UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

☒ **Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the fiscal year ended December 31, 2023
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 001-38600

TENABLE HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**47-5580846**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

6100 Merriweather Drive, Columbia, Maryland 21044
(Address of principal executive offices, including zip code)
(410) 872-0555
(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 exchange on which registered**
Common stock, par value $0.01 per share	TENB	Nasdaq Global Select Market

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

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

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

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. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

As of June 30, 2023, the aggregate market value of the common stock of the registrant held by non-affiliates was approximately $5.0 billion.

The number of shares of the Registrant's common stock outstanding as of February 23, 2024 was 118,119,887.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement relating to the 2024 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the year ended December 31, 2023.

TENABLE HOLDINGS, INC.
TABLE OF CONTENTS

PART I

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 that involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Statements that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. In some cases, you can identify forward-looking statements by the words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “objective,” “ongoing,” “plan,” “predict,” “project,” “potential,” “should,” “will,” or “would,” or the negative of these terms, or other comparable terminology intended to identify statements about the future. These forward-looking statements include, but are not limited to, statements concerning the following:

- the anticipated impact of the global economic uncertainty and financial market conditions on our business, results of operations and financial condition, including on our sales and our revenue growth rate;
- our market opportunity;
- the effects of increased competition as well as innovations by new and existing competitors in our market;
- our ability to adapt to technological change, release new products and product features and effectively enhance, innovate and scale our enterprise platform and solutions;
- our ability to effectively manage or sustain our growth and to achieve profitability;
- our ability to maintain and expand our customer base, including by attracting new customers;
- our relationships with third parties, including channel partners;
- completed and potential acquisitions and integration of complementary businesses and technologies;
- our ability to maintain, or strengthen awareness of, our brand;
- perceived or actual problems with the security, integrity, reliability, compatibility and quality of our platform and solutions;
- future revenue, hiring plans, expenses, capital expenditures, capital requirements and stock performance;
- our ability to attract and retain qualified employees and key personnel and further expand our overall headcount;
- our ability to stay abreast of new or modified laws and regulations that currently apply or become applicable to our business both in the United States and internationally;
- our ability to maintain, protect and enhance our intellectual property;
- costs associated with defending intellectual property infringement and other claims; and
- the future trading prices of our common stock and the impact of securities analysts’ reports on these prices.

These statements represent the beliefs and assumptions of our management based on information currently available to us. Such forward-looking statements are subject to risks, uncertainties and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to those discussed in the section titled “Risk Factors” included under Part I, Item 1A. You should not rely upon forward-looking statements as predictions of future events. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances that occur after the date of this report.

Item 1. Business

Overview

We are a leading provider of exposure management solutions. Exposure management is an effective discipline for measuring, comparing and reducing cybersecurity risk in today's complex IT environments.

Organizations around the globe are accelerating their adoption of public and private cloud infrastructure, introducing internet-facing applications and embracing new identity management systems. The rapid adoption of these and other digital technologies is expanding the modern attack surface.

For most organizations, the modern attack surface includes:

- Complex and dynamic multi-cloud environments, which organizations are rapidly adopting even as they face a shortage of cloud security expertise;
- Identity and access management systems used to control machine identities, APIs and user privileges, which are vulnerable to misconfigurations that can open up attack pathways within an organization;
- An assortment of operational technology, or OT — such as industrial control systems, or ICS, and supervisory control and data acquisition, or SCADA, systems — which is increasingly internet-facing and is often linked to existing IT systems;
- Personal devices, including mobile phones and tablets, internet of things, or IoT, devices and other types of “shadow IT” used by employees, often without the knowledge of the IT and security teams; and
- Virtual machines, microservices, open-source code repositories, containers and other tools used by DevOps teams.

The complexity of the modern attack surface is a key driver behind the growing need for exposure management programs. Security teams are overwhelmed with the constant influx of data from the array of point solutions they are using to manage cloud assets, interconnected vulnerabilities, web applications, and identity systems. They are also challenged with effectively analyzing all that data to make informed, proactive decisions about which exposures represent the greatest risk to the organization.

The combination of all these factors presents cybersecurity teams with obstacles that reach beyond the scope of existing point tools. We see three distinct real-world challenges facing cybersecurity professionals that can be addressed with an exposure management program:

- Security programs today are reactive when they should be proactive;
- The attack surface isn’t siloed, but security programs often are; and
- There’s more data available than ever before, yet it’s difficult for security professionals to prioritize and apply the information in meaningful ways.

An exposure management program, underpinned by a technology platform such as our Tenable One Exposure Management Platform, or Tenable One, can help address these real-world problems. Successfully implemented, an exposure management platform allows organizations to:

- Gain comprehensive visibility across the modern attack surface;
- Anticipate threats and prioritize efforts to prevent attacks; and
- Communicate cyber risk to make better decisions.

In order to be effective, an exposure management platform must extend beyond traditional vulnerability management, which concentrates on the discovery and remediation of publicly disclosed Common Vulnerabilities and Exposures, or CVEs. The platform must include information about configuration issues, vulnerabilities and attack paths across a spectrum of assets and technologies — including cloud configurations and deployments, identity solutions, such as Active Directory; and web applications.

With these considerations in mind, we launched Tenable One in October 2022. Tenable One unifies a variety of data sources into a single exposure view to help organizations gain visibility, prioritize efforts and communicate cyber risks. Building on our existing products, Tenable One is designed to take advantage of the integrations that already exist with our partners and form the foundation of an exposure management program, alongside the other tools, such as endpoint detection and response, or EDR, and firewalls, and required business processes.

In 2023, 2022 and 2021 our total revenue was $798.7 million, $683.2 million and $541.1 million, respectively, representing year-over-year growth rates of 17% from 2022 to 2023 and 26% from 2021 to 2022. Our net loss was $78.3

million, $92.2 million and $46.7 million in 2023, 2022 and 2021, respectively. Our cash flows from operating activities were $149.9 million, $131.2 million and $96.8 million in 2023, 2022 and 2021, respectively.

Our Solutions

With Tenable One, organizations can translate technical data about assets, vulnerabilities and threats into clear business insights and actionable intelligence for security executives and practitioners. The platform combines the broad, industry leading, vulnerability coverage, spanning IT assets, cloud resources, containers, web apps and identity systems. Tenable One builds on the speed and breadth of vulnerability coverage from our research team of cybersecurity and data science experts, or Tenable Research, and adds aggregated exposure view analytics, guidance on mitigating attack pathways and a centralized asset inventory. Tenable One leverages artificial intelligence, or AI, and machine learning, or ML, to rapidly analyze and interpret vast data sets, deliver rapid prioritization of exposures and assets and the likelihood of exploit, deliver recommendations, and automates routine tasks and streamlines workflows. AI and ML improves vulnerability prioritization and the ability to accurately gauge the risk posed by identities and entitlements across cloud and on-premise environments.

Tenable One incorporates these Tenable products:

- **Tenable Vulnerability Management**: our cloud-delivered software-as-a-service, or SaaS, vulnerability management offering that provides organizations with a risk-based view of traditional and modern attack surfaces. Tenable Vulnerability Management is designed with views, workflows and dashboards to deliver a complete and continuous view of all assets, both known and previously unknown, and any associated vulnerabilities, internal and regulatory compliance violations, misconfigurations and other cybersecurity issues, prioritize these issues for remediation based on risk assessment and predictive analytics, and provide insightful remediation guidance.
- **Tenable Cloud Security**: Built on innovative cloud-native application protection platform (CNAPP) technology, and leading cloud infrastructure entitlement management (CIEM) acquired with Ermetic in October 2023, Tenable Cloud Security enables security teams to continuously assess the security posture of their cloud environments by maintaining a current view of cloud assets and identities to minimize exposure and enforce a least privilege approach at scale. Tenable Cloud Security provides cloud security teams the tools they need to apply security and compliance policies, prioritize security gaps and remediate risks that matter most across multi-cloud environments.
- **Tenable Identity Exposure**: our solution to secure Active Directory environments by enabling users to find and fix existing weaknesses before they are exploited and detect and respond to ongoing attacks in real time without the need to deploy agents or use privileged accounts.
- **Tenable Web App Scanning**: our easy-to-use, comprehensive and automated Vulnerability Scanning for modern web applications, which allows organizations to quickly configure and manage web app scans, enabling them to identify vulnerabilities and prioritize remediation.
- **Tenable Lumin Exposure View**: our measurement tool, which leverages our expansive knowledge base of assets and vulnerabilities coupled with data science insights, to help our customers objectively score, trend and benchmark cyber risk across their organizations, including by business unit or geography, for comparison and best practices. We believe this capability is critical to help security executives effectively translate technical information and communicate cybersecurity risk to a non-technical audience, including the C-suite and the board of directors, to enable them to make better strategic decisions on where to focus investment to maximize cybersecurity risk reduction.
- **Tenable Attack Surface Management**: our External Attack Surface Management solution continuously maps the internet, enabling security teams to discover connections to internet-facing assets so they can assess the cybersecurity posture of their entire external attack surface.
- **Tenable Security Center**: our on-premises Vulnerability Management offering that provides a risk-based view of an organization’s IT, security and compliance posture so organizations can quickly identify, investigate and prioritize their assets and vulnerabilities based on risk assessment and predictive analytics, and provide insightful remediation guidance.

- **Tenable OT Security**: our Operational Technology Security solution that provides threat detection, asset tracking, vulnerability management, and configuration control capabilities to protect OT environments, including industrial networks.

All of the above products, now available in Tenable One, continue to be offered as standalone solutions.

In addition, our **Nessus** product line is one of the most widely deployed vulnerability assessment solutions in the cybersecurity industry and underpins our enterprise platform. Since the introduction of Nessus in 1998, we have built and nurtured an extensive community of Nessus users. We continue to cultivate knowledge and affinity within this user base, which, when combined with our enterprise customers and Tenable Research, creates powerful network effects in the form of a continuous feedback loop of data and insights. We use these learnings to expand our assessment capabilities and coverage, continually optimize our solutions and inform our product strategy and innovation priorities. We believe these data and insights will also fuel and strengthen our benchmarking capabilities over time.

Nessus Expert adds Web App scanning capabilities, Infrastructure as Code, or IaC, scanning along with external attack surface discovery capabilities to identify all domains and subdomains that make up an organization’s external-facing attack surface. Nessus Expert enables users to programmatically detect cloud infrastructure misconfigurations and vulnerabilities in the design and build phases of the software development lifecycle and continuously discover and inventory an organization's internet-facing assets from an attacker's perspective.

Our Technology Ecosystem

We have partnered and/or integrated with market leading technology companies to pioneer the industry’s first exposure management ecosystem to help organizations build resilient cybersecurity programs. Our ecosystem consists of a variety of third-party data import sources integrated into our platform offerings, as well as export of our data out to third-party IT systems. Our technology ecosystem connects disparate solutions and data to automate processes and accelerate an organization’s ability to understand, manage and reduce its cyber risk.

We integrate a variety of third-party data sources, including ticketing, configuration management databases, or CMDBs, and systems management, into our platform to augment our native data collection and help with analysis and remediation prioritization. Furthermore, our data is exported out to enrich third-party IT management and security systems.

Our Growth Strategy

Our objectives are to expand our market leadership in exposure management and to scale our business by capturing our large market opportunities in cloud identity and OT, while expanding our operating and free cash flow margins. To accomplish these objectives, we intend to:

- ***Continue to acquire new enterprise platform customers.*** We believe there is a substantial opportunity to increase adoption of our enterprise platform offerings. We have experienced growth in new enterprise platform customers due to improved product capabilities and investments in sales and marketing. We intend to continue to aggressively pursue new domestic and international customers by adding sales capacity and leveraging our network of channel partnerships around the world.
- ***Expand asset coverage within our customer base***. We believe we have a significant opportunity to expand our relationships with our existing customers by targeting additional teams, business units or geographies, pursuing broad enterprise deployments and generally expanding our coverage of their network-connected assets and cross-selling new applications and solutions.
- ***Invest in our technology platform***. We intend to continue to innovate, develop and broaden our exposure and traditional vulnerability management solutions, including expanding the coverage of emerging attack surfaces and asset types and the addition of analytical capabilities, to help our customers measure and manage their cyber exposure. As we collect more data and ingest more data from third-party sources, we believe our data set will become even more valuable over time, which will allow us to continue to develop new analytical products and capabilities to our existing product suite over time.

- ***Explore acquisition opportunities***. We intend to acquire other businesses, technology and/or development personnel that will expand and enhance the functionality of our platform offerings.

Customers

We sell and market our enterprise platform offerings through our sales force that works closely with our channel partners, which includes a network of distributors and resellers, in developing sales opportunities. We use a two-tiered channel model whereby we sell our enterprise platform offerings to our distributors, which in turn sell to our resellers, which then sell to end users, which we call customers.

Our customers are located in over 170 countries and include organizations of all sizes and span a wide range of industries, including manufacturing, energy and industrials; technology, media and telecommunications; banking, insurance and finance; government, education and non-profit; healthcare; and retail and consumer.

At December 31, 2023, we had approximately 44,000 customers. At December 31, 2023 our customers included approximately 65% of the Fortune 500 and approximately 50% of the Global 2000 and large government agencies. In 2023, 2022 and 2021, no single customer represented more than 2% of our revenue.

Sales and Marketing

Our sales strategy employs both a direct-touch approach through our sales force and a low-touch approach through sales closed by our channel partners and on our e-commerce website. Both direct-touch and channel-originated sales are fulfilled through our channel partnerships. Our sales and customer success renewal teams collaborate closely with our channel partners to prospect, manage and support our customers, developing and maintaining close relationships with all of our enterprise platform customers.

We sell to organizations of all sizes across a broad range of industries, with a specific focus on enterprise accounts. Our sales team is divided by customer size and geography, including the Americas; Europe, the Middle East and Africa, or EMEA; and Asia Pacific and Japan.

Our partner ecosystem provides us with a number of advantages, including increased in-bound registered sales leads, broader geographic reach and greater deal velocity. Our channel partners include distributors, value-added resellers, system integrators and managed security service providers.

Our marketing efforts focus on cultivating brand awareness and leveraging our track record of innovation in exposure management to expand into new markets. We are focused on building demand across all segments with a specific emphasis on our enterprise customers and delivering tailored marketing programs for security executives, functional managers, security practitioners, managed service providers and consultants. Our marketing efforts are also designed to create a broad community and establish the Tenable brand as a trusted resource of credible educational information. We provide a variety of educational resources for cybersecurity practitioners and leaders, as well as cloud security teams, DevOps teams, OT practitioners and identity and access management practitioners, including a community forum where customers can ask questions of our experts and their peers. We execute marketing programs targeted at new customer acquisition, customer retention and cross-selling and up-selling of products across our platform.

Research and Development

We continue to invest substantial resources in research and development to enhance our platform offerings by developing new features, functionality, and applications. Our engineering expertise combines extensive security product development experience with individuals who possess deep cloud and user interface design backgrounds.

Our Tenable Research team is staffed by cybersecurity, cloud and data science experts who deliver exposure management intelligence, data science insights, alerts and security advisories. Our Tenable Research Team has developed AI-based research tools to help improve efficiency and effectiveness in processes such as reverse engineering, code debugging, web app security and visibility into cloud-based tools. Frequent updates from Tenable Research ensure the latest vulnerability checks, zero-day research, and configuration benchmarks are available within our exposure management solutions.

We believe ongoing and timely development of new products and features is imperative to maintaining our competitive position. We continue to invest in development of our solutions across our global research and development team.

Backlog

We define backlog as contractually committed orders to be invoiced under our existing agreements that are not included in deferred revenue on our consolidated balance sheets. We expect the amount of backlog to change from period to period due to the timing of billings for our solutions and professional services. At December 31, 2023 and 2022, we had backlog of $23.4 million and $14.7 million, respectively. We expect the majority of the backlog at December 31, 2023 to be invoiced within the following 12 months.

Competition

The market for cybersecurity solutions is fragmented, intensely competitive and constantly evolving. We compete with a range of established and emerging cybersecurity software and services vendors, as well as homegrown solutions. With the introduction of new technologies and market entrants, we expect the competitive environment to remain intense going forward. Our competitors include: vulnerability management and assessment vendors, including Qualys and Rapid7; diversified security software and services vendors; endpoint security vendors with vulnerability assessment capabilities, including CrowdStrike; public cloud vendors and companies, such as Palo Alto Networks and Wiz, that offer solutions for cloud security (private, public and hybrid cloud); and providers of point solutions that compete with some of the features present in our solutions. Many organizations also choose to build their own solutions in-house, often using open-source code rather than purchasing external solutions, and we compete against these internally-developed efforts as well.

We believe that the principal competitive factors affecting the market for cybersecurity solutions include product functionality, breadth and depth of offerings, flexibility of delivery models, ease of deployment and use, integration capabilities such as open APIs and scalability, uptime and performance. We believe that our suite of solutions generally competes favorably with respect to these factors and may serve as a complement to the solutions offered by our competitors in some cases. Some of our more established actual and potential competitors have greater name recognition, longer operating histories, more established customer relationships, larger marketing budgets and significantly greater resources than we do. In addition, as our market grows and rapidly changes, we expect it will continue to attract new competitors, including companies that are larger and more established than us and smaller emerging companies, which could introduce new products and services.

Intellectual Property

Our success depends in part upon our ability to protect our core technology and intellectual property. We rely on a combination of trade secrets, copyrights, patents and trademarks, as well as contractual protections, to establish and protect our intellectual property rights and protect our proprietary technology.

At December 31, 2023, we had 38 issued patents and 21 patent applications pending in the United States. Our issued patents expire between 2027 and 2042 and cover our network scanning, monitoring and analysis technologies and additional features of our platform offerings. At December 31, 2023, we had 20 registered trademarks in the United States. We view our copyrights, trade secrets and know-how as a significant component of our intellectual property assets.

We also license certain software from third parties for integration into our solutions, including open source software and other software available on commercially reasonable terms. We cannot assure you that such third parties will maintain such software or continue to make it available.

We control 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, customers and partners, and our software is protected by U.S. and international copyright and trade secret laws. Despite our efforts to protect our trade secrets and proprietary rights through intellectual property rights, licenses and confidentiality and invention assignment agreements, unauthorized parties may still attempt to copy, reverse engineer, misappropriate or otherwise obtain and use our software and technology. In addition, we intend to continue to expand our international operations, and effective patent, copyright, trademark and trade secret protection may not be available or may be limited in foreign countries.

Government Regulation

Various federal, state and foreign legislative and regulatory bodies have legislation pending that could affect our business.

In the ordinary course of our business, we process personal information. Accordingly, we are, or may become, subject to numerous data privacy and security obligations, including federal, state, local, and foreign laws, regulations, guidance, and industry standards related to data privacy and security. Such obligations may include, without limitation, the Federal Trade Commission Act, the California Consumer Privacy Act of 2018, or the CCPA, the Colorado Privacy Act, Virginia's Consumer Data Protection Act, the Connecticut Privacy Act, the Utah Consumer Privacy Act, the European Union's General Data Protection Regulation 2016/679, or EU GDPR, the EU GDPR as it forms part of the United Kingdom law by virtue of section 3 of the European Union (Withdrawal) Act of 2018, or UK GDPR, and the ePrivacy Directive.

Like other U.S.-based IT security products, our products are subject to U.S. export control laws and regulations, specifically the Export Administration Regulations, or EAR, U.S. economic and trade sanctions regulations and applicable foreign government import, export and use requirements. These laws prohibit or restrict the export of our products and services to certain countries, regions, governments, entities or persons subject to trade restrictions. For more information on the potential impacts of government regulations affecting our business, see "Risk Factors" included under Part I, Item 1A.

Human Capital

At December 31, 2023, we had 1,999 employees, including 898 employees located outside of the United States. None of our U.S. employees are represented by a labor union or covered by a collective bargaining agreement. Certain international employees are subject to collective bargaining agreements in connection with local labor laws. We have not experienced any work stoppages, and we consider our relations with our employees to be good.

We believe in upholding a core set of values for our entire global workforce:

- ***One Tenable***: We work together and we win together. We are part of one Tenable team - employees, customers, partners and other stakeholders.
- ***Deliver Results:*** We set high goals, take bold risks, measure honestly and deliver results that exceed expectations.
- ***We Care***: We are committed to our work, our customers, our colleagues and our communities. We speak candidly and we always do the right thing.
- ***What We Do Matters***: The work that we do makes a difference in the world.

Our key human capital objectives are to attract, retain, engage, reward and develop our highly talented existing and future employees, while cultivating a diverse and inclusive workforce and culture to achieve exceptional business results. We strive to be a career destination where employees from all backgrounds are welcome and empowered, are treated with fairness and respect, can make a difference, and have the opportunity to grow.

Compensation, Benefits and Talent Development

We provide robust compensation and benefits packages to attract and retain our employees. We aim to incentivize our employees by aligning a portion of their compensation with the overall success of our business. In addition to base salary, our total rewards packages include annual bonuses, equity awards, an employee stock purchase plan, retirement plans, and health and wellness benefits. Equity awards of restricted stock units that vest over time are granted to new hires and to most employees on an annual basis. Eligible employees can participate in our employee stock purchase plan, in which employees may contribute a percentage of their compensation to purchase shares of our common stock at a discount. Our health and wellness benefits include medical and life insurance, paid time off, family leave, and employee assistance programs. We are committed to a structured hybrid workplace strategy which both allows flexibility and recognizes the value of in-person collaboration and community.

We promote and support employee development and organizational effectiveness by providing high-quality learning and development programs as well as tuition assistance programs. These programs are designed to meet individual, team and organizational needs and objectives, enabling our workforce to grow professionally and increase their impact to the business.

Diversity and Inclusion

We seek to cultivate a diverse and inclusive workforce and environment to achieve exceptional business results. When we value and celebrate differences, we drive more innovation and grow closer to our customers, partners, and communities. We strive to be a career destination where employees from all backgrounds are welcomed, treated with fairness and respect, empowered to make a difference, and provided opportunities to grow.

We undertake numerous efforts to increase diversity in our employee population and to foster a culture of fairness and belonging through a number of measures in our recruiting, engagement, retention, and outreach practices. Our dedicated Diversity & Inclusion Council and Employee Resource Groups – along with our committed leaders and managers – strive to attract and hire employees who bring broad diversity of background, thought and style into the company and foster a sense of inclusion to make them want to stay. To support these initiatives, we build partnerships within our communities to support organizations and events that strive for greater representation of women and underrepresented minorities in cybersecurity, hold inclusion training and offer targeted development opportunities to assist with career advancement.

Environmental Stewardship

We care deeply about the places where we live and work. Our Board and management team recognize that we have a role to play in environmental stewardship. We believe that environmentally responsible operating practices are important to generating value for our stockholders, being a good partner with our customers and being a good employer to our employees.

Our energy consumption and usage within data centers is an important component of our day-to-day operations of our business. We outsource our data center needs to Amazon Web Services, or AWS. AWS, in addition to carefully choosing data center locations to mitigate environmental risk, has a long-term commitment to use 100% renewable energy. Aside from data center needs, greenhouse gas emissions and water and energy usage are not material factors in the day-to-day operations of our business. However, we believe that we can still play a part through environmentally sound practices.

Tenable headquarters is a LEED Certified Gold for Core Construction. In addition, we have taken the following actions to enable environmental stewardship:

- Implemented recycling in our offices;
- Offer biodegradable to-go boxes to reduce food waste;
- Have a strict policy for disposing of hardware; and
- Transitioned to a travel portal that provides detail on our carbon footprint.

Tenable and our employees have donated time and money to important environmental causes, such as healthy waterways and other clean-up efforts, recycling, carbon footprint mitigation and protection of threatened wildlife.

Financial Information and Segments

See Note 1 and Note 13 to our consolidated financial statements in this Annual Report on Form 10-K for segment and geographical information.

Corporate Information

Tenable Network Security, Inc., our predecessor, was incorporated under the laws of the State of Delaware in 2002. Tenable Holdings, Inc. was incorporated in Delaware in October 2015. In November 2015, Tenable Network Security, Inc. was merged into a wholly owned subsidiary and in 2017 was renamed as Tenable, Inc.

Our principal executive offices are located at 6100 Merriweather Drive, Columbia, Maryland 21044. Our telephone number is (410) 872-0555. Our website address is www.tenable.com. The information contained on, or that can be accessed through, our website is not incorporated by reference, and you should not consider any information contained on, or that can be accessed through, our website as part of this Annual Report on Form 10-K.

"Tenable," "Nessus," the Tenable logo and other trademarks or service marks of Tenable Holdings, Inc. appearing in this Annual Report on Form 10-K are the property of Tenable Holdings, Inc. This Annual Report on Form 10-K contains additional trade names, trademarks and service marks of others, which are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this Annual Report on Form 10-K may appear without the ® or TM symbols.

Available Information

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, Proxy Statement, and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Exchange Act, are available for download free of charge from our investor relations website https://investors.tenable.com after we file them with the Securities and Exchange Commission, or the SEC. The SEC's website https://www.sec.gov contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

The contents of any website referred to in this Form 10-K are not intended to be incorporated into this Annual Report on Form 10-K or in any other report or document we file with the SEC.

Item 1A. Risk Factors

Our operations and financial results are subject to significant risks and uncertainties including those described below. You should carefully consider the risks and uncertainties described below, in addition to other information contained in this Annual Report on Form 10-K, including our consolidated financial statements and related notes. 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, may also become important factors that adversely affect our business. If any of the following risks or others not specified below materialize, our business, financial condition and results of operations could be materially and adversely affected.

Selected Risks Affecting Our Business

Our business is subject to a number of risks of which you should be aware before making a decision to invest in our common stock. These risks are more fully described in this "Risk Factors" section, including the following:

- We have a history of losses and may not achieve or maintain profitability in the future.
- We face intense competition. If we do not continue to innovate and offer solutions that address the dynamic cybersecurity landscape, we may not remain competitive.
- We may not be able to sustain our revenue growth rate in the future.
- We may not be able to scale our business quickly enough to meet our customers' growing needs.
- Our brand, reputation and ability to attract, retain and serve our customers are dependent in part upon the reliability and accuracy of our data, solutions, infrastructure and those of third parties upon which we rely. If our information technology systems or data, or those of third parties upon which we rely, are or were compromised, or if our solutions fail to detect vulnerabilities or incorrectly detect vulnerabilities, or if they contain undetected errors or defects, we could experience adverse consequences, including but not limited to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse consequences.

- Our future quarterly results of operations are likely to fluctuate significantly due to a wide range of factors, which makes our future results difficult to predict.
- Our business and results of operations depend substantially on our customers renewing their subscriptions with us and expanding the number of IT assets or IP addresses under their subscriptions. Any decline in our customer renewals, terminations or failure to convince our customers to expand their use of subscription offerings would harm our business, results of operations, and financial condition.
- We rely on third parties to maintain and operate certain elements of our network infrastructure.
- We are subject to stringent and changing laws, regulations, rules, contractual obligations, policies, and other obligations related to data privacy and security. Our failure or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse business consequences.
- We rely on our third-party channel partner network of distributors and resellers to generate a substantial amount of our revenue.
- We rely on the performance of highly skilled personnel, including senior management and our engineering, professional services, sales and technology professionals, and our ability to increase our customer base will depend to a significant extent on our ability to expand our sales and marketing operations.

Risks Related to Our Business and Industry

We have a history of losses and may not achieve or maintain profitability in the future.

We have historically incurred net losses, including net losses of $78.3 million, $92.2 million and $46.7 million in 2023, 2022 and 2021, respectively. At December 31, 2023, we had an accumulated deficit of $825.0 million. Because the market for our offerings is highly competitive and rapidly evolving and these solutions have not yet reached widespread adoption, it is difficult for us to predict our future results of operations.

While we have experienced significant revenue growth in recent periods, we are not certain whether or when we will obtain a high enough volume of sales of our offerings to sustain or increase our growth or achieve or maintain profitability in the future. We also expect our costs to increase in future periods, which could negatively affect our future operating results if our revenue does not increase at a greater rate. In particular, we expect to continue to expend substantial financial and other resources on:

- public cloud infrastructure and computing costs;
- research and development related to our offerings, including investments in our research and development team;
- sales and marketing, including a significant expansion of our sales organization, both domestically and internationally;
- continued international expansion of our business; and
- general and administrative expense.

These investments may not result in increased revenue or growth in our business. If we are unable to increase our revenue at a rate sufficient to offset the expected increase in our costs, our business, financial position and results of operations will be harmed and we may not be able to achieve or maintain profitability over the long term. Additionally, we may encounter unforeseen operating expenses, difficulties, complications, delays and other unknown factors that may result in losses in future periods. If our revenue growth does not meet our expectations in future periods, our financial performance may be harmed, and we may not achieve or maintain profitability in the future.

We face intense competition. If we do not continue to innovate and offer solutions that address the dynamic cybersecurity landscape, we may not remain competitive.

The market for cybersecurity solutions is fragmented, intensely competitive and constantly evolving. We compete with a range of established and emerging cybersecurity software and services vendors, as well as homegrown solutions. With the introduction of new technologies and market entrants, we expect the competitive environment to remain intense going forward. Our competitors include: vulnerability management and assessment vendors, including Qualys and Rapid7;

diversified security software and services vendors; endpoint security vendors with nascent vulnerability assessment capabilities, including CrowdStrike; public cloud vendors and companies, such as Palo Alto Networks and Wiz, that offer solutions for cloud security (private, public and hybrid cloud); and providers of point solutions that compete with some of the features present in our solutions. We also compete against internally-developed efforts that often use open source solutions.

Some of our actual and potential competitors have significant advantages over us, such as longer operating histories, significantly greater financial, technical, marketing or other resources, stronger brand and business user recognition, larger intellectual property portfolios, government certifications and broader global distribution and presence. In addition, our industry is evolving rapidly and is becoming increasingly competitive. Companies that are larger and more established than us are focusing on cybersecurity and could directly compete with us. For example, Microsoft has a vulnerability management offering and has continued to acquire security solutions for their cybersecurity platform. Smaller companies could also launch new products and services that we do not offer and that could gain market acceptance quickly.

In addition, some of our larger competitors have substantially broader product offerings and can bundle competing products and services with other software offerings which customers may choose even if individual products have more limited functionality than our solutions. These competitors may also offer their products at a lower price, which could increase pricing pressure on our offerings and cause the average sales price for our offerings to decline. These larger competitors are also often better positioned to withstand any significant reduction in capital spending, and will therefore not be as susceptible to economic downturns. One component of our enterprise platform involves assessing Cyber Exposure in a public cloud environment. We are dependent upon the providers to allow our solutions to access their cloud offerings. If one or more cloud providers elected to offer exclusively their own cloud security product or otherwise eliminate the ability of our solutions to access their cloud on behalf of our customers, our business and financial results could be harmed.

Additionally, the cybersecurity market is characterized by very rapid technological advances, changes in customer requirements, frequent new product introductions and enhancements and evolving industry standards. Our success depends on continued innovation to provide features that make our solutions responsive to the cybersecurity landscape, including the shift to employees working from home or in hybrid environments and the increasing adoption by organizations of cloud or hybrid cloud architectures. Developing new solutions and product enhancements is uncertain, expensive and time-consuming, and there is no assurance that such activities will result in significant cost savings, revenue or other expected benefits. If we spend significant time and effort on research and development and are unable to generate an adequate return on our investment, our business and results of operations may be materially and adversely affected. Further, we may not be able to successfully anticipate or adapt to changing technology or customer requirements or the dynamic threat landscape on a timely basis, or at all, which would impair our ability to execute on our business strategy. Our competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements or new or evolving attacks by, or indicators of compromise that identify, cyber bad actors.

Furthermore, our current and potential competitors may establish cooperative relationships among themselves or with third parties that may further enhance their resources and products and services offerings in the markets we address. In addition, current or potential competitors may be acquired by third parties with greater available resources, which may enable them to adapt more quickly to new technologies and customer needs, devote greater resources to the promotion or sale of their products and services, initiate or withstand substantial price competition, take advantage of other opportunities more readily or develop and expand their product and service offerings more quickly than we do. For all of these reasons, we may not be able to compete successfully against our current or future competitors.

We may not be able to sustain our revenue growth rate in the future.

From 2022 to 2023, our revenue grew from $683.2 million to $798.7 million, representing year over year growth of 17%. This growth was primarily from an increase in subscription revenue. Although we have experienced rapid growth historically and currently have high customer renewal rates, we may not continue to grow as rapidly in the future due to a decline in our renewal rates, failure to attract new customers or other factors. Any success that we may experience in the future will depend in large part on our ability to, among other things:

- maintain and expand our customer base;

- increase revenue from existing customers through increased or broader use of our offerings within their organizations;
- improve the performance and capabilities of our offerings through research and development or the integration of acquired products and capabilities;
- continue to develop and expand our enterprise platform;
- maintain or increase the rate at which customers purchase and renew subscriptions to our enterprise platform offerings;
- continue to successfully expand our business domestically and internationally; and
- successfully compete with other companies.

If we are unable to maintain consistent revenue or revenue growth, including as a result of macroeconomic conditions, our stock price could be volatile, and it may be difficult to achieve and maintain profitability. You should not rely on our revenue for any prior quarterly or annual periods as any indication of our future revenue or revenue growth.

We may be unable to rapidly and efficiently adjust our cost structure in response to significant revenue declines, which could adversely affect our operating results.

Our business and results of operations depend substantially on our customers renewing their subscriptions with us and expanding the number of IT assets or IP addresses under their subscriptions. Any decline in our customer renewals, terminations or failure to convince our customers to expand their use of subscription offerings would harm our business, results of operations, and financial condition.

Our subscription offerings are term-based and a majority of our subscription contracts are for one year in duration. In order for us to maintain or improve our results of operations, it is important that a high percentage of our customers renew their subscriptions with us when the existing subscription term expires, and renew on the same or more favorable terms. Our customers have no obligation to renew their subscriptions, and we may not be able to accurately predict customer renewal rates. In addition, the growth of our business depends in part on our customers expanding their use of subscription offerings and related services. Historically, some of our customers have elected not to renew their subscriptions with us for a variety of reasons, including as a result of changes in their strategic IT priorities, budgets, costs and, in some instances, due to competing solutions. Our retention rate may also decline or fluctuate if our existing customers choose to reduce or delay technology spending in response to economic conditions, including those resulting from exchange rate fluctuations relative to the U.S. dollar that make our products more expensive to existing customers, high rates of inflation and interest rates or concerns of an economic recession in the United States or other major markets, that could lead to decreased spending, as well as a result of a number of other factors, including our customers' satisfaction or dissatisfaction with our software, the increase in the contract value of subscription and support contracts from new customers, the effectiveness of our customer support services, our pricing, the prices of competing products or services, mergers and acquisitions affecting our customer base, global economic conditions, and the other risk factors described in this Annual Report on Form 10-K. We cannot assure you that customers will maintain their agreements with us, renew subscriptions or increase their usage of our software. If our customers do not maintain or renew their subscriptions or renew on less favorable terms, or if we are unable to expand our customers' use of our software, our business, results of operations, and financial condition may be harmed.

We recognize substantially all of our revenue ratably over the term of our subscriptions and, to a lesser extent, perpetual licenses ratably over an expected period of benefit and, as a result, downturns in sales may not be immediately reflected in our operating results.

We recognize substantially all of our revenue ratably over the terms of our subscriptions with customers, which generally occurs over a one-year period and, for our perpetual licenses, over a five-year expected period of benefit. As a result, a substantial portion of the revenue that we report in each period will be derived from the recognition of deferred revenue relating to agreements entered into during previous periods. Consequently, a decline in new sales or renewals in any one period, including as a result of macroeconomic conditions, may not be immediately reflected in our revenue results for that period. This decline, however, would negatively affect our revenue in future periods. Accordingly, the effect of significant downturns in sales and market acceptance of our solutions and potential changes in our rate of renewals may not be fully reflected in our results of operations until future periods. This also makes it difficult for us to rapidly increase our revenue growth through additional sales in any period, as revenue from new customers generally will be recognized over the term of the applicable agreement.

We may not be able to scale our business quickly enough to meet our customers' growing needs.

As usage of our enterprise platform grows, and as customers expand in size or expand the number of IT assets or IP addresses under their subscriptions, we may need to devote additional resources to improving our technology architecture, integrating with third-party systems and maintaining infrastructure performance. In addition, we will need to appropriately scale our sales and marketing headcount, as well as grow our third-party channel partner network, to serve our growing customer base. If we are unable to scale our business appropriately, it could reduce the attractiveness of our solutions to customers, resulting in decreased sales to new customers, lower renewal rates by existing customers or the issuance of service credits or requested refunds, each of which could hurt our revenue growth and our reputation. Even if we are able to upgrade our systems and expand our personnel, any such expansion will be expensive and complex, requiring management time and attention. We could also face inefficiencies or operational failures as a result of our efforts to scale our infrastructure. Moreover, there are inherent risks associated with upgrading, improving and expanding our information technology systems. We cannot be sure that the expansion and improvements to our infrastructure and systems will be fully or effectively implemented on a timely basis, if at all. These efforts may reduce revenue and our margins and adversely impact our financial results.

If our enterprise platform offerings do not interoperate with our customers' network and security infrastructure, including remote devices, or with third-party products, websites or services, our results of operations may be harmed.

Our enterprise platform offerings must interoperate with our customers' existing network and security infrastructure, including remote devices. These complex systems are developed, delivered and maintained by the customer, their employees and a myriad of vendors and service providers. As a result, the components of our customers' infrastructure, including remote devices, have different specifications, rapidly evolve, utilize multiple protocol standards, include multiple versions and generations of products and may be highly customized. We must be able to interoperate and provide our security offerings to customers with highly complex and customized networks, including remote devices, which requires careful planning and execution between our customers, our customer support teams and our channel partners. Further, when new or updated elements of our customers' infrastructure, new usage trends, such as remote and hybrid work, or new industry standards or protocols are introduced, we may have to update or enhance our cloud platform and our other solutions to allow us to continue to provide service to customers. Our competitors or other vendors may refuse to work with us to allow their products to interoperate with our solutions, which could make it difficult for our cloud platform to function properly in customer networks that include these third-party products.

We may not deliver or maintain interoperability quickly or cost-effectively, or at all. These efforts require capital investment and engineering resources. If we fail to maintain compatibility of our cloud platform and our other solutions with our customers' network and security infrastructures, including for remote devices, our customers may not be able to fully utilize our solutions, and we may, among other consequences, lose or fail to increase our market share and experience reduced demand for our services, which would materially harm our business, operating results and financial condition.

Our brand, reputation and ability to attract, retain and serve our customers are dependent in part upon the reliability and accuracy of our data, solutions, infrastructure and those of third parties upon which we rely. If our information technology systems or data, or those of third parties upon which we rely, are or were compromised, or if our solutions fail to detect vulnerabilities or incorrectly detect vulnerabilities, or if they contain undetected errors or defects, we could experience adverse consequences.

In the ordinary course of our business, we collect, store, use, transmit, disclose or otherwise process proprietary, confidential, and sensitive information, including personal data, intellectual property, and trade secrets.

We sell cybersecurity products and, as a result, may be at increased risk of being a target of cyberattacks designed to penetrate our platform or internal systems, to compromise our data, alter or modify our source code, or to otherwise impede the performance of our products. Threats to information systems and data come from a variety of sources. In addition to computer "hackers," threat actors, personnel (such as through theft or misuse), "hacktivists," organized criminal threat actors, sophisticated nation-states and nation-state-supported actors now engage and are expected to continue to engage in cyber-attacks. Nation-state actors and nation-state-supported actors may engage in such attacks for geopolitical reasons and in conjunction with military conflicts and defense activities, including the ongoing conflict between Ukraine and Russia, the ongoing conflict in the Middle East, and rising tensions between China and Taiwan. During times of war and other major conflicts, we, third parties upon which we may rely, and our customers may be vulnerable to a heightened risk of these threats, including retaliatory cyber-attacks that could materially disrupt our systems and operations, supply chain, and ability to produce, sell and distribute our goods and services. We, our customers, and the third parties upon which we rely are subject to a variety of evolving threats, which are prevalent, continue to rise, and increasingly difficult to detect. These threats include but are not limited to: social-engineering attacks (including through deep fakes, which may be increasingly more difficult to identify as fake, and phishing attacks); credential harvesting; malicious code (such as viruses and worms); malware (including as a result of advanced persistent threat intrusions); denial-of-service attacks, credential stuffing; personnel misconduct or error; ransomware attacks; supply-chain attacks; software bugs; server malfunctions; software or hardware failures; loss of data or other information technology assets; adware; telecommunications failures; attacks enhanced or facilitated by artificial intelligence and other similar threats. In particular, ransomware attacks, including those from organized criminal threat actors, nation-states and nation-state supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions, delays, or outages in our operations, loss of data, loss of income, significant extra expenses to restore data or systems, reputational loss and the diversion of funds. To alleviate the financial, operational and reputational impact of a ransomware attack, it may be necessary to make extortion payments, but we may be unable to do so if, for example, applicable laws prohibit such payments.

Additionally, we are incorporated into the supply chain of a large number of companies worldwide and, as a result, if our solutions are compromised, a significant number or, in some instances, all of our customers and their data could be simultaneously affected. The potential liability and associated consequences we could suffer as a result of such a large-scale event could be catastrophic and result in irreparable harm.

The increased prevalence of remote work and use of remote devices has increased risks to our information technology systems and data, as more of our employees utilize network connections, computers and devices outside of our premises or network, including working at home, while in transit and in public locations. Furthermore, future or past business transactions, such as acquisitions or integrations, could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities' systems and technologies. Furthermore, we may discover security issues that were not identified during due diligence of such acquired or integrated entities, and it may be difficult to integrate other companies into our information technology environment and security program.

We rely on third party service providers and technologies to operate critical business systems, including processing confidential and sensitive information, including, without limitation, cloud-based infrastructure, data center facilities, encryption and authentication technology, employee email and other functions. We also rely on third-party service providers to provide other products, services, or otherwise operate our business. Our ability to monitor these third parties' information security practices is limited, and these third parties may not have adequate information security measures in place. If our third-party service providers experience a security incident or other interruption, we could experience adverse consequences. It is possible that our customers and potential customers would hold us accountable for any security incident affecting our third-party service providers’ infrastructure. We may incur significant liability from those customers and from other third parties with respect to any such incident. Because our agreements with certain third-party service providers, such as Amazon Web Services, or AWS, limit their liability for damages, we may not be able to recover a material portion of our liabilities to our customers and third parties arising from issues with such third-party service providers, such as AWS, in the event of an incident affecting the third parties’ systems. Moreover, while we may be entitled to damages from other third-party service providers if they fail to satisfy their privacy or security-related obligations to us, any award may be insufficient to cover our damages, or we may be unable to recover such reward. In addition, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties’ infrastructure in our supply chain or our third-party partners’ supply chains have not been compromised.

While we have implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. We have experienced, and may in the future experience, disruptions, outages and other performance problems due to a variety of factors, including infrastructure changes, deliberate or unintentional human or software errors, capacity constraints, fraud or security incidents. Moreover, we take steps designed to detect, mitigate and remediate vulnerabilities in our information technology systems (such as our hardware and software, including that of third parties upon which we rely) and in our software applications, products and services. We may not, however, be able to detect and remediate all such vulnerabilities on a timely basis. For example, we have identified certain vulnerabilities in our information systems and software applications, and we take steps designed to mitigate the risks associated with known vulnerabilities. Despite our efforts, there can be no assurance that these vulnerability mitigation measures will be effective. Further, we may experience delays in developing and deploying remedial measures and patches designed to address any such identified vulnerabilities.

Any of these or similar threats could cause a security incident or other interruption that can result in unauthorized, unlawful, or accidental acquisition, modification, destruction, loss, alteration, encryption, disclosure of, or access to our proprietary, confidential, and sensitive information or our information technology systems, or those of the third parties upon whom we rely. A security incident or other interruption could disrupt our ability (and that of third parties upon whom we rely) to provide our solutions. We may expend significant resources or modify our business activities to try to protect against security incidents. Certain data privacy and security obligations may require us to implement and maintain specific security measures, industry-standard or reasonable security measures to protect our information technology systems and proprietary, confidential, and sensitive information, including personal data.

Data protection requirements may also require us to notify relevant stakeholders of security incidents, including affected individuals, partners, collaborators, customers, regulators, law enforcement agencies and others. Such disclosures are costly, and the disclosures or failure to comply with such requirements could lead to adverse consequences.

Additionally, even if we have issued or otherwise made patches or information for vulnerabilities in our software applications, products or services, our customers may be unwilling or unable to deploy such patches and use such information effectively and in a timely manner. Vulnerabilities could be exploited and result in a security incident.

If we, our customers, or a third party upon which we rely, experience a security incident or other interruption, or are perceived to have experienced a security incident or other interruption, we may experience adverse consequences, such as government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting obligations and/or oversight; restrictions on processing information (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions of our operations (including availability of data); financial loss (including by issuing credits to our customers); diversion of management attention; and other similar harm. Security incidents and attendant consequences may cause customers to stop using our solutions (including by not renewing their purchases of our solutions), deter new customers from using our solutions, and negatively impact our ability to grow and operate our business.

There can be no assurance that any limitations or exclusions of liabilities in our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages if we fail to comply with data protection requirements related to information security or security incidents. We cannot be sure that our insurance coverage will be adequate or otherwise protect us from or adequately mitigate liabilities or damages with respect to claims, costs, expenses, litigation, fines, penalties, business loss, data loss, regulatory actions or other impacts arising out of security incidents.

In addition, we face unique risks as a SaaS company, particularly in light of our business model. If our solutions fail to detect vulnerabilities in our customers’ cybersecurity infrastructure, including for remote devices, or if our solutions fail to identify new and increasingly complex methods of cyberattacks, our business may suffer and our customers' businesses may be damaged, including by interrupting their networking traffic or operational technology environments. There is no guarantee that our solutions will detect all vulnerabilities or threats in our customers' systems, especially in light of the rapidly changing security landscape to which we must respond. Additionally, our solutions may falsely detect vulnerabilities or threats that do not actually exist. For example, our solutions rely on information provided by an active community of users who contribute information about new exploits, attacks and vulnerabilities. If the information from these third parties is inaccurate, the potential for false indications of vulnerabilities or threats increases. These false positives, while typical in the industry, may impair the perceived reliability of our offerings. Additionally, our business depends upon the appropriate and successful implementation of our product by our customers. If our customers fail to use our solutions according to our specifications, our customers may suffer a security incident on their own systems or other adverse consequences. Even if such an incident is unrelated to our security practices, it could result in our incurring significant economic and operational costs in investigating, remediating, and implementing additional measures to further protect our customers from their own vulnerabilities.

The reliability and continuous availability of our solutions is critical to our success. We have experienced errors or defects in the past in connection with the release of new solutions and product upgrades, and we expect that these errors or defects will be found from time to time in the future in new or enhanced solutions after commercial release. In addition, we use third parties to assist in the development of our products and these third parties could be a source of errors or defects. Some defects may cause our solutions to be vulnerable to attacks, cause them to fail to detect vulnerabilities, or temporarily interrupt customers' networking traffic or operational technology environments, any of which may damage our customers' business and could hurt our reputation.

As a result of any of the risks associated with our SaaS business, we may experience adverse consequences. We may also be subject to liability claims for damages related to errors or defects in our solutions.

Our future quarterly results of operations are likely to fluctuate significantly due to a wide range of factors, which makes our future results difficult to predict.

Our revenue and results of operations have historically varied from period to period, and we expect that they will continue to do so as a result of a number of factors, many of which are outside of our control, including:

- the level of demand for our solutions;
- the introduction of new products and product enhancements by existing competitors or new entrants into our market, and changes in pricing for solutions offered by us or our competitors;
- the rate of renewal of subscriptions, and extent of expansion of assets under such subscriptions, with existing customers;
- the mix of customers licensing our products on a subscription basis as compared to a perpetual license;
- large customers failing to renew their subscriptions;
- the size, timing and terms of our subscription agreements with new customers;
- our ability to interoperate our solutions with our customers' network and security infrastructure, including remote devices;
- the timing and growth of our business, in particular through our hiring of new employees and international expansion;
- network outages, security breaches, technical difficulties or interruptions with our solutions (including security breaches by our service providers or vendors);
- changes in the growth rate of the markets in which we compete;
- the length of the license term, amount prepaid and other material terms of subscriptions to our solutions sold during a period;
- customers delaying purchasing decisions in anticipation of new developments or enhancements by us or our competitors or otherwise;
- changes in customers' budgets;
- seasonal variations related to sales and marketing and other activities, such as expenses related to our customers;
- our ability to increase, retain and incentivize the channel partners that market and sell our solutions;
- our ability to integrate our solutions with our ecosystem partners' technology;
- our ability to integrate any future acquisitions of businesses;
- our brand and reputation;
- the timing of our adoption of new or revised accounting pronouncements applicable to public companies and the impact on our results of operations;
- our ability to control costs, including our operating expenses, such as personnel costs, third-party cloud infrastructure costs and facilities costs;

- our ability to hire, train and maintain our direct sales force;
- unforeseen litigation and intellectual property infringement;
- fluctuations in our effective tax rate;
- general economic and political conditions, both domestically and internationally, as well as economic conditions specifically affecting industries in which our customers operate; and
- other events or factors, including those resulting from public health crises such as pandemics or similar outbreaks, war, incidents of terrorism or responses to these events, or an economic recession in the United States or other major markets.

Any one of these or other factors discussed elsewhere in this Annual Report on Form 10-K, or the cumulative effect of some of these factors, may result in fluctuations in our revenue and operating results, meaning that quarter-to-quarter comparisons of our revenue, results of operations and cash flows may not necessarily be indicative of our future performance and may cause us to miss our guidance and analyst expectations and may cause our stock price to decline.

In addition, we have historically experienced seasonality in entering into agreements with customers. We typically enter into a significantly higher percentage of agreements with new customers, as well as renewal agreements with existing customers, in the third and fourth quarters. The increase in customer agreements in the third quarter is primarily attributable to U.S. government and related agencies, and the increase in the fourth quarter is primarily attributable to large enterprise account buying patterns typical in the software industry. We expect that seasonality will continue to affect our operating results in the future and may reduce our ability to predict cash flow and optimize the timing of our operating expenses.

We must maintain and enhance our brand.

We believe that developing and maintaining widespread awareness of our brand in a cost-effective manner is critical to achieving widespread acceptance of our enterprise platform and attracting new customers. Brand promotion activities may not generate customer awareness or increase revenue and, even if they do, any increase in revenue may not offset the expenses we incur in maintaining and promoting our brand. If we fail to successfully promote and maintain our brand, or incur substantial expenses, we may fail to attract or retain customers necessary to realize a sufficient return on our brand-building efforts, or to achieve the widespread brand awareness that is critical for broad customer adoption of our solutions.

We rely on third parties to maintain and operate certain elements of our network infrastructure.

We utilize data centers located in North America, Europe and Asia to operate and maintain certain elements of our own network infrastructure. Some elements of this complex system are operated by third parties that we do not control and that could require significant time to replace. We expect this dependence on third parties to continue. For example, Tenable One is hosted on Amazon Web Services, or AWS, which provides us with computing and storage capacity. Interruptions in our systems or the third-party systems on which we rely, particularly AWS, whether due to system failures, computer viruses or cyber threats, physical or electronic break-ins or other factors, could affect the security or availability of our solutions, network infrastructure and website.

Our existing data center facilities and third-party hosting providers have no obligations to renew their agreements with us on commercially reasonable terms or at all, and certain of the agreements governing these relationships may be terminated by either party with notice or access to hosting services may be restricted by the provider at any time, with no or limited notice. For example, our agreement with AWS allows AWS to terminate the agreement with two years' written notice and allows AWS, under certain circumstances, to temporarily restrict access to hosting services provided by AWS without prior notice. Although we expect that we could receive similar services from other third parties, if any of our arrangements with third parties, including AWS, are terminated, we could experience interruptions on our platform and in our ability to make our platform available to customers, as well as downtime, delays and additional expenses in arranging alternative cloud infrastructure services.

Organizations may be reluctant to purchase our enterprise platform offerings that are cloud-based due to the actual or perceived vulnerability of cloud solutions.

Some organizations, including those in the defense industry and highly regulated industries such as healthcare and financial services, have historically been reluctant to use cloud-based solutions for cybersecurity because they have concerns regarding the risks associated with the reliability or security of the technology delivery model associated with these solutions. If we or other software companies with cloud-based offerings experience security incidents, breaches of customer data, disruptions in service delivery or other problems, the market for cloud-based solutions as a whole may be negatively impacted, which in turn would negatively impact our revenue and our growth prospects.

Our sales cycle is long and unpredictable.

The timing of sales of our offerings is difficult to forecast because of the length and unpredictability of our sales cycle, particularly with large enterprises and with respect to certain of our solutions. We sell our solutions primarily to IT departments that are managing a growing set of user and compliance demands, which has increased the complexity of customer requirements to be met and confirmed during the sales cycle and prolonged our sales cycle. Our average sales cycle with an enterprise customer is approximately four months, although unfavorable macroeconomic conditions and the extent to which we continue to enter into larger deals, could result in longer average sales cycles. Further, the length of time that potential customers devote to their testing and evaluation, contract negotiation and budgeting processes varies significantly, depending on the size of the organization and nature of the product or service under consideration. Macroeconomic uncertainty, including foreign exchange rates, inflation, disruptions in access to bank deposits or lending commitments due to bank failures and uncertainty about economic stability, and concerns about economic recessions in the United States or other major markets, have and could continue to impact the budgets and purchasing decisions and processes of certain of our customers and prospective customers, some of whom have added additional controls on expenditures and require additional internal approvals of expenditures, even if relatively small in dollar amount, all of which could lengthen our average sales cycle. In addition, we might devote substantial time and effort to a particular unsuccessful sales effort, and as a result, we could lose other sales opportunities or incur expenses that are not offset by an increase in revenue, which could harm our business.

We are subject to stringent and changing laws, regulations, rules, contractual obligations, policies, and other obligations related to data privacy and security. Our failure, or perceived failure to comply with such obligations, could lead to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse business consequences.

In the ordinary course of our business, we collect, receive, store, process, generate, use, transfer, disclose, make accessible, protect, secure, dispose of, transmit, and share (collectively, “process”) personal data and other sensitive information, including proprietary and confidential business information, trade secrets, intellectual property, and sensitive third-party information. Our data processing activities subject us to numerous data privacy and security obligations, such as various laws, rules, regulations, guidance, industry standards, external and internal privacy and security policies, contracts, and other obligations that govern the processing of personal data by us and on our behalf.

In the United States, federal, state, and local governments have enacted numerous data privacy security laws, including data breach notification laws, data privacy laws, consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and other similar laws (e.g., wiretapping laws). In the past few years, numerous U.S. states—including California, Virginia, Colorado, Connecticut, and Utah—have enacted comprehensive privacy laws that impose certain obligations on covered businesses, including providing specific disclosures in privacy notices and affording residents with certain rights concerning their personal data. As applicable, such rights may include the right to access, correct, or delete certain personal data, and to opt-out of certain data processing activities, such as targeted advertising, profiling, and automated decision-making. The exercise of these rights may impact our business and ability to provide our products and services. Certain states also impose stricter requirements for processing certain personal data, including sensitive information, such as conducting data privacy impact assessments. These state laws allow for statutory fines for noncompliance. For example, the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act of 2020, CPRA or collectively, the CCPA, imposes obligations on covered businesses to provide specific disclosures in privacy notices and honor requests of California residents to exercise certain rights related to their personal data. The

CCPA applies to personal data of business representatives and employees and provides for fines for noncompliance (up to $7,500 per intentional violation). Further, the CPRA's recent amendments expanded the CCPA's requirements, including by adding a new right for individuals to correct their personal data and by establishing a new regulatory agency to implement and enforce the law, which could increase the risk of an enforcement action. Similar laws have been passed or are being considered in several other states, as well as at the federal and local levels, and we expect more states to pass similar laws in the future. These developments may further complicate compliance efforts and may increase legal risk and compliance costs for us, the third parties upon whom we rely, and our customers.

Additionally, under various privacy laws and other obligations, we may be required to provide certain notices and obtain consents to process certain types of personal data. For example, some of our data processing practices may be challenged including in relation to our use of chatbot and session replay providers. Our inability or failure to obtain consent for these practices could result in adverse consequences.

Outside the United States, an increasing number of laws, regulations, and industry standards govern data privacy and security. For example, the European Union's General Data Protection Regulation, or EU GDPR, and the United Kingdom's GDPR, or UK GDPR, impose strict requirements for processing the personal data of individuals. Violations of these obligations carry significant potential consequences. For example, under the EU GDPR, government regulators may impose temporary or definitive bans on processing, as well as fines of up to €20 million or 4% of the annual global revenue, whichever is greater. We have an internal data privacy function that oversees and supervises our compliance with European and UK data protection regulations but, despite our efforts, we may fail, or be perceived to have failed, to comply. Canada's Personal Information Protection and Electronic Documents Act, or PIPEDA, and various related provincial laws, Canada's Anti-Spam Legislation, or CASL, and Brazil's General Data Protection Law (Law No. 13,709/2018), or Lei Geral de Proteção de Dados Pessaois, or LGPD, may apply to our operations. The LGPD broadly regulates processing personal data of individuals in Brazil and imposes compliance obligations and penalties comparable to those of the EU GDPR. Additionally, we also target customers in Asia and may be subject to new and emerging data privacy regimes in Asia, including China's Personal Information Protection Law, Japan's Act on the Protection of Personal Information, and Singapore's Personal Data Protection Act.

In addition, we may be unable to transfer personal data from Europe and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross-border data flows. Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the European Economic Area, or EEA, and the United Kingdom, or UK, have significantly restricted the transfer of personal data to the United States and other countries whose privacy laws it believes are inadequate. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross-border data transfer laws. Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA standard contractual clauses, the UK's International Data Transfer Agreement/Addendum, and the EU-U.S. Data Privacy Framework and the UK extension thereto (which allows for transfers to relevant U.S.-based organizations who self-certify compliance and participate in the Framework), these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States. If there is no lawful manner for us to transfer personal data from the EEA, the UK, or other jurisdictions to the United States, or if the requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators, individual litigants, and activist groups. For example, some European regulators have significantly restricted some companies from transferring certain personal data out of Europe for allegedly violating the GDPR's cross-border data transfer limitations.

In addition to data privacy and security laws, we are contractually subject to industry standards adopted by industry groups and may become subject to such obligations in the future. Furthermore, we are bound by other contractual obligations relating to data privacy and security, and our efforts to comply with such obligations may not be successful. For example, certain privacy laws, such as the GDPR and the CCPA, require our customers to impose specific contractual restrictions on their service providers. Additionally, some of our customer contracts require us to host personal data locally.

We have published privacy policies, marketing materials and other statements, such as compliance with certain certifications or self-regulatory principles, regarding data privacy and security. If these policies, materials or statements are found to be deficient, lacking in transparency, deceptive, unfair, or misrepresentative of our practices, we may be subject to investigation, enforcement actions by regulators, or other adverse consequences.

Our obligations related to data privacy and security (and customers’ data privacy expectations) are quickly becoming increasingly stringent, and creating uncertainty. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or in conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources. These obligations may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties that process personal data on our behalf. Existing and proposed laws and regulations can be costly to comply with, can delay or impede the development or adoption of our products and services and require significant management time and attention. Although we endeavor to comply with all data privacy and security obligations, we may at times fail (or be perceived to have failed) to do so. Moreover, despite our efforts, our personnel or third parties upon which we rely may fail to comply with such obligations, which could negatively impact our business operations and compliance posture. If we or the third parties upon which we rely fail, or are perceived to have failed, to address or comply with applicable data privacy and security obligations, we could face significant consequences. These consequences include, but are not limited to: government enforcement actions (such as investigations, fines, penalties, audits, inspections, and similar actions); litigation (including class-action related claims) and mass arbitration demands; additional reporting requirements and/or oversight; bans on processing personal data; and orders to destroy or not use personal data. In particular, plaintiffs have become increasingly more active in bringing privacy-related claims against companies, including class claims and mass arbitration demands. Some of these claims allow for the recovery of statutory damages on a per violation basis, and, if viable, carry the potential for significant statutory damages, depending on the volume of data and the number of violations. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to: interruptions or stoppages in our business operations, inability to process personal data or operate in certain jurisdictions; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; reputational harm; loss of customers; reduction in the use of our products; or revision or restricting of our operations.

We rely on our third-party channel partner network of distributors and resellers to generate a substantial amount of our revenue.

Our success is dependent in part upon establishing and maintaining relationships with a variety of channel partners that we utilize to extend our geographic reach and market penetration. We use a two-tiered, indirect fulfillment model whereby we sell our products and services to our distributors, which in turn sell to our resellers, which then sell to our end users, which we call customers. We anticipate that we will continue to rely on this two-tiered sales model in order to help facilitate sales of our offerings as part of larger purchases in the United States and to grow our business internationally. In 2023, 2022 and 2021, we derived 93%, 92% and 92%, respectively, of our revenue from subscriptions and perpetual licenses sold through channel partners, and the percentage of revenue derived from channel partners may continue to increase in future periods. Ingram Micro, Inc., a distributor, accounted for 36%, 38% and 39% of our revenue in 2023, 2022 and 2021, respectively, and 32% of our accounts receivable at December 31, 2023 and 36% at December 31, 2022. Our agreements with our channel partners, including our agreement with Ingram Micro, are non-exclusive and do not prohibit them from working with our competitors or offering competing solutions, and some of our channel partners may have more established relationships with our competitors. Similarly, our channel partners have no obligations to renew their agreements with us on commercially reasonable terms or at all, and certain of the agreements governing these relationships may be terminated by either party at any time, with no or limited notice. For example, our agreement with Ingram Micro allows Ingram Micro to terminate the agreement in their discretion upon 30 days’ written notice to us. If our channel partners choose to place greater emphasis on products of their own or those offered by our competitors or a result of an acquisition, competitive factors or other reasons do not continue to market and sell our solutions in an effective manner or at all, our ability to grow our business and sell our solutions, particularly in key international markets, may be adversely affected. In addition, our failure to recruit additional channel partners, or any reduction or delay in their sales of our solutions and professional services, including as a result of economic uncertainty, or conflicts between channel sales and our direct sales and marketing activities may harm our results of operations. Finally, even if we are successful, our relationships with channel partners may not result in greater customer usage of our solutions and professional services or increased revenue.

A portion of our revenue is generated from subscriptions and perpetual licenses sold to domestic governmental entities, foreign governmental entities and other heavily regulated organizations, which are subject to a number of challenges and risks.

A portion of our revenue is generated from subscriptions and perpetual licenses sold to governmental entities in the United States. Additionally, many of our current and prospective customers, such as those in the financial services, energy, insurance and healthcare industries, are highly regulated and may be required to comply with more stringent regulations in connection with subscribing to and implementing our enterprise platform. Selling licenses to these entities can be highly competitive, expensive and time-consuming, often requiring significant upfront time and expense without any assurance that we will successfully complete a sale. Governmental demand and payment for our enterprise platform may also be impacted by public sector budgetary cycles and funding authorizations, with funding reductions or delays adversely affecting public sector demand for our enterprise platform. In addition, governmental entities have the authority to terminate contracts at any time for the convenience of the government, which creates risk regarding revenue anticipated under our existing government contracts.

Further, governmental and highly regulated entities often require contract terms that differ from our standard customer arrangements, including terms that can lead to those customers obtaining broader rights in our solutions than would be expected under a standard commercial contract and terms that can allow for early termination. The U.S. government will be able to terminate any of its contracts with us either for its convenience or if we default by failing to perform in accordance with the contract schedule and terms. Termination for convenience provisions would generally enable us to recover only our costs incurred or committed, settlement expenses, and profit on the work completed prior to termination. Termination for default provisions do not permit these recoveries and would make us liable for excess costs incurred by the U.S. government in procuring undelivered items from another source. Contracts with governmental and highly regulated entities may also include preferential pricing terms. In the United States, federal government agencies may promulgate regulations, and the President may issue executive orders, requiring federal contractors to adhere to different or additional requirements after a contract is signed. If we do not meet applicable requirements of law or contract, we could be subject to significant liability from our customers or regulators. Even if we do meet these requirements, the additional costs associated with providing our enterprise platform to government and highly regulated customers could harm our operating results. Moreover, changes in the underlying statutory and regulatory conditions that affect these types of customers could harm our ability to efficiently provide them access to our enterprise platform and to grow or maintain our customer base. In addition, engaging in sales activities to foreign governments introduces additional compliance risks, including risks specific to anti-bribery regulations, including the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, the U.K. Bribery Act 2010 and other similar statutory requirements prohibiting bribery and corruption in the jurisdictions in which we operate. Further, in some jurisdictions we may be required to obtain government certifications, which may be costly to maintain and, if we lost such certifications in the future or if such certification requirements changed, would restrict our ability to sell to government entities until we have attained such certifications.

Some of our revenue is derived from contracts with U.S. government entities, as well as subcontracts with higher-tier contractors. As a result, we are subject to federal contracting regulations, including the Federal Acquisition Regulation, or the FAR. Under the FAR, certain types of contracts require pricing that is based on estimated direct and indirect costs, which are subject to change.

In connection with our U.S. government contracts, we may be subject to government audits and review of our policies, procedures, and internal controls for compliance with contract terms, procurement regulations, and applicable laws. In certain circumstances, if we do not comply with the terms of a contract or with regulations or statutes, we could be subject to contract termination or downward contract price adjustments or refund obligations, could be assessed civil or criminal penalties, or could be debarred or suspended from obtaining future government contracts for a specified period of time. Any such termination, adjustment, sanction, debarment or suspension could have an adverse effect on our business.

In the course of providing our solutions and professional services to governmental entities, our employees and those of our channel partners may be exposed to sensitive government information. Any failure by us or our channel partners to safeguard and maintain the confidentiality of such information could subject us to liability and reputational harm, which could materially and adversely affect our results of operations and financial performance.

Our pricing model subjects us to various challenges that could make it difficult for us to derive expected value from our customers and we may need to reduce our prices or change our pricing model to remain competitive.

Subscriptions and perpetual licenses to our enterprise platform are generally priced based on the number of IP addresses or total IT assets that can be monitored. We expect that we may need to change our pricing from time to time. As competitors introduce new products that compete with ours or reduce their prices, we may be unable to attract new customers or retain existing customers based on our historical pricing. We also must determine the appropriate price to enable us to compete effectively internationally. Moreover, mid- to large-size enterprises may demand substantial price discounts as part of the negotiation of sales contracts and, as the amount of IT assets or IP addresses within our customers' organization grows, we may face additional pressure from our customers regarding our pricing. As a result, we may be required or choose to reduce our prices or change our pricing model, which could adversely affect our business, revenue, operating margins and financial condition.

Further, our subscription agreements and perpetual licenses generally provide that we can audit our customers' use of our offerings to ensure compliance with the terms of such agreement or license and monitor an increase in IT assets and IP addresses being monitored. However, a customer may resist or refuse to allow us to audit their usage, in which case we may have to pursue legal recourse to enforce our rights under the agreement or license, which would require us to spend money, distract management and potentially adversely affect our relationship with our customers and users.

If our enterprise platform offerings do not achieve sufficient market acceptance, our results of operations and competitive position will suffer.

We spend substantial amounts of time and money to research and develop and enhance our enterprise platform offerings to meet our customers' rapidly evolving demands. In addition, we invest in efforts to continue to add capabilities to our existing products and enable the continued detection of new network vulnerabilities. We typically incur expenses and expend resources upfront to market, promote and sell our new and enhanced offerings. Therefore, when we develop and introduce new or enhanced offerings, they must achieve high levels of market acceptance in order to justify the amount of our investment in developing and bringing them to market, and if these new or enhanced offerings do not garner widespread market adoption and implementation, our operating results and competitive position could suffer.

Further, we may make enhancements to our offerings that our customers do not like, find useful or agree with. We may also discontinue certain features, begin to charge for certain features that are currently free or increase fees for any of our features or usage of our offerings.

Our new offerings or enhancements and changes to our existing offerings could fail to attain sufficient market acceptance for many reasons, including:

- failure to predict market demand accurately, including changes in demand as a result of macroeconomic trends, in terms of functionality and to supply offerings that meets this demand in a timely fashion;
- defects, errors or failures;
- negative publicity about their performance or effectiveness;
- delays in releasing our new offerings or enhancements to our existing offerings to the market;
- introduction or anticipated introduction of competing products by our competitors;
- poor business conditions for our customers, including as a result of difficult macroeconomic conditions, causing them to delay or forgo IT purchases; and
- reluctance of customers to purchase cloud-based offerings.

If our new or enhanced offerings do not achieve adequate acceptance in the market, our competitive position will be impaired, and our revenue will be diminished. The adverse effect on our operating results may be particularly acute because of the significant research, development, marketing, sales and other expenses we will have incurred in connection with the new or enhanced offerings.

Our strategy of offering and deploying our solutions in the cloud, on-premises environments or using a hybrid approach causes us to incur increased expenses and may pose challenges to our business.

We offer and sell our enterprise platform for use in the cloud, on-premises environments or using a hybrid approach using the customer's own infrastructure. Our cloud offering enables our customers to eliminate the burden of provisioning and maintaining infrastructure and to scale their usage of our solutions quickly, while our on-premises offering allows for the customer's complete control over data security and software infrastructure. Historically, our solutions were developed in the context of the on-premises offering, and we have less operating experience offering and selling subscriptions to our solutions via our cloud offering. Although a substantial majority of our revenue has historically been generated from customers using our solutions on an on-premises basis, our customers are increasingly adopting our cloud offering. We expect that our customers will continue to move to our cloud offering and that it will become more central to our distribution model. We expect our gross profit to increase in absolute dollars and our gross margin to decrease to the extent that revenue from our cloud-based subscriptions increases as a percentage of revenue, although our gross margin could fluctuate from period to period. To support both on-premises environments and cloud instances of our product, our support team must be trained on and learn multiple environments in which our solution is deployed, which is more expensive than supporting only a cloud offering. Moreover, we must engineer our software for an on-premises environment, cloud offering and hybrid installation, which we expect will cause us additional research and development expense that may impact our operating results. As more of our customers transition to the cloud, we may be subject to additional competitive pressures, which may harm our business. We are directing a significant portion of our financial and operating resources to implement a robust and secure cloud offering for our customers, but even if we continue to make these investments, we may be unsuccessful in growing or implementing our cloud offering in a way that competes successfully against our current and future competitors and our business, results of operations and financial condition could be harmed.

Our customers' increased usage of our cloud-based offerings requires us to continually improve our computer network and infrastructure to avoid service interruptions or slower system performance.

As usage of our cloud-based offerings grows and as customers use them for more complicated applications, increased assets and with increased data requirements, we will need to devote additional resources to improving our platform architecture and our infrastructure in order to maintain the performance of our cloud offering. Any failure or delays in our computer network and infrastructure systems could cause service interruptions or slower system performance. If sustained or repeated, these performance issues could reduce the attractiveness of our enterprise platform to customers. These performance issues could result in lost customer opportunities and lower renewal rates, any of which could hurt our revenue growth, customer loyalty and reputation.

A component of our growth strategy is dependent on our continued international expansion, which adds complexity to our operations.

We market and sell our solutions and professional services throughout the world and have personnel in many parts of the world. International operations generated 45% and 44% of our revenue in 2023 and 2022, respectively. Our growth strategy is dependent, in part, on our continued international expansion. We expect to conduct a significant amount of our business with organizations that are located outside the United States, particularly in Europe and Asia. We cannot assure that our expansion efforts into international markets will be successful in creating further demand for our solutions and professional services outside of the United States or in effectively selling our solutions and professional services in the international markets that we enter. Our current international operations and future initiatives will involve a variety of risks, including:

- increased management, infrastructure and legal costs associated with having international operations;
- reliance on channel partners;
- trade and foreign exchange restrictions, including potential changes in trade relations arising from policy initiatives;
- volatility of foreign exchange rates;
- economic or political instability in foreign markets, including instability related to the United Kingdom's recent exit from the European Union and the corresponding impact on its ongoing legal, political, and economic relationship with the European Union and heightened levels of inflation;

- greater difficulty in enforcing contracts, accounts receivable collection and longer collection periods;
- changes in regulatory requirements, including, but not limited to data privacy, data protection and data security regulations;
- difficulties and costs of staffing, managing and potentially reorganizing foreign operations, including increased employee recruitment, training and retention costs related to global employment turnover trends and inflationary pressures in the labor market;
- the uncertainty and limitation of protection for intellectual property rights in some countries;
- costs of compliance with foreign laws and regulations and the risks and costs of non-compliance with such laws and regulations;
- differing labor regulations in foreign jurisdictions where labor laws are generally more advantageous to employees, including deemed hourly wage and overtime regulations in these locations;
- costs of compliance with U.S. laws and regulations for foreign operations, including the FCPA, import and export control laws, tariffs, trade barriers, economic sanctions and other regulatory or contractual limitations on our ability to sell or provide our solutions in certain foreign markets, and the risks and costs of non-compliance;
- requirements to comply with foreign privacy, data protection and information security laws and regulations and the risks and costs of noncompliance;
- heightened risks of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, and irregularities in, financial statements;
- the potential for political unrest, public health crises such as pandemics or similar outbreaks, acts of terrorism, hostilities or war, including the conflict between Ukraine and Russia, the ongoing conflict in the Middle East and increasing tensions between China and Taiwan;
- management communication and integration problems resulting from cultural differences and geographic dispersion;
- costs associated with language localization of our solutions; and
- costs of compliance with multiple and possibly overlapping tax structures and regimes.

Our business, including the sales of our solutions and professional services by us and our channel partners, may be subject to foreign governmental regulations, which vary substantially from country to country and change from time to time. Our failure, or the failure by our channel partners, to comply with these regulations could adversely affect our business. Further, in many foreign countries it is common for others to engage in business practices that are prohibited by our internal policies and procedures or U.S. regulations applicable to us. Although we have implemented policies and procedures designed to comply with these laws and policies, there can be no assurance that our employees, contractors, channel partners and agents have complied, or will comply, with these laws and policies. Violations of laws or key control policies by our employees, contractors, channel partners or agents could result in delays in revenue recognition, financial reporting misstatements, fines, penalties or the prohibition of the importation or exportation of our solutions and could have a material adverse effect on our business and results of operations. If we are unable to successfully manage the challenges of international expansion and operations, our business and operating results could be adversely affected.

We rely on the performance of highly skilled personnel, including senior management and our engineering, professional services, sales and technology professionals, and our ability to increase our customer base will depend to a significant extent on our ability to expand our sales and marketing operations.

We believe our success has depended, and continues to depend, on the efforts and talents of our senior management team and our highly skilled team members, including our sales personnel, professional services personnel and software engineers. We do not maintain key person insurance on any of our executive officers or key employees. Our senior management and key employees are employed on an at-will basis, which means that they could terminate their employment with us at any time. The loss of any of our senior management or key employees could adversely affect our ability to execute our business plan, and we may not be able to find adequate replacements. We cannot ensure that we will be able to retain the services of any members of our senior management or other key employees.

Our ability to successfully pursue our growth strategy also depends on our ability to attract, motivate and retain our personnel. Competition for well-qualified employees in all aspects of our business is intense. The move by companies to offer a remote or hybrid work environment may increase competition for such employees outside of our traditional office locations. In addition, employee turnover rates in the broader global economy and inflationary pressures in the labor market have increased and may continue to be elevated, which has led, and could continue to lead to increased recruiting, training and retention costs. If we do not succeed in attracting well-qualified employees, retaining and motivating existing employees or maintaining our corporate culture in a hybrid or remote work environment, our business would be adversely affected.

In addition, our ability to increase our customer base and achieve broader market acceptance of our Cyber Exposure solutions will depend to a significant extent on our ability to expand our sales force and our third-party channel partner network of distributors and resellers, both domestically and internationally. We may not be successful in attracting and retaining talented sales personnel or strategic partners, and any new sales personnel or strategic partners may not be able to achieve productivity in a reasonable period of time or at all. We also plan to dedicate significant resources to sales and marketing programs, including through electronic marketing campaigns and, when deemed safe to do so, trade event sponsorship and participation. All of these efforts will require us to invest significant financial and other resources and our business will be harmed if our efforts do not generate a correspondingly significant increase in revenue.

We must offer high-quality support.

Our customers rely on our personnel for support of our enterprise platform. High-quality support is important for the renewal of our agreements with existing customers and to our existing customers expanding the number of IP addresses or IT assets under their subscriptions. The importance of high-quality support will increase as we expand our business and pursue new customers. If we do not help our customers quickly resolve issues and provide effective ongoing support, our ability to sell new software to existing and new customers would suffer and our reputation with existing or potential customers would be harmed.

Our growth depends in part on the success of our strategic relationships with third parties.

In order to grow our business, we anticipate that we will continue to depend on relationships with strategic partners to provide broader customer coverage and solution delivery capabilities. We depend on partnerships with market leading technology companies to maintain and expand our exposure management ecosystem by integrating third party data into our platform. Identifying partners, and negotiating and documenting relationships with them, requires significant time and resources. Our agreements with our strategic partners generally are non-exclusive and do not prohibit them from working with our competitors or offering competing solutions. Our competitors may be effective in providing incentives to third parties to favor their products or services or to prevent or reduce subscriptions to our services. If our partners choose to place greater emphasis on products of their own or those offered by our competitors or do not effectively market and sell our product, our ability to grow our business and sell software and professional services may be adversely affected. In addition, acquisitions of our partners by our competitors could result in a decrease in the number of our current and potential customers, as our partners may no longer facilitate the adoption of our solutions by potential customers. We also license third-party threat data that is used in our solutions in order to deliver our offerings. In the future, this data may not be available to us on commercially reasonable terms, or at all. Any loss of the right to use any of this data could result in delays in the provisioning of our offerings until equivalent data is either developed by us, or, if available, is identified, obtained and integrated, which could harm our business.

If we are unsuccessful in establishing or maintaining our relationships with third parties, our ability to compete in the marketplace or to grow our revenue could be impaired and our operating results may suffer. Even if we are successful, we cannot assure you that these relationships will result in increased customer usage of our solutions or increased revenue.

Recent and future acquisitions could disrupt our business and adversely affect our business operations and financial results.

We have acquired products, technologies and businesses from other parties, such as our October 2023 acquisition of Ermetic, and we expect to expand our current business by acquiring additional businesses or technologies in the future. Acquisitions involve many risks, including the following:

- an acquisition may negatively affect our financial results because it may require us to incur charges or assume substantial debt or other liabilities, may cause adverse tax consequences or unfavorable accounting treatment, may expose us to claims and disputes by third parties, including intellectual property claims and disputes, or may not generate sufficient financial return to offset additional costs and expenses related to the acquisition;
- we may encounter difficulties or unforeseen expenditures in integrating the business, technologies, products, personnel or operations of any company that we acquire, particularly if key personnel of the acquired company decide not to work for us;
- an acquisition may disrupt our ongoing business, divert resources, increase our expenses and distract our management;
- an acquisition may result in a delay or reduction of customer purchases for both us and the company acquired due to customer uncertainty about continuity and effectiveness of service from either company;
- we may encounter difficulties in, or may be unable to, successfully sell any acquired solutions;
- an acquisition may involve the entry into geographic or business markets in which we have little or no prior experience or where competitors have stronger market positions;
- our use of cash to pay for an acquisition would limit other potential uses for our cash;
- the issuance of additional stock in connection with an acquisition could result in substantial dilution to our existing stockholders; and
- if we incur debt to fund such acquisition, such debt may subject us to material restrictions on our ability to conduct our business as well as financial maintenance covenants.

Acquired businesses have had, and may in the future have, a less mature cybersecurity program than our own. While we take steps designed to ensure our data and system security protection measures cover the acquired business, there may be cybersecurity risks and vulnerabilities arising from those acquired or integrated entities’ systems, technologies and services, that could also impact our existing systems, technologies and services and increase our cybersecurity risks.

The occurrence of any of these risks could have a material adverse effect on our business operations and financial results. In addition, we may only be able to conduct limited due diligence on an acquired company’s operations. Following an acquisition, we may be subject to unforeseen liabilities arising from an acquired company’s past or present operations and these liabilities may be greater than the warranty and indemnity limitations that we negotiate. Any unforeseen liability that is greater than these warranty and indemnity limitations could have a negative impact on our financial condition.

In addition, Ermetic principally operates in Israel and the recent conflict there may also have the effect of heightening the risks identified above.

We are subject to risks associated with our investments in private companies, including partial or complete loss of invested capital, and significant changes in the fair value of this portfolio could adversely impact our financial results.

We have invested, and may continue to invest, in private companies where we do not have the ability to exercise significant influence over results. Investments in private companies are inherently risky. The companies in which we invest are early stage private companies focused on cybersecurity innovation, and such companies may still be developing technologies or products with limited cash to support the development, marketing and sales of their technologies or products. These companies may have no or limited revenues, may not be or ever become profitable, may not be able to secure additional private financing to fund their operations, or their technologies, services, or products may not be successfully developed or introduced to the market. If any company in which we invest fails, we could lose all or part of our investment in that company. In addition, if we determine that any of our investments in such companies have experienced a decline in value, we will recognize an expense to adjust the carrying value to its estimated fair value. For example, in 2023 we recognized $5.6 million of impairment loss related to related to our investments. Negative changes in the estimated fair value of our investments in private companies could have an adverse effect on our results of operations and financial condition.

Furthermore, our ability to liquidate an investment in a private company will typically depend on a liquidity event, such as a private equity financing, a public offering or acquisition, as no public market currently exists for such securities. We may not be able to dispose of these investments on favorable terms or at all.

We may require additional capital to support business growth, and this capital might not be available on acceptable terms, if at all.

We expect that our existing cash and cash equivalents will be sufficient to meet our anticipated cash needs for working capital and capital expenditures for at least the next 12 months and the foreseeable future. However, 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 or enhance our product, 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 funds through future issuances of equity or convertible debt securities, our existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our common stock. Our current loan agreement includes, and we expect that any future agreements governing our indebtedness will include, restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. We may not be able to obtain additional financing on terms favorable to us, if at all. Weakness and volatility in the capital markets and the economy in general could limit our access to capital markets and increase our costs of borrowing. 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.

If we do not generate sufficient cash flows, we may be unable to service all of our indebtedness.

To service our indebtedness, we will require a significant amount of cash. Our ability to generate cash, make scheduled payments or to refinance our debt obligations depends on our successful financial and operating performance, which may be affected by a range of economic, competitive and business factors, many of which are outside of our control and some of which are described elsewhere in the "Risk Factors" section of this report.

If our cash flows and capital resources are insufficient to fund our debt service obligations, or to repay the term loan when it matures, we may have to undertake alternative financing plans, such as refinancing or restructuring our debt, selling assets or operations, reducing or delaying capital investments, or seeking to raise additional capital. We may not be able to refinance our debt, or any refinancing of our debt could be at higher interest rates and may require us to comply with more restrictive covenants that could further restrict our business operations. Our ability to implement successfully any such alternative financing plans will depend on a range of factors, including general economic conditions, the level of activity in capital markets generally, and the terms of our various debt instruments then in effect.

Covenants under our Credit Agreement may restrict our business and operations in many ways, and if we do not effectively manage our covenants, our financial conditions and results of operations could be adversely affected.

Our Credit Agreement imposes various covenants that limit our ability and/or our restricted subsidiaries' ability to, among other things:

- pay dividends or distributions, repurchase equity, prepay, redeem or repurchase certain debt, and make certain investments;
- incur additional debt and issue certain preferred stock;
- provide guarantees in respect of obligations of other persons;
- incur liens on assets;
- engage in certain asset sales, including capital stock of our subsidiaries;
- merge, consolidate with, or sell all or substantially all our assets to another person;
- enter into transactions with affiliates;
- enter into agreements that restrict distributions from our subsidiaries;

- designate subsidiaries as unrestricted subsidiaries; and
- prohibit certain restrictions on the ability of restricted subsidiaries to pay dividends or make other payments to us.

These covenants may:

- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions, or other general business purposes;
- limit our ability to use our cash flow or obtain additional financing for future working capital, capital expenditures, acquisitions, or other general business purposes;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- limit our flexibility to plan for, or react to, changes in our business and industry;
- place us at a competitive disadvantage compared to less leveraged competitors; and
- increase our vulnerability to the impact of adverse economic and industry conditions.

If we are unable to successfully manage the limitations and decreased flexibility on our business due to our significant debt obligations, we may not be able to capitalize on strategic opportunities or grow our business to the extent we would be able to without these limitations.

Our failure to comply with any of the covenants could result in a default under the Credit Agreement, which could permit the administrative agent or the lenders to cause the administrative agent to declare all or part of any of our outstanding senior secured term loans or revolving loans to be immediately due and payable or to exercise any remedies provided to the administrative agent, including, proceeding against the collateral granted to secure our obligations under the Credit Agreement. An event of default under the Credit Agreement could also lead to a default under the terms of certain of our other agreements. Any such event of default or any exercise of rights and remedies by our creditors could seriously harm our business.

Our variable rate debt subjects us to interest rate risk that could cause our debt service obligations to increase significantly.

The indebtedness under our Credit Agreement is at variable rates of interest, which exposes us to interest rate risk. Reference rates used to determine the applicable interest rates for our variable rate debt began to rise significantly in the second half of fiscal year 2022 and continued into fiscal year 2023. If interest rates continue to increase, the debt service obligations on such indebtedness will continue to increase even if the amount borrowed remains the same, and our net income and cash flows, including cash available for servicing our indebtedness, will correspondingly decrease. In addition, as a result of an amendment to our Credit Agreement, certain of the variable rate indebtedness extended to us uses the Secured Overnight Financing Rate, or SOFR, as a benchmark for establishing the interest rate. While we will continue to use SOFR, other factors may impact SOFR including factors causing SOFR to cease to exist, new methods of calculating SOFR to be established, or the use of an alternative reference rate(s). These consequences are not entirely predictable and could have an adverse impact on our financing costs, returns on investments, valuation of derivative contracts and our financial results.

The nature of our business requires the application of complex accounting rules and regulations and public reporting and corporate governance requirements. If there are significant changes in current principles, financial reporting standards, interpretations or public reporting and corporate governance requirements, or if our estimates or judgments relating to our critical accounting policies or reporting or governance requirements prove to be incorrect, we may experience unexpected financial reporting fluctuations or increased compliance costs and strain on our resources and our results of operations could be adversely affected.

The accounting rules and regulations that we must comply with are complex and subject to interpretation by the Financial Accounting Standards Board, the SEC, and various bodies formed to promulgate and interpret appropriate accounting principles. In addition, many companies' accounting disclosures are being subjected to heightened scrutiny by regulators and the public. Further, the accounting rules and regulations are continually changing in ways that could impact our financial statements.

The preparation of financial statements in conformity with generally accepted accounting principles in the United States, or U.S. GAAP, requires management to make estimates and assumptions that affect the amounts reported in the 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, as provided in the section of this report titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Significant assumptions and estimates used in preparing our consolidated financial statements include the determination of the estimated economic life of perpetual licenses for revenue recognition, the estimated period of benefit for deferred commissions, useful lives of long-lived assets, the valuation of stock-based compensation, the incremental borrowing rate for operating leases, and the valuation of deferred tax assets. Our results of operations may be adversely affected if our assumptions change or if actual circumstances differ from those in our assumptions, which could cause our results of operations to fall below the expectations of securities analysts and investors, resulting in a decline in the trading price of our common stock.

As a public company, we are also subject to the reporting and corporate governance requirements of the Exchange Act, the listing requirements of the Nasdaq Stock Market and other applicable securities rules and regulations, including the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act. Compliance with these rules and regulations increases our legal and financial compliance costs, makes some activities more difficult, time-consuming or costly and increases demand on our systems and resources.

Additionally, we regularly monitor our compliance with applicable financial reporting standards and SEC and applicable listing standard requirements and review new pronouncements, drafts and interpretations thereof that are relevant to us. We might be required to change our accounting policies, alter our operational policies and implement new or enhance existing systems, or we may be required to restate our published financial statements, as a result of new standards or requirements, changes to existing standards or requirements and changes in their interpretation. Such changes to existing standards or requirements or changes in their interpretation may have an adverse effect on our reputation, business, financial position and profit, or cause an adverse deviation from our revenue and operating profit target, which may negatively impact our financial results. Additionally, we may incur substantial professional fees and expend significant management efforts, and we may need to hire additional staff with the appropriate experience and compile systems and processes necessary to adopt these new standards and disclosure or governance requirements.

For example, in July 2023, the SEC adopted rules requiring the disclosure of information about a material cybersecurity incident on Form 8-K within four business days of determining that the incident is material, unless the US Attorney General concludes that such a disclosure would pose a substantial risk to national security or public safety. Additionally, these rules require disclosures describing the processes used to identify, assess and manage cybersecurity risks, management's role in assessing and managing material risks from cybersecurity threats and the board of directors' role in overseeing cybersecurity risks.

Unstable market and economic conditions may have material adverse consequences on our business, financial condition and share price.

The global economy, including credit and financial markets, has recently experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, increases in inflation rates, higher interest rates and uncertainty about economic stability. For example, in recent years the COVID-19 pandemic, high rates of inflation, high interest rates and concerns about an economic recession in the United States or other major markets resulted in widespread unemployment, economic slowdown and extreme volatility in the capital markets. The Federal Reserve recently raised interest rates multiple times in response to concerns about inflation and is expected to continue to raise rates. Higher interest rates, coupled with reduced government spending and volatility in financial markets, including with respect to foreign exchange, may increase economic uncertainty and affect consumer spending. For example, during periods with a relatively strong U.S. dollar, our products are more expensive for existing and prospective international customers, which has impacted, and could in the future impact, the budgets and purchasing decisions of certain of our existing and prospective international customers.

If the equity and credit markets deteriorate, including as a result of political unrest or war, it may make any necessary debt or equity financing more difficult to obtain in a timely manner or on favorable terms, more costly or more dilutive.

Increased inflation rates can adversely affect us by increasing our costs, including labor and employee benefit costs. In addition, higher inflation also could increase our customers' operating costs, which could result in reduced budgets for our customers, longer sales cycles and potentially less demand for our products. Any significant increases in inflation and related increase in interest rates could have a material adverse effect on our business, results of operations and financial condition.

Catastrophic events may disrupt our business.

Our corporate headquarters are located in Columbia, Maryland. The area around Washington, D.C. could be subject to terrorist attacks. Additionally, we rely on our network and third-party infrastructure and enterprise applications, internal technology systems and our website for our development, marketing, operational support, hosted services and sales activities.

We have both hybrid remote and in-person work policies, however, substantially all of our employees have continued to work in a hybrid environment, which may pose additional security risks. Our business operations are subject to interruption by natural disasters, including those related to the long-term effects of climate change, and other catastrophic events such as fire, floods, power loss, telecommunications failure, cyberattack, war or terrorist attack, or epidemic or pandemic. To the extent such events impact our corporate headquarters, other facilities, or off-premises infrastructure, we may be unable to continue our operations and may endure system interruptions, reputational harm, delays in our software development, lengthy interruptions in our services, breaches of data security and loss of critical data, all of which could have an adverse effect on our future operating results.

Our business, financial condition and results of operations could be materially adversely affected by the recent conflict in the Middle East and subsequent hostilities in the region, as well as any negative impact on the regional or global economies and capital markets resulting therefrom or from the ongoing conflict between Ukraine and Russia and any other geopolitical tensions.

U.S. and global markets have experienced volatility and disruption following the escalation of geopolitical tensions, including the conflict in the Middle East, the ongoing conflict between Ukraine and Russia and increasing tensions between China and Taiwan. The length, scale and impact of these military conflicts are highly unpredictable and could continue to result in market disruptions, including significant volatility in commodity prices, credit and capital markets, disruption in the energy market as well as supply chain interruptions.

Furthermore, our research and development teams for Tenable OT Security and for Tenable Cloud Security are primarily located in Tel Aviv, Israel. Recent and ongoing hostilities in the region may have a material impact on our ability to deliver on our product roadmaps for these solutions.

It is impossible to predict the extent to which our operations, or those of our partners or customers, will be impacted in the short and long term, or the ways in which these conflicts may impact our business. The extent and duration of the military action, sanctions and resulting market disruptions are impossible to predict, but could be substantial.

Risks Related to Government Regulation, Data Collection and Intellectual Property

Our business could be adversely affected if our employees cannot obtain and maintain required security clearances or we cannot establish and maintain a required facility security clearance.

Certain U.S. government contracts may require our employees to maintain various levels of security clearances, and may require us to maintain a facility security clearance, to comply with Department of Defense, or DoD, requirements. The DoD has strict security clearance requirements for personnel who perform work in support of classified programs. Obtaining and maintaining a facility clearance and security clearances for employees can be a difficult, sometimes lengthy process. If we do not have employees with the appropriate security clearances, then a customer requiring classified work could terminate an existing contract or decide not to renew the contract upon its expiration. To the extent we are not able to obtain or maintain a facility security clearance, we may not be able to bid on or win new classified contracts, and existing contracts requiring a facility security clearance could be terminated.

Any failure to protect our proprietary technology and intellectual property rights could substantially harm our business and operating results.

Our success and ability to compete depend in part on our ability to protect our proprietary technology and intellectual property. To safeguard these rights, we rely on a combination of patent, trademark, copyright and trade secret laws and contractual protections in the United States and other jurisdictions, all of which provide only limited protection and may not now or in the future provide us with a competitive advantage.

At December 31, 2023, we had 38 issued patents and 21 patent applications pending in the United States relating to our technology. We cannot assure you that any patents will issue from any patent applications, that patents that issue from such applications will give us the protection that we seek or that any such patents will not be challenged, invalidated or circumvented. Any patents that may issue in the future from our pending or future patent applications may not provide sufficiently broad protection and may not be enforceable in actions against alleged infringers. Obtaining and enforcing software patents in the United States is becoming increasingly challenging. Any patents we have obtained or may obtain in the future may be found to be invalid or unenforceable in light of recent and future changes in the law. We have registered the “Tenable,” “Nessus,” “Tenable.io” and "Lumin" trademarks and our Tenable logo in the United States and certain other countries. We have registrations and/or pending applications for additional trademarks in the United States; however, we cannot assure you that any future trademark registrations will be issued for pending or future applications or that any registered trademarks will be enforceable or provide adequate protection of our proprietary rights. While we have copyrights in our software, we do not typically register such copyrights with the Copyright Office. This failure to register the copyrights in our software may preclude us from obtaining statutory damages for infringement under certain circumstances. We also license software from third parties for integration into our software, including open source software and other software available on commercially reasonable terms. We cannot assure you that such third parties will maintain such software or continue to make it available.

In order to protect our unpatented proprietary technologies and processes, we rely on trade secret laws and confidentiality and invention assignment agreements with our employees, consultants, strategic partners, vendors and others. Despite our efforts to protect our proprietary technology and trade secrets, unauthorized parties may attempt to misappropriate, copy, reverse engineer or otherwise obtain and use them. In addition, others may independently discover our trade secrets, in which case we would not be able to assert trade secret rights, or develop similar technologies and processes. Further, several agreements may give customers limited rights to access portions of our proprietary source code, and the contractual provisions that we enter into may not prevent unauthorized use or disclosure of our proprietary technology or intellectual property and may not provide an adequate remedy in the event of unauthorized use or disclosure of our proprietary technology or intellectual property rights. Moreover, policing unauthorized use of our technologies, trade secrets and intellectual property is difficult, expensive and time-consuming, particularly in foreign countries where the laws may not be as protective of intellectual property rights as those in the United States and where mechanisms for enforcement of intellectual property rights may be weak. To the extent that we expand our activities outside of the United States, our exposure to unauthorized copying and use of our solutions and proprietary information may increase. We may be unable to determine the extent of any unauthorized use or infringement of our solutions, technologies or intellectual property rights.

There can be no assurance that the steps that we take will be adequate to protect our proprietary technology and intellectual property, that others will not develop or patent similar or superior technologies, solutions or services, or that our trademarks, patents, and other intellectual property will not be challenged, invalidated or circumvented by others. Furthermore, effective trademark, patent, copyright, and trade secret protection may not be available in every country in which our software is available or where we have employees or independent contractors. In addition, the legal standards relating to the validity, enforceability, and scope of protection of intellectual property rights in internet and software-related industries are uncertain and still evolving.

In order to protect our intellectual property rights, we may be required to spend significant resources to monitor and protect these rights. Litigation brought to protect and enforce our intellectual property rights could be costly, time-consuming and distracting to management and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims and countersuits attacking the validity and enforceability of our intellectual property rights. Our failure to secure, protect and enforce our intellectual property rights could seriously adversely affect our brand and adversely impact our business.

We may be subject to intellectual property rights claims by third parties, which are extremely costly to defend, could require us to pay significant damages and could limit our ability to use certain technologies.

Companies in the software and technology industries, including some of our current and potential competitors, own significant numbers of patents, copyrights, trademarks and trade secrets and frequently enter into litigation based on allegations of infringement or other violations of intellectual property rights. In addition, many of these companies have the capability to dedicate substantially greater resources to enforce their intellectual property rights and to defend claims that may be brought against them. The litigation may involve patent holding companies or other adverse patent owners that have no relevant product revenue and against which our patents may therefore provide little or no deterrence. In the past, we have been subject to allegations of patent infringement that were unsuccessful, and we expect in the future to be subject to claims that we have misappropriated, misused, or infringed other parties' intellectual property rights, and, to the extent we gain greater market visibility or face increasing competition and as we acquire more companies, we face a higher risk of being the subject of intellectual property infringement claims, which is not uncommon with respect to enterprise software companies. We may in the future be subject to claims that employees or contractors, or we, have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of our competitors or other parties. To the extent that intellectual property claims are made against our customers based on their usage of our technology, we have certain obligations to indemnify and defend such customers from those claims. The term of our contractual indemnity provisions often survives termination or expiration of the applicable agreement. Large indemnity payments, defense costs or damage claims from contractual breach could harm our business, results of operations and financial condition.

There may be third-party intellectual property rights, including issued or pending patents that cover significant aspects of our technologies or business methods, including those relating to companies we acquire. Any intellectual property claims, with or without merit, could be very time-consuming, could be expensive to settle or litigate, could divert our management's attention and other resources and could result in adverse publicity. These claims could also subject us to making substantial payments for legal fees, settlement payments, and other costs or damages, potentially including treble damages if we are found to have willfully infringed patents or copyrights. These claims could also result in our having to stop making, selling, offering for sale, or using technology found to be in violation of a third party's rights. We might be required to seek a license for the third-party intellectual property rights, which may not be available on reasonable terms or at all. Even if a license is available to us, we may be required to pay significant upfront fees, milestones or royalties, which would increase our operating expenses. Moreover, to the extent we only have a license to any intellectual property used in our solutions, there may be no guarantee of continued access to such intellectual property, including on reasonable terms. As a result, we may be required to develop alternative non-infringing technology, which could require significant effort and expense. If a third party is able to obtain an injunction preventing us from accessing such third-party intellectual property rights, or if we cannot license or develop technology for any infringing aspect of our business, we would be forced to limit or stop sales of our software or cease business activities covered by such intellectual property, and may be unable to compete effectively. Any of these results would adversely affect our business, results of operations, financial condition and cash flows.

Portions of our solutions utilize open source software, and any failure to comply with the terms of one or more of these open source licenses could negatively affect our business.

Our software contains software made available by third parties under so-called "open source" licenses. From time to time, there have been claims against companies that distribute or use open source software in their products and services, asserting that such open source software infringes the claimants' intellectual property rights. We could be subject to suits by parties claiming that what we believe to be licensed open source software infringes their intellectual property rights. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. In addition, certain open source licenses require that source code for software programs that are subject to the license be made available to the public and that any modifications or derivative works to such open source software continue to be licensed under the same terms. Further, certain open source licenses also include a provision that if we enforce any patents against the software programs that are subject to the license, we would lose the license to such software. If we were to fail to comply with the terms of such open source software licenses, such failures could result in costly litigation, lead to negative public relations or require that we quickly find replacement software which may be difficult to accomplish in a timely manner.

Although we monitor our use of open source software in an effort both to comply with the terms of the applicable open source licenses and to avoid subjecting our software to conditions we do not intend, the terms of many open source licenses have not been interpreted by U.S. 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 product or operate our business. By the terms of certain open source licenses, we could be required to release the source code of our software and to make our proprietary software available under open source licenses, if we combine or distribute our software with open source software in a certain manner. In the event that portions of our software are determined to be subject to an open source license, we could be required to publicly release the affected portions of our source code, re-engineer all, or a portion of, that software or otherwise be limited in the licensing of our software, each of which could reduce or eliminate the value of our product. Many of the risks associated with usage of open source software cannot be eliminated, and could negatively affect our business, results of operations and financial condition.

Risks Related to An Investment in Our Common Stock

Our stock price may be volatile, and the value of our common stock may decline.

The market price of our common stock may fluctuate substantially and depends on a number of factors, including those described in this “Risk Factors” section, many of which are beyond our control and may not be related to our operating performance. Factors that could cause fluctuations in the market price of our common stock include the following:

- actual or anticipated changes or fluctuations in our operating results;
- the financial projections we may provide to the public, any changes in these projections or our failure to meet these projections;
- announcements by us or our competitors of new products or new or terminated significant contracts, commercial relationships or capital commitments;
- industry or financial analyst or investor reaction to our press releases, other public announcements and filings with the SEC;
- rumors and market speculation involving us or other companies in our industry;
- price and volume fluctuations in the overall stock market from time to time;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- failure to comply with the terms of the Credit Agreement;
- sales of shares of our common stock by us or our stockholders;
- failure of industry or financial analysts to maintain coverage of us, changes in financial estimates by any analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- actual or anticipated developments in our business or our competitors’ businesses or the competitive landscape generally;
- litigation involving us, our industry or both, or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property rights or our solutions, or third-party proprietary rights;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new or proposed laws or regulations or new interpretations of existing laws or regulations applicable to our business, including proposed changes to the U.S. corporate income tax rate and capital gains tax rates;
- any major changes in our management or our Board of Directors;
- general economic conditions and slow or negative growth of our markets; and
- other events or factors, including those resulting from public health crises such as pandemics or similar outbreaks, war, incidents of terrorism or responses to these events.

Recently, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies, high rates of inflation and interest rates, disruptions in access to bank deposits or lending commitments due to bank failures and uncertainty about economic stability and concerns about an economic recession in the United States or other major markets, the ongoing military conflict between Ukraine and Russia, the ongoing conflict in the Middle East, increasing tensions between China and Taiwan and macroeconomic conditions. These fluctuations have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry fluctuations, as well as general economic, political, regulatory and market conditions, may negatively impact the market price of our common stock. In the past, companies that have experienced volatility in the market price of their securities have been subject to securities class action litigation. We may be the target of this type of litigation in the future, which could result in substantial costs and divert our management's attention.

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend, in part, on the research and reports that securities or industry analysts publish about us or our business. We do not control these analysts or the content and opinions included in their reports. If our financial performance fails to meet analyst estimates or one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. In addition, the stock prices of many companies in the technology industry have declined significantly after those companies have failed to meet, or significantly exceed, the financial guidance publicly announced by the companies or the expectations of analysts. If our financial results fail to meet, or exceed, our announced guidance or the expectations of analysts or public investors, analysts could downgrade our common stock or publish unfavorable research about us. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Future sales of substantial amounts of our common stock in the public markets by us or our stockholders, or the perception such sales might occur, could reduce the price that our common stock might otherwise attain.

Sales of a substantial number of shares of our common stock in the public market by us or our stockholders, or the perception that these sales might occur, could depress the market price of our common stock, impair our ability to raise capital through the sale of additional equity securities and make it more difficult for you to sell your common stock at a time and price that you deem appropriate. Further, the number of new shares of our common stock issued by us in connection with raising additional capital in connection with a financing, acquisition, investment or otherwise could result in substantial dilution to our existing stockholders.

In addition, we have filed registration statements on Form S-8 under the Securities Act registering the issuance of shares of common stock subject to options and other equity awards issued or reserved for future issuance under our equity incentive plans. Shares registered under these registration statements, and under additional registration statements on Form S-8 that we may file to register additional shares of common stock pursuant to provisions of our equity incentive plans that provide for an automatic increase in the number of shares reserved and available for issuance each year, are available for sale in the public market subject to vesting arrangements and exercise of options and the restrictions of Rule 144 under the Securities Act in the case of our affiliates.

We do not intend to pay dividends for the foreseeable future and, as a result, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We have never declared or paid any cash dividends on our common stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our Board of Directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments. In addition, our Credit Agreement contains restrictive covenants that prohibit us, subject to certain exceptions, from paying dividends on our common stock.

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

On November 27, 2023, we announced that our Board of Directors authorized a share repurchase program of up to $100 million of shares of our outstanding common stock. Share repurchases under the program may be made from time to time, in the open market, in privately negotiated transactions and otherwise, at the discretion of management and in accordance with applicable federal securities laws, including Rule 10b-18 of the Exchange Act, and other applicable legal requirements. Such repurchases may also be made in compliance with Rule 10b5-1 trading plans entered into by us. The timing and amount of repurchases, if any, will be subject to liquidity, stock price, market and economic conditions, compliance with applicable legal requirements such as Delaware surplus and solvency tests, compliance with our credit agreement, and other relevant factors. The share repurchase program does not obligate us to repurchase any dollar amount or number of shares, and the program may be suspended or discontinued at any time, which may result in a decrease in the price of our common stock. The share repurchase program could affect the price of our common stock, increase volatility, and diminish our cash reserves, and we may fail to realize the anticipated long-term stockholder value. Additionally, the Inflation Reduction Act of 2022, enacted on August 16, 2022, imposes a one-percent non-deductible excise tax on repurchases of stock that are made by U.S. publicly traded corporations.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us more difficult, limit attempts by our stockholders to replace or remove members of our Board of Directors and our current management and could negatively impact the market price of our common stock.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could delay or prevent a change in control of our company. These provisions could also make it difficult for stockholders to elect directors that are not nominated by the current members of our Board of Directors or take other corporate actions, including effecting changes in our management. These provisions include:

- a classified Board of Directors with three-year staggered terms, which could delay the ability of stockholders to change the membership of a majority of our Board of Directors;
- the ability of 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, which could be used to significantly dilute the ownership of a hostile acquirer;
- the exclusive right of our Board of Directors 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, which prevents stockholders from being able to fill vacancies on our Board of Directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by the chairperson of our Board of Directors, Chief Executive Officer or president (in the absence of a chief executive officer) or a majority vote of our Board of Directors, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement for 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, which may inhibit the ability of an acquirer to affect such amendments to facilitate an unsolicited takeover attempt;
- the ability of our Board of Directors, by majority vote, to amend our amended and restated bylaws, which may allow our Board of Directors to take additional actions to prevent an unsolicited takeover and inhibit the ability of an acquirer to amend our amended and restated bylaws to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our Board of Directors or to propose matters to be acted upon at a stockholders’ meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer’s own slate of directors or otherwise attempting to obtain control of us.

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.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware or the U.S. federal district courts will be the exclusive forums for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders;
- any action asserting a claim against us arising pursuant to any provisions of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws; or
- any action asserting a claim against us that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers or other employees. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

General Risks

We are subject to anti-corruption laws, anti-bribery and similar laws with respect to our domestic and international operations, and non-compliance with such laws can subject us to criminal and/or civil liability and materially harm our business and reputation.

We are subject to the anti-bribery laws of the jurisdictions in which we operate. These include the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the U.K. Bribery Act 2010, and other anti-corruption laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit our company from authorizing, offering, or providing, directly or indirectly, improper payments or benefits in order to gain or maintain business, including payments to recipients in the public or private sector. We use third-party law firms, accountants, and other representatives for regulatory compliance, sales, and other purposes in several countries. We sell directly and indirectly, via third-party representatives, to both private and government sectors in the United States and in other jurisdictions. Our employees and third-party representatives interact with these customers, which may include government officials. We can be held liable for the corrupt or other illegal activities of these third-party representatives, our employees, contractors, and other agents, even if we do not explicitly authorize such activities. Noncompliance with these laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage, and other collateral consequences. If any subpoenas or investigations are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our reputation, business, results of operations and financial condition could be materially harmed. In addition, responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense costs and other professional fees. Enforcement actions and sanctions could further harm our business, results of operations, and financial condition. Moreover, as an issuer of securities, we also are subject to the accounting and internal controls provisions of the FCPA. These provisions require us to maintain accurate books and records and a system of internal controls sufficient to detect and prevent corrupt conduct. Failure to abide by these provisions may have an adverse effect on our business, operations or financial condition.

We are subject to governmental export and import controls and economic and trade sanctions that could impair our ability to conduct business in international markets and subject us to liability if we are not in compliance with applicable laws and regulations.

The United States and other countries maintain and administer export and import laws and regulations. Our products are subject to U.S. export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions administered by the U.S. Treasury Department's Office of Foreign Assets Control. We are required to comply with these laws and regulations. If we fail to comply with such laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges; fines, which may be imposed on us and responsible employees or managers; and, in extreme cases, the incarceration of responsible employees or managers. Obtaining the necessary authorizations, including any required license, for a particular sale may be time-consuming, is not guaranteed and may result in the delay or loss of sales opportunities. In addition, changes in our solutions, or changes in applicable export or import laws and regulations may create delays in the introduction and sale of our products in international markets or, in some cases, prevent the export or import of our solutions to certain countries, governments or persons altogether. Any change in export or import laws and regulations or economic or trade sanctions, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations could also result in decreased use of our products, or in our decreased ability to export or sell our products to existing or potential customers. Any decreased use of our products or limitation on our ability to export or sell our products would likely adversely affect our business, financial condition, and results of operations.

Furthermore, we incorporate encryption technology into certain of our solutions. Various countries regulate the import of certain encryption technology, including import permitting and licensing requirements, and have enacted laws that could limit our ability to distribute our solutions or could limit our customers' ability to implement our solutions in those countries. Encrypted products and the underlying technology may also be subject to export control restrictions. Governmental regulation of encryption technology and regulation of imports or exports of encryption solutions, or our failure to obtain required import or export approval for our solutions, could harm our international sales and adversely affect our revenue. Compliance with applicable laws and regulations regarding the export and import of our solutions, including with respect to new solutions or changes in existing solutions, may create delays in the introduction of our solutions in international markets, prevent our customers with international operations from deploying our solutions globally or, in some cases, could prevent the export or import of our solutions to certain countries, governments, entities or persons altogether.

Moreover, U.S. export control laws and economic sanctions programs prohibit the shipment of certain products and services to countries, governments and persons that are subject to U.S. economic embargoes and trade sanctions. Any violations of such economic embargoes and trade sanction regulations could have negative consequences, including government investigations, penalties and reputational harm.

Changes to and uncertainties in the interpretation and application of tax laws and regulations could materially affect our tax obligations and effective tax rate.

The tax regimes to which we are subject or under which we operate, including income and non-income taxes, are unsettled and may be subject to significant change. The issuance of additional regulatory or accounting guidance related to existing or future tax laws, or changes to tax laws or regulations proposed or implemented by the current or a future U.S. presidential administration, Congress, or taxing authorities in other jurisdictions, including jurisdictions outside of the

United States, could materially affect our tax obligations and effective tax rate. For example, beginning in 2022, U.S. taxpayers are required to capitalize and amortize certain research and development expenditures over five years if incurred in the United States and fifteen years if incurred in non-U.S. jurisdictions. Although legislative proposals have been made to repeal or defer the capitalization requirement, there can be no assurance that the provision will be repealed or otherwise modified. In addition, the recently enacted Inflation Reduction Act includes, among other provisions, a 15% minimum tax on the book income of certain large corporations, as well as a 1% excise tax imposed on certain stock repurchases by public corporations. It is possible that these changes could increase our future tax liability. Furthermore, the Organization for Economic Co-operation and Development, or OECD, is leading work on proposals, commonly referred to as “BEPS 2.0”, which, if and to the extent implemented, would make important changes to the international tax system. These proposals are based on two “pillars”, involving the allocation of taxing rights in respect of certain multinational enterprises above a fixed profit margin to the jurisdictions in which they carry on business (subject to certain revenue threshold rules which we do not currently meet but expect to meet in the future), referred to as the Pillar One proposal, and imposing a minimum effective tax rate on certain multinational enterprises, referred to as the Pillar Two proposal. A number of countries have enacted with effect from the start of 2024, or are planning to enact core elements of the Pillar Two rules. Based on our current understanding of the minimum revenue thresholds contained in the Pillar Two proposal, we may be within the scope of its rules. The OECD has issued administrative guidance providing transition and safe harbor rules in relation to the implementation of the Pillar Two proposal. We are monitoring developments and evaluating the potential impacts of these new rules, including on our effective tax rates and considering our eligibility to qualify for these safe harbor rules. Any of the foregoing could increase our tax obligations and require us to incur additional material costs to ensure compliance with any such rules in the countries where we do business.

In addition, forecasts of our income tax position and effective tax rate for financial accounting purposes are complex and subject to significant judgment and uncertainty because our income tax position for each year combines the effects of a mix of profits earned and losses incurred by us in various tax jurisdictions with a broad range of income tax rates, as well as changes in the valuation of deferred tax assets and liabilities, the impact of various accounting rules and tax laws (and changes to these rules and tax laws), the results of examinations by various tax authorities, and the impact of any acquisition, business combination or other reorganization or financing transaction. To forecast our global tax rate, we estimate our pre-tax profits and losses and tax expense by jurisdiction. If the mix of profits and losses, our ability to use tax assets and attributes, our assessment of the need for valuation allowances, effective tax rates by jurisdiction or other factors are different than those estimated, our actual tax rate could be materially different than forecasted, which could have a material impact on our business, financial condition and results of operations.

Our operating results may be negatively affected if we are required to pay additional taxes, including sales and use tax, value added tax, or other transaction taxes, and we could be subject to liability with respect to all or a portion of past or future sales.

We currently collect and remit sales and use, value added and other transaction taxes in certain of the jurisdictions where we do business based on our assessment of the amount of taxes owed by us in such jurisdictions. However, in some jurisdictions in which we do business, we do not believe that we owe such taxes, and therefore we currently do not collect and remit such taxes in those jurisdictions or record contingent tax liabilities in respect of those jurisdictions. A successful assertion that we are required to pay additional taxes in connection with sales of our solutions, or the imposition of new laws or regulations or the interpretation of existing laws and regulations requiring the payment of additional taxes, would result in increased costs and administrative burdens for us. If we are subject to additional taxes and determine to offset such increased costs by collecting and remitting such taxes from our customers, or otherwise passing those costs through to our customers, companies may be discouraged from using our solutions. Any increased tax burden may decrease our ability or willingness to compete in relatively burdensome tax jurisdictions, result in substantial tax liabilities related to past or future sales or otherwise harm our business and operating results.

Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.

At December 31, 2023 we had U.S. federal, state and foreign net operating loss carryforwards, or NOLs, of $372.5 million, $246.6 million, and $469.3 million, respectively, available to offset future taxable income, some of which will begin to expire in 2030. A lack of future taxable income would adversely affect our ability to utilize certain of our NOLs before they expire. Under current law, Federal NOLs incurred in taxable years beginning after December 31, 2017 can be carried forward indefinitely, but the deductibility of such federal NOLs is limited to 80% of taxable income.

In addition, under the provisions of the Internal Revenue Code of 1986, as amended, or the Internal Revenue Code, changes in our ownership may limit the amount of pre-change NOLs that can be utilized annually in the future to offset taxable income. Section 382 of the Internal Revenue Code imposes limitations on a company’s ability to use its NOLs to offset its taxable income if one or more stockholders or groups of stockholders that each own at least 5% of the company’s stock increase their aggregate ownership (by value) by more than 50 percentage points over their lowest ownership percentages within a rolling three-year period. Similar rules may apply under state and foreign tax laws. Based upon an analysis at December 31, 2023, we do not expect these limitations to materially impair our ability to use our NOLs prior to expiration. However, if changes in our ownership occurred after such date, or occur in the future, our ability to use our NOLs may be limited. Subsequent statutory or regulatory changes in respect of the utilization of NOLs for federal, state or foreign purposes, such as suspensions on the use of NOLs or limitations on the deductibility of NOLs carried forward, or other unforeseen reasons, may result in our existing NOLs expiring or otherwise being unavailable to offset future income tax liabilities. For these reasons, we may not be able to utilize a material portion of our NOLs, even if we achieve profitability.

We are obligated to maintain proper and effective internal controls over financial reporting, and any failure to maintain the adequacy of these internal controls may adversely affect investor confidence in our company and, as a result, the value of our common stock.

We are required, pursuant to Section 404 of the Sarbanes-Oxley Act, or Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting on an annual basis. This assessment includes disclosure of any material weaknesses identified by our management in our internal control over financial reporting. We are also required to disclose significant changes made in our internal control procedures on a quarterly basis.

During the evaluation and testing process of our internal controls, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal control over financial reporting is effective. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition or results of operations. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness or significant deficiency in our internal control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by the Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

Tenable recognizes the critical importance of developing, implementing, and maintaining robust cybersecurity measures to safeguard our information systems and protect the confidentiality, integrity, and availability of our data and our exposure management solutions. We have implemented and maintain various information security processes designed to identify, assess and manage material risks from cybersecurity threats to our critical computer networks, third-party hosted services, communications systems, hardware and software, our critical data (including without limitation intellectual property, confidential information that is proprietary, strategic or competitive, customer vulnerability data, and information systems data), and exposure management solutions.

Our Information Security function is overseen by our Chief Security Officer, or CSO, and is supported by our Chief Information Officer, Product Engineering Team Lead, Chief Legal Officer, or CLO, and Head of Global Privacy. Our information security function is responsible for identifying, assessing and managing cybersecurity threats and risks and works to monitor and evaluate our threat environment and risk profile using various methods. These methods include conducting vulnerability assessments and threat assessments in certain environments for internal and external threats, scanning certain threat environments, analyzing certain reports of threats and actors, conducting internal audits for certain systems, evaluating our and our industry's risk profile, coordinating with law enforcement concerning select threats, and engaging with third-party service providers to conduct external audits, and threat assessments for certain systems, provide intelligence feeds, and conduct red/blue team testing and tabletop incident response exercises.

We implement and maintain various technical, physical, and organizational measures, processes, standards and policies designed to manage and mitigate material risks from cybersecurity threats to our information systems and data depending on the environment. This includes maintaining an incident response plan, vulnerability management policy, and disaster recovery and business continuity plan, conducting risk assessments for certain environments, implementing security standards and certifications for certain products and systems, encrypting data in transit and at rest, controlling data access in certain environments, using multiple network controls in certain environments, segregating data, monitoring systems, performing regular security assessments for certain systems, training employees, maintaining cybersecurity insurance, maintaining dedicated cybersecurity staff, and conducting internal and external penetration tests.

Our assessment and management of material risks from cybersecurity threats are integrated into our overall risk management processes. This integration is designed to ensure that cybersecurity considerations are part of our decision-making processes. Our senior management evaluates material risks from cybersecurity threats against our overall business objectives and reports to the Cybersecurity Risk Management Committee, or Cybersecurity Committee, of the Board of Directors, or Board.

We use third-party service providers to assist us from time to time in identifying, assessing, and managing material risks from cybersecurity threats, including for example cybersecurity consultants and software providers, managed cybersecurity service providers, threat intelligence service providers, forensic investigators, penetration testing firms, dark web monitoring services, and professional services firms, including legal counsel and auditors. By partnering with these specialized providers, we can leverage their insights and expertise to implement cybersecurity strategies and processes that are designed to align with industry best practices.

Our collaboration with third parties includes cybersecurity audits, threat assessments, and consultation on security enhancements. We have established processes designed to manage the cybersecurity risks associated with working with third-party service providers. We evaluate the risks associated with third parties before engagement and maintain ongoing monitoring of such third parties designed to ensure compliance with our security standards. This includes security questionnaires and assessments, as well as external attack surface management. Depending on the nature of the services provided, the sensitivity of the information systems and data at issue, and the identity of the provider, our vendor management process may involve different levels of assessment designed to help identify cybersecurity risks associated with a provider and impose contractual obligations related to cybersecurity on the provider.

See Risk Factors in this Annual Report on Form 10-K for a description of the risks from cybersecurity threats that may materially affect us and how they may do so.

Governance

Our Board addresses cybersecurity risk management as part of its general oversight function. The Cybersecurity Committee is tasked with assisting the Board in fulfilling its oversight responsibility for our cybersecurity risk management processes, including oversight and mitigation of risks from cybersecurity threats.

The Cybersecurity Committee bears the primary responsibility for oversight of the management of risks related to the Company's information technology use and protection, cybersecurity, and product security. The Cybersecurity Committee consists of directors with cybersecurity and other expertise including risk management, technology and finance. The Cybersecurity Committee assists the Audit Committee and the Board in overseeing Tenable's overall process of risk assessment and enterprise risk management.

Our CSO is responsible for implementing and maintaining our cybersecurity risk assessment and management processes. Our CSO has over 25 years of experience in cybersecurity, including serving as a chief security and strategy officer at another company and founding a cybersecurity operational technology threat intelligence and solutions platform. Our CSO oversees and maintains our information security management framework and is responsible for defining and implementing our information security strategy, hiring appropriate personnel, communicating key cybersecurity priorities to relevant personnel, and managing cybersecurity budgets and cybersecurity processes.

Our CSO seeks to regularly obtain information about relevant developments in cybersecurity, including potential threats and risk management techniques to help shape our approach to preventing, detecting, mitigating, and remediating cybersecurity threats. Our CSO is also responsible for implementing and overseeing processes for regularly monitoring our information systems and data, including the conducting of periodic audits of certain systems to identify potential vulnerabilities. The CSO reports directly to the Chief Executive Officer and provides regular updates to our Chief Financial Officer, and CLO, on certain cybersecurity risks and incidents.

In the event of a cybersecurity incident, the CSO initiates our incident response plan that includes actions designed to mitigate the impact and long-term strategies for remediation and prevention of future incidents. Our incident response plan is designed to escalate certain cybersecurity incidents to members of management depending on the circumstances, including reporting to the Cybersecurity Committee and the Board for certain cybersecurity incidents.

Item 2. Properties

Our corporate headquarters in Columbia, Maryland consist of approximately 160,000 square feet under a lease that expires in February 2032. We maintain additional offices in multiple locations internationally in Europe and the Middle East, Asia Pacific and South America. We believe that our current facilities are adequate to meet our ongoing needs and that suitable additional alternative spaces will be available in the future on commercially reasonable terms.

Item 3. Legal Proceedings

From time to time, we may be subject to legal proceedings and claims in the ordinary course of business. We are not presently a party to any legal proceedings that, if determined adversely to us, would individually or taken together have a material adverse effect on our business, results of operations, financial condition or cash flows. We have received, and may in the future continue to receive, claims from third parties asserting, among other things, infringement of their intellectual property rights. Future litigation may be necessary to defend ourselves, our partners and our customers by determining the scope, enforceability and validity of third-party proprietary rights, or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

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 for Common Stock

Our common stock trades on the Nasdaq Global Select Market under the ticker symbol "TENB."

Holders of Record

At December 31, 2023, we had 22 holders of record. 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.

Dividend Policy

We have never declared or paid any dividends on our common stock. In addition, our credit agreement with JPMorgan Chase Bank, N.A., as administrative agent and collateral agent, contains restrictive covenants that limit our ability to pay dividends on our common stock. We currently intend to retain all available funds and any future earnings for the operation and expansion of our business and do not anticipate declaring or paying cash dividends in the foreseeable future. The payment of any future dividends will be at the discretion of our Board of Directors and will depend on our results of operations, capital requirements, financial condition, prospects, contractual arrangements, any limitations on payment of dividends present in our current and future debt agreements, and other factors that our Board of Directors may deem relevant.

Unregistered Sales of Equity Securities

On October 2, 2023, in connection with our acquisition of Ermetic, we issued 311,160 shares of restricted common stock to certain key Ermetic employees. These shares have not been registered under the Securities Act of 1933, as amended, or the securities laws of any state of the United States in reliance upon certain exemptions from registration under said acts and may not be offered or sold absent to registration or pursuant to an exemption therefrom. The foregoing did not involve any underwriters, underwriting discounts or commissions, or any public offering. The sales were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D or Regulation S promulgated thereunder) as transactions by an issuer not involving any public offering. The recipients of the securities 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 on the share certificates issued. The shares are deemed restricted securities, and unless so registered, may not be offered or sold in the United States except pursuant to an exemption from the registration requirements of the Securities Act. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

The shares issued were subject to vesting agreements and were unvested as of their issuance. The shares are subject to forfeiture if these employees do not continue to provide services for the specified vesting period.

Issuer Purchases of Equity Securities

A summary of stock repurchases during the three months ended December 31, 2023 is presented below:

(in thousands, except for per share data)	Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plan(1)	Approximate Dollar Value of Shares that May Yet Be Purchased Under Plan(1)
Shares purchased October 1, 2023 to October 31, 2023	—	$ —	—	$ —
Shares purchased November 1, 2023 to November 30, 2023	24	$ 41.09	24	$ 99,001
Shares purchased December 1, 2023 to December 31, 2023	332	$ 41.98	332	$ 85,066
	356	$ 41.92		

(1) On November 27, 2023, we announced that our Board of Directors authorized the repurchase of up to $100 million of our common stock. Repurchases under the share repurchase program may be made in the open market, in privately negotiated transactions, or in such other manner as determined by us, including through repurchase plans complying with the rules and regulations of the Securities and Exchange Commission. The authorization has no expiration date.

Item 6. Selected Financial Data

The following selected consolidated statements of operations data for the years ended December 31, 2023, 2022 and 2021 and the selected consolidated balance sheet data at December 31, 2023 and 2022 are derived from our audited consolidated financial statements included in this Annual Report on Form 10-K. The consolidated statements of operations data for the years ended December 31, 2020 and 2019 and consolidated balance sheet data as of December 31, 2021, 2020 and 2019 are from our audited financial statements not included in this Annual Report on Form 10-K.

You should read the following selected financial data with the historical consolidated financial statements and related notes to those statements, as well as "Management's Discussion and Analysis of Financial Condition and Results of Operations," included in this Annual Report on Form 10-K.

Consolidated Statements of Operations Data:	**Year Ended December 31,**				
(in thousands, except per share data)	**2023**	**2022**	**2021**	**2020**	**2019**
Revenue	$ 798,710	$ 683,191	$ 541,130	$ 440,221	$ 354,586
Cost of revenue[(1)]	183,577	154,789	106,396	77,554	60,818
Gross profit	615,133	528,402	434,734	362,667	293,768
Operating expenses:					
Sales and marketing[(1)]	393,450	349,430	270,158	224,277	228,035
Research and development[(1)]	153,163	143,560	116,432	101,687	87,064
General and administrative[(1)]	116,181	103,227	89,912	73,136	69,468
Restructuring	4,499	—	—	—	—
Total operating expenses	667,293	596,217	476,502	399,100	384,567
Loss from operations	(52,160)	(67,815)	(41,768)	(36,433)	(90,799)
Interest income	24,700	6,284	606	1,740	6,037
Interest expense	(31,339)	(19,001)	(7,502)	(496)	(207)
Other expense, net	(8,602)	(4,757)	(1,965)	(1,885)	(680)
Loss before income taxes	(67,401)	(85,289)	(50,629)	(37,074)	(85,649)
Provision (benefit) for income taxes	10,883	6,933	(3,952)	5,657	13,364
Net loss	$ (78,284)	$ (92,222)	$ (46,677)	$ (42,731)	$ (99,013)
Net loss per share, basic and diluted[(2)]	$ (0.68)	$ (0.83)	$ (0.44)	$ (0.42)	$ (1.03)
Weighted-average shares used to compute net loss per share, basic and diluted	115,408	111,321	106,387	101,009	96,014

(1) Includes stock-based compensation expense as follows:

	Year Ended December 31,				
(in thousands)	**2023**	**2022**	**2021**	**2020**	**2019**
Cost of revenue	$ 11,247	$ 8,369	$ 4,446	$ 3,158	$ 2,817
Sales and marketing	61,322	49,383	29,410	19,842	16,032
Research and development	37,225	31,499	20,593	14,794	8,911
General and administrative	35,533	31,382	24,956	21,779	15,683
Total stock-based compensation expense	$ 145,327	$ 120,633	$ 79,405	$ 59,573	$ 43,443

(2) See Note 12 to our Consolidated Financial Statements in this Annual Report on Form 10-K for details on the calculation of basic and diluted net loss per share.

Consolidated Balance Sheet Data:	December 31,				
(in thousands)	2023	2022	2021	2020	2019
Cash and cash equivalents	$ 237,132	$ 300,866	$ 278,000	$ 178,223	$ 74,363
Short-term investments	236,840	266,569	234,292	113,623	137,904
Working capital(1)	129,635	273,007	265,556	108,891	35,319
Total assets	1,606,871	1,439,530	1,248,819	690,589	558,612
Deferred revenue, current and non-current	750,497	664,602	530,885	434,510	363,127
Term loan, net of issuance costs (net of current portion)	359,281	361,970	364,728	—	—
Accumulated deficit	(825,035)	(746,751)	(654,529)	(607,852)	(565,121)
Total stockholders' equity	346,344	270,866	215,313	150,665	98,905

(1) We define working capital as total current assets less total current liabilities. See our Consolidated Financial Statements in this Annual Report on Form 10-K for further details regarding our current assets and current liabilities.

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 included elsewhere in this Annual Report on Form 10-K, or this Form 10-K. This Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements are often identified by the use of words such as "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "project," "will," "would" or the negative or plural of these words or similar expressions or variations. Such forward-looking statements are subject to a number of risks, uncertainties, assumptions and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified herein, and those discussed in the section titled "Risk Factors," set forth in Part I, Item 1A of this Form 10-K and in our other filings with the SEC. You should not rely upon forward-looking statements as predictions of future events. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of such statements.

Overview

We are a leading provider of exposure management solutions. Exposure management is an effective discipline for managing, measuring and comparing cybersecurity risk in today's complex IT environments.

Our Tenable One Exposure Management Platform, or Tenable One, unifies a variety of data sources into a single exposure view to help organizations gain visibility, prioritize efforts and communicate cyber risks. Building on our existing products, Tenable One is designed to take advantage of the integrations that already exist with our partners and form the foundation of an exposure management program, alongside the other tools, such as endpoint detection and response and firewalls, and required business processes.

With Tenable One, organizations can translate technical data about assets, vulnerabilities and threats into clear business insights and actionable intelligence for security executives and practitioners. The platform combines broad, industry-leading vulnerability coverage in the industry, spanning IT assets, cloud resources, containers, web apps and identity systems. Tenable One builds on the speed and breadth of vulnerability coverage from Tenable Research and adds aggregated exposure view analytics, guidance on mitigating attack pathways and a centralized asset inventory.

Tenable One incorporates Tenable Vulnerability Management, Tenable Web App Scanning, Tenable Lumin, Tenable Cloud Security, Tenable Identity Exposure, Tenable Attack Surface Management, Tenable Security Center and Tenable OT Security. All of these products are also offered as standalone solutions, alongside Nessus.

Our platform offerings are primarily sold on a subscription basis with a one-year term. Our subscription terms are generally not longer than three years. These offerings are typically prepaid in advance. To a lesser extent, we recognize revenue ratably from perpetual licenses and from the related ongoing maintenance.

We sell and market our products and services through our field sales force that works closely with our channel partners, which includes a network of distributors and resellers, in developing sales opportunities. We use a two-tiered channel model whereby we sell our enterprise platform offerings to our distributors, which in turn sell to our resellers, which then sell to end users, which we call customers.

Revenue in 2023, 2022 and 2021 was $798.7 million, $683.2 million and $541.1 million, representing year-over-year growth of 17% and 26%, respectively. Our recurring revenue, which includes revenue from subscription arrangements for software (both revenue recognized ratably over the subscription term and upon delivery) and cloud-based solutions and maintenance associated with perpetual licenses, represented 95% of revenue in 2023, 2022 and 2021. Our net loss in 2023, 2022 and 2021 was $78.3 million, $92.2 million and $46.7 million, respectively. Our cash flows from operating activities were $149.9 million, $131.2 million and $96.8 million in 2023, 2022 and 2021, respectively.

Financial Highlights

Below are our key financial results:

(in thousands, except per share data)	Year Ended December 31, 2023	2022	2021
Revenue	$ 798,710	$ 683,191	$ 541,130
Loss from operations	(52,160)	(67,815)	(41,768)
Net loss	(78,284)	(92,222)	(46,677)
Net loss per share, basic and diluted	(0.68)	(0.83)	(0.44)
Net cash provided by operating activities	149,855	131,151	96,765
Purchases of property and equipment	(1,704)	(9,359)	(3,887)
Capitalized software development costs	(7,052)	(9,789)	(2,674)

Key Operating and Financial Metrics

To supplement our consolidated financial statements, which are prepared and presented in accordance with GAAP, we use and monitor the following operating and financial metrics, which include non-GAAP financial measures, to understand and evaluate our core operating and financial performance.

Calculated Current Billings

We use the non-GAAP measure of calculated current billings, which we believe is a key metric to measure our periodic performance. Given that most of our customers pay in advance, we typically recognize a majority of the related revenue ratably over time. We use calculated current billings to measure and monitor our ability to provide our business with the working capital generated by upfront payments from our customers.

Calculated current billings consists of revenue recognized in a period plus the change in current deferred revenue in the corresponding period. We believe that calculated current billings, which excludes deferred revenue for periods beyond twelve months in a customer's contractual term, more closely correlates with annual contract value. Variability in total billings, depending on the timing of large multi-year contracts and the preference for annual billing versus multi-year upfront billing, may distort growth in one period over another.

Calculated current billings may vary from period-to-period for a number of reasons, and therefore has a number of limitations as a quarter-to-quarter or year-over-year comparative measure. Calculated current billings in any one period may be impacted by the timing and amount of new sales transactions, the timing and amount of renewal transactions, including early renewals, the mix of the amount of subscriptions and perpetual licenses, the timing of billing professional services, as well as the timing and amount of multi-year prepaid contracts, all of which could favorably or unfavorably impact quarter-to-quarter and year-over-year comparisons. For example, an increasing number of large sales transactions, for which the timing has and will continue to vary, may occur in quarters subsequent to or in advance of those that we anticipate. Additionally, our calculation of calculated current billings may be different from other companies that report similar financial measures. Because of these and other limitations, you should consider calculated current billings along with revenue and our other GAAP financial results.

The following table presents a reconciliation of revenue, the most directly comparable financial measure calculated in accordance with GAAP, to calculated current billings:

	Year Ended December 31,		
(in thousands)	2023	2022	2021
Revenue	$ 798,710	$ 683,191	$ 541,130
Deferred revenue (current), end of period	580,779	502,115	407,498
Deferred revenue (current), beginning of period(1)	(506,192)	(408,443)	(331,462)
Calculated current billings	$ 873,297	$ 776,863	$ 617,166

(1) Deferred revenue (current), beginning of period for 2023, 2022 and 2021 includes $4.1 million, $0.9 million and $2.6 million, respectively, related to acquired deferred revenue.

Free Cash Flow

We use the non-GAAP measure of free cash flow, which we define as GAAP net cash flows from operating activities reduced by purchases of property and equipment and capitalized software development costs. We believe free cash flow is an important liquidity measure of the cash (if any) that is available, after purchases of property and equipment and capitalized software development costs, for investment in our business and to make acquisitions. We believe that free cash flow is useful as a liquidity measure because it measures our ability to generate or use cash.

Our use of free cash flow has limitations as an analytical tool and you should not consider it in isolation or as a substitute for an analysis of our results under GAAP. First, free cash flow is not a substitute for net cash flows from operating activities. Second, other companies may calculate free cash flow or similarly titled non-GAAP financial measures differently or may use other measures to evaluate their performance, all of which could reduce the usefulness of free cash flow as a tool for comparison. Additionally, the utility of free cash flow is further limited as it does not reflect our future contractual commitments and does not represent the total increase or decrease in our cash balance for a given period. Because of these and other limitations, you should consider free cash flow along with net cash provided by operating activities and our other GAAP financial measures.

The following table presents a reconciliation of net cash provided by operating activities, the most directly comparable financial measure calculated in accordance with GAAP, to free cash flow:

	Year Ended December 31,		
(in thousands)	2023	2022	2021
Net cash provided by operating activities	$ 149,855	$ 131,151	$ 96,765
Purchases of property and equipment	(1,704)	(9,359)	(3,887)
Capitalized software development costs	(7,052)	(9,789)	(2,674)
Free cash flow(1)	$ 141,099	$ 112,003	$ 90,204

(1) Free cash flow for the periods presented was impacted by:

	Year Ended December 31,		
(in thousands)	2023	2022	2021
Cash paid for interest and other financing costs	$ 34,323	$ 16,047	$ 4,978
Employee stock purchase plan activity	1,077	837	(283)
Acquisition-related expenses	(9,336)	(2,655)	(6,464)
Costs related to intra-entity asset transfers	—	(838)	—
Tax payment on intra-entity asset transfers	—	(2,697)	(2,808)
Capital expenditures related to new headquarters	—	—	(928)

Free cash flow in 2022 was benefited by approximately $8 million from prepayments of software subscription costs, insurance and rent made in prior quarters.

Customer Metrics

We believe that our customer base provides a significant opportunity to expand sales of our enterprise platform offerings. The following tables summarize key components of our customer base:

	Year Ended December 31,		
	2023	2022	2021
Number of new enterprise platform customers added in period[(1)(2)]	1,788	2,078	1,882

(1) We define an enterprise platform customer as a customer that has licensed Tenable One, Tenable Venerability Management, Tenable Cloud Security, Tenable Identity Exposure, Tenable OT Security or Tenable Security Center for an annual amount of $5,000 or greater. New enterprise platform customers represent new customer logos during the periods presented and do not include customer conversions from Tenable Nessus Expert to enterprise platforms.

(2) The number of new enterprise platform customers added in 2023 and 2021 include 104 and 95 legacy customers, respectively, of companies we acquired.

	December 31,		
	2023	2022	2021
Number of customers with $100,000 and greater in annual contract value at end of period	1,721	1,420	1,095

Dollar-Based Net Expansion Rate

Our dollar-based net expansion rate reflects both our customer retention and ability to drive additional sales to our existing customers. Our dollar-based net expansion rate has historically fluctuated and is expected to continue to fluctuate on a quarterly basis as a result of a number of factors, including existing customers' satisfaction with our solutions, existing customer retention, the pricing of our solutions, the availability of competing solutions and the pricing thereof, and the timing of customer renewals. In addition, our sales pipeline opportunities vary from quarter to quarter between new customers and expansion from existing customers, and we do not prioritize one over the other to maximize the dollar-based net expansion rate.

Our dollar-based net expansion rate is evaluated on a last twelve months, or LTM, basis, and is calculated as follows:

- Denominator: To calculate our dollar-based net expansion rate as of the end of a reporting period, we first determine the annual recurring revenue, or ARR, from all active subscriptions (both revenue recognized ratably over the subscription term and upon delivery) and maintenance from perpetual licenses as of the last day of the same reporting period in the prior year. This represents recurring payments that we expect to receive in the next 12-month period from the cohort of customers that existed on the last day of the same reporting period in the prior year.

- Numerator: We measure the ARR for that same cohort of customers representing all subscriptions and maintenance from perpetual licenses based on customer orders as of the end of the reporting period.

We calculate dollar-based net expansion rate by dividing the numerator by the denominator.

The following table presents our dollar-based net expansion rate:

	December 31,		
(in thousands)	2023	2022	2021
Dollar-based net expansion rate	111 %	117 %	117 %

Non-GAAP Income from Operations and Non-GAAP Operating Margin

We use non-GAAP income from operations along with non-GAAP operating margin as key indicators of our financial performance. We define these non-GAAP financial measures as their respective GAAP measures, excluding the effects of stock-based compensation, acquisition-related expenses, restructuring expenses, costs related to the intra-entity asset transfers resulting from the internal restructuring of legal entities and amortization of acquired intangible assets. Acquisition-related expenses include transaction and integration expenses, as well as costs related to the intercompany transfer of acquired intellectual property. Restructuring expenses include non-ordinary course severance, employee related benefits and other charges to reorganize business operations.

We believe that these non-GAAP financial measures provide useful information about our core operating results over multiple periods. There are a number of limitations related to the use of the non-GAAP financial measures as compared to GAAP loss from operations and operating margin, including that non-GAAP income from operations and non-GAAP operating margin exclude stock-based compensation expense, which has been, and will continue to be, a significant recurring expense in our business and an important part of our compensation strategy.

The following table presents a reconciliation of loss from operations, the most directly comparable financial measure calculated in accordance with GAAP, to non-GAAP income from operations, and operating margin, the most directly comparable financial measure calculated in accordance with GAAP, to non-GAAP operating margin:

	Year Ended December 31,		
(dollars in thousands)	**2023**	**2022**	**2021**
Loss from operations	$ (52,160)	$ (67,815)	$ (41,768)
Stock-based compensation	145,327	120,633	79,405
Acquisition-related expenses	9,472	2,642	6,901
Restructuring	4,499	—	—
Costs related to intra-entity asset transfer(1)	—	838	—
Amortization of acquired intangible assets	13,859	11,372	6,447
Non-GAAP income from operations	$ 120,997	$ 67,670	$ 50,985
Operating margin	(7)%	(10)%	(8)%
Non-GAAP operating margin	15 %	10 %	9 %

(1) The costs related to the intra-entity asset transfer resulted from our internal restructuring of Cymptom.

Non-GAAP Net Income and Non-GAAP Earnings Per Share

We use non-GAAP net income, which excludes stock-based compensation, acquisition-related expenses, restructuring expenses and amortization of acquired intangible assets, as well as the related tax impacts, and the tax impact and related costs of intra-entity asset transfers resulting from the internal restructuring of legal entities as well as deferred income tax benefits recognized in connection with acquisitions, to calculate non-GAAP earnings per share. We believe that these non-GAAP measures provide important information because they facilitate comparisons of our core operating results over multiple periods.

The following table presents a reconciliation of net loss and net loss per share, the most comparable financial measures calculated in accordance with GAAP, to non-GAAP net income and non-GAAP earnings per share:

(in thousands, except for per share amounts)	Year Ended December 31, 2023	2022	2021
Net loss	$ (78,284)	$ (92,222)	$ (46,677)
Stock-based compensation	145,327	120,633	79,405
Tax impact of stock-based compensation(1)	2,017	2,103	617
Acquisition-related expenses(2)	9,472	2,642	6,901
Restructuring(2)	4,499	—	—
Costs related to intra-entity asset transfer(3)	—	838	—
Amortization of acquired intangible assets(4)	13,859	11,372	6,447
Tax impact of acquisitions(5)	265	(3,703)	(10,560)
Tax impact of intra-entity asset transfers(6)	—	2,652	2,808
Non-GAAP net income	$ 97,155	$ 44,315	$ 38,941
Net loss per share, diluted	$ (0.68)	$ (0.83)	$ (0.44)
Stock-based compensation	1.25	1.08	0.75
Tax impact of stock-based compensation(1)	0.02	0.02	0.01
Acquisition-related expenses(2)	0.08	0.02	0.06
Restructuring(2)	0.04	—	—
Costs related to intra-entity asset transfer(3)	—	0.01	—
Amortization of acquired intangible assets(4)	0.11	0.10	0.06
Tax impact of acquisitions(5)	—	(0.03)	(0.10)
Tax impact of intra-entity asset transfers(6)	—	0.03	0.03
Adjustment to diluted earnings per share(7)	(0.02)	(0.02)	(0.03)
Non-GAAP earnings per share, diluted	$ 0.80	$ 0.38	$ 0.34
Weighted-average shares used to compute GAAP net loss per share, diluted	115,408	111,321	106,387
Weighted-average shares used to compute non-GAAP earnings per share, diluted	120,714	117,534	114,825

(1) The tax impact of stock-based compensation is based on the tax treatment for the applicable tax jurisdictions.

(2) The tax impact of acquisition-related expenses and restructuring expenses are not material.

(3) The costs related to the intra-entity asset transfers resulted from our internal restructuring of Cymptom.

(4) The tax impact of the amortization of acquired intangible assets is included in the tax impact of acquisitions.

(5) The tax impact of acquisitions in 2023 includes the deferred tax benefits of the Alsid acquisition and a reversal of deferred tax expense related to indefinite-lived intangible assets. The tax impact of acquisitions in 2022 includes a deferred tax benefit of $1.2 million related to Alsid and reversal of the $2.5 million income tax benefit recognized for GAAP purposes related to the partial release of our valuation allowance associated with the Bit Discovery acquisition. The tax impact of acquisitions in 2021 includes a reversal of the $7.9 million income tax benefit recognized for GAAP purposes related to the partial release of our valuation allowance and a $2.6 million benefit related to Alsid.

(6) The tax impact of the intra-entity transfers is related to current tax expense based on the applicable Israeli tax rates resulting from our internal restructuring of Cymptom in 2022 and Indegy in 2021.

(7) An adjustment to reconcile GAAP net loss per share, which excludes potentially dilutive shares, to non-GAAP earnings per share, which includes potentially dilutive shares.

Components of Our Results of Operations

Revenue

We generate revenue from subscription arrangements for our software and cloud-based solutions, perpetual licenses, maintenance associated with perpetual licenses and professional services.

Our subscription arrangements generally have annual or multi-year contractual terms to use our software or cloud-based solutions, including ongoing software updates during the contractual period. For software subscriptions that are dependent on ongoing software updates and the ability to identify the latest cybersecurity vulnerabilities, revenue is recognized ratably over the subscription term given the critical utility provided by the ongoing updates that are released through the contract period. When the critical utility of our software does not depend on ongoing updates, we recognize revenue attributable to the license at the time of delivery and the revenue attributable to the maintenance and support ratably over the contract period.

Our perpetual licenses are generally sold with one or more years of maintenance, which includes ongoing software updates. Given the critical utility provided by the ongoing software updates and updated ability to identify network vulnerabilities included in maintenance, we combine the perpetual license and the maintenance into a single performance obligation. Perpetual license arrangements generally contain a material right related to the customer’s ability to renew maintenance at a price that is less than the initial license fee. We apply a practical alternative to allocating a portion of the transaction price to the material right performance obligation and estimate a hypothetical transaction price which includes fees for expected maintenance renewals based on the estimated economic life of perpetual license contracts. We allocate the transaction price between the cybersecurity subscription provided in the initial contract and the material right related to expected contract renewals based on the hypothetical transaction price. We recognize the amount allocated to the combined license and maintenance performance obligation over the initial contractual period, which is generally one year. We recognize the amount allocated to the material right over the expected maintenance renewal period, which begins at the end of the initial contractual term and is generally four years. We have estimated the five-year economic life of perpetual license contracts based on historical contract attrition, expected renewal periods, the lifecycle of our technology and other factors. This estimate may change over time.

Professional services and other revenue is primarily comprised of advisory services and training related to the deployment and optimization of our products. These services do not result in significant customization of our products. Professional services and other revenue is recognized as the services are performed.

We have historically experienced, and expect in the future to experience, seasonality in entering into agreements with customers. We typically enter into a significantly higher percentage of agreements with new customers, as well as renewal agreements with existing customers, in the third and fourth quarters of the year. The increase in customer agreements in the third quarter is primarily attributable to U.S. government and related agencies, and the increase in the fourth quarter is primarily attributable to large enterprise account buying patterns typical in the software industry. The ratable nature of our subscription revenue makes this seasonality less apparent in our overall financial results. In 2023, we experienced longer sales cycle times in the purchasing and approval phases of our sales cycle, and this trend is expected to continue in 2024.

Cost of Revenue, Gross Profit and Gross Margin

Cost of revenue includes personnel costs related to our technical support group that provides assistance to customers, including salaries, benefits, bonuses, payroll taxes, stock-based compensation and any severance. Cost of revenue also includes cloud infrastructure costs, the costs related to professional services and training, depreciation, amortization of acquired and developed technology, hardware costs and allocated overhead costs, which consist of information technology, facilities and insurance.

We intend to continue to invest additional resources in our cloud-based platform and customer support team as we grow our business. The level and timing of investment in these areas could affect our cost of revenue in the future.

Gross profit, or revenue less cost of revenue, and gross margin, or gross profit as a percentage of revenue, have been and will continue to be affected by various factors, including the timing of our acquisition of new customers and our renewals of and follow-on sales to existing customers, the costs associated with operating our cloud-based platform, the extent to which we expand our customer support team and the extent to which we can increase the efficiency of our technology and infrastructure through technological improvements.

We expect our gross profit to increase in absolute dollars but our gross margin may fluctuate from period to period depending on the interplay of all of these factors, particularly as it relates to cloud infrastructure costs, as we expect revenue from our cloud-based subscriptions to increase as a percentage of revenue.

Operating Expenses

Our operating expenses consist of sales and marketing, research and development, general and administrative expenses and restructuring expenses. Personnel costs are the most significant component of operating expenses and consist of salaries, benefits, bonuses, payroll taxes, stock-based compensation and ordinary course severance. Operating expenses also include depreciation and amortization as well as allocated overhead costs, including IT and facilities costs.

Sales and Marketing

Sales and marketing expense consists of personnel costs, sales commissions, marketing programs, travel and entertainment, expenses for conferences, meetings and events and allocated overhead costs. We capitalize sales commissions, including related fringe benefit costs, and recognize the expense over an estimated period of benefit, which ranges between three and four years for subscription arrangements and five years for perpetual license arrangements. Sales commissions on contract renewals are capitalized and amortized ratably over the contract term, with the exception of contracts with renewal periods that are one year or less, in which case the incremental costs are expensed as incurred. Sales commissions on professional services arrangements are expensed as incurred as the contractual periods of these arrangements are generally less than one year.

We intend to continue to make investments in our sales and marketing teams to increase revenue, further penetrate the market and expand our global customer base. We expect our sales and marketing expense to increase in absolute dollars annually and to be our largest operating expense category for the foreseeable future. However, as our revenue increases, we expect our sales and marketing expense to decrease as a percentage of our revenue over the long term. Our sales and marketing expense may fluctuate from period to period due to the timing and extent of these expenses, including sales commissions, which may fluctuate depending on the mix of sales and related expense recognition.

Research and Development

Research and development expense consists of personnel costs, software used to develop our products, travel and entertainment, consulting and professional fees for third-party development resources as well as allocated overhead. Our research and development expense supports our efforts to continue to add capabilities to our existing products and enable the continued detection of new network vulnerabilities.

We expect our research and development expense to continue to increase annually in absolute dollars for the foreseeable future as we continue to invest in research and development efforts to enhance the functionality of our cloud-based platform. However, we expect our research and development expense to decrease as a percentage of our revenue over the long term, although our research and development expense may fluctuate from period to period due to the timing and extent of these expenses.

General and Administrative

General and administrative expense consists of personnel costs for our executive, finance, legal, human resources and administrative departments. Additional expenses include travel and entertainment, professional fees, insurance, allocated overhead, and acquisition-related expenses.

We expect our general and administrative expense to continue to increase in absolute dollars and decrease as a percentage of our revenue over the long term, although our general and administrative expense may fluctuate from period to period due to the timing and extent of these expenses.

Restructuring

Restructuring expenses consist of non-ordinary course severance, employee related benefits and other charges to reorganize business operations.

Interest Income, Interest Expense and Other Expense, Net

Interest income consists of income earned on cash and cash equivalents and short-term investments. Interest expense consists primarily of interest expense in connection with our senior secured term loan facility, or Term Loan, unused commitment fees on our senior secured revolving credit facility, or Revolving Credit Facility, and letter of credit fees. Other expense, net consists primarily of foreign currency remeasurement and transaction gains and losses and impairment losses related to our non-marketable simple agreements for future equity ("SAFE") investments.

Provision (Benefit) for Income Taxes

Provision (benefit) for income taxes consists of income taxes in all foreign jurisdictions in which we conduct business and the related withholding taxes on sales with customers. We have recorded deferred tax assets for which a full valuation allowance has been provided, including net operating loss carryforwards and tax credits. We expect to maintain this full valuation allowance for the foreseeable future as it is more likely than not that some or all of those deferred tax assets may not be realized based on our history of losses.

Results of Operations

The following tables set forth our consolidated results of operations for the periods presented:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
Revenue	$ 798,710	$ 683,191	$ 541,130
Cost of revenue(1)	183,577	154,789	106,396
Gross profit	615,133	528,402	434,734
Operating expenses:			
Sales and marketing(1)	393,450	349,430	270,158
Research and development(1)	153,163	143,560	116,432
General and administrative(1)	116,181	103,227	89,912
Restructuring	4,499	—	—
Total operating expenses	667,293	596,217	476,502
Loss from operations	(52,160)	(67,815)	(41,768)
Interest income	24,700	6,284	606
Interest expense	(31,339)	(19,001)	(7,502)
Other expense, net	(8,602)	(4,757)	(1,965)
Loss before income taxes	(67,401)	(85,289)	(50,629)
Provision (benefit) for income taxes	10,883	6,933	(3,952)
Net loss	$ (78,284)	$ (92,222)	$ (46,677)

(1) Includes stock-based compensation expense as follows:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
Cost of revenue	$ 11,247	$ 8,369	$ 4,446
Sales and marketing	61,322	49,383	29,410
Research and development	37,225	31,499	20,593
General and administrative	35,533	31,382	24,956
Total stock-based compensation expense	$ 145,327	$ 120,633	$ 79,405

Comparison of 2023 and 2022

Revenue

	Year Ended December 31,		Change	
(dollars in thousands)	**2023**	**2022**	**($)**	**(%)**
Subscription revenue	$ 725,013	$ 612,510	$ 112,503	18 %
Perpetual license and maintenance revenue	48,729	50,699	(1,970)	(4)%
Professional services and other revenue	24,968	19,982	4,986	25 %
Revenue	$ 798,710	$ 683,191	$ 115,519	17 %

The increase in revenue of $115.5 million included $125.9 million from existing customers as of January 1, 2023 net of a decrease from new customers of $10.4 million as compared to the prior year. U.S. revenue increased $55.6 million, or 14%. International revenue increased $59.9 million, or 20%.

Cost of Revenue, Gross Profit and Gross Margin

(dollars in thousands)	Year Ended December 31, 2023	2022	Change ($)	(%)
Cost of revenue	$ 183,577	$ 154,789	$ 28,788	19 %
Gross profit	615,133	528,402	86,731	16 %
Gross margin	77 %	77 %		

The increase in cost of revenue of $28.8 million was primarily due to:

- a $12.2 million increase in personnel costs, primarily due to support for cloud-based products and an increase in headcount, including a $2.9 million increase in stock-based compensation;
- a $10.3 million increase in third-party cloud infrastructure costs;
- a $2.5 million increase in the amortization of acquired intangible assets;
- a $1.8 million increase in depreciation and amortization;
- a $0.7 million increase in allocated overhead expenses;
- a $0.5 million increase in subscription costs; and
- a $0.3 million increase in professional fees.

Operating Expenses

Sales and Marketing

(dollars in thousands)	Year Ended December 31, 2023	2022	Change ($)	(%)
Sales and marketing	$ 393,450	$ 349,430	$ 44,020	13 %

The increase in sales and marketing expense of $44.0 million was primarily due to:

- a $22.9 million increase in personnel costs, related to an increase in headcount, including an $11.9 million increase in stock-based compensation;
- a $9.8 million increase in expenses for demand generation programs, including advertising, sponsorships, and brand awareness efforts;
- a $9.3 million increase in selling expenses, including travel and meeting costs and software subscription costs;
- a $1.6 million increase in allocated overhead expenses; and
- a $0.3 million increase in depreciation expense.

Research and Development

(dollars in thousands)	Year Ended December 31, 2023	2022	Change ($)	(%)
Research and development	$ 153,163	$ 143,560	$ 9,603	7 %

The increase in research and development expense of $9.6 million was primarily due to:

- a $9.6 million increase in personnel costs, largely associated with an increase in headcount, including a $5.7 million increase in stock-based compensation and a $1.4 million decrease in capitalized software development costs;
- a $4.8 million increase in third-party cloud infrastructure costs;
- a $1.0 million increase in allocated overhead expenses;
- a $0.5 million increase in travel and meeting costs; and

- a $0.4 million increase in depreciation expense; partially offset by
- a $4.3 million decrease in costs for independent contractors; and
- a $2.3 million increase in tax credits.

General and Administrative

(dollars in thousands)	Year Ended December 31, 2023	Year Ended December 31, 2022	Change ($)	Change (%)
General and administrative	$ 116,181	$ 103,227	$ 12,954	13 %

The increase in general and administrative expense of $13.0 million was primarily due to:

- a $5.6 million increase in personnel costs, largely associated with an increase in headcount, including a $4.2 million increase in stock-based compensation;
- a $3.5 million increase in acquisition-related expenses;
- a $2.1 million increase in professional fees;
- a $1.1 million increase in indirect taxes such as VAT, GST and other;
- a $0.9 million increase in bank charges; and
- a $0.5 million increase in travel and meeting costs; partially offset by
- a $0.8 million decrease in costs related to intra-entity asset transfers.

Restructuring

(dollars in thousands)	Year Ended December 31, 2023	Year Ended December 31, 2022	Change ($)	Change (%)
Restructuring	$ 4,499	$ —	$ 4,499	100 %

The $4.5 million in restructuring includes non-ordinary course severance and employee related benefits related to the optimization of our go-to-market efforts, including reducing our reliance on sales specialists and streamlining layers of management. These changes to our go-to-market and supporting functions resulted in a 5% reduction in our work force. We expect to recognize an additional $2 million to $3 million in the three months ended March 31, 2024 related to the reduction in our work force that took place in January 2024. Additionally, we are currently in negotiations to sublease a portion of our real estate, which could result in a non-cash impairment charge of $6 million to $7 million in 2024.

Interest Income, Interest Expense and Other Expense, Net

(dollars in thousands)	Year Ended December 31, 2023	Year Ended December 31, 2022	Change ($)	Change (%)
Interest income	$ 24,700	$ 6,284	$ 18,416	293 %
Interest expense	(31,339)	(19,001)	(12,338)	65 %
Other expense, net	(8,602)	(4,757)	(3,845)	81 %

The $18.4 million increase in interest income was due to a higher interest rate on an increased average amount of cash and cash equivalents and short-term investments. The $12.3 million increase in interest expense was primarily due to an increase in the variable rate of our Term Loan. The $3.8 million increase in other expense, net was primarily due to $5.6 million of impairment losses on our SAFE investments partially offset by a decrease in foreign exchange losses.

Provision for Income Taxes

	Year Ended December 31,		Change	
(dollars in thousands)	2023	2022	($)	(%)
Provision for income taxes	$ 10,883	$ 6,933	$ 3,950	(57)%

In 2023, the provision for income taxes included:

- $5.8 million of income taxes in foreign jurisdictions in which we conduct business;
- $5.3 million of discrete expenses primarily related to withholding taxes on sales to customers; partially offset by
- $0.2 million of deferred tax benefits related to the Alsid acquisition.

In 2022, the provision for income taxes included:

- $4.8 million of income taxes in foreign jurisdictions in which we conduct business;
- $3.9 million of discrete expenses primarily related to withholding taxes on sales to customers; and
- $2.7 million of current expense from the restructuring of our research and development operations in Israel; partially offset by
- a $2.5 million benefit from releasing a valuation allowance related to the Bit Discovery acquisition;
- $1.2 million of deferred tax benefits related to the Alsid acquisition; and
- $0.8 million of discrete benefits.

Comparison of 2022 and 2021

Revenue

	Year Ended December 31,		Change	
(dollars in thousands)	2022	2021	($)	(%)
Subscription revenue	$ 612,510	$ 476,023	$ 136,487	29 %
Perpetual license and maintenance revenue	50,699	50,333	366	1 %
Professional services and other revenue	19,982	14,774	5,208	35 %
Revenue	$ 683,191	$ 541,130	$ 142,061	26 %

The increase in revenue of $142.1 million included $132.8 million from existing customers at January 1, 2022 and $9.3 million from new customers. U.S. revenue increased $71.2 million, or 23%. International revenue increased $70.9 million, or 31%.

Cost of Revenue, Gross Profit and Gross Margin

	Year Ended December 31,		Change	
(dollars in thousands)	2022	2021	($)	(%)
Cost of revenue	$ 154,789	$ 106,396	$ 48,393	45 %
Gross profit	528,402	434,734	93,668	22 %
Gross margin	77 %	80 %		

The increase in cost of revenue of $48.4 million was primarily due to:

- a $24.1 million increase in third-party cloud infrastructure costs;

- a $13.8 million increase in personnel costs, primarily due to support for cloud-based products and an increase in headcount, including a $3.9 million increase in stock-based compensation;
- a $4.9 million increase in the amortization of acquired intangible assets;
- a $2.8 million increase in professional fees;
- a $0.7 million increase in the cost of goods;
- a $0.7 million increase in depreciation and amortization;
- a $0.6 million increase in subscription costs; and
- a $0.6 million increase in allocated overhead expenses.

The amounts above are net of $0.7 million in savings due to the impact of foreign exchange rates.

Operating Expenses

Sales and Marketing

	Year Ended December 31,		Change	
(dollars in thousands)	2022	2021	($)	(%)
Sales and marketing	$ 349,430	$ 270,158	$ 79,272	29 %

The increase in sales and marketing expense of $79.3 million was primarily due to:

- a $52.5 million increase in personnel costs, related to an increase in headcount, including a $20.0 million increase in stock-based compensation;
- a $14.2 million increase in sales commissions;
- a $5.8 million increase in expenses for demand generation programs, including advertising, sponsorships, and brand awareness efforts;
- a $5.4 million increase in selling expenses, including travel and meeting costs and software subscription costs; and
- a $1.5 million increase in allocated overhead expenses.

The amounts above are net of $3.9 million in savings due to the impact of foreign exchange rates.

Research and Development

	Year Ended December 31,		Change	
(dollars in thousands)	2022	2021	($)	(%)
Research and development	$ 143,560	$ 116,432	$ 27,128	23 %

The increase in research and development expense of $27.1 million was primarily due to:

- a $19.8 million increase in personnel costs, largely associated with an increase in headcount, including a $10.9 million increase in stock-based compensation and is net of a $7.7 million increase in capitalized software development costs;
- a $3.1 million increase in third-party cloud infrastructure costs;
- a $2.0 million increase in software subscriptions;
- a $1.1 million increase in allocated overhead expenses; and
- a $0.5 million increase in travel and meeting costs.

The amounts above are net of $2.4 million in savings due to the impact of foreign exchange rates.

General and Administrative

(dollars in thousands)	Year Ended December 31, 2022	2021	Change ($)	(%)
General and administrative	$ 103,227	$ 89,912	$ 13,315	15 %

The increase in general and administrative expense of $13.3 million was primarily due to:

- an $11.5 million increase in personnel costs, largely associated with an increase in headcount, including a $6.4 million increase in stock-based compensation;
- a $1.9 million increase in professional fees;
- a $0.9 million increase in software subscription costs;
- a $0.9 million increase in indirect taxes such as VAT or GST;
- a $0.8 million increase in costs related to intra-entity asset transfers; and
- a $0.3 million increase in travel and meeting costs; partially offset by
- a $4.1 million decrease in acquisition-related expenses; and
- a $0.7 million decrease in allocated overhead expenses.

The amounts above are net of $0.7 million in savings due to the impact of foreign exchange rates.

Interest Income, Interest Expense and Other Expense, Net

(dollars in thousands)	Year Ended December 31, 2022	2021	Change ($)	(%)
Interest income	$ 6,284	$ 606	$ 5,678	937 %
Interest expense	(19,001)	(7,502)	(11,499)	153 %
Other expense, net	(4,757)	(1,965)	(2,792)	142 %

The $5.7 million increase in interest income was due to lower returns on our short-term investments in 2021. The $11.5 million increase in interest expense was primarily related to interest expense for our Term Loan entered into in July 2021. The $2.8 million increase in other expense, net was primarily due to an increase in foreign exchange losses.

Provision (Benefit) for Income Taxes

(dollars in thousands)	Year Ended December 31, 2022	2021	Change ($)	(%)
Provision (benefit) for income taxes	$ 6,933	$ (3,952)	$ 10,885	(275)%

In 2022, the provision for income taxes included:

- $4.8 million of income taxes in foreign jurisdictions in which we conduct business;
- $3.9 million of discrete expenses primarily related to withholding taxes on sales to customers; and
- $2.7 million of current expense from the restructuring of our research and development operations in Israel; partially offset by
- a $2.5 million benefit from releasing a valuation allowance related to the Bit Discovery acquisition;
- $1.2 million of deferred tax benefits related to the Alsid acquisition; and
- $0.8 million of discrete benefits.

In 2021, the benefit for income taxes included:

- $7.9 million of income tax benefits related to the partial release of our valuation allowance associated with the Accurics acquisition;
- $2.9 million of discrete benefits primarily related to a Supreme Court decision in India on the taxability of software license payments to nonresidents and the associated withholding taxes; and
- a $2.6 million deferred tax benefit related to the Alsid acquisition; partially offset by
- $3.8 million of income taxes in foreign jurisdictions in which we conduct business;
- $2.8 million of discrete expenses primarily related to withholding taxes on sales to customers; and
- $2.8 million of current expense from the restructuring of our research and development operations in Israel.

Liquidity and Capital Resources

At December 31, 2023, we had $237.1 million of cash and cash equivalents, which consisted of bank deposits and money market funds, and $236.8 million of short-term investments, which consisted of commercial paper, asset backed securities, certificates of deposit, U.S. Treasury and agency obligations, and corporate and supranational bonds.

Since our inception, we have primarily financed our operations through cash provided by operations, including payments received from customers using our software products and services. Prior to our IPO, we did not raise any primary institutional capital, and the proceeds of our Series A and Series B redeemable convertible preferred stock financings were used to repurchase shares of capital stock from former stockholders. We have generated significant operating losses, as reflected by our accumulated deficit of $825.0 million at December 31, 2023.

We typically invoice our customers annually in advance and, to a lesser extent, multi-years in advance. Therefore, a substantial source of our cash is from such prepayments, which are included in deferred revenue on our consolidated balance sheets. Deferred revenue consists primarily of the unearned portion of billed fees for our subscriptions and perpetual licenses, which is subsequently recognized as revenue in accordance with our revenue recognition policy. At December 31, 2023, we had deferred revenue of $750.5 million, of which $580.8 million was recorded as a current liability and is expected to be recognized as revenue in the next 12 months, provided all other revenue recognition criteria are met.

Our principal uses of cash in recent periods have been funding our operations, expansion of our sales and marketing and research and development activities, investments in infrastructure, including the build-out of our new headquarters, and acquiring complementary businesses and technology. We paid $243.3 million and $66.8 million to acquire businesses in 2023 and 2022, respectively. We may in the future enter into arrangements to acquire or invest in other complementary businesses, services and technologies, including intellectual property rights.

We expect to continue incurring operating losses in the near term. Even though we generated positive cash flows from operations and free cash flow in 2023, 2022 and 2021, we may not be able to sustain these cash flows. We believe that our existing cash and cash equivalents and short-term investments will be sufficient to fund our operating and capital needs for at least the next 12 months and for the foreseeable future. Our future capital requirements will depend on many factors, including our revenue growth rate, subscription renewal activity, the timing and extent of spending to support further infrastructure and research and development efforts, the timing and extent of additional capital expenditures to invest in new and existing office spaces, the expansion of sales and marketing and international operating activities, any acquisitions of complementary businesses and technologies, the timing of our introduction of new product capabilities and enhancements of our platform and the continuing market acceptance of our platform. It may be necessary to seek additional equity or debt financing to fund our operating and capital needs. In the event that 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, or if we cannot expand our operations or otherwise capitalize on our business opportunities because we lack sufficient capital, our business, operating results and financial condition would be adversely affected.

Stock Repurchase Plan

In November 2023, our Board of Directors authorized the repurchase of up to $100 million of our common stock. In 2023, we purchased 356,240 shares for $14.9 million. The remaining amount available to purchase stock under the stock repurchase program was $85.1 million at December 31, 2023.

Term Loan and Revolving Credit Facility

In July 2021, we entered into a credit agreement, or the Credit Agreement, which is comprised of a $375.0 million Term Loan and a $50.0 million Revolving Credit Facility, with a $15.0 million letter of credit sublimit. On June 1, 2023, we began using SOFR for the base interest rate instead of LIBOR. The Term Loan bears interest at a rate of 2.75% per annum over SOFR, subject to a 0.50% floor, plus a credit spread adjustment depending on the interest period.

From January to December 2023, interest rates on our Term Loan have been between 7.16% and 8.21%. The Term Loan is being amortized at 1% per annum in equal quarterly installments until the final payment of $350.6 million on the July 7, 2028 maturity date. We may be subject to mandatory Term Loan prepayments related to the excess cash provisions in the Credit Agreement if our first lien net leverage ratio (as defined in the Credit Agreement) exceeds 3.5, and at December 31, 2023, our first lien net leverage ratio was 1.28.

The Revolving Credit Facility bears interest at a rate, depending on first lien net leverage, ranging from 2.00% to 2.50% over SOFR and matures on July 7, 2026. We pay a commitment fee during the term ranging from 0.25% to 0.375% per annum of the average daily undrawn portion of the revolving commitments based on the first lien net leverage ratio. The Credit Agreement contains customary representations and warranties and affirmative and negative covenants. Additionally, if at least 35% of the Revolving Credit Facility is drawn on the last day of the quarter, the total net leverage ratio cannot be greater than 5.50 to 1.00. At December 31, 2023, we were in compliance with the covenants and at December 31, 2023, we had $0.2 million of standby letters of credit outstanding under the Revolving Credit Facility.

Cash Flows

The following table summarizes our cash flows for the periods presented:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
Net cash provided by operating activities	$ 149,855	$ 131,151	$ 96,765
Net cash used in investing activities	(212,615)	(128,039)	(391,590)
Net cash provided by financing activities	1,251	23,318	397,646
Effect of exchange rate changes on cash and cash equivalents and restricted cash	(2,225)	(3,835)	(3,013)
Net (decrease) increase in cash and cash equivalents and restricted cash	$ (63,734)	$ 22,595	$ 99,808

Operating Activities

Our largest source of cash provided by operating activities is cash collections from sales of our products and services, as we typically invoice our customers in advance. Our primary uses of cash are employee compensation costs, third-party cloud infrastructure and other software subscription costs, demand generation expenditures and general corporate costs.

Investing Activities

From 2022 to 2023, net cash used in investing activities increased by $84.6 million, primarily due to an increase in cash paid for acquisitions of $176.5 million, partially offset by a $71.6 million net increase in sales of short-term investments, $10.0 million in cash paid for other investments in 2022, a $7.7 million decrease in purchases of property and equipment and a $2.7 million decrease in capitalized software development costs.

From 2021 to 2022, net cash used in investing activities decreased by $263.6 million, primarily due to a decrease in cash paid for acquisitions of $191.7 million and a net decrease in cash paid for short-term investments of $89.4 million in 2022, partially offset by an increase in capitalized software development costs of $7.1 million, an increase in purchases of property and equipment of $5.5 million and an increase in cash paid for other investments of $5.0 million.

Financing Activities

From 2022 to 2023, net cash provided by financing activities decreased by $22.1 million, primarily due to the repurchase of common stock under our stock repurchase program of $14.9 million and an $8.2 million decrease in proceeds from the exercise of stock options, partially offset by a $1.4 million increase in proceeds from stock issued in connection with our employee stock purchase program.

From 2021 to 2022, net cash provided by financing activities decreased by $374.3 million, primarily due to the net proceeds from the issuance of our Credit Facility in 2021 of $365.7 million, a decrease of $6.5 million in the proceeds from the exercise of stock options and $3.8 million of principal payments made on our Term Loan in 2022, partially offset by a $1.1 million increase in proceeds from stock issued in connection with our employee stock purchase plan.

Contractual Obligations

We have certain contractual obligations for future payments. See Note 7 to our Consolidated Financial Statements in this Annual Report on Form 10-K for our required operating lease payments and Note 9 for our required payments to Microsoft and Amazon Web Services for cloud services.

At December 31, 2023, we had other non-cancellable purchase obligations of $26.1 million due in the next twelve months and $22.1 million due thereafter. Additionally, we had $8.3 million of unrecognized tax benefits and $1.4 million of asset retirement obligations, the timing of payments for which is uncertain.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, as well as related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates.

The critical accounting estimates, assumptions and judgments that we believe have the most significant impact on our consolidated financial statements are described below.

Revenue Recognition

We recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which we expect to be entitled to in exchange for those goods or services. In recognizing revenue, we apply the following steps:

- Identify the contract with a customer
- Identify the performance obligations in the contract
- Determine the transaction price
- Allocate the transaction price to the performance obligations in the contract
- Recognize revenue when or as performance obligations are satisfied

In situations where we enter into a contractual arrangement that includes non-standard terms and conditions, such as acceptance provisions and options to purchase additional products and services, as well as contract modifications, we apply judgment in identifying and assessing the impact on revenue recognition.

We generate revenue from subscription arrangements for our software and cloud-based solutions, perpetual licenses, maintenance associated with perpetual licenses and professional services and other revenue.

Subscription Revenue

Our subscription arrangements generally have annual or multi-year contractual terms and allow customers to use our software or cloud solutions. For our software subscriptions that are dependent on ongoing software updates and the ability to identify the latest cybersecurity vulnerabilities, revenue is recognized ratably over the subscription term given the critical utility provided by the ongoing updates that are released throughout the contract period. When the critical utility of our software does not depend on ongoing updates, we recognize revenue attributable to the license at the time of delivery and the revenue attributable to the maintenance and support ratably over the contract period.

Perpetual License and Maintenance Revenue

Our perpetual licenses are generally sold with one or more years of maintenance, which include ongoing software updates and the ongoing ability to identify the latest cybersecurity vulnerabilities. Given the critical utility provided by the ongoing software updates and updated ability to identify network vulnerabilities included in maintenance, we combine the perpetual license and the maintenance into a single performance obligation. Perpetual license arrangements generally contain a material right related to the customer's ability to renew maintenance at a price that is less than the initial license fee. We apply a practical alternative to allocating a portion of the transaction price to the material right performance obligation and estimate a hypothetical transaction price which includes fees for expected maintenance renewals based on the estimated economic life of the perpetual license contracts. We allocate the transaction price between the cybersecurity subscription provided in the initial contract and the material right related to expected contract renewals based on the hypothetical transaction price. We recognize the amount allocated to the combined license and maintenance performance obligation over the initial contractual period, which is generally one year. We recognize the amount allocated to the material right over the expected maintenance renewal period, which begins at the end of the initial contractual term and is generally four years. We have estimated the five-year economic life of perpetual license contracts based on historical contract attrition, expected renewal periods, the lifecycle of the our technology and other factors. While we believe that the estimates we have made are reasonable and appropriate, different assumptions and estimates could materially impact our reported financial results.

Professional Services and Other Revenue

Professional services and other revenue is primarily comprised of advisory services and training related to the deployment and optimization of our products. These services do not result in significant customization of our products. Professional services and other revenue is recognized as the services are performed.

Contracts with Multiple Performance Obligations

In cases where our contracts with customers contain multiple performance obligations, the contract transaction price is allocated on a relative standalone selling price basis. We typically determine standalone selling price based on observable selling prices of our products and services.

Variable Consideration

We record revenue from sales at the net sales price, which is the transaction price, including estimates of variable consideration when applicable. Certain of our customers may be entitled to receive credits and in certain circumstances, refunds, if service level commitments are not met. We have not historically experienced significant incidents affecting the ability to meet these service level commitments and any estimated refunds related to these agreements have not been material.

Sales through our channel partner network of distributors and resellers are generally discounted as compared to the price that we would sell to an end user. Revenue for sales through our channel network, which is fixed, is recorded net of any distributor or reseller margin.

Deferred Commissions

Sales commissions, including related incremental fringe benefit costs, are considered to be incremental costs of obtaining a contract, and therefore are deferred over an estimated period of benefit, which ranges between three and four years for subscription arrangements and five years for perpetual license arrangements. We have estimated the period of benefit based on the expected contract term including renewal periods, the lifecycle of our technology and other factors. Sales commissions on contract renewals are capitalized and amortized ratably over the contract term, with the exception of contracts with renewal periods that are one year or less, in which case the incremental costs are expensed as incurred. While we believe that the estimates we have made are reasonable and appropriate, different assumptions and estimates could materially impact our reported financial results.

Stock-Based Compensation

Stock-based compensation expense related to stock options, restricted stock, restricted stock units, or RSUs, and purchase rights issued under our 2018 Employee Stock Purchase Plan, or the 2018 ESPP, is calculated based on the fair value of the awards granted and is recognized on a straight-line basis over the requisite service period, which is generally two to four years. Our performance stock units, or PSUs, vest over a period of 4 years and are subject to defined performance and service conditions. Our PSUs and RSUs that include performance-based vesting conditions are expensed using the accelerated attribution method. We account for forfeitures as they occur.

The fair value of our RSUs, PSUs and restricted stock is based on the market price of our common stock on the date of grant. Estimating the fair value of purchase rights under the 2018 ESPP using the Black-Scholes option-pricing model requires assumptions as to the fair value of our underlying common stock, the estimated term of the option, the risk free interest rates, the expected volatility of the price of our common stock and the expected dividend yield. The assumptions used to estimate the fair value of the option awards reflect our best estimates. If any of the assumptions change significantly, stock-based compensation for future awards may differ significantly compared with the awards granted previously.

The assumptions and estimates are as follows:

- *Fair Value of Common Stock.* See “Valuations” discussion below.
- *Expected Term.* We use the actual purchase periods as the expected term in the 2018 ESPP.
- *Volatility.* This is a measure of the amount by which a financial variable, such as a share price, has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. We use the volatility of our common stock to calculate expected volatility for the 2018 ESPP.
- *Risk-Free Interest Rate.* This is the U.S. Treasury rate, having a term that most closely resembles the expected remaining term of each offering of the 2018 ESPP.
- *Dividend Yield*. We have not and do not expect to pay dividends on our common stock.

Valuations

We use the market price of our common stock at the date of grant as the fair value.

The fair value of the 2018 ESPP purchase rights were estimated on the offering or modification dates based on the following assumptions:

	Year Ended December 31,		
	2023	**2022**	**2021**
Expected term (in years)	0.5 — 2.0	0.5 — 2.0	0.5 — 2.0
Expected volatility	46.9% — 58.1%	42.8% — 61.0%	37.2% — 59.4%
Risk-free interest rate	4.8% — 5.4%	0.1% — 3.4%	0.1% — 0.2%
Expected dividend yield	—	—	—

Business Combinations

We account for business combinations by recognizing the fair value of acquired assets and liabilities. The excess purchase consideration over the fair value of acquired assets and liabilities is recorded as goodwill. When determining the fair value of assets acquired and liabilities assumed, a non-recurring Level 3 fair value measurement, we make estimates and assumptions, especially with respect to intangible assets such as identified acquired technology and trade names. We generally determine the fair value of acquired technology using the multi-period excess earnings method, a form of the income approach. Estimates in valuing identifiable intangible assets include, but are not limited to, projected revenue growth rates, obsolescence projections and an appropriate discount rate. Our estimate of fair value is based upon assumptions we believe to be reasonable, but which are inherently uncertain and, as a result, actual results may differ from estimates. During the measurement period, we may make adjustments to the fair value of assets acquired and liabilities assumed, with offsetting adjustments to goodwill. Any adjustments made after the measurement period will be reflected in the consolidated statements of operations. Acquisition-related costs are expensed as incurred.

Goodwill

The excess purchase consideration over the fair value of acquired assets and liabilities is recorded as goodwill. We perform our annual impairment assessment on October 1, or more frequently, when events or circumstances indicate impairment may have occurred. We operate as one reporting unit and have elected to first assess qualitative factors to determine whether it is more likely than not that the fair value of the Company as a whole is less than its carrying amount, including goodwill. The qualitative assessment includes an evaluation of relevant events and circumstances, including macroeconomic, industry and market conditions, our overall financial performance, and trends in the value of our common stock. During the periods presented, there were no indications of impairment and it was not more likely than not that goodwill was impaired.

Income Taxes

We are subject to federal, state and local taxes in the United States as well as numerous international jurisdictions. These foreign jurisdictions have different statutory tax rates than the United States. Earnings generated by our international entities are related to transfer pricing requirements as applicable under local jurisdiction tax laws.

We record a provision for income taxes under the asset and liability method, which requires recognition of deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial statement carrying amounts and the tax basis of existing assets and liabilities, net operating loss carryforwards and tax credit carryforwards. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled. A valuation allowance is provided if it is more likely than not that some or all of the deferred tax assets will not be realized. We have valuation allowances in all jurisdictions against deferred tax assets net of deferred tax liabilities that will reverse and provide a source of taxable income. Our evaluation of valuation allowances could change in the future and the impact could have a material impact on our financial statements.

We recognize tax benefits from an uncertain tax position if it is more likely than not to be sustained upon audit by the relevant taxing authority. Interest and penalties associated with such uncertain tax positions are classified as a component of income tax expense.

Depending on the jurisdiction, distributions of earnings could be subject to withholding taxes at rates applicable to the distributing jurisdiction. As we intend to continue to reinvest the earnings of foreign subsidiaries indefinitely, we have not provided for a U.S. income tax liability and foreign withholding taxes on undistributed foreign earnings of foreign subsidiaries.

Recently Issued Accounting Pronouncements

See Note 1 to our Consolidated Financial Statements in this Annual Report on Form 10-K for more information regarding recently issued accounting pronouncements.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to market risks in the ordinary course of our business, including interest rate, foreign currency exchange and inflation risks.

Interest Rate Risk

At December 31, 2023, we had $237.1 million of cash and cash equivalents, which consisted of cash deposits and money market funds. We also had $236.8 million of short-term investments, which consisted of commercial paper, asset backed securities, certificates of deposit, U.S. treasury and agency securities and corporate and supranational bonds. Our investments are carried at their fair market values with cumulative unrealized gains or losses recorded as a component of accumulated other comprehensive income (loss) within stockholders' equity. The primary objectives of our investment activities are the preservation of capital, the fulfillment of liquidity needs and the fiduciary control of cash and investments. We do not enter into investments for trading or speculative purposes. Interest-earning instruments carry a degree of interest rate risk; however, a hypothetical 10% change in interest rates during any of the periods presented would not have had a material impact on our financial statements.

In July 2021, we entered into the Credit Agreement comprised of a $375.0 million Term Loan and a $50.0 million Revolving Credit Facility. From January to December 2023, interest rates on our Term Loan have been between 7.16% and 8.21%. A one percentage point increase in the rate would increase 2024 interest expense by $2.7 million.

Foreign Currency Exchange Risk

Substantially all of our sales contracts are denominated in U.S. dollars, with a limited number of contracts denominated in foreign currencies, including foreign denominated leases. A portion of our operating expenses are incurred outside the United States, denominated in foreign currencies and subject to fluctuations due to changes in foreign currency exchange rates, particularly changes in the Euro, British Pound, Australian dollar, Israeli New Shekel and Indian Rupee. In 2023, the U.S. dollar strengthened compared to other currencies, which likely negatively impacted our international sales growth and lowered certain international operating expenses. Further strengthening of the U.S. dollar compared to other currencies could result in lower international sales as our products would seem more expensive and could result in lower international operating costs as the U.S. dollar is the functional currency for all of our international subsidiaries. Additionally, fluctuations in foreign currency exchange rates may cause us to recognize remeasurement and transaction gains (losses) in our consolidated statements of operations. As the impact of foreign currency exchange rates has not been material to our historical operating results, we have not entered into derivative or hedging transactions, but we may do so in the future if our exposure to foreign currencies becomes more significant.

Inflation Risk

While we do not believe that inflation has had a material effect on our business, results of operations, or financial condition through December 31, 2023, our costs, specifically employee-related and third-party cloud infrastructure costs, may become subject to significant inflationary pressures, and our inability or failure to fully offset such higher costs could harm our business, results of operations, or financial condition.

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 Tenable Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Tenable Holdings, Inc. (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2023, and the related notes and the financial statement schedule listed in the Index at Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 28, 2024 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 – Identification and Evaluation of Contracts with Non-Standard Terms and Conditions
Description of the Matter	As described in Note 1 to the consolidated financial statements, management enters into certain contracts with customers, including software subscription arrangements and perpetual licenses with related maintenance, with non-standard terms and conditions. Performing procedures relating to the identification and evaluation of non-standard terms and conditions in contracts is a critical audit matter because there is a significant amount of judgment required by management in identifying and evaluating non-standard terms and conditions and determining the impact of such terms and conditions on the amount and timing of revenue recognition. Accordingly, there is significant auditor judgment and significant audit effort in performing our audit procedures to evaluate whether non-standard terms and conditions in contracts were appropriately identified and evaluated by management.
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 process for identifying and evaluating contracts with non-standard terms and conditions. These procedures also included, among others, on a sample basis (i) testing the completeness and accuracy of management's identification of contracts with non-standard terms and conditions and (ii) testing management's determination of the impact of non-standard terms and conditions on the amount and timing of revenue recognition.
	Valuation of Acquired Developed Technology Intangible Assets
Description of the Matter	As described in Note 6 to the consolidated financial statements, during the year ended December 31, 2023, the Company completed the acquisition of Ermetic Ltd. ("Ermetic") for $243.8 million, net of cash acquired. The Company's accounting for the acquisition included determining the fair value of the acquired intangible assets using an income approach, including developed technology of $45.5 million. Auditing the accounting for the valuation of the acquired developed technology involved complex auditor judgment due to the estimation required in management's determination of the fair value. The estimation was significant primarily due to the sensitivity of the fair value of the developed technology to the underlying assumptions, including the projected revenue growth rates, the discount rate and the obsolescence factor. These significant assumptions are forward-looking and could be affected by future economic and market conditions.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's process for accounting for the valuation of the acquired developed technology. For example, we tested controls over management's review of the valuation models and significant assumptions used in determining the fair value of the acquired developed technology as well as controls over the completeness and accuracy of the data used in the models and assumptions. To test the fair value of the acquired developed technology, our audit procedures included, among others, evaluating the Company's valuation methodology used, significant assumptions, and significant aspects of prospective financial information and testing the completeness and accuracy of underlying data. We involved our valuation specialists to assist in testing the valuation of the acquired developed technology. For example, we compared the significant assumptions to current industry and market trends and to other relevant factors. We also performed sensitivity analyses of the significant assumptions to evaluate the change in the fair value resulting from changes in the assumptions.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2014

Baltimore, Maryland

February 28, 2024

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of Tenable Holdings, Inc.

Opinion on Internal Control Over Financial Reporting

We have audited Tenable Holdings, Inc.'s internal control over financial reporting as of December 31, 2023, 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, Tenable Holdings, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control Over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Ermetic Ltd., which is included in the 2023 consolidated financial statements of the Company and constituted 4% of total assets as of December 31, 2023 and less than 1% and 2% of revenues and operating expenses, respectively, for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Ermetic Ltd.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2023, and the related notes and the financial statement schedule listed in the Index at Item 15(a)(2) and our report dated February 28, 2024 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
Baltimore, Maryland
February 28, 2024

TENABLE HOLDINGS, INC.
CONSOLIDATED BALANCE SHEETS

(in thousands, except per share data)	December 31, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 237,132	$ 300,866
Short-term investments	236,840	266,569
Accounts receivable (net of allowance for doubtful accounts of $470 and $1,400 at December 31, 2023 and 2022, respectively)	220,060	187,341
Deferred commissions	49,559	44,270
Prepaid expenses and other current assets	61,882	58,121
Total current assets	805,473	857,167
Property and equipment, net	45,436	46,726
Deferred commissions (net of current portion)	72,394	67,238
Operating lease right-of-use assets	34,835	38,495
Acquired intangible assets, net	107,017	75,376
Goodwill	518,539	316,520
Other assets	23,177	38,008
Total assets	$ 1,606,871	$ 1,439,530
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 16,941	$ 18,722
Accrued compensation	66,492	52,620
Deferred revenue	580,779	502,115
Operating lease liabilities	5,971	5,821
Other current liabilities	5,655	4,882
Total current liabilities	675,838	584,160
Deferred revenue (net of current portion)	169,718	162,487
Term loan, net of issuance costs (net of current portion)	359,281	361,970
Operating lease liabilities (net of current portion)	48,058	52,611
Other liabilities	7,632	7,436
Total liabilities	1,260,527	1,168,664
Stockholders' equity:		
Common stock (par value: $0.01; 500,000 shares authorized, 117,504 and 113,056 shares issued at December 31, 2023 and 2022, respectively)	1,175	1,131
Additional paid-in capital	1,185,100	1,017,837
Treasury stock (at cost: 356 and 0 shares at December 31, 2023 and 2022, respectively)	(14,934)	—
Accumulated other comprehensive income (loss)	38	(1,351)
Accumulated deficit	(825,035)	(746,751)
Total stockholders' equity	346,344	270,866
Total liabilities and stockholders' equity	$ 1,606,871	$ 1,439,530

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

TENABLE HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
(in thousands, except per share data)	**2023**	**2022**	**2021**
Revenue	$ 798,710	$ 683,191	$ 541,130
Cost of revenue	183,577	154,789	106,396
Gross profit	615,133	528,402	434,734
Operating expenses:			
Sales and marketing	393,450	349,430	270,158
Research and development	153,163	143,560	116,432
General and administrative	116,181	103,227	89,912
Restructuring	4,499	—	—
Total operating expenses	667,293	596,217	476,502
Loss from operations	(52,160)	(67,815)	(41,768)
Interest income	24,700	6,284	606
Interest expense	(31,339)	(19,001)	(7,502)
Other expense, net	(8,602)	(4,757)	(1,965)
Loss before income taxes	(67,401)	(85,289)	(50,629)
Provision (benefit) for income taxes	10,883	6,933	(3,952)
Net loss	$ (78,284)	$ (92,222)	$ (46,677)
Net loss per share, basic and diluted	$ (0.68)	$ (0.83)	$ (0.44)
Weighted-average shares used to compute net loss per share, basic and diluted	115,408	111,321	106,387

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

TENABLE HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(in thousands)	Year Ended December 31, 2023	2022	2021
Net loss	$ (78,284)	$ (92,222)	$ (46,677)
Other comprehensive income (loss), net of tax:			
Unrealized gains (losses) on available-for-sale securities	1,389	(1,045)	(316)
Other comprehensive income (loss)	1,389	(1,045)	(316)
Comprehensive loss	$ (76,895)	$ (93,267)	$ (46,993)

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

TENABLE HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Treasury Stock	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2020	103,715	$ 1,037	$ 757,470	$ —	$ 10	$ (607,852)	$ 150,665
Exercise of stock options	2,671	26	18,242	—	—	—	18,268
Vesting of restricted stock units	1,872	19	(19)	—	—	—	—
Issuance of common stock under employee stock purchase plan	671	7	13,729	—	—	—	13,736
Stock-based compensation	—	—	79,637	—	—	—	79,637
Other comprehensive loss	—	—	—	—	(316)	—	(316)
Net loss	—	—	—	—	—	(46,677)	(46,677)
Balance at December 31, 2021	108,929	1,089	869,059	—	(306)	(654,529)	215,313
Exercise of stock options	1,174	12	11,709	—	—	—	11,721
Vesting of restricted stock units	2,510	25	(25)	—	—	—	—
Issuance of common stock under employee stock purchase plan	443	5	14,786	—	—	—	14,791
Stock-based compensation	—	—	122,308	—	—	—	122,308
Other comprehensive loss	—	—	—	—	(1,045)	—	(1,045)
Net loss	—	—	—	—	—	(92,222)	(92,222)
Balance at December 31, 2022	113,056	1,131	1,017,837	—	(1,351)	(746,751)	270,866
Exercise of stock options	387	4	3,497	—	—	—	3,501
Vesting of restricted stock units	3,153	32	(32)	—	—	—	—
Vesting of performance stock units	91	—	—	—	—	—	—
Issuance of restricted stock awards	311	3	(3)	—	—	—	—
Issuance of common stock under employee stock purchase plan	506	5	16,219	—	—	—	16,224
Purchase of treasury stock	—	—	—	(14,934)	—	—	(14,934)
Fair value of replacement equity attributable to pre-acquisition service	—	—	526	—	—	—	526
Stock-based compensation	—	—	147,056	—	—	—	147,056
Other comprehensive income	—	—	—	—	1,389	—	1,389
Net loss	—	—	—	—	—	(78,284)	(78,284)
Balance at December 31, 2023	117,504	$ 1,175	$ 1,185,100	$ (14,934)	$ 38	$ (825,035)	$ 346,344

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

TENABLE HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
Cash flows from operating activities:			
Net loss	$ (78,284)	$ (92,222)	$ (46,677)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Deferred income taxes	265	(2,781)	(10,468)
Depreciation and amortization	27,108	22,194	16,170
Stock-based compensation	145,327	120,633	79,405
Net accretion of discounts and amortization of premiums on short-term investments	(8,323)	(1,199)	581
Impairment of other investments	5,617	—	—
Amortization of debt issuance costs	1,267	1,299	903
Other	1,914	5,404	2,431
Changes in operating assets and liabilities:			
Accounts receivable	(30,042)	(51,256)	(17,228)
Prepaid expenses and other assets	1,689	(2,929)	(46,207)
Accounts payable, accrued expenses and accrued compensation	7,071	409	24,330
Deferred revenue	81,755	132,622	92,486
Other current and noncurrent liabilities	(5,509)	(1,023)	1,039
Net cash provided by operating activities	149,855	131,151	96,765
Cash flows from investing activities:			
Purchases of property and equipment	(1,704)	(9,359)	(3,887)
Capitalized software development costs	(7,052)	(9,789)	(2,674)
Purchases of short-term investments	(278,209)	(266,693)	(282,438)
Sales and maturities of short-term investments	317,651	234,569	160,874
Purchases of other investments	—	(10,000)	(5,000)
Business combinations, net of cash acquired	(243,301)	(66,767)	(258,465)
Net cash used in investing activities	(212,615)	(128,039)	(391,590)
Cash flows from financing activities:			
Payments on term loan	(3,750)	(3,750)	—
Proceeds from term loan	—	—	375,000
Credit facility issuance costs	—	—	(9,348)
Proceeds from stock issued in connection with the employee stock purchase plan	16,224	14,791	13,736
Proceeds from the exercise of stock options	3,501	11,721	18,268
Purchase of treasury stock	(14,934)	—	—
Other financing activities	210	556	(10)
Net cash provided by financing activities	1,251	23,318	397,646
Effect of exchange rate changes on cash and cash equivalents and restricted cash	(2,225)	(3,835)	(3,013)
Net (decrease) increase in cash and cash equivalents and restricted cash	(63,734)	22,595	99,808
Cash and cash equivalents and restricted cash at beginning of year	300,866	278,271	178,463
Cash and cash equivalents and restricted cash at end of year	$ 237,132	$ 300,866	$ 278,271
Supplemental disclosure of cash flow information:			
Cash paid for interest	$ 34,323	$ 16,047	$ 4,978
Cash paid for income taxes, net of refunds	8,981	10,582	6,481
Supplemental cash flow information related to leases:			
Cash payments for operating leases	$ 8,914	$ 6,113	$ 7,657

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

TENABLE HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Business and Summary of Significant Accounting Policies

Business Description

Tenable Holdings, Inc. (the “Company,” “we,” "us," or “our”) is a provider of exposure management solutions, which is an effective discipline for managing, measuring and comparing cybersecurity risk in today's complex IT environments. Our solutions provide broad visibility into security issues such as vulnerabilities, misconfigurations, internal and regulatory compliance violations and other indicators of the state of an organization’s security across IT infrastructure and applications, cloud environments, Active Directory and industrial internet of things and operational technology environments.

Basis of Presentation

The accompanying consolidated financial statements include the accounts of Tenable Holdings, Inc. and our wholly owned subsidiaries and have been prepared in conformity with United States generally accepted accounting principles (“GAAP”). All intercompany accounts 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 amounts reported in the consolidated financial statements and accompanying notes. These estimates include, but are not limited to, the determination of the estimated economic life of perpetual licenses for revenue recognition, the estimated period of benefit for deferred commissions, the useful lives of long-lived assets, the fair value of acquired intangible assets, the valuation of stock-based compensation, the incremental borrowing rate for operating leases and the valuation of deferred tax assets and investments. We base these estimates on historical experience and on various other assumptions that we believe to be reasonable. Actual results could differ significantly from these estimates.

Foreign Currency

The functional currency for all of our foreign subsidiaries is the U.S. dollar. Assets and liabilities denominated in other currencies are remeasured into U.S. dollars at current exchange rates for monetary assets and liabilities and at historical exchange rates for non-monetary assets and liabilities. We bill our customers in U.S. dollars. Expenses incurred in non U.S. dollar currencies are remeasured into U.S. dollars when incurred. Remeasurement losses in currencies other than the functional currency were $3.1 million, $4.8 million and $1.9 million in 2023, 2022 and 2021, respectively, and are included as a component of other expense, net in the consolidated statements of operations.

Revenue Recognition

We recognize revenue in order to depict the transfer of promised goods or services to customers in an amount that reflects the consideration we expect to be entitled in exchange for those goods or services. To achieve this, we apply the following steps:

- Identify the contract with a customer
- Identify the performance obligations in the contract
- Determine the transaction price
- Allocate the transaction price to the performance obligations in the contract
- Recognize revenue when or as performance obligations are satisfied

In situations where we enter into a contractual arrangement that includes non-standard terms and conditions, such as acceptance provisions or options to purchase additional products and services, as well as contract modifications, we apply judgment in identifying and assessing the impact on revenue recognition.

We generate revenue from subscription arrangements for software and cloud-based solutions, perpetual licenses, maintenance associated with perpetual licenses, and professional services and other revenue. We begin to recognize revenue when control of our software or services is transferred to the customer, which for sales made through distributors is concurrent with the transfer to the end user.

Subscription Revenue

Subscription arrangements generally have annual or multi-year contractual terms and allow customers to use our software or cloud solutions. For our software subscriptions that are dependent on ongoing software updates and the ability to identify the latest cybersecurity vulnerabilities, revenue is recognized ratably over the subscription term given the critical utility provided by the ongoing updates that are released throughout the contract period. When the critical utility of our software does not depend on ongoing updates, we recognize revenue attributable to the license at the time of delivery and the revenue attributable to the maintenance and support ratably over the contract period.

Perpetual License and Maintenance Revenue

Our perpetual licenses are generally sold with one or more years of maintenance, which include ongoing software updates and the ongoing ability to identify the latest cybersecurity vulnerabilities. Given the critical utility provided by the ongoing software updates and updated ability to identify network vulnerabilities included in maintenance, we combine the perpetual license and the maintenance into a single performance obligation. Perpetual license arrangements generally contain a material right related to the customer’s ability to renew maintenance at a price that is less than the initial license fee. We apply a practical alternative to allocating a portion of the transaction price to the material right performance obligation and estimate a hypothetical transaction price which includes fees for expected maintenance renewals based on the estimated economic life of the perpetual license contracts. We allocate the transaction price between the cybersecurity subscription provided in the initial contract and the material right related to expected contract renewals based on the hypothetical transaction price. We recognize the amount allocated to the combined license and maintenance performance obligation over the initial contractual period, which is generally one year. We recognize the amount allocated to the material right over the expected maintenance renewal period, which begins at the end of the initial contractual term and is generally four years. We have estimated the five-year economic life of perpetual license contracts based on historical contract attrition, expected renewal periods, the lifecycle of our technology and other factors. While we believe that the estimates we have made are reasonable and appropriate, different assumptions and estimates could materially impact our reported financial results.

Professional Services and Other Revenue

Professional services and other revenue is primarily comprised of advisory services and training related to the deployment and optimization of our products. These services do not result in significant customization of our products. Professional services and other revenue is recognized as the services are performed.

Contracts with Multiple Performance Obligations

In cases where our contracts with customers contain multiple performance obligations, the contract transaction price is allocated on a relative standalone selling price basis. We typically determine standalone selling price based on observable selling prices of our products and services.

Variable Consideration

We record revenue from sales at the net sales price, which is the transaction price, including estimates of variable consideration when applicable. Certain of our customers may be entitled to receive credits and in limited circumstances, refunds, if service level commitments are not met. We have not historically experienced significant incidents affecting the ability to meet these service level commitments and any estimated refunds related to these agreements have not been material.

Sales through our channel network of distributors and resellers are generally discounted as compared to the price that we would sell to an end user. Revenue for sales through our channel network is recorded net of any distributor or reseller margin.

Cash and Cash Equivalents

We consider all highly liquid financial instruments with an original maturity of three months or less when purchased to be cash equivalents.

At December 31, 2023 and 2022, cash and cash equivalents included $5.8 million of restricted cash primarily related to collateral for outstanding letters of credit.

Fair Value of Financial Instruments

Fair value is defined 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. 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. We measure cash and cash equivalents and short-term investments at fair value using a fair value hierarchy of inputs. We approximate fair value by using the carrying amounts for accounts receivable, accounts payable and accrued expenses due to their short-term nature.

Investments

Short-term Investments

Our short-term investments include asset backed securities, certificates of deposit, commercial paper, corporate and supranational bonds, and U.S. treasury and agency obligations. Our investments are classified as available-for-sale and recorded at fair value, with unrealized gains and losses reported in accumulated other comprehensive income (loss) within stockholders’ equity.

We classify investments with original maturities of less than 90 days as cash and cash equivalents. Investments with original maturities greater than 90 days, including those we do not currently intend on selling within the next twelve months, are classified as short-term investments as they are available for use in our operations.

We evaluate potential impairments of available-for-sale debt securities due to credit-related and non-credit-related factors, including market risk, and if it is more-likely-than-not that we would have to sell the security before the recovery of the amortized cost basis. Identified credit-related impairments would be recognized as a charge in the statement of operations.

Other Investments

Our other investments consist of non-marketable simple agreements for future equity ("SAFE") investments with privately held companies. These SAFE investments convert our investment value into preferred stock of the issuer upon a future equity financing or give us the right to redeem the investments upon a dissolution or liquidity event in the form of cash or common stock, and include customary investor protections and incentives, including information rights, pro-rata rights to participate in subsequent equity financings, and a right of first notice in the event of a potential acquisition of the issuer. We have elected to apply the measurement alternative and record these SAFE investments at cost, less any impairment, plus or minus observable price changes for similar investments of the same issuer. At December 31, 2023 and 2022, we had $9.4 million and $15.0 million, respectively, which are included in other assets on our consolidated balance sheets. In 2023, we identified impairment indicators for two of our SAFE investments and determined our investments were impaired, resulting in an impairment loss of $5.6 million that was recorded in other expense, net on our consolidated statement of operations. No material events impacted the carrying value of our SAFE investments in 2022.

Accounts Receivable

Accounts receivable are recorded at the invoiced amount, less an allowance for doubtful accounts, and do not bear interest. We maintain an allowance for doubtful accounts at an amount estimated to be sufficient to cover the risk of collecting less than full payment of the receivables. At each balance sheet date, we evaluate our receivables and assess the allowance for doubtful accounts based on specific customer collection issues and historical write-off trends.

Our allowance for doubtful accounts reflects our best estimate of expected future credit losses. We consider various factors that may impact our ability to collect on accounts receivable, including our historical collection experience, age of accounts receivable balances, current conditions, reasonable and supportable forecasts of future economic conditions, as well as other factors, however, these estimates may change and future credit losses may differ from our estimates. Expected credit losses from accounts receivable are recognized as expense in our statement of operations.

Deferred Commissions

Sales commissions, including related fringe benefit costs, are considered to be incremental costs of obtaining a contract. Sales commissions on initial sales are not commensurate with sales commissions on contract renewals and therefore are recognized over an estimated period of benefit, which ranges between three and four years for subscription arrangements and five years for perpetual license arrangements. We estimated the period of benefit based on the expected contract term including renewal periods, the lifecycle of our technology, and other factors. Sales commissions on contract renewals are capitalized and amortized ratably over the contract term as part of sales and marketing expense, with the exception of contracts with renewal periods that are one year or less, in which case the incremental costs are expensed as incurred.

Property and Equipment, net

Property and equipment, net is stated at historical cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets: three years for computer software and equipment and five years for furniture and fixtures. Leasehold improvements are amortized using the straight-line method over the shorter of the estimated useful lives of the assets or the terms of the respective leases. Property and equipment, net includes right-of-use assets acquired under finance leases. Amortization of assets acquired under finance leases is included in depreciation expense. Repairs and maintenance costs are expensed as incurred.

Leases

We determine if an arrangement contains a lease and the classification of that lease, if applicable, at inception. We have elected to not recognize a lease liability or right-of-use ("ROU") asset for short-term leases (leases with a term of twelve months or less). For contracts with lease and non-lease components, we have elected to not allocate the contract consideration, and account for the lease and non-lease components as a single lease component. Additionally, we enter into arrangements to use shared office spaces and other facilities, and have determined that these arrangements do not contain leases as we do not have the right to use an identified asset. Operating leases are included in operating lease ROU assets, operating lease liabilities and operating lease liabilities (net of current portion) in our consolidated balance sheets. Finance leases are included in property and equipment, other current liabilities and other liabilities in our consolidated balance sheets.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments under the lease. Operating lease ROU assets and liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. The implicit rate within our operating leases is generally not determinable and we use our incremental borrowing rate at the lease commencement date to determine the present value of lease payments. The determination of our incremental borrowing rate requires judgment. We determine our incremental borrowing rate for each lease using our current borrowing rate, adjusted for various factors including level of collateralization, term and currency to align with the terms of the lease. The operating lease ROU asset also includes any lease prepayments, offset by lease incentives. Certain of our leases include options to extend or terminate the lease. An option to extend the lease is considered in connection with determining the ROU asset and lease liability when it is reasonably certain we will exercise that option. An option to terminate is considered unless it is reasonably certain we will not exercise the option.

Lease expense for lease payments is recognized on a straight-line basis over the term of the lease.

Impairment of Long-Lived Assets

We evaluate our long-lived assets for impairment whenever events or changes in circumstance indicate that the carrying amount may not be fully recoverable. Recoverability of the long-lived assets is measured by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If such assets are considered to be impaired, the impairment to be recognized is measured as the excess of the carrying amount over the fair value. There was no impairment of long-lived assets in 2023, 2022 or 2021.

Business Combinations

We account for business combinations by recognizing the fair value of acquired assets and liabilities. The excess purchase consideration over the fair value of acquired assets and liabilities is recorded as goodwill. When determining the fair value of assets acquired and liabilities assumed, a non-recurring Level 3 fair value measurement, we make estimates and assumptions, especially with respect to intangible assets such as identified acquired technology and trade names. We determine the fair value of acquired technology using the multi-period excess earnings method, a form of the income approach. Estimates in valuing identifiable intangible assets include, but are not limited to, projected revenue growth rates, obsolescence projections and an appropriate discount rate. Our estimate of fair value is based upon assumptions we believe to be reasonable, but which are inherently uncertain and, as a result, actual results may differ from estimates. During the measurement period, we may make adjustments to the fair value of assets acquired and liabilities assumed, with offsetting adjustments to goodwill. Any adjustments made after the measurement period will be reflected in the consolidated statements of operations. Acquisition-related costs are expensed as incurred.

Goodwill

The excess of the purchase consideration over the fair value of acquired assets and liabilities is recorded as goodwill. We perform our annual impairment assessment on October 1, or more frequently, when events or circumstances indicate impairment may have occurred. We operate as one reporting unit and have elected to first assess qualitative factors to determine whether it is more likely than not that the fair value of the Company as a whole is less than its carrying amount, including goodwill. The qualitative assessment includes an evaluation of relevant events and circumstances, including macroeconomic, industry and market conditions, our overall financial performance, and trends in the value of our common stock. During the periods presented, there were no indications of impairment and it was not more likely than not that goodwill was impaired.

Common Stock

Our Amended and Restated Certificate of Incorporation authorized 500,000,000 shares of common stock and 10,000,000 shares of preferred stock. There were no shares of preferred stock issued or outstanding at December 31, 2023 or 2022. The voting, dividend, and liquidation rights of common stockholders are subject to, and qualified by, the rights of preferred stockholders. The common stockholders are entitled to receive dividends when, as and if, declared by the Board of Directors, subject to preferential dividend rights of preferred stockholders. Upon dissolution or liquidation, our common stockholders will be entitled to receive all assets available for distribution to stockholders, subject to any preferential rights of preferred stockholders.

Treasury Stock

In November 2023, our Board of Directors authorized the repurchase of up to $100 million of our common stock. We account for purchases of treasury stock under the cost method. Shares are held for future issuance and not retired. In 2023, we purchased 356,240 shares for $14.9 million. The remaining amount available under the stock repurchase program was $85.1 million at December 31, 2023.

Stock-Based Compensation

Stock-based compensation expense related to restricted stock units ("RSUs"), purchase rights issued under our 2018 Employee Stock Purchase Plan ("2018 ESPP"), stock options and restricted stock is calculated based on the fair value of the awards granted and is recognized on a straight-line basis over the requisite service period, which is generally two to four years. Our performance stock units ("PSUs") vest over a period of 4 years and are subject to defined performance and service conditions. Our PSUs are expensed using the accelerated attribution method. We account for forfeitures as they occur.

The fair value of RSUs, PSUs and restricted stock is based on the market price of our common stock on the date of grant. The fair value of 2018 ESPP purchase rights is estimated on the grant date using the Black-Scholes option pricing model, which requires us to make assumptions and judgments, including the expected term, expected volatility, and risk-free interest rates. We use the market price of our common stock at the date of grant.

Advertising

Advertising costs are expensed as they are incurred. We incurred advertising costs of $16.2 million in 2023 and $13.6 million in each of 2022 and 2021, which are included in sales and marketing expense in the consolidated statements of operations.

Software Development Costs

Research and development costs to develop software to be sold, leased or marketed are expensed as incurred up to the point of technological feasibility for the related software product. We have not capitalized development costs for software to be sold, leased or marketed to date, as the software development process is essentially completed concurrent with the establishment of technological feasibility. As such, these costs are expensed as incurred and recognized in research and development costs in the consolidated statements of operations.

Software developed for internal use, with no substantive plans to market such software at the time of development, are capitalized and included in property and equipment, net in the consolidated balance sheets. Costs incurred during the preliminary planning and evaluation and post implementation stages of the project are expensed as incurred. Costs incurred during the application development stage of the project are capitalized. In 2023, 2022 and 2021, we capitalized $8.8 million, $11.5 million and $2.9 million of development costs related to internal use software, including capitalized stock-based compensation of $1.7 million, $1.7 million, and $0.2 million, respectively.

Restructuring

Restructuring expenses consist of non-ordinary course severance, employee related benefits and other charges. The $4.5 million in restructuring expense relates to the optimization of our go-to-market efforts, including reducing our reliance on sales specialists and streamlining layers of management. These changes to our go-to-market and supporting functions resulted in a 5% reduction in our work force.

Net Loss per Share

We calculate basic net loss per share by dividing the net loss by the weighted-average number of shares of common stock outstanding during the period.

Diluted earnings per share is computed by giving effect to all potentially dilutive common stock equivalents in the period, including unvested RSUs, PSUs, stock options, unvested restricted shares and shares to be issued under our 2018 ESPP. As we have reported losses for all periods presented, all potentially dilutive securities have been excluded from the calculation of diluted net loss per share as their effect would be antidilutive.

Segment Information

We operate as one operating segment as our chief executive officer, who is our chief operating decision maker, reviews financial information on a consolidated basis for purposes of making operating decisions, allocating resources, and evaluating financial performance.

Income Taxes

Income taxes are accounted for under the asset and liability method. This method requires recognition of deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial statement carrying amounts and the tax basis of existing assets and liabilities, net operating loss carryforwards, and tax credit carryforwards. A valuation allowance is provided if it is more likely than not that some or all of the deferred tax assets will not be realized.

We recognize tax benefits from an uncertain tax position if it is more likely than not to be sustained upon audit by the relevant taxing authority. Interest and penalties associated with such uncertain tax positions are classified as a component of income tax expense.

Recently Issued Accounting Pronouncements

In November 2023, the Financial Accounting Standards Board (“FASB”) issued ASU 2023-07 - Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures, which requires public entities with a single reportable segment to provide all the disclosures required by this standard and all existing segment disclosures in Topic 280 on an interim and annual basis, including new requirements to disclose significant segment expenses that are regularly provided to the CODM and included within the reported measure(s) of a segment's profit or loss, the amount and composition of any other segment items, the title and position of the CODM, and how the CODM uses the reported measure(s) of a segment's profit or loss to assess performance and decide how to allocate resources. The guidance is effective for our annual period beginning January 1, 2025, and interim periods thereafter, applied retrospectively with early adoption permitted. We are currently evaluating the impact of adoption of this standard on our consolidated financial statements and disclosures.

In December 2023, the FASB issued ASU 2023-09 - Income Taxes (Topic 740): Improvements to Income Tax Disclosures, which requires public entities to provide greater disaggregation within their annual rate reconciliation, including new requirements to present reconciling items on a gross basis in specified categories, disclose both percentages and dollar amounts, and disaggregate individual reconciling items by jurisdiction and nature when the effect of the items meet a quantitative threshold. The guidance also requires disaggregating the annual disclosure of income taxes paid, net of refunds received, by federal (national), state, and foreign taxes, with separate presentation of individual jurisdictions that meet a quantitative threshold. The guidance is effective for our annual periods beginning January 1, 2025 on a prospective basis, with a retrospective option, and early adoption is permitted. We are currently evaluating the impact of adoption of this standard on our consolidated financial statements and disclosures.

2. Revenue

Disaggregation of Revenue

The following table presents a summary of revenue:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
Subscription revenue	$ 725,013	$ 612,510	$ 476,023
Perpetual license and maintenance revenue	48,729	50,699	50,333
Professional services and other revenue	24,968	19,982	14,774
Revenue	$ 798,710	$ 683,191	$ 541,130

Concentrations

We sell and market our products and services through our field sales force that works closely with our channel partners, which includes a network of distributors and resellers, in developing sales opportunities. We use a two-tiered channel model whereby we sell our products and services to our distributors, which in turn sell to resellers, which then sell to end users. Revenue derived through our channel network comprised 93% of revenue in 2023 and 92% of revenue in 2022 and 2021. One of our distributors accounted for 36%, 38% and 39% of revenue in 2023, 2022 and 2021, respectively. That same distributor accounted for 32% and 36% of accounts receivable at December 31, 2023 and 2022, respectively.

Contract Balances

We generally bill our customers in advance and accounts receivable are recorded when we have the right to invoice the customer. Contract liabilities consist of deferred revenue and include customer billings and payments received in advance of performance under the contract. In 2023, 2022 and 2021, we recognized revenue of $502.8 million, $407.5 million and $329.0 million, respectively, that was included in the deferred revenue balance at the beginning of each of the respective periods.

Remaining Performance Obligations

At December 31, 2023, the future estimated revenue related to unsatisfied performance obligations was $775.0 million, of which $595.1 million is expected to be recognized as revenue over the next twelve months, and the remainder is expected to be recognized over the four years thereafter.

Deferred Commissions

The following summarizes the activity of deferred incremental costs of obtaining a contract:

	Year Ended December 31,	
(in thousands)	**2023**	**2022**
Beginning balance	$ 111,508	$ 99,949
Capitalization of contract acquisition costs	60,268	57,214
Amortization of deferred contract acquisition costs	(49,823)	(45,655)
Ending balance	$ 121,953	$ 111,508

3. Cash Equivalents and Short-Term Investments

The following tables summarize the amortized cost, unrealized gain and loss and estimated fair value of cash equivalents and short-term investments:

	December 31, 2023			
(in thousands)	**Amortized Cost**	**Unrealized Gain**	**Unrealized Loss**	**Estimated Fair Value**
Cash equivalents				
Money market funds	$ 130,375	$ —	$ —	$ 130,375
Total cash equivalents	$ 130,375	$ —	$ —	$ 130,375
Short-term investments				
Commercial paper	$ 82,188	$ 50	$ (22)	$ 82,216
Corporate bonds	61,200	40	(91)	61,149
Asset backed securities	15,032	26	(15)	15,043
Yankee bonds	6,926	4	(17)	6,913
U.S. Treasury and agency obligations	71,456	97	(34)	71,519
Total short-term investments	$ 236,802	$ 217	$ (179)	$ 236,840

	December 31, 2022			
(in thousands)	**Amortized Cost**	**Unrealized Gain**	**Unrealized Loss**	**Estimated Fair Value**
Cash equivalents				
Money market funds	$ 201,476	$ —	$ —	$ 201,476
Total cash equivalents	$ 201,476	$ —	$ —	$ 201,476
Short-term investments				
Commercial paper	$ 144,093	$ 2	$ (377)	$ 143,718
Corporate bonds	37,778	—	(194)	37,584
Asset backed securities	19,723	11	(161)	19,573
Certificates of deposit	10,000	—	—	10,000
Supranational bonds	4,017	—	(67)	3,950
U.S. Treasury and agency obligations	52,309	—	(565)	51,744
Total short-term investments	$ 267,920	$ 13	$ (1,364)	$ 266,569

We considered the extent to which any unrealized losses on our short-term investments were driven by credit risk and other factors, including market risk, and if it is more-likely-than-not that we would have to sell the security before the recovery of the amortized cost basis. At December 31, 2023 and 2022, our unrealized losses were due to rising market interest rates compared to when the investments were initiated. We do not believe any unrealized losses represent credit losses, and it is unlikely we would sell the investments before we would recover their amortized cost basis.

The contractual maturities of our short-term investments are as follows:

	December 31, 2023		December 31, 2022	
(in thousands)	**Amortized Cost**	**Estimated Fair Value**	**Amortized Cost**	**Estimated Fair Value**
Due within one year	$ 219,437	$ 219,414	$ 243,430	$ 242,129
Due between one and four years	17,365	17,426	24,490	24,440
Total short-term investments	$ 236,802	$ 236,840	$ 267,920	$ 266,569

4. Fair Value Measurements

We measure certain financial instruments at fair value using a fair value hierarchy. In the hierarchy, assets are classified based on the lowest level inputs used in valuation into the following categories:

- *Level 1* — Quoted prices in active markets for identical assets and liabilities;
- *Level 2* — Observable inputs including quoted market prices for similar assets and liabilities in active markets, quoted prices for identical assets and liabilities in inactive markets, or inputs that are corroborated by observable market data; and
- *Level 3* — Unobservable inputs.

The following tables summarize assets that are measured at fair value:

	December 31, 2023			
(in thousands)	**Level 1**	**Level 2**	**Level 3**	**Total**
Cash equivalents				
Money market funds	$ 130,375	$ —	$ —	$ 130,375
Total cash equivalents	$ 130,375	$ —	$ —	$ 130,375
Short-term investments				
Commercial paper	$ —	$ 82,216	$ —	$ 82,216
Corporate bonds	—	61,149	—	61,149
Asset backed securities	—	15,043	—	15,043
Yankee bonds	—	6,913	—	6,913
U.S. Treasury and agency obligations	—	71,519	—	71,519
Total short-term investments	$ —	$ 236,840	$ —	$ 236,840

(in thousands)	December 31, 2022 Level 1	Level 2	Level 3	Total
Cash equivalents				
Money market funds	$ 201,476	$ —	$ —	$ 201,476
Total cash equivalents	$ 201,476	$ —	$ —	$ 201,476
Short-term investments				
Commercial paper	$ —	$ 143,718	$ —	$ 143,718
Corporate bonds	—	37,584	—	37,584
Asset backed securities	—	19,573	—	19,573
Certificates of deposit	—	10,000	—	10,000
Supranational bonds	—	3,950	—	3,950
U.S. Treasury and agency obligations	—	51,744	—	51,744
Total short-term investments	$ —	$ 266,569	$ —	$ 266,569

At December 31, 2023 and December 31, 2022, we had $9.4 million and $15.0 million, respectively, of SAFE investments with privately held companies, which are included in other assets on our consolidated balance sheets. We record our SAFE investments at cost, less any impairment, plus or minus observable price changes for similar investments of the same issuer. During the fiscal year ended December 31, 2023, we identified impairment indicators for two of our SAFE investments and determined our investments were impaired, resulting in an impairment loss of $5.6 million that was recorded in other expense, net on our consolidated statement of operations. No material events impacted the carrying value of our SAFE investments in 2022.

We did not have any liabilities measured and recorded at fair value on a recurring basis at December 31, 2023 and 2022.

5. Property and Equipment, Net

Property and equipment, net consisted of the following:

(in thousands)	December 31, 2023	2022
Computer software and equipment	$ 21,845	$ 22,424
Internally developed software	32,261	23,479
Furniture and fixtures	6,513	5,940
Leasehold improvements	29,354	28,214
Total	89,973	80,057
Less: accumulated depreciation and amortization	(44,537)	(33,331)
Property and equipment, net	$ 45,436	$ 46,726

Depreciation and amortization related to property and equipment was $13.2 million, $10.8 million and $9.5 million in 2023, 2022 and 2021, respectively.

6. Acquisitions, Goodwill and Intangible Assets

Business Combinations

In October 2023, we acquired Ermetic, an innovative cloud-native application protection platform company and a leading provider of cloud infrastructure entitlement management. The addition of Ermetic enhances our Tenable One

Exposure Management Platform and Tenable Cloud Security solution to deliver contextual risk visibility, prioritization and remediation across infrastructure and identities both on-premises and in the cloud. We acquired 100% of Ermetic's equity through a share purchase agreement for total consideration of $243.8 million, including $243.3 million in cash, net of $6.1 million cash acquired, and $0.5 million fair value of replacement equity.

In June 2022, we acquired Bit Discovery, a leader in external attack surface management (EASM). Adding Bit Discovery's EASM capabilities to our solutions provides customers with a comprehensive view of their attack surface and helps identify and eliminate areas of risk. We acquired 100% of Bit Discovery's equity for $43.8 million in cash, net of cash acquired of $2.0 million, through a share purchase agreement.

In February 2022, we acquired Cymptom, a platform that proactively measures, maps and prioritizes probable attack paths, and enables security teams to preemptively focus response ahead of and during breaches. Through a share purchase agreement, we acquired 100% of Cymptom's equity in exchange for cash consideration, net of cash acquired, for $23.0 million.

Purchase consideration, net of cash acquired, was allocated as follows:

(in thousands)	Ermetic	Bit Discovery	Cymptom
Intangible assets	$ 45,500	$ 11,100	$ 4,113
Goodwill	202,019	35,946	18,960
Other liabilities, net	(3,692)	(779)	(241)
Deferred tax (liabilities) assets, net	—	(2,460)	128
Total purchase price allocation	$ 243,827	$ 43,807	$ 22,960

We are still finalizing the allocation of the purchase price for Ermetic, which may change as additional information becomes available related to working capital and income taxes.

Acquired intangible assets and their estimated useful lives at the date of acquisition are as follows:

	Ermetic		Bit Discovery		Cymptom	
(dollars in thousands)	Cost	Estimated Useful Life	Cost	Estimated Useful Life	Cost	Estimated Useful Life
Acquired technology	$ 45,500	7 years	$ 11,000	7 years	$ 4,113	7 years
Trade name	—		100	1 year	—	
Acquired intangible assets	$ 45,500		$ 11,100		$ 4,113	

The results of operations of Ermetic, Bit Discovery and Cymptom are included in our consolidated statements of operations from the applicable acquisition dates and were not material. Pro forma results of operations are not presented as they are not material to the consolidated statements of operations.

We recognized acquisition-related expenses, primarily in general and administrative expense, of $9.5 million, $2.6 million and $6.9 million in 2023, 2022 and 2021, respectively.

Goodwill and Acquired Intangible Assets

The changes in the carrying amount of goodwill are as follows:

(in thousands)	
Balance at December 31, 2022	$ 316,520
Acquired goodwill	202,019
Balance at December 31, 2023	$ 518,539

The excess purchase consideration over the fair value of acquired assets and liabilities is recorded as goodwill. The acquired goodwill reflects the synergies we expect from marketing and selling these new capabilities from Ermetic, Bit Discovery and Cymptom to our customers. The acquired goodwill is generally not tax deductible.

Acquired intangible assets subject to amortization are as follows:

	December 31, 2023			December 31, 2022		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired technology	$ 142,537	$ (35,520)	$ 107,017	$ 97,037	$ (21,738)	$ 75,299
Trade name	490	(490)	—	490	(413)	77
	$ 143,027	$ (36,010)	$ 107,017	$ 97,527	$ (22,151)	$ 75,376

Amortization of acquired intangible assets was $13.9 million, $11.4 million and $6.4 million in 2023, 2022 and 2021, respectively. At December 31, 2023, our acquired intangible assets are expected to be amortized over an estimated weighted average period of 6.2 years.

At December 31, 2023, estimated future amortization of intangible assets is as follows:

(in thousands)	
Year ending December 31,	
2024	$ 18,675
2025	18,675
2026	18,490
2027	16,460
2028	13,417
Thereafter	21,300
Total	$ 107,017

7. Leases

We have operating leases for office facilities. Our leases have remaining terms of six months to just over eight years, some of which include one or more options to renew, with renewal terms up to five years and some of which include options to terminate the leases within the next one to three years.

The components of lease expense were as follows:

	Year Ended December 31,		
(in thousands)	2023	2022	2021
Operating lease cost	$ 7,592	$ 7,550	$ 7,634

Rent expense for short-term leases was not material in 2023, 2022 and 2021.

Supplemental information related to leases was as follows:

	December 31, 2023	December 31, 2022
Operating leases		
Weighted average remaining lease term	7.3 years	8.2 years
Weighted average discount rate	5.6%	5.6%

(in thousands)	Year Ended December 31, 2023	2022	2021
ROU assets obtained in exchange for lease obligations			
Operating leases	$ 1,234	$ 4,256	$ 3,137

In 2023, 2022 and 2021, we did not obtain any right-of-use assets in exchange for finance lease liabilities.

Maturities of operating lease liabilities at December 31, 2023 were as follows:

(in thousands)	
Year ending December 31,	
2024	$ 8,490
2025	9,597
2026	8,899
2027	8,412
2028	7,533
Thereafter	23,280
Total lease payments	66,211
Less: Imputed interest	(12,182)
Total	$ 54,029

8. Debt

Credit Agreement

In July 2021, we entered into a credit agreement ("Credit Agreement") which is comprised of:

- a $375.0 million senior secured term loan facility ("Term Loan"); and
- a $50.0 million senior secured revolving credit facility ("Revolving Credit Facility").

The table below summarizes the carrying value of the Term Loan:

(in thousands)	December 31, 2023
Term loan	$ 367,500
Less: Unamortized debt discount and issuance costs	(5,548)
Term loan, net of issuance costs	361,952
Less: Term loan, net, current [(1)]	(2,671)
Term loan, net of issuance costs (net of current portion)	$ 359,281

(1) Term loan, net, current is included in other current liabilities on our consolidated balance sheets.

On June 1, 2023, we began using the Secured Overnight Financing Rate ("SOFR") instead of LIBOR. The Term Loan bears interest at a rate of 2.75% per annum over SOFR, subject to a 0.50% floor, plus a credit spread adjustment depending on the interest period. The Term Loan is being amortized at 1% per annum in equal quarterly installments until the final payment of $350.6 million on the July 7, 2028 maturity date.

Our Term Loan is recorded at its carrying value. At December 31, 2023, the fair value of our Term Loan was approximately $366.6 million. In the fair value hierarchy, our Term Loan is classified as Level 2 as it is traded in less active markets.

The maturities of the Term Loan at December 31, 2023 were as follows:

(in thousands)	
Year ending December 31,	
2024	$ 3,750
2025	3,750
2026	3,750
2027	3,750
2028	352,500
Total	$ 367,500

We may be subject to mandatory Term Loan prepayments related to the excess cash flow provisions. These prepayments would only be required if our first lien net leverage ratio (as defined in our Credit Agreement) exceeds 3.5 at the end of each year. At December 31, 2023, our first lien net leverage ratio was 1.28.

The Revolving Credit Facility bears interest at a rate, depending on first lien net leverage, ranging from 2.00% to 2.50% over SOFR and matures on July 7, 2026. Additionally, we pay a commitment fee during the term ranging from 0.25% to 0.375% per annum of the average daily undrawn portion of the revolving commitments based on the first lien net leverage ratio. The Revolving Credit Facility contains a $15.0 million letter of credit sublimit.

The Credit Agreement contains certain customary events of default, which include failure to make payments when due, the material inaccuracy of representations or warranties, failure to observe or perform certain covenants, cross-defaults, bankruptcy and insolvency-related events, certain judgments, certain ERISA-related events, failure of any lien created under the Security Documents (as defined in the Credit Agreement) to be valid and perfected (subject to certain exceptions), failure of any material guarantee of the Loan Document Obligations (as defined in the Credit Agreement) to be in full force and effect and a Change of Control (as defined in the Credit Agreement).

The Credit Agreement is guaranteed by the Company and Tenable Public Sector LLC, an indirect subsidiary of the Company, as guarantors, and is supported by a security interest in substantially all of the assets of Tenable, Inc. and the guarantors.

The Credit Agreement contains certain customary representations and warranties and affirmative and negative covenants, including certain restrictions on incurring additional indebtedness or guaranteeing indebtedness of others, creating liens on properties or assets, making certain investments, loans, advances and guarantees, selling assets, making certain restricted payments and entering into certain sale and leaseback transactions, affiliate transactions, restrictive agreements and asset and stock-based transactions. Additionally, if at least 35% of the Revolving Credit Facility is drawn on the last day of the quarter, the total net leverage ratio cannot be greater than 5.50 to 1.00. At December 31, 2023, we had $0.2 million of standby letters of credit outstanding under our Revolving Credit Facility related to one of our operating leases. At December 31, 2023, we were in compliance with the covenants under the Credit Agreement.

9. Commitments and Contingencies

Commitments

In December 2023, we entered into a contract with Microsoft for cloud services from February 2024 through January 2027. Under the terms of the contract we committed to spend EUR 28.5 million. If we do not meet our commitment by the end of the term, we will be required to pay the difference.

In July 2021, we entered into a contract with Amazon Web Services ("AWS") for cloud services from August 2021 through July 2024. Under the terms of the contract, we committed to spend $43.7 million, $46.8 million and $50.1 million in contract years one, two and three, respectively, for a total of $140.6 million. If we do not meet the minimum purchase obligation during any of those years, we will be required to pay the difference. We met our commitment for both the first and second years of our contract with AWS, and as of December 31, 2023, we have spent $32.7 million of our third year commitment.

Letters of Credit

At December 31, 2023, we had $5.7 million of standby letters of credit related to our grant agreements with the State of Maryland and our operating leases. Collateral for $5.5 million of our letters of credit was classified as restricted cash in cash and cash equivalents.

10. Stock-Based Compensation

In 2018, our Board of Directors adopted, and our stockholders approved, our 2018 Equity Incentive Plan ("2018 Plan"). Under the evergreen provision in the 2018 Plan, in January 2023 we reserved an additional 5.7 million shares of our common stock. At December 31, 2023, there were 23.4 million shares available for grant.

Stock-based compensation expense included in the consolidated statements of operations was as follows:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
Cost of revenue	$ 11,247	$ 8,369	$ 4,446
Sales and marketing	61,322	49,383	29,410
Research and development	37,225	31,499	20,593
General and administrative	35,533	31,382	24,956
Total stock-based compensation expense	$ 145,327	$ 120,633	$ 79,405

At December 31, 2023, the unrecognized stock-based compensation expense related to unvested RSUs was $275.7 million, which is expected to be recognized over an estimated weighted average remaining period of 2.7 years.

At December 31, 2023, the unrecognized stock-based compensation expense related to unvested PSUs was $4.8 million, which is expected to be recognized over an estimated remaining weighted average period of 2.8 years.

At December 31, 2023, the unrecognized stock-based compensation expense related to unvested restricted share awards was $12.8 million, which is expected to be recognized over an estimated remaining period of 2.3 years.

At December 31, 2023, the unrecognized stock-based compensation expense related to our 2018 ESPP was $4.9 million, which is expected to be recognized over an estimated weighted average period of 0.6 years.

Restricted Stock, RSUs and PSUs

A summary of our restricted stock, RSU and PSU activity is presented below:

	Restricted Stock		RSUs		PSUs	
(in thousands, except for per share data)	**Number of Shares**	**Weighted Average Grant Date Fair Value**	**Number of Shares**	**Weighted Average Grant Date Fair Value**	**Number of Shares**	**Weighted Average Grant Date Fair Value**
Unvested balance at December 31, 2020	99	$ 4.25	4,490	$ 28.13	—	$ —
Granted	—	—	3,842	43.57	—	—
Vested	(99)	4.25	(1,872)	28.14	—	—
Forfeited	—	—	(679)	33.64	—	—
Unvested balance at December 31, 2021	—	—	5,781	37.74	—	—
Granted	—	—	4,653	45.83	209	44.97
Vested	—	—	(2,510)	36.47	—	—
Forfeited	—	—	(1,030)	40.45	(13)	44.97
Unvested balance at December 31, 2022	—	—	6,894	43.26	196	44.97
Granted	311	45.67	4,728	43.47	188	43.24
Performance adjustment(1)	—	—	—	—	12	44.97
Vested	—	—	(3,153)	41.61	(91)	44.97
Forfeited	—	—	(1,126)	45.14	(47)	43.92
Unvested balance at December 31, 2023	311	45.67	7,343	43.80	258	43.90

(1) Represents adjustments due to the achievement of predefined financial performance targets.

As part of the acquisition of Ermetic we issued replacement equity awards, of which $0.5 million was attributable to services performed prior to the acquisition date and allocated to purchase consideration. The remaining fair value was allocated to future services and will be expensed over the remaining service periods as stock-based compensation.

Stock Options

A summary of our stock option activity is presented below:

(in thousands, except for per share data and years)	Number of Shares	Weighted Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2020	9,441	$ 8.56	6.4	$ 412,547
Exercised	(2,671)	6.84		111,256
Forfeited/canceled	(39)	14.96		
Outstanding at December 31, 2021	6,731	9.21	5.5	308,677
Exercised	(1,174)	9.98		47,880
Forfeited/canceled	(72)	16.15		
Outstanding at December 31, 2022	5,485	8.96	4.5	160,135
Exercised	(387)	9.05		13,364
Forfeited/canceled	(3)	10.97		
Outstanding and exercisable at December 31, 2023	5,095	8.95	3.5	189,108

At December 31, 2023, there were 5.1 million stock options outstanding that were vested and expected to vest.

Stock options were last granted in 2018. Stock options granted under our stock incentive plans have a maximum term of ten years, generally vest over a period of three to four years, and the exercise price cannot be less than the fair market value on the date of grant.

Estimating the fair value of ESPP purchase rights using the Black-Scholes option-pricing model requires assumptions as to the fair value of common stock, expected term, expected volatility, the risk-free interest rate and the expected dividend yield.

Fair Value of Common Stock. We use the market price of our common stock at the date of grant.

Expected Term. We use the actual purchase periods as the expected term in the 2018 ESPP.

Expected Volatility. Volatility is a measure of the amount by which a financial variable, such as a share price, has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. In 2021, we began using the volatility of our common stock to calculate expected volatility. Prior to 2021, we identified several public entities of similar size, complexity, and stage of development and estimated our volatility based on the volatility of the common stock of these companies.

Risk-Free Interest Rate. This is the U.S. Treasury rate, having a term that most closely resembles the expected life of the stock option.

Expected Dividend Yield. We have never declared or paid dividends and have no plans to do so in the foreseeable future.

2018 Employee Stock Purchase Plan

In 2018, our Board of Directors adopted, and our stockholders approved our 2018 ESPP. Under the evergreen provision, in January 2023 we reserved an additional 1.7 million shares of our common stock for issuance. At December 31, 2023, there were 8.7 million shares reserved for issuance under the 2018 ESPP.

Under our 2018 ESPP, employees may set aside up to 15% of their gross earnings, on an after-tax basis, to purchase our common stock at a discounted price, which is calculated at 85% of the lower of the fair market value of our common stock on the first day of an offering or on the date of purchase. The 2018 ESPP permits offerings up to 27 months in duration, with one or more purchase periods in each offering. Additionally, in cases where the fair market value of a share of our common stock on the first day of a new purchase period within an offering is less than or equal to the fair market value of a share of our common stock at the beginning of the offering, that offering will be terminated and participants will be automatically enrolled in a new offering with a new 24-month duration and purchase periods every six months.

In 2023, employees purchased 506,390 shares of our common stock at a weighted average price of $32.04 per share, resulting in $16.2 million of cash proceeds.

In 2022, employees purchased 442,629 shares of our common stock at a weighted average price of $33.42 per share resulting in $14.8 million of cash proceeds.

In 2021, employees purchased 670,534 shares of our common stock at a weighted average price of $20.48 per share resulting in $13.7 million of cash proceeds.

At December 31, 2023 and 2022 there were $7.9 million and $6.8 million, respectively, of employee contributions to the 2018 ESPP included in accrued compensation.

The fair value of the 2018 ESPP purchase rights was estimated on the offering or modification dates using a Black-Scholes option-pricing model and the following assumptions:

	Year Ended December 31,		
	2023	**2022**	**2021**
Expected term (in years)	0.5 — 2.0	0.5 — 2.0	0.5 — 2.0
Expected volatility	46.9% — 58.1%	42.8% — 61.0%	37.2% — 59.4%
Risk-free interest rate	4.8% — 5.4%	0.1% — 3.4%	0.1% — 0.2%
Expected dividend yield	—	—	—

11. Income Taxes

U.S. and foreign components of the loss before income taxes were as follows:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
U.S. loss	$ (26,249)	$ (23,768)	$ (3,319)
Foreign loss	(41,152)	(61,521)	(47,310)
Total loss before income taxes	$ (67,401)	$ (85,289)	$ (50,629)

The components of the provision for income taxes were as follows:

(in thousands)	Year Ended December 31, 2023	2022	2021
Current			
Federal	$ 5	$ 3	$ 3
State	708	248	100
Foreign	9,930	10,142	6,413
Total current tax expense	10,643	10,393	6,516
Deferred			
Federal	293	(2,011)	(7,016)
State	239	(330)	(827)
Foreign	(292)	(1,119)	(2,625)
Total deferred tax expense (benefit)	240	(3,460)	(10,468)
Total provision (benefit) for income taxes	$ 10,883	$ 6,933	$ (3,952)

In connection with the 2022 acquisition of Bit Discovery, we elected to first offset our existing deferred tax assets with acquired deferred tax liabilities. This resulted in releasing $2.5 million of the federal and state valuation allowance, which was recorded as a component of our deferred tax benefit.

In connection with the 2021 acquisition of Accurics, we elected to first offset our existing deferred tax assets with acquired deferred tax liabilities. This resulted in releasing $7.9 million of the federal and state valuation allowance, which was recorded as a component of our deferred tax benefit.

In 2022 and 2021, we restructured our operations in Israel through intercompany transactions, which resulted in $2.7 million and $2.8 million, respectively, of current tax expense.

The items accounting for the difference between income taxes computed at the federal statutory rate and our effective tax rate were as follows:

	Year Ended December 31, 2023	2022	2021
U.S. federal statutory tax rate	21.0 %	21.0 %	21.0 %
State and local taxes	1.9	3.1	2.6
Research and development tax credit	8.4	4.3	4.5
Stock-based compensation	(11.3)	7.0	49.5
Foreign tax rate differential	(1.7)	(4.0)	(1.2)
Change in valuation allowance	(34.0)	(28.3)	(55.7)
Gain on intercompany sale, net of losses	(1.4)	(2.9)	(5.1)
Foreign withholding tax	(5.4)	(3.3)	(2.0)
Foreign deferred FX remeasurement	9.0	(4.4)	—
Transaction costs	(1.0)	(0.6)	(1.6)
Other	(1.8)	—	(4.2)
Effective tax rate	(16.3)%	(8.1)%	7.8 %

We maintain a valuation allowance on U.S. federal, state and foreign net deferred tax assets as the realization of our deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain.

The components of the deferred tax assets and liabilities were as follows:

(in thousands)	December 31, 2023	December 31, 2022
Deferred tax assets:		
Net operating losses	$ 156,695	$ 136,087
Deferred revenue	22,194	15,907
Stock-based compensation	17,767	17,599
Tax credits	24,174	18,674
Leases	12,296	13,167
Accrued compensation	3,245	1,869
Interest expense	1,860	4,678
Capitalized research and development	22,078	14,076
Other	3,587	49
Total deferred tax assets	263,896	222,106
Valuation allowance	(203,773)	(172,987)
Net deferred tax assets	60,123	49,119
Deferred tax liabilities:		
Deferred commissions	(24,289)	(22,112)
Property and equipment	(11,923)	(13,573)
Intangible assets	(24,915)	(14,539)
Other	(600)	(194)
Total deferred tax liabilities	(61,727)	(50,418)
Net deferred tax liabilities	$ (1,604)	$ (1,299)

At December 31, 2023, we had net operating loss (“NOL”) carryforwards for federal, state and foreign tax purposes of $372.5 million, $246.6 million, and $469.3 million, respectively, which will begin to expire in 2030, as well as $27.6 million of federal, state and foreign research and development tax credits, foreign tax credits, minimum tax credits and certain states’ job creation tax credits. The federal research and development and foreign tax credits will begin to expire in 2032 and the state job creation tax credits will begin to expire in 2024.

We are currently subject to the annual limitation under Sections 382 and 383 of the Internal Revenue Code. We will not be precluded from realizing the NOL carryforward and tax credits but may be limited in the amount we could utilize in any given tax year in the event that the federal and state taxable income will exceed the limitation imposed by Section 382. The amount of the annual limitation is determined based on our value immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years.

At December 31, 2023 and 2022, the total amount of gross unrecognized tax benefits was $8.3 million and $7.8 million, respectively, which, if recognized, would impact our effective tax rate by approximately $0.2 million in each year. Interest and penalties associated with uncertain tax positions recognized as a component of income tax expense were immaterial in 2023, 2022 and 2021.

The change in gross unrecognized tax benefits, excluding accrued interest, were as follows:

	Year Ended December 31,		
(in thousands)	2023	2022	2021
Unrecognized tax benefits at the beginning of the period	$ 7,820	$ 7,575	$ 7,123
Additions for tax positions in the current year	417	245	194
Increase in prior year positions	60	—	64
Decrease in prior year positions	—	—	(48)
Acquisitions	—	—	242
Unrecognized tax benefits at the end of the period	$ 8,297	$ 7,820	$ 7,575

We file income tax returns in the United States, including various state jurisdictions. Our subsidiaries file income tax returns in various foreign jurisdictions. Tax years after 2014 remain open to examination by the major taxing jurisdictions in which we are subject to tax. At December 31, 2023, we were not under examination for income tax audits by the Internal Revenue Service. We are currently under tax examination in France for tax years 2019 through 2022 and in Israel for tax years 2018 through 2021.

Depending on the jurisdiction, distributions of earnings could be subject to withholding taxes at rates applicable to the distributing jurisdiction. As we intend to continue to reinvest the earnings of foreign subsidiaries indefinitely, we have not provided for a U.S. income tax liability and foreign withholding taxes on undistributed foreign earnings of foreign subsidiaries. It is not practicable for us to determine the amount of unrecognized tax expense on these reinvested foreign earnings.

12. Net Loss Per Share

The following table sets forth the computation of basic and diluted net loss per share:

	Year Ended December 31,		
(in thousands, except per share data)	2023	2022	2021
Net loss	$ (78,284)	$ (92,222)	$ (46,677)
Weighted-average shares used to compute net loss per share, basic and diluted	115,408	111,321	106,387
Net loss per share, basic and diluted	$ (0.68)	$ (0.83)	$ (0.44)

The following potentially dilutive securities have been excluded from the diluted per share calculations because they would have been antidilutive:

	Year Ended December 31,		
(in thousands)	2023	2022	2021
RSUs	7,343	6,894	5,781
Stock options	5,095	5,485	6,731
Shares to be issued under the 2018 ESPP	245	223	181
PSUs	258	196	—
Restricted stock	311	—	—
Total	13,252	12,798	12,693

13. Geographic Information

We operate as one operating segment. Our Chief Executive Officer, who is our chief operating decision maker, reviews financial information on a consolidated basis for purposes of making operating decisions, allocating resources, and evaluating financial performance.

Revenue by region, based on the address of the end user as specified in our subscription, license or service agreements, was as follows:

	Year Ended December 31,		
(in thousands)	**2023**	**2022**	**2021**
The Americas	$ 500,512	$ 432,734	$ 347,724
Europe, Middle East and Africa	205,851	175,767	135,176
Asia Pacific	92,347	74,690	58,230
Revenue	$ 798,710	$ 683,191	$ 541,130

Customers located in the United States accounted for 55%, 56% and 58% of revenue in 2023, 2022 and 2021, respectively. No other country accounted for 10% or more of revenue in the periods presented.

Our property and equipment, net by geographic area is summarized as follows:

	December 31,	
(in thousands)	**2023**	**2022**
United States	$ 39,497	$ 39,843
International	5,939	6,883
Property and equipment, net	$ 45,436	$ 46,726

14. Benefit Plans

We maintain a contributory defined contribution 401(k) plan for our U.S. employees, where company-matched contributions are fully vested. Additional contributory plans are in effect internationally, including in the U.K. and Ireland. Contribution expense for such plans was $10.3 million, $9.7 million and $7.6 million in 2023, 2022 and 2021, respectively.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act, that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of the end of the period covered by this Form 10-K. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that as of December 31, 2023, our disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed by us in this Form 10-K was (a) reported within the time periods specified by SEC rules and regulations and (b) communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding any required disclosure.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rule 13a-15(f) of the Exchange Act. Our management evaluated the effectiveness of our internal control over financial reporting based on the framework in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and concluded that our internal control over financial reporting was effective at December 31, 2023. We completed our acquisition of Ermetic on October 2, 2023. Since we have not yet fully incorporated the internal controls and procedures of Ermetic into our internal control over financial reporting, management excluded Ermetic from its assessment of the effectiveness of our internal controls as of December 31, 2023. Ermetic represented approximately 4% of our total assets at December 31, 2023 and less than 1% of our revenue and less than 2% of operating expenses in 2023.

Our independent registered public accounting firm, Ernst & Young LLP (PCAOB ID: 42), has issued an audit report with respect to our internal control over financial reporting as of December 31, 2023, which is included in Part II, Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting identified in management’s evaluation pursuant to Rules 13a-15(d) or 15d-15(d) of the Exchange Act during the three months ended December 31, 2023 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Internal Controls

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, not absolute, 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 judgment in evaluating the benefits of possible controls and procedures relative to their costs. Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud.

Item 9B. Other Information

Rule 10b5-1 Plan Elections

Amit Yoran, our Chief Executive Officer, entered into a prearranged stock trading plan on December 4, 2023. Mr. Yoran's plan includes the potential sale of 1,220,000 shares held by Mr. Yoran and 180,000 shares held by the Amit Yoran 2020 Family Trust between March 4, 2024 and February 18, 2025. Of the shares of common stock that may be sold pursuant to Mr. Yoran's plan, 1,220,000 are to be issued upon the exercise of vested options held by Mr. Yoran.

Stephen Vintz, our Chief Financial Officer entered into a prearranged stock trading plan on December 12, 2023. Mr. Vintz's plan includes the potential sale of 305,500 shares of our common stock between March 12, 2024 and September 24, 2024. All of the shares of common stock that may be sold pursuant to Mr. Vintz's plan are shares to be issued upon the exercise of vested stock options.

Raymond Vicks, Jr., a member of our Board of Directors, entered into a prearranged stock trading plan on November 30, 2023. Mr. Vicks' plan includes the potential sale of 2,369 shares of our common stock between February 29, 2024 and May 24, 2024. All of the shares of common stock that may be sold pursuant to Mr. Vicks' plan are shares to be issued upon the vesting of restricted stock units.

All of the aforementioned trading plans were entered into during an open trading window and are intended to satisfy the affirmative defense of Rule 10b5-1(c) under the Exchange Act and our policies regarding insider transactions.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Executive Officers and Directors

The information required by this item will be contained in our definitive proxy statement to be filed with the SEC in connection with our 2024 annual meeting of stockholders, or the Proxy Statement, which is expected to be filed not later than 120 days after the end of our fiscal year ended December 31, 2023, under the captions "Information Regarding the Board of Directors and Corporate Governance," "Election of Directors" and "Executive Officers" and is incorporated in this report by reference.

Code of Ethics

Our Code of Business Conduct and Ethics applies to all officers, directors and employees, and is available on our website at https://investors.tenable.com. If we make any substantive amendments to the Code of Business Conduct and Ethics or grant any waiver from a provision of the Code to any executive officer or director, we will promptly disclose the nature of the amendment or waiver on our website.

Item 11. Executive Compensation

The information required by this item will be set forth in the Proxy Statement under the captions "Executive Compensation" and "Director Compensation" 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 under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Securities Authorized for Issuance under Equity Compensation Plans" 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 under the captions "Transactions with Related Persons and Indemnification" and "Independence of the Board of Directors" 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 under the caption "Ratification of Selection of Independent Registered Public Accounting Firm" and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a)(1) Financial Statements

See the Index to Consolidated Financial Statements in Item 8 of this Annual Report on Form 10-K.

(a)(2) Financial Statement Schedules

SCHEDULE II
SUPPLEMENTARY CONSOLIDATED FINANCIAL STATEMENT SCHEDULE
VALUATION AND QUALIFYING ACCOUNTS

(in thousands)	Balance at Beginning of Year	Additions Charged to Costs and Expenses	Deductions[1]	Balance at End of Year
Allowance for Doubtful Accounts				
Year Ended December 31, 2023	$ 1,400	$ 593	$ (1,523)	$ 470
Year Ended December 31, 2022	524	1,154	(278)	1,400
Year Ended December 31, 2021	261	349	(86)	524

(1) Consists of recoveries and write-offs of uncollectible accounts.

All other schedules have been omitted because they are not required, not applicable, or the required information is included in the financial statements or the notes to the financial statements.

(a)(3) Exhibits

The following is a list of Exhibits filed as part of this Annual Report on Form 10-K:

Exhibit Number	Description	Location
3.1	Amended and Restated Certificate of Incorporation of Tenable Holdings, Inc.	Previously filed as Exhibit 3.1 to the Company's Currer Report on Form 8-K (File No. 001-38600) on July 30, 2018
3.2	Second Amended and Restated Bylaws of Tenable Holdings, Inc.	Previously filed as Exhibit 3.1 to the Company's Currer Report on Form 8-K (File No. 001-38600) on Novembe 15, 2023
4.1	Common Stock Certificate of Tenable Holdings, Inc.	Previously filed as Exhibit 4.1 to the Company's Registration Statement on Form S-1 (File No. 333-226002) on July 16, 2018
4.2	Investors' Rights Agreement by and among Tenable Holdings, Inc. and certain of its stockholders, dated December 18, 2015	Previously filed as Exhibit 4.2 to the Company's Registration Statement on Form S-1 (File No. 333-226002) on July 16, 2018
4.3	Description of Common Stock of Tenable Holdings, Inc.	Previously filed as Exhibit 4.3 to the Company's Annua Report on Form 10-K (File No. 001-38600) on Februar 28, 2020
10.1+	2016 Stock Incentive Plan and Irish Supplement and Forms of Option Grant Notice and Agreement and Exercise Notice and Form of Restricted Stock Grant Notice and Agreement thereunder, as amended to date	Previously filed as Exhibit 10.1 to the Company's Registration Statement on Form S-8 (File No. 333-226347) on July 26, 2018
10.2+	2012 Stock Incentive Plan and Form of Notice of Stock Option Grant and Form of Stock Option Agreement and Notice of Exercise and Common Stock Purchase Agreement thereunder, as amended to date	Previously filed as Exhibit 10.2 to the Company's Registration Statement on Form S-8 (File No. 333-226347) on July 26, 2018
10.3+	2002 Stock Incentive Plan and Form of Notice of Option Grant and Form of Stock Option Agreement and Form of Notice of Stock Option Exercise and Form of Stock Award Agreement thereunder, as amended to date	Previously filed as Exhibit 10.3 to the Company's Registration Statement on Form S-8 (File No. 333-226347) on July 26, 2018

10.4+	2018 Equity Incentive Plan and Forms of Stock Option Grant Notice and Agreement and Restricted Stock Unit Grant Notice and Agreement thereunder	Previously filed as Exhibit 10.4 to the Company's Registration Statement on Form S-8 (File No. 333-226347) on July 26, 2018
10.5	Form of Performance Restricted Stock Unit Grant Notice and Agreement	Previously filed as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-38600) filed on February 28, 2022
10.6+	2018 Employee Stock Purchase Plan	Previously filed as Exhibit 10.5 to the Company's Registration Statement on Form S-8 (File No. 333-226347) on July 26, 2018
10.7+	Form of Indemnification Agreement by and between Tenable Holdings, Inc. and each of its directors and executive officers	Previously filed as Exhibit 10.6 to the Company's Registration Statement on Form S-1 (File No. 333-226002) on July 16, 2018
10.8+	Amended and Restated Employment Agreement, dated as of February 20, 2019, by and between Tenable, Inc. and Amit Yoran	Previously filed as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-38600) on February 22, 2019
10.9+	Amended and Restated Employment Agreement, dated as of February 20, 2019, by and between Tenable, Inc. and Stephen A. Vintz	Previously filed as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-38600) on February 22, 2019
10.10	Employment Agreement, dated as of January 1, 2020, by and between Tenable, Inc. and Mark Thurmond	Previously filed as Exhibit 10.11 to the Company's Annual Report on Form 10-K (File No. 001-38600) on February 24, 2023
10.11#	Distribution Agreement, dated as of September 10, 2012, by and between Tenable Network Security, Inc. and Ingram Micro, Inc.	Previously filed as Exhibit 10.12 to the Company's Registration Statement on Form S-1 (File No. 333-226002) on July 16, 2018
10.12	Credit Agreement, dated as of July 7, 2021, by and among Tenable, Inc., the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent and collateral agent.	Previously filed as Exhibit 10.2 to the Company's Form 10-Q (File No. 001-38600) on August 2, 2021
10.13	Share Purchase Agreement, dated as of September 13, 2021, by and among Tenable, Inc., Accurics, Inc., the shareholders of Accurics identified in the Purchase Agreement or joined to the Purchase Agreement pursuant to a joinder agreement, and Shareholder Representative Services LLC, as the representative of Accurics' shareholders thereunder.	Previously filed as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-38600) on September 13, 2021
10.14	Share Purchase Agreement, dated as of September 7, 2023, by and among Tenable, Inc., Ermetic Ltd., the shareholders of Ermetic identified on the signature pages thereto and Shareholder Representative Services LLC.	Previously filed as Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 001-38600) on September 7, 2023
10.15+	Form of Restricted Stock Unit Grant Notice and Agreement under the 2018 Equity Incentive Plan	Previously filed as Exhibit 10.2 to the Company's Form 10-Q (File No. 001-38600) on August 2, 2023
10.16+	Form of Restricted Stock Unit Grant Notice and Agreement under the 2018 Equity Incentive Plan	Previously filed as Exhibit 10.1 to the Company's Form 10-Q (File No. 001-38600) on November 9, 2023
10.17	Amendment No. 1 to Credit Agreement, dated as of June 1, 2023, by and among Tenable, Inc., the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent and collateral agent.	Previously filed as Exhibit 10.1 to the Company's Form 10-Q (File No. 001-38600) on August 2, 2023
21.1	Subsidiaries of Tenable Holdings, Inc.	Filed herewith
23.1	Consent of Ernst & Young LLP, independent registered public accounting firm	Filed herewith
24.1	Power of Attorney	Filed herewith
31.1	Certification of the Principal Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
31.2	Certification of the Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith

32.1*	Certification of the Principal Executive Officer and the Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	Furnished herewith
97.1	Incentive Compensation Recoupment Policy	Filed herewith
101.SCH	Inline XBRL Taxonomy Extension Schema Document	
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101.SCH, 101.CAL, 101.DEF, 101.LAB and 101.PRE)	

(*) This certification is deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.

(+) Indicates management contract or compensatory plan.

(#) Confidential treatment has been granted as to certain portions, indicated by asterisks, which portions have been omitted and filed separately with the Securities and Exchange Commission.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements 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.

TENABLE HOLDINGS, INC.

Date:	February 28, 2024	By:	/s/ Amit Yoran
			Amit Yoran
			Chairman and Chief Executive Officer
Date:	February 28, 2024	By:	/s/ Stephen A. Vintz
			Stephen A. Vintz
			Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Amit Yoran, Stephen A. Vintz and Michelle VonderHaar, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, 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 this Annual Report on Form 10-K of Tenable Holdings, Inc., and any or all amendments thereto, 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 full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his, her or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof. 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/ Amit Yoran Amit Yoran	Chairman and Chief Executive Officer *(Principal Executive Officer)*	February 28, 2024
/s/ Stephen A. Vintz Stephen A. Vintz	Chief Financial Officer *(Principal Financial Officer and Principal Accounting Officer)*	February 28, 2024
/s/ Arthur W. Coviello, Jr. Arthur W. Coviello, Jr.	Director	February 28, 2024
/s/ Linda Zecher Higgins Linda Zecher Higgins	Director	February 28, 2024
/s/ Niloofar Razi Howe Niloofar Razi Howe	Director	February 28, 2024
/s/ John C. Huffard, Jr. John C. Huffard, Jr.	Director	February 28, 2024
/s/ Margaret Keane Margaret Keane	Director	February 28, 2024
/s/ A. Brooke Seawell A. Brooke Seawell	Director	February 28, 2024
/s/ George Alexander Tosheff George Alexander Tosheff	Director	February 28, 2024
/s/ Raymond Vicks, Jr. Raymond Vicks, Jr.	Director	February 28, 2024

Exhibit 21.1

SUBSIDIARIES OF TENABLE HOLDINGS, INC.

Name of Subsidiary	Jurisdiction of Incorporation
Tenable, Inc.	Delaware
Accurics, Inc.	Delaware
Ermetic, Ltd.	Israel
Tenable Network Security Ireland Limited	Ireland
Alsid, SAS	France
Tenable Public Sector LLC	Delaware

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

(1) Registration Statement (Form S-3ASR No. 333-240164) of Tenable Holdings, Inc.,

(2) Registration Statement (Form S-8 No. 333-236759) pertaining to the Tenable Holdings, Inc. 2018 Equity Incentive Plan, and the Tenable Holdings, Inc. 2018 Employee Stock Purchase Plan,

(3) Registration Statement (Form S-8 No. 333-253376) pertaining to the Tenable Holdings, Inc. 2018 Equity Incentive Plan, and the Tenable Holdings, Inc. 2018 Employee Stock Purchase Plan,

(4) Registration Statement (Form S-8 No. 333-226347) pertaining to the Tenable Holdings, Inc. 2002 Stock Incentive Plan, as amended and restated; the Tenable Holdings, Inc. 2012 Stock Incentive Plan, as amended and restated; the Tenable Holdings, Inc. 2016 Stock Incentive Plan, as amended and restated; the Tenable Holdings, Inc. 2018 Equity Incentive Plan; and the Tenable Holdings, Inc. 2018 Employee Stock Purchase Plan,

(5) Registration Statement (Form S-8 No. 333-230040) pertaining to the Tenable Holdings, Inc. 2018 Equity Incentive Plan and the Tenable Holdings, Inc. 2018 Employee Stock Purchase Plan,

(6) Registration Statement (Form S-8 No. 333-263050) pertaining to the Tenable Holdings, Inc. 2018 Equity Incentive Plan and the Tenable Holdings, Inc. 2018 Employee Stock Purchase Plan, and

(7) Registration Statement (Form S-8 No. 333-270021) pertaining to the Tenable Holdings, Inc. 2018 Equity Incentive Plan and the Tenable Holdings, Inc. 2018 Employee Stock Purchase Plan;

of our reports dated February 28, 2024, with respect to the consolidated financial statements and schedule of Tenable Holdings, Inc. and the effectiveness of internal control over financial reporting of Tenable Holdings, Inc. included in this Annual Report (Form 10-K) for the year ended December 31, 2023.

/s/ Ernst & Young LLP

Baltimore, Maryland

February 28, 2024

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a)
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Amit Yoran, certify that:

1. I have reviewed this Annual Report on Form 10-K of Tenable Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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) 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
   (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2024

By: /s/ Amit Yoran
Amit Yoran
Chief Executive Officer and Chairman
(Principal Executive Officer)

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO EXCHANGE ACT RULES 13a-14(a) AND 15d-14(a)
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Stephen A. Vintz, certify that:

1. I have reviewed this Annual Report on Form 10-K of Tenable Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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) 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
    (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2024

By: /s/ Stephen A. Vintz
Stephen A. Vintz
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

Exhibit 32.1

CERTIFICATIONS OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Each of the undersigned hereby certifies, 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 Tenable Holdings, Inc. for the fiscal year ended December 31, 2023 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of Tenable Holdings, Inc.

Date: February 28, 2024

By: /s/ Amit Yoran
Amit Yoran
Chief Executive Officer and Chairman
(Principal Executive Officer)

Date: February 28, 2024

By: /s/ Stephen A. Vintz
Stephen A. Vintz
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

Tenable Holdings, Inc.

Incentive Compensation Recoupment Policy

1. Introduction

The Compensation Committee of the Board of Directors (the "***Board***") of Tenable Holdings, Inc., a Delaware corporation (the "***Company***"), has determined that it is in the best interests of the Company and its stockholders to adopt this Incentive Compensation Recoupment Policy (this "***Policy***") providing for the Company's recoupment of Recoverable Incentive Compensation that is received by Covered Officers of the Company under certain circumstances. Certain capitalized terms used in this Policy have the meanings given to such terms in Section 3 below.

This Policy is designed to comply with, and shall be interpreted to be consistent with, Section 10D of the Exchange Act, Rule 10D-1 promulgated thereunder ("***Rule 10D-1***") and Nasdaq Listing Rule 5608 (the "***Listing Standards***").

2. Effective Date

This Policy shall apply to all Incentive Compensation that is received by a Covered Officer on or after October 2, 2023 (the "***Effective Date***"). Incentive Compensation is deemed "***received***" in the Company's fiscal period in which the Financial Reporting Measure specified in the Incentive Compensation award is attained, even if the payment or grant of such Incentive Compensation occurs after the end of that period.

3. Definitions

"***Accounting Restatement***" means an accounting restatement that the Company is required to prepare due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.

"***Accounting Restatement Date***" means the earlier to occur of (a) the date that the Board, a committee of the Board authorized to take such action, or the officer or officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare an Accounting Restatement, or (b) the date that a court, regulator or other legally authorized body directs the Company to prepare an Accounting Restatement.

"***Administrator***" means the Compensation Committee or, in the absence of such committee, the Board.

"***Code***" means the U.S. Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder.

"***Compensation Committee***" means the Compensation Committee of the Board.

"***Covered Officer***" means each current and former Executive Officer.

"***Exchange***" means the Nasdaq Stock Market.

"***Exchange Act***" means the U.S. Securities Exchange Act of 1934, as amended.

"***Executive Officer***" means the Company's president, principal financial officer, principal accounting officer (or if there is no such accounting officer, the controller), any vice-president of the Company in charge of a principal business unit, division, or function (such as sales, administration, or finance), any other officer who performs a policy-making function, or any other person who performs similar policy-making functions for the Company. Executive officers of the Company's parent(s) or subsidiaries are deemed executive officers of the Company if they perform such policy-making functions for the Company. Policy-making function is not intended to include policy-making functions that are not significant. Identification of an executive officer for purposes of this Policy would include at a minimum executive officers identified pursuant to Item 401(b) of Regulation S-K promulgated under the Exchange Act.

"***Financial Reporting Measures***" means measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures derived wholly or in part from such measures, including Company stock price and total stockholder return ("***TSR***"). A measure need not be presented in the Company's financial statements or included in a filing with the SEC in order to be a Financial Reporting Measure.

“***Incentive Compensation***” means any compensation that is granted, earned or vested based wholly or in part upon the attainment of a Financial Reporting Measure.

“***Lookback Period***” means the three completed fiscal years immediately preceding the Accounting Restatement Date, as well as any transition period (resulting from a change in the Company’s fiscal year) within or immediately following those three completed fiscal years (except that a transition period of at least nine months shall count as a completed fiscal year). Notwithstanding the foregoing, the Lookback Period shall not include fiscal years completed prior to the Effective Date.

“***Recoverable Incentive Compensation***” means Incentive Compensation received by a Covered Officer during the Lookback Period that exceeds the amount of Incentive Compensation that would have been received had such amount been determined based on the Accounting Restatement, computed without regard to any taxes paid (*i.e.*, on a gross basis without regarding to tax withholdings and other deductions). For any compensation plans or programs that take into account Incentive Compensation, the amount of Recoverable Incentive Compensation for purposes of this Policy shall include, without limitation, the amount contributed to any notional account based on Recoverable Incentive Compensation and any earnings to date on that notional amount. For any Incentive Compensation that is based on stock price or TSR, where the Recoverable Incentive Compensation is not subject to mathematical recalculation directly from the information in an Accounting Restatement, the Administrator will determine the amount of Recoverable Incentive Compensation based on a reasonable estimate of the effect of the Accounting Restatement on the stock price or TSR upon which the Incentive Compensation was received. The Company shall maintain documentation of the determination of that reasonable estimate and provide such documentation to the Exchange in accordance with the Listing Standards.

“***SEC***” means the U.S. Securities and Exchange Commission.

4. Recoupment

(a) Applicability of Policy. This Policy applies to Incentive Compensation received by a Covered Officer (i) after beginning services as an Executive Officer, (ii) who served as an Executive Officer at any time during the performance period for such Incentive Compensation, (iii) while the Company had a class of securities listed on a national securities exchange or a national securities association, and (iv) during the Lookback Period.

(b) Recoupment Generally. Pursuant to the provisions of this Policy, if there is an Accounting Restatement, the Company must reasonably promptly recoup the full amount of the Recoverable Incentive Compensation, unless the conditions of one or more subsections of Section 4(c) of this Policy are met and the Compensation Committee, or, if such committee does not consist solely of independent directors, a majority of the independent directors serving on the Board, has made a determination that recoupment would be impracticable. Recoupment is required regardless of whether the Covered Officer engaged in any misconduct and regardless of fault, and the Company’s obligation to recoup Recoverable Incentive Compensation is not dependent on whether or when any restated financial statements are filed.

(c) Impracticability of Recovery. Recoupment may be determined to be impracticable if, and only if:

(i) the direct expense paid to a third party to assist in enforcing this Policy would exceed the amount of the applicable Recoverable Incentive Compensation; provided that, before concluding that it would be impracticable to recover any amount of Recoverable Incentive Compensation based on expense of enforcement, the Company shall make a reasonable attempt to recover such Recoverable Incentive Compensation, document such reasonable attempt(s) to recover, and provide that documentation to the Exchange in accordance with the Listing Standards; or

(ii) recoupment of the applicable Recoverable Incentive Compensation would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of Code Section 401(a)(13) or Code Section 411(a) and regulations thereunder.

(d) Sources of Recoupment. To the extent permitted by applicable law, the Administrator shall, in its sole discretion, determine the timing and method for recouping Recoverable Incentive Compensation hereunder, provided that such recoupment is undertaken reasonably promptly. The Administrator may, in its discretion, seek recoupment from a Covered Officer from any of the following sources or a combination thereof, whether the applicable compensation was approved, awarded, granted, payable or paid to the Covered Officer prior to, on or after the Effective Date: (i) direct repayment of Recoverable Incentive Compensation previously paid to the Covered Officer; (ii) cancelling prior cash or equity-based awards (whether vested or unvested and whether paid or unpaid); (iii) cancelling or offsetting against any planned future cash or equity-based awards; (iv) forfeiture of deferred compensation, subject to compliance with Code Section 409A; and (v) any other method authorized by applicable law or contract. Subject to compliance with any applicable law, the Administrator may effectuate recoupment under this Policy from any amount otherwise payable to the Covered Officer, including amounts payable to such individual under any otherwise applicable Company plan or program, *e.g.*, base salary, bonuses or commissions and compensation previously deferred by the Covered Officer. The Administrator need not utilize the same method of recovery for all Covered Officers or with respect to all types of Recoverable Incentive Compensation.

(e) No Indemnification of Covered Officers. Notwithstanding any indemnification agreement, applicable insurance policy or any other agreement or provision of the Company's certificate of incorporation or bylaws to the contrary, no Covered Officer shall be entitled to indemnification or advancement of expenses in connection with any enforcement of this Policy by the Company, including paying or reimbursing such Covered Officer for insurance premiums to cover potential obligations to the Company under this Policy.

(f) Indemnification of Administrator. Any members of the Administrator, and any other members of the Board who assist in the administration of this Policy, shall not be personally liable for any action, determination or interpretation made with respect to this Policy and shall be indemnified by the Company to the fullest extent under applicable law and Company policy with respect to any such action, determination or interpretation. The foregoing sentence shall not limit any other rights to indemnification of the members of the Board under applicable law or Company policy.

(g) No "Good Reason" for Covered Officers. Any action by the Company to recoup or any recoupment of Recoverable Incentive Compensation under this Policy from a Covered Officer shall not be deemed (i) "good reason" for resignation or to serve as a basis for a claim of constructive termination under any benefits or compensation arrangement applicable to such Covered Officer, or (ii) to constitute a breach of contract or other arrangement to which such Covered Officer is a party.

5. Administration

Except as specifically set forth herein, this Policy shall be administered by the Administrator. The Administrator shall have full and final authority to make any and all determinations required under this Policy. Any determination by the Administrator with respect to this Policy shall be final, conclusive and binding on all interested parties and need not be uniform with respect to each individual covered by this Policy. In carrying out the administration of this Policy, the Administrator is authorized and directed to consult with the full Board or such other committees of the Board as may be necessary or appropriate as to matters within the scope of such other committee's responsibility and authority. Subject to applicable law, the Administrator may authorize and empower any officer or employee of the Company to take any and all actions that the Administrator, in its sole discretion, deems necessary or appropriate to carry out the purpose and intent of this Policy (other than with respect to any recovery under this Policy involving such officer or employee).

6. Severability

If any provision of this Policy or the application of any such provision to a Covered Officer shall be adjudicated to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Policy, and the invalid, illegal or unenforceable provisions shall be deemed amended to the minimum extent necessary to render any such provision or application enforceable.

7. No Impairment of Other Remedies

Nothing contained in this Policy, and no recoupment or recovery as contemplated herein, shall limit any claims, damages or other legal remedies the Company or any of its affiliates may have against a Covered Officer arising out of or resulting from any actions or omissions by the Covered Officer. This Policy does not preclude the Company from taking any other action to enforce a Covered Officer's obligations to the Company, including, without limitation, termination of employment and/or institution of civil proceedings. This Policy is in addition to the requirements of Section 304 of the Sarbanes-Oxley Act of 2002 that are applicable to the Company's Chief Executive Officer and Chief Financial Officer and to any other compensation recoupment policy and/or similar provisions in any employment, equity plan, equity award, or other individual agreement, to which the Company is a party or which the Company has adopted or may adopt and maintain from time to time; provided, however, that compensation recouped pursuant to this policy shall not be duplicative of compensation recouped pursuant to SOX 304 or any such compensation recoupment policy and/or similar provisions in any such employment, equity plan, equity award, or other individual agreement except as may be required by law.

8. Amendment; Termination

The Administrator may amend, terminate or replace this Policy or any portion of this Policy at any time and from time to time in its sole discretion. The Administrator shall amend this Policy as it deems necessary to comply with applicable law or any Listing Standard.

9. Successors

This Policy shall be binding and enforceable against all Covered Officers and, to the extent required by Rule 10D-1 and/or the applicable Listing Standards, their beneficiaries, heirs, executors, administrators or other legal representatives.

10. Required Filings

The Company shall make any disclosures and filings with respect to this Policy that are required by law, including as required by the SEC.

* * * * *

Tenable Holdings, Inc.

Incentive Compensation Recoupment Policy

Executive Acknowledgment

I, the undersigned, agree and acknowledge that I am bound by, and subject to, the Tenable Holdings, Inc. Incentive Compensation Recoupment Policy, as may be amended, restated, supplemented or otherwise modified from time to time (the "***Policy***"). In the event of any inconsistency between the Policy and the terms of any employment agreement, offer letter or other individual agreement with Tenable Holdings, Inc. (the "***Company***") to which I am a party, or the terms of any compensation plan, program or agreement, whether or not written, under which any compensation has been granted, awarded, earned or paid to me, the terms of the Policy shall govern.

In the event that the Administrator (as defined in the Policy) determines that any compensation granted, awarded, earned or paid to me must be forfeited or reimbursed to the Company pursuant to the Policy, I will promptly take any action necessary to effectuate such forfeiture and/or reimbursement. I further agree and acknowledge that I am not entitled to indemnification, and hereby waive any right to advancement of expenses, in connection with any enforcement of the Policy by the Company.

Agreed and Acknowledged:

Name:

Title:

Date: