dated September 29, 2017.	10-Q	001-35594	10.6	November 21, 2017
10.52	Amendment No. 5 to Lease by and between the Registrant and Santa Clara Phase III EFH LLC, dated September 29, 2017.	10-Q	001-35594	10.7	November 21, 2017
10.53	Credit Agreement, dated as of September 4, 2018, by and among the Registrant, the lenders from time to time party thereto and Citibank, N.A., as administrative agent.	8-K	001-35594	10.1	September 6, 2018
10.54	Lease Termination Agreement (4301 Great America Parkway, Santa Clara, California).	8-K	001-35594	10.1	December 19, 2019
10.55	Lease Termination Agreement (4401 Great America Parkway, Santa Clara, California)	8-K	001-35594	10.2	December 19, 2019
10.56	Fixed Dollar Accelerated Share Repurchase Transaction Confirmation, dated February 26, 2020 between Palo Alto Networks, Inc. and Morgan Stanley & Co. LLC	10-Q	001-35594	10.1	May 22, 2020
21.1	List of subsidiaries of the Registrant.				
23.1	Consent of Independent Registered Public Accounting Firm.				
24.1	Power of Attorney (contained in the signature page to this Annual Report on Form 10-K).				
31.1	Certification of the Chief Executive Officer pursuant to Section 302(a) of the Sarbanes-Oxley Act of 2002.				
31.2	Certification of the Chief Financial Officer pursuant to Section 302(a) of the Sarbanes-Oxley Act of 2002.				
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.				
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.				
101.INS	XBRL Instance Document.				
101.SCH	XBRL Taxonomy Schema Linkbase Document.				
101.CAL	XBRL Taxonomy Calculation Linkbase Document.				
101.DEF	XBRL Taxonomy Definition Linkbase Document.				
101.LAB	XBRL Taxonomy Labels Linkbase Document.				
101.PRE	XBRL Taxonomy Presentation Linkbase Document.				
104	***Cover Page Interactive Data File*** (formatted as inline XBRL and contained in Exhibit 101)				

* Indicates a management contract or compensatory plan or arrangement.

** Certain portions of this exhibit have been omitted as the Registrant has determined (i) the omitted information is not material and (ii) the omitted information would likely cause harm to the Registrant if publicly disclosed.

† The certifications attached as Exhibit 32.1 and Exhibit 32.2 that accompany this Annual Report on Form 10-K, are not deemed filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Annual Report on Form 10-K, irrespective of any general incorporation language contained in such filing.

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, on September 4, 2020.

PALO ALTO NETWORKS, INC.

By: /s/ NIKESH ARORA

Nikesh Arora

Chairman and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL THESE PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Nikesh Arora, Luis Felipe Visoso, and Jean Compeau, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their, his or her substitutes, may lawfully do or cause to be done by virtue thereof.

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/ NIKESH ARORA Nikesh Arora	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	September 4, 2020
/s/ LUIS FELIPE VISOSO Luis Felipe Visoso	Chief Financial Officer (Principal Financial Officer)	September 4, 2020
/s/ JEAN COMPEAU Jean Compeau	Chief Accounting Officer (Principal Accounting Officer)	September 4, 2020
/s/ MARK D. MCLAUGHLIN Mark D. McLaughlin	Vice Chairman and Director	September 4, 2020
/s/ NIR ZUK Nir Zuk	Chief Technical Officer and Director	September 4, 2020
/s/ ASHEEM CHANDNA Asheem Chandna	Director	September 4, 2020
/s/ JOHN M. DONOVAN John M. Donovan	Director	September 4, 2020
/s/ CARL ESCHENBACH Carl Eschenbach	Director	September 4, 2020
/s/ JAMES J. GOETZ James J. Goetz	Director	September 4, 2020
/s/ RT HON SIR JOHN KEY Rt Hon Sir John Key	Director	September 4, 2020
/s/ MARY PAT MCCARTHY Mary Pat McCarthy	Director	September 4, 2020
/s/ LORRAINE TWOHILL Lorraine Twohill	Director	September 4, 2020
/s/ DANIEL J. WARMENHOVEN Daniel J. Warmenhoven	Director	September 4, 2020

Exhibit 4.5

DESCRIPTION OF REGISTRANT'S SECURITIES

The following is a summary of information concerning the capital stock of Palo Alto Networks, Inc. (the "Company," "we," "us" or "our") and certain provisions of our restated certificate of incorporation ("COI") and amended and restated bylaws ("Bylaws") as they are currently in effect. This summary does not purport to be complete and does not contain all the information that may be important to you. This summary is qualified in its entirety by the provisions of our COI and Bylaws, each previously filed with the Securities and Exchange Commission and incorporated by reference as an exhibit to the Annual Report on Form 10-K, of which this Exhibit 4.5 is a part, as well as the applicable provisions of the Delaware General Corporate Law (the "DGCL"). We encourage you to read our COI, Bylaws, and to the applicable provisions of the DGCL carefully.

General

Our authorized capital stock consists of 1,100,000,000 shares, with a par value of $0.0001 per share, of which 1,000,000,000 shares are designated as common stock and 100,000,000 shares are designated as preferred stock.

Common stock

The holders of our common stock are entitled to one vote per share in any election of directors and on all matters submitted to a vote of our stockholders and do not have cumulative voting rights. Accordingly, holders of a majority of the shares of our common stock entitled to vote in any election of directors may elect all of the directors standing for election. Subject to preferences that may be applicable to any preferred stock outstanding at the time, the holders of outstanding shares of common stock are entitled to receive ratably any dividends declared by our board of directors out of assets legally available. Upon our liquidation, dissolution, or winding up, holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preference of any then outstanding shares of preferred stock. Holders of common stock have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock.

Preferred stock

Our board of directors is authorized, without further action by our stockholders, to issue from time to time up to an aggregate of 100,000,000 shares of preferred stock in one or more series and to designate the rights, preferences, privileges, and restrictions of the preferred stock, including dividend rights, conversion rights, voting rights, redemption rights, liquidation preference, sinking fund terms, and the number of shares constituting any series or the designation of any series, any or all of which may be greater than the rights of common stock.

Anti-takeover effects of the COI, Bylaws and Delaware law

Our COI and Bylaws contain certain provisions that could have the effect of delaying, deferring or discouraging another party from acquiring control of the Company. These provisions and certain provisions of Delaware law, which are summarized below, could discourage takeovers, coercive or otherwise. These provisions are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us.

Undesignated preferred stock. As discussed above, our board of directors has the ability to designate and issue preferred stock with voting or other rights or preferences that could deter hostile takeovers or delay changes in our control or management.

Limits on the ability of stockholders to act by written consent or call a special meeting. Our COI provides that our stockholders may not act by written consent, which may lengthen the amount of time required to take stockholder actions. As a result, the holders of a majority of our capital stock would not be able to amend our COI or Bylaws or remove directors without holding a meeting of stockholders called in accordance with our Bylaws.

In addition, our COI and Bylaws provide that special meetings of the stockholders may be called only by chairman of our board of directors, the chief executive officer, the president (in the absence of a chief executive officer), or our board of directors. A stockholder may not call a special meeting, which may delay the ability of our stockholders to force consideration of a proposal or for holders controlling a majority of our capital stock to take any action, including the removal of directors. Our board of directors may, at any time prior to the holding of a meeting of stockholders and for any reasonable reason, postpone or cancel such meeting.

Requirements for advance notification of stockholder nominations and proposals. Our COI and Bylaws contain advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee of the board of directors. Under our Bylaws, eligible stockholders may nominate persons for our board of directors for inclusion in our proxy statement. To be eligible, a single stockholder, or group of up to 20 stockholders, must own 3% of our outstanding stock continuously from at least three years prior to such nomination through the date of our relevant annual meeting. The individual stockholder, or group of stockholders, may submit that number of director nominations not exceeding the greater of (a) two or (b) 20% of the number of directors in office. Any such nomination must comply with the requirements set forth in our Bylaws. These advance notice procedures may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed and may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempt to obtain control of our company.

Board classification. Our board of directors is divided into three classes. The directors in each class serve for a three-year term, one class being elected each year by our stockholders. This system of electing and removing directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

No cumulative voting. The Delaware General Corporation Law provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless the certificate of incorporation provides otherwise. Our COI and Bylaws do not expressly provide for cumulative voting. Without cumulative voting, a minority stockholder may not be able to gain as many seats on our board of directors as the stockholder would be able to gain if cumulative voting were permitted. The absence of cumulative voting makes it more difficult for a minority stockholder to gain a seat on our board of directors to influence our board of directors' decision regarding a takeover.

Delaware anti-takeover statute. We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging, under certain circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, our board of directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

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

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our board of directors does not approve in advance. We also anticipate that Section 203 may discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is ComputerShare Trust Company, N.A. The transfer agent's address is 250 Royall Street, Canton, Massachusetts 02021, and its telephone number is (877) 373-6374.

Exchange Listing

Our common stock is listed on the New York Stock Exchange under the symbol "PANW."

Exhibit 21.1

LIST OF SUBSIDIARIES
OF
PALO ALTO NETWORKS, INC.

Name of Subsidiary	Jurisdiction of Incorporation
Palo Alto Networks (Australia) Pty Ltd	Australia
Evident.io Pty. Ltd.	Australia
Palo Alto Networks (Austria) GmbH	Austria
Palo Alto Networks Belgium B.V.B.A.	Belgium
Palo Alto Networks (Brasil) Ltda.	Brazil
Palo Alto Networks (Canada Technology), Inc.	Canada
Palo Alto Networks (Canada) Inc.	Canada
PA Networks Costa Rica LLC SRL	Costa Rica
Palo Alto Networks (Czech) S.R.O.	Czechia
Palo Alto Networks Denmark ApS	Denmark
Palo Alto Networks (Finland) Oy	Finland
Palo Alto Networks (Germany) GmbH	Germany
Palo Alto Networks (India) Private Limited	India
Palo Alto Networks (India) Technologies Private Limited	India
CGNX Networks Private Limited	India
Palo Alto Security Limited	Ireland
Palo Alto Networks (Israel Analytics) Ltd.	Israel
Palo Alto Networks (Israel Services) Ltd.	Israel
Palo Alto Networks (Israel) Ltd. (f/k/a Cyvera)	Israel
Twistlock Ltd.	Israel
Palo Alto Networks (Italy) S.R.L	Italy
Palo Alto Networks K.K. (Kabushiki Kaisha)	Japan
Zingbox Japan G.K.	Japan
Palo Alto Networks (Mexico) S. de R.L. de C.V.	Mexico
Palo Alto Networks (New Zealand) Unlimited	New Zealand
Palo Alto Networks (Norway) AS	Norway
Palo Alto Networks (Poland) sp. z o.o.	Poland
Palo Alto Networks (QFC) LLC	Qatar
Palo Alto Networks (Rus) LLC	Russia
Palo Alto Networks Korea, Ltd. - Yuhan Hoesa (YH)	S. Korea
Palo Alto Networks Saudi Arabia LLC	Saudi Arabia
Palo Alto Networks (Singapore) Holding Company Pte. Ltd.	Singapore
Palo Alto Networks (Singapore) PTE. LTD.	Singapore
Palo Alto Networks (Iberia), S.L.	Spain
Palo Alto Networks (Switzerland) GmbH	Switzerland
LightCyber B.V.	The Netherlands
Palo Alto Networks (EU) B.V.	The Netherlands
Palo Alto Networks (GEO) B.V.	The Netherlands
Palo Alto Networks (Netherlands) B.V.	The Netherlands
Palo Alto Networks (APAC Holdings) B.V.	The Netherlands
Palo Alto Networks Holdings B.V.	The Netherlands
Palo Alto Networks FZ LLC	United Arab Emirates
Palo Alto Networks (UK Holding 1) Limited	United Kingdom
Palo Alto Networks (UK Holding 2) Limited	United Kingdom
Palo Alto Networks (UK) Limited	United Kingdom
Demisto (UK) Limited	United Kingdom
Twistlock Europe Limited	United Kingdom
3375 Scott Blvd LLC	Delaware

Aporeto, Inc.	Delaware
Evident.io, Inc.	Delaware
LightCyber, Inc.	Delaware
Palo Alto Networks (Malaysia), LLC	Delaware
Palo Alto Networks Financial Services, LLC	Delaware
Palo Alto Networks International, Inc.	Delaware
Palo Alto Networks Management, LLC	Delaware
Palo Alto Networks Public Sector, LLC	Delaware
Palo Alto Networks Venture Fund, LLC	Delaware
Palo Alto Networks, L.L.C.	Delaware
PAN Demisto LLC	Delaware
PAN II LLC	Delaware
PAN LLC	Delaware
PureSec, Inc.	Delaware
RedLock, Inc.	Delaware
SecDo, Inc.	Delaware
Twistlock, Inc.	Delaware
Zingbox, Inc.	Delaware
Xseer, Inc.	Delaware
CloudGenix, Inc.	Delaware

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. 333-227324) of Palo Alto Networks, Inc.,
(2) Registration Statement (Form S-8 No. 333-182762) pertaining to the 2005 Equity Incentive Plan, 2012 Equity Incentive Plan and the 2012 Employee Stock Purchase Plan of Palo Alto Networks, Inc.,
(3) Registration Statements (Form S-8 No. 333-191340, 333-198859, 333-207003, 333-213547, 333-220383, 333-227322, and 333-233689) pertaining to the 2012 Equity Incentive Plan and the 2012 Employee Stock Purchase Plan of Palo Alto Networks, Inc.,
(4) Registration Statement (Form S-8 No. 333-227901) pertaining to the RedLock Inc. 2015 Stock Plan,
(5) Registration Statement (Form S-8 No. 333-230663) pertaining to the Demisto, Inc. 2015 Stock Option Plan,
(6) Registration Statement (Form S-8 No. 333-232672) pertaining to the Twistlock Ltd. Amended and Restated 2015 Share Option Plan,
(7) Registration Statement (Form S-8 No. 333-234059) pertaining to the Zingbox, Inc. Stock Incentive Plan,
(8) Registration Statement (Form S-8 No. 333-235854) pertaining to the Aporeto, Inc. Amended and Restated 2015 Stock Option and Grant Plan, and
(9) Registration Statement (Form S-8 No. 333-238014) pertaining to the CloudGenix Inc. 2013 Equity Incentive Plan;

of our reports dated September 4, 2020, with respect to the consolidated financial statements of Palo Alto Networks, Inc. and the effectiveness of internal control over financial reporting of Palo Alto Networks, Inc. included in this Annual Report (Form 10-K) of Palo Alto Networks, Inc. for the year ended July 31, 2020.

/s/ Ernst & Young LLP

San Jose, California
September 4, 2020

Exhibit 31.1

**CERTIFICATION PURSUANT TO SECTION 302(a)
OF THE SARBANES-OXLEY ACT OF 2002**

I, Nikesh Arora, certify that:

1. I have reviewed this Annual Report on Form 10-K of Palo Alto 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 and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

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

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

/s/ NIKESH ARORA

Nikesh Arora
Chief Executive Officer and Director

Date: September 4, 2020

Exhibit 31.2

**CERTIFICATION PURSUANT TO SECTION 302(a)
OF THE SARBANES-OXLEY ACT OF 2002**

I, Luis Felipe Visoso, certify that:

1. I have reviewed this Annual Report on Form 10-K of Palo Alto 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 and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

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

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

/s/ LUIS FELIPE VISOSO

Luis Felipe Visoso
Chief Financial Officer

Date: September 4, 2020

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, Nikesh Arora, 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 on Form 10-K of Palo Alto Networks, Inc. for the fiscal year ended July 31, 2020, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, 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 Palo Alto Networks, Inc.

/s/ NIKESH ARORA
Nikesh Arora
Chief Executive Officer and Director

Date: September 4, 2020

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, Luis Felipe Visoso, 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 on Form 10-K of Palo Alto Networks, Inc. for the fiscal year ended July 31, 2020, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, 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 Palo Alto Networks, Inc.

/s/ LUIS FELIPE VISOSO

Luis Felipe Visoso
Chief Financial Officer

Date: September 4, 2020