UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended January 28, 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 001-39940

CISCO SYSTEMS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**77-0059951**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**

170 West Tasman Drive
San Jose, California 95134
(Address of principal executive office and zip code)

(408) 526-4000
(Registrant's telephone number, including area code)

Not Applicable
(Former name, former address and formal fiscal year, if changed since last report.)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	CSCO	The Nasdaq Stock Market LLC

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Number of shares of the registrant's common stock outstanding as of February 16, 2023: 4,095,823,317

Cisco Systems, Inc.
Form 10-Q for the Quarter Ended January 28, 2023

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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

CISCO SYSTEMS, INC.
CONSOLIDATED BALANCE SHEETS
(in millions, except par value)
(Unaudited)

	January 28, 2023	July 30, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	$ 9,009	$ 7,079
Investments	13,052	12,188
Accounts receivable, net of allowance of $86 at January 28, 2023 and $83 at July 30, 2022	5,237	6,622
Inventories	3,140	2,568
Financing receivables, net	3,557	3,905
Other current assets	4,520	4,355
Total current assets	38,515	36,717
Property and equipment, net	1,964	1,997
Financing receivables, net	3,554	4,009
Goodwill	38,388	38,304
Purchased intangible assets, net	2,134	2,569
Deferred tax assets	5,321	4,449
Other assets	5,964	5,957
TOTAL ASSETS	$ 95,840	$ 94,002
LIABILITIES AND EQUITY		
Current liabilities:		
Short-term debt	$ 1,250	$ 1,099
Accounts payable	2,329	2,281
Income taxes payable	2,200	961
Accrued compensation	3,187	3,316
Deferred revenue	13,109	12,784
Other current liabilities	5,177	5,199
Total current liabilities	27,252	25,640
Long-term debt	7,637	8,416
Income taxes payable	6,609	7,725
Deferred revenue	10,818	10,480
Other long-term liabilities	2,050	1,968
Total liabilities	54,366	54,229
Commitments and contingencies (Note 14)		
Equity:		
Cisco stockholders' equity:		
Preferred stock, $0.001 par value: 5 shares authorized; none issued and outstanding	—	—
Common stock and additional paid-in capital, $0.001 par value: 20,000 shares authorized; 4,095 and 4,110 shares issued and outstanding at January 28, 2023 and July 30, 2022, respectively	43,424	42,714
Accumulated deficit	(364)	(1,319)
Accumulated other comprehensive loss	(1,586)	(1,622)
Total equity	41,474	39,773
TOTAL LIABILITIES AND EQUITY	$ 95,840	$ 94,002

See Notes to Consolidated Financial Statements.

CISCO SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in millions, except per-share amounts)
(Unaudited)

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
REVENUE:				
Product	$ 10,155	$ 9,353	$ 20,400	$ 18,882
Service	3,437	3,367	6,824	6,738
Total revenue	13,592	12,720	27,224	25,620
COST OF SALES:				
Product	4,038	3,569	8,217	7,242
Service	1,127	1,102	2,234	2,276
Total cost of sales	5,165	4,671	10,451	9,518
GROSS MARGIN	8,427	8,049	16,773	16,102
OPERATING EXPENSES:				
Research and development	1,855	1,670	3,636	3,384
Sales and marketing	2,384	2,266	4,775	4,527
General and administrative	582	544	1,147	1,095
Amortization of purchased intangible assets	71	79	142	163
Restructuring and other charges	243	3	241	8
Total operating expenses	5,135	4,562	9,941	9,177
OPERATING INCOME	3,292	3,487	6,832	6,925
Interest income	219	111	388	232
Interest expense	(107)	(88)	(207)	(177)
Other income (loss), net	11	93	(123)	280
Interest and other income (loss), net	123	116	58	335
INCOME BEFORE PROVISION FOR INCOME TAXES	3,415	3,603	6,890	7,260
Provision for income taxes	642	630	1,447	1,307
NET INCOME	$ 2,773	$ 2,973	$ 5,443	$ 5,953
Net income per share:				
Basic	$ 0.68	$ 0.71	$ 1.33	$ 1.42
Diluted	$ 0.67	$ 0.71	$ 1.32	$ 1.41
Shares used in per-share calculation:				
Basic	4,103	4,183	4,105	4,201
Diluted	4,116	4,205	4,115	4,222

See Notes to Consolidated Financial Statements.

CISCO SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in millions)
(Unaudited)

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Net income	$ 2,773	$ 2,973	$ 5,443	$ 5,953
Available-for-sale investments:				
Change in net unrealized gains and losses, net of tax benefit (expense) of $(66) and $12 for the second quarter and first six months of fiscal 2023, respectively, and $47 and $75 for the corresponding periods of fiscal 2022, respectively	187	(138)	(64)	(221)
Net (gains) losses reclassified into earnings, net of tax (benefit) expense of $0 and $(1) for the second quarter and first six months of fiscal 2023, respectively, and $3 and $5 for the corresponding periods of fiscal 2022, respectively	3	(7)	8	(11)
	190	(145)	(56)	(232)
Cash flow hedging instruments:				
Change in unrealized gains and losses, net of tax benefit (expense) of $11 and $3 for the second quarter and first six months of fiscal 2023, respectively, and $(3) and $(4) for the corresponding periods of fiscal 2022, respectively	(33)	7	(9)	14
Net (gains) losses reclassified into earnings, net of tax (benefit) expense of $4 and $9 for the second quarter and first six months of fiscal 2023, respectively, and $1 for each of the corresponding periods of fiscal 2022	(14)	(1)	(28)	(2)
	(47)	6	(37)	12
Net change in cumulative translation adjustment and actuarial gains and losses net of tax benefit (expense) of $2 and $24 for the second quarter and first six months of fiscal 2023, respectively, and $0 and $9 for the corresponding periods of fiscal 2022, respectively	389	(177)	129	(152)
Other comprehensive income (loss)	532	(316)	36	(372)
Comprehensive income	$ 3,305	$ 2,657	$ 5,479	$ 5,581

See Notes to Consolidated Financial Statements.

CISCO SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)
(Unaudited)

	Six Months Ended	
	January 28, 2023	January 29, 2022
Cash flows from operating activities:		
Net income	$ 5,443	$ 5,953
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation, amortization, and other	853	1,049
Share-based compensation expense	1,097	930
Provision (benefit) for receivables	6	8
Deferred income taxes	(845)	(138)
(Gains) losses on divestitures, investments and other, net	109	(323)
Change in operating assets and liabilities, net of effects of acquisitions and divestitures:		
Accounts receivable	1,393	(308)
Inventories	(569)	(506)
Financing receivables	834	1,241
Other assets	(210)	(780)
Accounts payable	42	(250)
Income taxes, net	118	(876)
Accrued compensation	(146)	(437)
Deferred revenue	633	202
Other liabilities	(57)	123
Net cash provided by operating activities	8,701	5,888
Cash flows from investing activities:		
Purchases of investments	(3,797)	(3,937)
Proceeds from sales of investments	587	1,402
Proceeds from maturities of investments	2,316	3,185
Acquisitions, net of cash and cash equivalents acquired and divestitures	(3)	(361)
Purchases of investments in privately held companies	(70)	(124)
Return of investments in privately held companies	39	104
Acquisition of property and equipment	(346)	(232)
Proceeds from sales of property and equipment	1	5
Other	(20)	(11)
Net cash provided by (used in) investing activities	(1,293)	31
Cash flows from financing activities:		
Issuances of common stock	316	306
Repurchases of common stock—repurchase program	(1,760)	(5,105)
Shares repurchased for tax withholdings on vesting of restricted stock units	(310)	(411)
Short-term borrowings, original maturities of 90 days or less, net	(602)	959
Issuances of debt	—	1,049
Repayments of debt	—	(2,000)
Dividends paid	(3,120)	(3,102)
Other	(5)	(40)
Net cash used in financing activities	(5,481)	(8,344)
Effect of foreign currency exchange rate changes on cash, cash equivalents, restricted cash and restricted cash equivalents	3	(25)
Net increase (decrease) in cash, cash equivalents, restricted cash and restricted cash equivalents	1,930	(2,450)
Cash, cash equivalents, restricted cash and restricted cash equivalents, beginning of period	8,579	9,942
Cash, cash equivalents, restricted cash and restricted cash equivalents, end of period	$ 10,509	$ 7,492
Supplemental cash flow information:		
Cash paid for interest	$ 178	$ 184
Cash paid for income taxes, net	$ 2,172	$ 2,320

See Notes to Consolidated Financial Statements.

CISCO SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF EQUITY
(in millions, except per-share amounts)
(Unaudited)

Three Months Ended January 28, 2023	Shares of Common Stock	Common Stock and Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Equity
Balance at October 29, 2022	4,103	$ 42,984	$ (594)	$ (2,118)	$ 40,272
Net income			2,773		2,773
Other comprehensive income				532	532
Issuance of common stock	23	316			316
Repurchase of common stock	(26)	(276)	(980)		(1,256)
Shares repurchased for tax withholdings on vesting of restricted stock units	(5)	(202)			(202)
Cash dividends declared ($0.38 per common share)			(1,560)		(1,560)
Share-based compensation		601			601
Other		1	(3)		(2)
Balance at January 28, 2023	4,095	$ 43,424	$ (364)	$ (1,586)	$ 41,474

Six Months Ended January 28, 2023	Shares of Common Stock	Common Stock and Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Equity
Balance at July 30, 2022	4,110	$ 42,714	$ (1,319)	$ (1,622)	$ 39,773
Net income			5,443		5,443
Other comprehensive income				36	36
Issuance of common stock	30	316			316
Repurchase of common stock	(38)	(394)	(1,364)		(1,758)
Shares repurchased for tax withholdings on vesting of restricted stock units	(7)	(310)			(310)
Cash dividends declared ($0.76 per common share)			(3,120)		(3,120)
Share-based compensation		1,097			1,097
Other		1	(4)		(3)
Balance at January 28, 2023	4,095	$ 43,424	$ (364)	$ (1,586)	$ 41,474

CISCO SYSTEMS, INC.
CONSOLIDATED STATEMENTS OF EQUITY
(in millions, except per-share amounts)
(Unaudited)

Three Months Ended January 29, 2022	Shares of Common Stock	Common Stock and Additional Paid-In Capital	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Loss	Total Equity
Balance at October 30, 2021	4,217	$ 42,621	$ 553	$ (473)	$ 42,701
Net income			2,973		2,973
Other comprehensive loss				(316)	(316)
Issuance of common stock	22	306			306
Repurchase of common stock	(82)	(836)	(3,988)		(4,824)
Shares repurchased for tax withholdings on vesting of restricted stock units	(6)	(278)			(278)
Cash dividends declared ($0.37 per common share)			(1,541)		(1,541)
Share-based compensation		477			477
Other		1	(3)		(2)
Balance at January 29, 2022	4,151	$ 42,291	$ (2,006)	$ (789)	$ 39,496

Six Months Ended January 29, 2022	Shares of Common Stock	Common Stock and Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Equity
Balance at July 31, 2021	4,217	$ 42,346	$ (654)	$ (417)	$ 41,275
Net income			5,953		5,953
Other comprehensive loss				(372)	(372)
Issuance of common stock	29	306			306
Repurchase of common stock	(87)	(882)	(4,198)		(5,080)
Shares repurchased for tax withholdings on vesting of restricted stock units	(8)	(411)			(411)
Cash dividends declared ($0.74 per common share)			(3,102)		(3,102)
Share-based compensation		930			930
Other		2	(5)		(3)
Balance at January 29, 2022	4,151	$ 42,291	$ (2,006)	$ (789)	$ 39,496

CISCO SYSTEMS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Organization and Basis of Presentation

The fiscal year for Cisco Systems, Inc. (the "Company," "Cisco," "we," "us," or "our") is the 52 or 53 weeks ending on the last Saturday in July. Fiscal 2023 and fiscal 2022 are each 52-week fiscal years. The Consolidated Financial Statements include our accounts and those of our subsidiaries. All intercompany accounts and transactions have been eliminated. We conduct business globally and are primarily managed on a geographic basis in the following three geographic segments: the Americas; Europe, Middle East, and Africa (EMEA); and Asia Pacific, Japan, and China (APJC).

We have prepared the accompanying financial data as of January 28, 2023 and for the second quarter and first six months of fiscal 2023 and 2022, without audit, pursuant to the rules and regulations of the U.S. Securities and Exchange Commission (SEC). Certain information and footnote disclosures normally included in financial statements prepared in accordance with generally accepted accounting principles in the United States (GAAP) have been condensed or omitted pursuant to such rules and regulations. The July 30, 2022 Consolidated Balance Sheet was derived from audited financial statements, but does not include all disclosures required by accounting principles generally accepted in the United States. However, we believe that the disclosures are adequate to make the information presented not misleading. These Consolidated Financial Statements should be read in conjunction with the Consolidated Financial Statements and the notes thereto included in our Annual Report on Form 10-K for the fiscal year ended July 30, 2022.

In the opinion of management, all normal recurring adjustments necessary to state fairly the consolidated balance sheet as of January 28, 2023, the results of operations, the statements of comprehensive income and the statements of equity for the second quarter and first six months of fiscal 2023 and 2022, and the statements of cash flows for the first six months of fiscal 2023 and 2022, as applicable, have been made. The results of operations for the second quarter and first six months of fiscal 2023 are not necessarily indicative of the operating results for the full fiscal year or any future periods.

Our consolidated financial statements include our accounts and investments consolidated under the variable interest and voting models. The noncontrolling interests attributed to these investments are not presented as a separate component in the equity section of the Consolidated Balance Sheets as these amounts are not material for any of the fiscal periods presented. The share of earnings attributable to the noncontrolling interests are not presented separately in the Consolidated Statements of Operations as these amounts are not material for any of the fiscal periods presented.

Certain reclassifications have been made to the amounts in prior periods in order to conform to the current period's presentation. We have evaluated subsequent events through the date that the financial statements were issued.

2. Recent Accounting Pronouncements

(a) Recent Accounting Standards or Updates Not Yet Effective

Reference Rate Reform In March 2020, the Financial Accounting Standards Board issued an accounting standard update and subsequent amendments that provide optional expedients and exceptions to the current guidance on contract modification and hedging relationships to ease the financial reporting burden of the expected market transition from the London InterBank Offered Rate (LIBOR) and other interbank offered rates to alternative reference rates. This accounting standard update was effective upon issuance and may be applied prospectively through December 31, 2024. We do not expect this accounting standard update will have a material impact on our Consolidated Financial Statements.

3. Revenue

We enter into contracts with customers that can include various combinations of products and services which are generally distinct and accounted for as separate performance obligations. As a result, our contracts may contain multiple performance obligations. We determine whether arrangements are distinct based on whether the customer can benefit from the product or service on its own or together with other resources that are readily available and whether our commitment to transfer the product or service to the customer is separately identifiable from other obligations in the contract. We classify our hardware, perpetual software licenses, and software-as-a-service (SaaS) as distinct performance obligations. Term software licenses represent multiple obligations, which include software licenses and software maintenance. In transactions where we deliver hardware or software, we are typically the principal and we record revenue and costs of goods sold on a gross basis. We refer to our term software licenses, security software licenses, SaaS, and associated service arrangements as subscription offers.

We recognize revenue upon transfer of control of promised goods or services in a contract with a customer in an amount that reflects the consideration we expect to receive in exchange for those products or services. Transfer of control occurs once the customer has the contractual right to use the product, generally upon shipment, electronic delivery (or when the software is available for download by the customer), or once title and risk of loss has transferred to the customer. Transfer of control can also occur over time for software maintenance and services as the customer receives the benefit over the contract term. Our hardware and perpetual software licenses are distinct performance obligations where revenue is recognized upfront upon transfer of control. Term software licenses include multiple performance obligations where the term licenses are recognized upfront upon transfer of control, with the associated software maintenance revenue recognized ratably over the contract term as services and software updates are provided. SaaS arrangements do not include the right for the customer to take possession of the software during the term, and therefore have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term as the customer consumes the services. On our product sales, we record consideration from shipping and handling on a gross basis within net product sales. We record our revenue net of any associated sales taxes.

An allowance for future sales returns is established based on historical trends in product return rates. The allowance for future sales returns as of January 28, 2023 and July 30, 2022 was $40 million and $43 million, respectively, and was recorded as a reduction of our accounts receivable and revenue.

Significant Judgments

Revenue is allocated among these performance obligations in a manner that reflects the consideration that we expect to be entitled to for the promised goods or services based on standalone selling prices (SSP). SSP is estimated for each distinct performance obligation and judgment may be required in their determination. The best evidence of SSP is the observable price of a product or service when we sell the goods separately in similar circumstances and to similar customers. In instances where SSP is not directly observable, we determine SSP using information that may include market conditions and other observable inputs.

We assess relevant contractual terms in our customer contracts to determine the transaction price. We apply judgment in identifying contractual terms and determining the transaction price as we may be required to estimate variable consideration when determining the amount of revenue to recognize. Variable consideration includes potential contractual penalties and various rebate, cooperative marketing and other incentive programs that we offer to our distributors, channel partners and customers. When determining the amount of revenue to recognize, we estimate the expected usage of these programs, applying the expected value or most likely estimate and update the estimate at each reporting period as actual utilization becomes available. We also consider the customers' right of return in determining the transaction price, where applicable.

We assess certain software licenses, such as for security software, that contain critical updates or upgrades which customers can download throughout the contract term. Without these updates or upgrades, the functionality of the software would diminish over a relatively short time period. These updates or upgrades provide the customer the full functionality of the purchased security software licenses and are required to maintain the security license's utility as the risks and threats in the environment are rapidly changing. In these circumstances, the revenue from these software arrangements is recognized as a single performance obligation satisfied over the contract term.

(a) Disaggregation of Revenue

We disaggregate our revenue into groups of similar products and services that depict the nature, amount, and timing of revenue and cash flows for our various offerings. The sales cycle, contractual obligations, customer requirements, and go-to-market strategies differ for each of our product categories, resulting in different economic risk profiles for each category. The following table presents this disaggregation of revenue (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Product revenue:				
Secure, Agile Networks	$ 6,746	$ 5,899	$ 13,430	$ 11,867
Internet for the Future	1,306	1,322	2,616	2,695
Collaboration	958	1,067	2,044	2,176
End-to-End Security	943	883	1,914	1,778
Optimized Application Experiences	199	180	393	361
Other Products	3	2	4	5
Total Product	10,155	9,353	20,400	18,882
Services	3,437	3,367	6,824	6,738
Total	$ 13,592	$ 12,720	$ 27,224	$ 25,620

Amounts may not sum due to rounding. We have made certain reclassifications to the product revenue amounts for prior periods to conform to the current year presentation.

Secure, Agile Networks consists of our core networking technologies of switching, enterprise routing, wireless, and compute products. These technologies consist of both hardware and software offerings, including software licenses and SaaS, that help our customers build networks, automate, orchestrate, integrate, and digitize data. Our hardware and perpetual software in this category are distinct performance obligations where revenue is recognized upfront upon transfer of control. Term software licenses are multiple performance obligations where the term license is recognized upfront upon transfer of control with the associated software maintenance revenue recognized ratably over the contract term. SaaS arrangements in this category have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term.

Internet for the Future consists of our routed optical networking, 5G, silicon, and optics solutions. These products consist primarily of both hardware and software offerings, including software licenses and SaaS. Our hardware and perpetual software in this category are distinct performance obligations where revenue is recognized upfront upon transfer of control. Term software licenses are multiple performance obligations where the term license is recognized upfront upon transfer of control with the associated software maintenance revenue recognized ratably over the contract term. SaaS arrangements in this category have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term.

Collaboration consists of our Meetings, Collaboration Devices, Calling, Contact Center and Communication Platform as a Service (CPaaS) offerings. These products consist primarily of software offerings, including software licenses and SaaS, as well as hardware. Our perpetual software and hardware in this category are distinct performance obligations where revenue is recognized upfront upon transfer of control. Term software licenses are multiple performance obligations where the term license is recognized upfront upon transfer of control with the associated software maintenance revenue recognized ratably over the contract term. SaaS arrangements in this category have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term.

End-to-End Security consists of our Network Security, Cloud Security, Security Endpoints, Unified Threat Management and Zero Trust offerings. These products consist of both hardware and software offerings, including software licenses and SaaS. Updates and upgrades for the term software licenses are critical for our software to perform its intended commercial purpose because of the continuous need for our software to secure our customers' network environments against frequent threats. Therefore, security software licenses are generally represented by a single distinct performance obligation with revenue recognized ratably over the contract term. Our hardware and perpetual software in this category are distinct performance obligations where revenue is recognized upfront upon transfer of control. SaaS arrangements in this category have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term.

Optimized Application Experiences consists of our full stack observability and cloud-native platform offerings. These products consist primarily of software offerings, including software licenses and SaaS. Our perpetual software in this category are distinct performance obligations where revenue is recognized upfront upon transfer of control. Term software licenses are multiple performance obligations where the term license is recognized upfront upon transfer of control with the associated software maintenance revenue recognized ratably over the contract term. SaaS arrangements in this category have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term.

In addition to our product offerings, we provide a broad range of service and support options for our customers, including technical support services and advanced services. Technical support services represent the majority of these offerings which are distinct performance obligations that are satisfied over time with revenue recognized ratably over the contract term. Advanced services are distinct performance obligations that are satisfied over time with revenue recognized as services are delivered.

The sales arrangements as discussed above are typically made pursuant to customer purchase orders based on master purchase or partner agreements. Cash is received based on our standard payment terms which is typically 30 days. We provide financing arrangements to customers for all of our hardware, software and service offerings. Refer to Note 9 for additional information. For these arrangements, cash is typically received over time.

(b) Contract Balances

Accounts Receivable

Accounts receivable, net was $5.2 billion as of January 28, 2023 compared to $6.6 billion as of July 30, 2022, as reported on the Consolidated Balance Sheets.

The allowances for credit loss for our accounts receivable are summarized as follows (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Allowance for credit loss at beginning of period	$ 88	$ 114	$ 83	$ 109
Provisions (benefits)	3	17	14	36
Recoveries (write-offs), net	(5)	(52)	(11)	(66)
Foreign exchange and other	—	(9)	—	(9)
Allowance for credit loss at end of period	$ 86	$ 70	$ 86	$ 70

Contract Assets and Liabilities

Gross contract assets by our internal risk ratings are summarized as follows (in millions):

	January 28, 2023	July 30, 2022
1 to 4	$ 355	$ 414
5 to 6	984	814
7 and Higher	82	158
Total	$ 1,421	$ 1,386

Contract assets consist of unbilled receivables and are recorded when revenue is recognized in advance of scheduled billings to our customers. These amounts are primarily related to software and service arrangements where transfer of control has occurred but we have not yet invoiced. Our contract assets for these unbilled receivables, net of allowances, was $1.4 billion as of January 28, 2023 and $1.3 billion as of July 30, 2022, and were included in other current assets and other assets.

Contract liabilities consist of deferred revenue. Deferred revenue was $23.9 billion as of January 28, 2023 compared to $23.3 billion as of July 30, 2022. We recognized approximately $3.4 billion and $7.9 billion of revenue during the second quarter and first six months of fiscal 2023 that was included in the deferred revenue balance at July 30, 2022.

(c) Capitalized Contract Acquisition Costs

We capitalize direct and incremental costs incurred to acquire contracts, primarily sales commissions, for which the associated revenue is expected to be recognized in future periods. We incur these costs in connection with both initial contracts and renewals. These costs are initially deferred and typically amortized over the term of the customer contract which corresponds to the period of benefit. Deferred sales commissions were $1.0 billion as of each of January 28, 2023 and July 30, 2022, and were included in other current assets and other assets. The amortization expense associated with these costs was $201 million and $377 million for the second quarter and first six months of fiscal 2023, respectively, and $147 million and $317 million for the corresponding periods of fiscal 2022, respectively, and was included in sales and marketing expenses.

4. Acquisitions and Divestitures

We completed one acquisition during the first six months of fiscal 2023. A summary of the allocation of the total purchase consideration is presented as follows (in millions):

	Purchase Consideration	Net Tangible Assets Acquired (Liabilities Assumed)	Purchased Intangible Assets	Goodwill
Total acquisitions (one in total)	$ 3	$ —	$ —	$ 3

The total purchase consideration related to our acquisition completed during the first six months of fiscal 2023 consisted of cash consideration. Total transaction costs related to acquisition and divestiture activities were $3 million and $38 million for the first six months of fiscal 2023 and 2022, respectively. These transaction costs were expensed as incurred in general and administrative expenses ("G&A") in the Consolidated Statements of Operations.

The goodwill generated from acquisitions completed during the first six months of fiscal 2023 is primarily related to expected synergies. The goodwill is generally not deductible for income tax purposes.

The Consolidated Financial Statements include the operating results of each acquisition from the date of acquisition. Pro forma results of operations and the revenue and net income subsequent to the acquisition date for the acquisition completed during the first six months of fiscal 2023 have not been presented because the effects of the acquisition were not material to our financial results.

5. Goodwill and Purchased Intangible Assets

(a) Goodwill

The following table presents the goodwill allocated to our reportable segments as of January 28, 2023 and during the first six months of fiscal 2023 (in millions):

	Balance at July 30, 2022	Acquisitions & Divestitures	Foreign Currency Translation and Other	Balance at January 28, 2023
Americas	$ 23,882	$ 3	$ 51	$ 23,936
EMEA	9,062	—	19	9,081
APJC	5,360	—	11	5,371
Total	$ 38,304	$ 3	$ 81	$ 38,388

(b) Purchased Intangible Assets

The following tables present details of our purchased intangible assets (in millions):

January 28, 2023	Gross	Accumulated Amortization	Net
Purchased intangible assets with finite lives:			
Technology	$ 2,620	$ (1,384)	$ 1,236
Customer relationships	1,334	(889)	445
Other	40	(17)	23
Total purchased intangible assets with finite lives	3,994	(2,290)	1,704
In-process research and development, with indefinite lives	430	—	430
Total	$ 4,424	$ (2,290)	$ 2,134

July 30, 2022	Gross	Accumulated Amortization	Net
Purchased intangible assets with finite lives:			
Technology	$ 2,631	$ (1,102)	$ 1,529
Customer relationships	1,354	(769)	585
Other	41	(16)	25
Total purchased intangible assets with finite lives	4,026	(1,887)	2,139
In-process research and development, with indefinite lives	430	—	430
Total	$ 4,456	$ (1,887)	$ 2,569

Purchased intangible assets include intangible assets acquired through acquisitions as well as through direct purchases or licenses.

The following table presents the amortization of purchased intangible assets, including impairment charges (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Amortization of purchased intangible assets:				
Cost of sales	$ 158	$ 201	$ 316	$ 403
Operating expenses	71	79	142	163
Total	$ 229	$ 280	$ 458	$ 566

The estimated future amortization expense of purchased intangible assets with finite lives as of January 28, 2023 is as follows (in millions):

Fiscal Year	Amount
2023 (remaining six months)	$ 450
2024	$ 778
2025	$ 406
2026	$ 65
2027	$ 5

6. Restructuring and Other Charges

In the second quarter of fiscal 2023, we announced a restructuring plan (the "Fiscal 2023 Plan"), in order to rebalance the organization and enable further investment in key priority areas. This rebalancing includes talent movement options and restructuring. Additionally, we have begun optimizing our real estate portfolio, aligned to the broader hybrid work strategy. The total pretax charges are estimated to be approximately $600 million and is expected to impact approximately 5% of our global workforce. In connection with the Fiscal 2023 Plan, we incurred charges of $243 million for the second quarter and first six months of fiscal 2023. These aggregate pretax charges will be primarily cash-based and will consist of severance and other one-time termination benefits, real estate-related charges, and other costs. We expect the plan to be substantially completed by the end of the first quarter of fiscal 2024.

The following tables summarize the activities related to the restructuring and other charges (in millions):

	FISCAL 2021 AND PRIOR PLANS		FISCAL 2023 PLAN		
	Employee Severance	Other	Employee Severance	Other	Total
Liability as of July 30, 2022	$ 2	$ 7	$ —	$ —	$ 9
Charges	—	(2)	223	20	241
Cash payments	(1)	(1)	(49)	(1)	(52)
Non-cash items	—	—	1	—	1
Liability as of January 28, 2023	$ 1	$ 4	$ 175	$ 19	$ 199

	FISCAL 2020 AND PRIOR PLANS		FISCAL 2021 PLAN		
	Employee Severance	Other	Employee Severance	Other	Total
Liability as of July 31, 2021	$ —	$ 10	$ 16	$ 8	$ 34
Charges	—	(5)	10	3	8
Cash payments	—	(1)	(16)	—	(17)
Non-cash items	—	—	—	(5)	(5)
Liability as of January 29, 2022	$ —	$ 4	$ 10	$ 6	$ 20

7. Balance Sheet and Other Details

The following tables provide details of selected balance sheet and other items (in millions, except percentages):

Cash, Cash Equivalents, Restricted Cash and Restricted Cash Equivalents

	January 28, 2023	July 30, 2022
Cash and cash equivalents	$ 9,009	$ 7,079
Restricted cash and restricted cash equivalents included in other assets	1,500	1,500
Total	$ 10,509	$ 8,579

Our restricted cash equivalents are funds primarily related to contractual obligations with suppliers.

Inventories

	January 28, 2023	July 30, 2022
Raw materials	$ 1,496	$ 1,601
Work in process	230	150
Finished goods:		
Deferred cost of sales	70	86
Manufactured finished goods	1,222	631
Total finished goods	1,292	717
Service-related spares	109	90
Demonstration systems	13	10
Total	$ 3,140	$ 2,568

Property and Equipment, Net

	January 28, 2023	July 30, 2022
Gross property and equipment:		
Land, buildings, and building and leasehold improvements	$ 4,263	$ 4,219
Computer equipment and related software	749	779
Production, engineering, and other equipment	4,591	4,647
Operating lease assets	149	185
Furniture, fixtures and other	340	335
Total gross property and equipment	10,092	10,165
Less: accumulated depreciation and amortization	(8,128)	(8,168)
Total	$ 1,964	$ 1,997

Remaining Performance Obligations (RPO)

	January 28, 2023	July 30, 2022
Product	$ 14,517	$ 14,090
Service	17,255	17,449
Total	$ 31,772	$ 31,539
Short-term RPO	$ 16,865	$ 16,936
Long-term RPO	14,907	14,603
Total	$ 31,772	$ 31,539
Amount to be recognized as revenue over the next 12 months	53 %	54 %
Deferred revenue	$ 23,927	$ 23,264
Unbilled contract revenue	7,845	8,275
Total	$ 31,772	$ 31,539

Unbilled contract revenue represents noncancelable contracts for which we have not invoiced, have an obligation to perform, and revenue has not yet been recognized in the financial statements.

Deferred Revenue

	January 28, 2023	July 30, 2022
Product	$ 10,679	$ 10,427
Service	13,248	12,837
Total	$ 23,927	$ 23,264
Reported as:		
Current	$ 13,109	$ 12,784
Noncurrent	10,818	10,480
Total	$ 23,927	$ 23,264

Transition Tax Payable

Our income tax payable associated with the one-time U.S. transition tax on accumulated earnings for foreign subsidiaries as a result of the Tax Cuts and Jobs Act is as follows (in millions):

	January 28, 2023	July 30, 2022
Current	$ 1,364	$ 727
Noncurrent	4,092	5,456
Total	$ 5,456	$ 6,183

8. Leases

(a) Lessee Arrangements

The following table presents our operating lease balances (in millions):

	Balance Sheet Line Item	January 28, 2023	July 30, 2022
Operating lease right-of-use assets	Other assets	$ 978	$ 1,003
Operating lease liabilities	Other current liabilities	$ 337	$ 322
Operating lease liabilities	Other long-term liabilities	691	724
Total operating lease liabilities		$ 1,028	$ 1,046

The components of our lease expenses were as follows (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Operating lease expense	$ 98	$ 98	$ 194	$ 193
Short-term lease expense	17	15	34	32
Variable lease expense	63	41	121	90
Total lease expense	$ 178	$ 154	$ 349	$ 315

Supplemental information related to our operating leases is as follows (in millions):

	Six Months Ended	
	January 28, 2023	January 29, 2022
Cash paid for amounts included in the measurement of lease liabilities — operating cash flows	$ 192	$ 202
Right-of-use assets obtained in exchange for operating leases liabilities	$ 149	$ 178

The weighted-average lease term was 4.6 years and 4.7 years as of January 28, 2023 and July 30, 2022, respectively. The weighted-average discount rate was 2.7% and 2.2% as of January 28, 2023 and July 30, 2022, respectively.

The maturities of our operating leases (undiscounted) as of January 28, 2023 are as follows (in millions):

Fiscal Year	Amount
2023 (remaining six months)	$ 185
2024	297
2025	215
2026	133
2027	76
Thereafter	212
Total lease payments	1,118
Less interest	(90)
Total	$ 1,028

(b) Lessor Arrangements

Our leases primarily represent sales-type leases with terms of four years on average. We provide leasing of our equipment and complementary third-party products primarily through our channel partners and distributors, for which the income arising from these leases is recognized through interest income. Interest income was $12 million and $24 million for the second quarter and first six months of fiscal 2023, respectively, and $14 million and $29 million for the corresponding periods of fiscal 2022, respectively, and was included in interest income in the Consolidated Statement of Operations. The net investment of our lease receivables is measured at the commencement date as the gross lease receivable, residual value less unearned income and allowance for credit loss. For additional information, see Note 9.

Future minimum lease payments on our lease receivables as of January 28, 2023 are summarized as follows (in millions):

Fiscal Year	Amount
2023 (remaining six months)	$ 348
2024	365
2025	192
2026	114
2027	51
Thereafter	16
Total	1,086
Less: Present value of lease payments	1,021
Unearned income	$ 65

Actual cash collections may differ from the contractual maturities due to early customer buyouts, refinancings, or defaults.

We provide financing of certain equipment through operating leases, and the amounts are included in property and equipment in the Consolidated Balance Sheets. Amounts relating to equipment on operating lease assets held by us and the associated accumulated depreciation are summarized as follows (in millions):

	January 28, 2023	July 30, 2022
Operating lease assets	$ 149	$ 185
Accumulated depreciation	(90)	(111)
Operating lease assets, net	$ 59	$ 74

Our operating lease income was $18 million and $39 million for the second quarter and first six months of fiscal 2023, respectively, and $29 million and $61 million for the corresponding periods of fiscal 2022, respectively, and was included in product revenue in the Consolidated Statement of Operations.

Minimum future rentals on noncancelable operating leases as of January 28, 2023 are summarized as follows (in millions):

Fiscal Year	Amount
2023 (remaining six months)	$ 15
2024	18
2025	6
Total	$ 39

9. Financing Receivables

(a) Financing Receivables

Financing receivables primarily consist of loan receivables and lease receivables. Loan receivables represent financing arrangements related to the sale of our hardware, software, and services (including technical support and advanced services), and also may include additional funding for other costs associated with network installation and integration of our products and services. Loan receivables have terms of one year to three years on average. Lease receivables represent sales-type leases resulting from the sale of Cisco's and complementary third-party products and are typically collateralized by a security interest in the underlying assets. Lease receivables consist of arrangements with terms of four years on average.

A summary of our financing receivables is presented as follows (in millions):

January 28, 2023	Loan Receivables	Lease Receivables	Total
Gross	$ 6,136	$ 1,086	$ 7,222
Residual value	—	67	67
Unearned income	—	(65)	(65)
Allowance for credit loss	(94)	(19)	(113)
Total, net	$ 6,042	$ 1,069	$ 7,111
Reported as:			
Current	$ 3,057	$ 500	$ 3,557
Noncurrent	2,985	569	3,554
Total, net	$ 6,042	$ 1,069	$ 7,111

July 30, 2022	Loan Receivables	Lease Receivables	Total
Gross	$ 6,842	$ 1,176	$ 8,018
Residual value	—	76	76
Unearned income	—	(54)	(54)
Allowance for credit loss	(103)	(23)	(126)
Total, net	$ 6,739	$ 1,175	$ 7,914
Reported as:			
Current	$ 3,327	$ 578	$ 3,905
Noncurrent	3,412	597	4,009
Total, net	$ 6,739	$ 1,175	$ 7,914

(b) Credit Quality of Financing Receivables

The tables below present our gross financing receivables, excluding residual value, less unearned income, categorized by our internal credit risk rating by period of origination (in millions):

January 28, 2023		Fiscal Year				Six Months Ended	
Internal Credit Risk Rating	Prior	July 27, 2019	July 25, 2020	July 31, 2021	July 30, 2022	January 28, 2023	Total
Loan Receivables:							
1 to 4	$ 18	$ 108	$ 371	$ 1,086	$ 1,347	$ 978	$ 3,908
5 to 6	5	73	199	488	671	651	2,087
7 and Higher	2	15	36	33	54	1	141
Total Loan Receivables	$ 25	$ 196	$ 606	$ 1,607	$ 2,072	$ 1,630	$ 6,136
Lease Receivables:							
1 to 4	$ 10	$ 49	$ 101	$ 165	$ 105	$ 108	$ 538
5 to 6	4	25	74	92	115	149	459
7 and Higher	1	2	9	2	3	7	24
Total Lease Receivables	$ 15	$ 76	$ 184	$ 259	$ 223	$ 264	$ 1,021
Total	$ 40	$ 272	$ 790	$ 1,866	$ 2,295	$ 1,894	$ 7,157

July 30, 2022		Fiscal Year					
Internal Credit Risk Rating	Prior	July 28, 2018	July 27, 2019	July 25, 2020	July 31, 2021	July 30, 2022	Total
Loan Receivables:							
1 to 4	$ 2	$ 49	$ 173	$ 536	$ 1,458	$ 2,287	$ 4,505
5 to 6	1	17	115	345	709	1,030	2,217
7 and Higher	1	1	22	45	39	12	120
Total Loan Receivables	$ 4	$ 67	$ 310	$ 926	$ 2,206	$ 3,329	$ 6,842
Lease Receivables:							
1 to 4	$ 2	$ 25	$ 74	$ 124	$ 176	$ 152	$ 553
5 to 6	1	10	67	146	165	151	540
7 and Higher	—	1	4	12	2	10	29
Total Lease Receivables	$ 3	$ 36	$ 145	$ 282	$ 343	$ 313	$ 1,122
Total	$ 7	$ 103	$ 455	$ 1,208	$ 2,549	$ 3,642	$ 7,964

The following tables present the aging analysis of gross receivables as of January 28, 2023 and July 30, 2022 (in millions):

	DAYS PAST DUE (INCLUDES BILLED AND UNBILLED)								
January 28, 2023	31-60	61-90	91+	Total Past Due	Current	Total	120+ Still Accruing	Nonaccrual Financing Receivables	Impaired Financing Receivables
Loan receivables	$ 100	$ 23	$ 46	$ 169	$ 5,967	$ 6,136	$ 14	$ 60	$ 60
Lease receivables	42	36	22	100	921	1,021	8	9	9
Total	$ 142	$ 59	$ 68	$ 269	$ 6,888	$ 7,157	$ 22	$ 69	$ 69

	DAYS PAST DUE (INCLUDES BILLED AND UNBILLED)								
July 30, 2022	31-60	61-90	91+	Total Past Due	Current	Total	120+ Still Accruing	Nonaccrual Financing Receivables	Impaired Financing Receivables
Loan receivables	$ 98	$ 62	$ 129	$ 289	$ 6,553	$ 6,842	$ 14	$ 60	$ 60
Lease receivables	8	6	26	40	1,082	1,122	7	11	11
Total	$ 106	$ 68	$ 155	$ 329	$ 7,635	$ 7,964	$ 21	$ 71	$ 71

Past due financing receivables are those that are 31 days or more past due according to their contractual payment terms. The data in the preceding tables is presented by contract, and the aging classification of each contract is based on the oldest outstanding receivable, and therefore past due amounts also include unbilled and current receivables within the same contract.

(c) Allowance for Credit Loss Rollforward

The allowances for credit loss and the related financing receivables are summarized as follows (in millions):

Three Months Ended January 28, 2023	CREDIT LOSS ALLOWANCES		
	Loan Receivables	Lease Receivables	Total
Allowance for credit loss as of October 29, 2022	$ 101	$ 19	$ 120
Provisions (benefits)	(3)	(1)	(4)
Other	(4)	1	(3)
Allowance for credit loss as of January 28, 2023	$ 94	$ 19	$ 113

Three Months Ended January 29, 2022	CREDIT LOSS ALLOWANCES		
	Loan Receivables	Lease Receivables	Total
Allowance for credit loss as of October 30, 2021	$ 76	$ 33	$ 109
Provisions (benefits)	(6)	(4)	(10)
Recoveries (write-offs), net	—	(2)	(2)
Allowance for credit loss as of January 29, 2022	$ 70	$ 27	$ 97

Six Months Ended January 28, 2023	CREDIT LOSS ALLOWANCES		
	Loan Receivables	Lease Receivables	Total
Allowance for credit loss as of July 30, 2022	$ 103	$ 23	$ 126
Provisions (benefits)	(4)	(4)	(8)
Other	(5)	—	(5)
Allowance for credit loss as of January 28, 2023	$ 94	$ 19	$ 113

Six Months Ended January 29, 2022	CREDIT LOSS ALLOWANCES		
	Loan Receivables	Lease Receivables	Total
Allowance for credit loss as of July 31, 2021	$ 89	$ 38	$ 127
Provisions (benefits)	(19)	(9)	(28)
Recoveries (write-offs), net	—	(2)	(2)
Allowance for credit loss as of January 29, 2022	$ 70	$ 27	$ 97

10. Available-for-Sale Debt and Equity Investments

(a) Summary of Available-for-Sale Debt Investments

The following tables summarize our available-for-sale debt investments (in millions):

January 28, 2023	Amortized Cost	Gross Unrealized Gains	Gross Unrealized and Credit Losses	Fair Value
U.S. government securities	$ 2,050	$ 2	$ (54)	$ 1,998
U.S. government agency securities	169	—	(5)	164
Non-U.S. government and agency securities	354	—	(1)	353
Corporate debt securities	7,480	5	(345)	7,140
U.S. agency mortgage-backed securities	2,013	2	(188)	1,827
Commercial paper	1,029	—	—	1,029
Certificates of deposit	261	—	—	261
Total	$ 13,356	$ 9	$ (593)	$ 12,772

July 30, 2022	Amortized Cost	Gross Unrealized Gains	Gross Unrealized and Credit Losses	Fair Value
U.S. government securities	$ 1,287	$ —	$ (49)	$ 1,238
U.S. government agency securities	142	—	(4)	138
Non-U.S. government and agency securities	272	—	—	272
Corporate debt securities	8,127	2	(311)	7,818
U.S. agency mortgage-backed securities	2,134	—	(158)	1,976
Commercial paper	255	—	—	255
Certificates of deposit	250	—	—	250
Total	$ 12,467	$ 2	$ (522)	$ 11,947

Net unsettled investment purchases were $15 million and net unsettled investment sales were $70 million as of January 28, 2023 and July 30, 2022, respectively, and were included in other current assets and other current liabilities.

The following table presents the gross realized gains and gross realized losses related to available-for-sale debt investments (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Gross realized gains	$ 3	$ 13	$ 3	$ 19
Gross realized losses	(6)	(3)	(12)	(3)
Total	$ (3)	$ 10	$ (9)	$ 16

The following tables present the breakdown of the available-for-sale debt investments with gross unrealized losses and the duration that those losses had been unrealized at January 28, 2023 and July 30, 2022 (in millions):

	UNREALIZED LOSSES LESS THAN 12 MONTHS		UNREALIZED LOSSES 12 MONTHS OR GREATER		TOTAL	
January 28, 2023	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
U.S. government securities	$ 470	$ (6)	$ 1,086	$ (48)	$ 1,556	$ (54)
U.S. government agency securities	33	—	121	(5)	154	(5)
Non-U.S. government and agency securities	339	(1)	—	—	339	(1)
Corporate debt securities	2,770	(94)	3,333	(219)	6,103	(313)
U.S. agency mortgage-backed securities	305	(12)	1,440	(176)	1,745	(188)
Commercial paper	40	—	—	—	40	—
Total	$ 3,957	$ (113)	$ 5,980	$ (448)	$ 9,937	$ (561)

	UNREALIZED LOSSES LESS THAN 12 MONTHS		UNREALIZED LOSSES 12 MONTHS OR GREATER		TOTAL	
July 30, 2022	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
U.S. government securities	$ 1,110	$ (44)	$ 120	$ (5)	$ 1,230	$ (49)
U.S. government agency securities	114	(2)	24	(2)	138	(4)
Non-U.S. government and agency securities	264	—	—	—	264	—
Corporate debt securities	6,920	(240)	422	(37)	7,342	(277)
U.S. agency mortgage-backed securities	1,305	(96)	615	(62)	1,920	(158)
Total	$ 9,713	$ (382)	$ 1,181	$ (106)	$ 10,894	$ (488)

The following table summarizes the maturities of our available-for-sale debt investments as of January 28, 2023 (in millions):

	Amortized Cost	Fair Value
Within 1 year	$ 4,806	$ 4,734
After 1 year through 5 years	6,491	6,170
After 5 years through 10 years	46	41
Mortgage-backed securities with no single maturity	2,013	1,827
Total	$ 13,356	$ 12,772

Actual maturities may differ from the contractual maturities because borrowers may have the right to call or prepay certain obligations.

(b) Summary of Equity Investments

We held marketable equity securities of $280 million and $241 million as of January 28, 2023 and July 30, 2022, respectively. We recognized a net unrealized gain of $11 million and a net unrealized loss of $9 million during the second quarter and first six months of fiscal 2023, respectively, and a net unrealized loss of $18 million and $13 million during the corresponding periods of fiscal 2022, respectively, on our marketable securities still held as of the reporting date. Our net adjustments to non-marketable equity securities measured using the measurement alternative still held was a net gain of $3 million and a net loss of $8 million for the second quarter and first six months of fiscal 2023, respectively, and a net gain of $14 million and $16 million for the corresponding periods of fiscal 2022, respectively. We held equity interests in certain private equity funds of $1.0 billion and $1.1 billion as of January 28, 2023 and July 30, 2022, respectively, which are accounted for under the NAV practical expedient.

In the ordinary course of business, we have investments in privately held companies and provide financing to certain customers. These privately held companies and customers are evaluated for consolidation under the variable interest or voting interest entity models. We evaluate on an ongoing basis our investments in these privately held companies and our customer financings, and have determined that as of January 28, 2023, there were no significant variable interest or voting interest entities required to be consolidated in our Consolidated Financial Statements.

The carrying value of our investments in privately held companies was $1.8 billion and $1.9 billion as of January 28, 2023 and July 30, 2022, respectively. Of the total carrying value of our investments in privately held companies as of January 28, 2023, $1.1 billion of such investments are considered to be in variable interest entities which are unconsolidated. As of January 28, 2023, we have total funding commitments of $0.3 billion related to privately held investments, some of which may be based on the achievement of certain agreed-upon milestones or are required to be funded on demand. The carrying value of these investments and the additional funding commitments, collectively, represent our maximum exposure related to privately held investments.

11. Fair Value

(a) Assets and Liabilities Measured at Fair Value on a Recurring Basis

Assets and liabilities measured at fair value on a recurring basis were as follows (in millions):

	JANUARY 28, 2023 FAIR VALUE MEASUREMENTS			JULY 30, 2022 FAIR VALUE MEASUREMENTS		
	Level 1	Level 2	Total Balance	Level 1	Level 2	Total Balance
Assets:						
Cash equivalents:						
Money market funds	$ 5,038	$ —	$ 5,038	$ 3,930	$ —	$ 3,930
Commercial paper	—	1,037	1,037	—	72	72
Corporate debt securities	—	41	41	—	1	1
U.S. government securities	—	40	40	—	12	12
Certificates of deposit	—	31	31	—	32	32
Available-for-sale debt investments:						
U.S. government securities	—	1,998	1,998	—	1,238	1,238
U.S. government agency securities	—	164	164	—	138	138
Non-U.S. government and agency securities	—	353	353	—	272	272
Corporate debt securities	—	7,140	7,140	—	7,818	7,818
U.S. agency mortgage-backed securities	—	1,827	1,827	—	1,976	1,976
Commercial paper	—	1,029	1,029	—	255	255
Certificates of deposit	—	261	261	—	250	250
Equity investments:						
Marketable equity securities	280	—	280	241	—	241
Other assets:						
Money market funds	1,500	—	1,500	1,500	—	1,500
Derivative assets	—	36	36	—	78	78
Total	$ 6,818	$ 13,957	$ 20,775	$ 5,671	$ 12,142	$ 17,813
Liabilities:						
Derivative liabilities	$ —	$ 73	$ 73	$ —	$ 89	$ 89
Total	$ —	$ 73	$ 73	$ —	$ 89	$ 89

Level 1 marketable equity securities are determined by using quoted prices in active markets for identical assets. Level 2 available-for-sale debt investments are priced using quoted market prices for similar instruments or nonbinding market prices that are corroborated by observable market data. We use inputs such as actual trade data, benchmark yields, broker/dealer quotes, and other similar data, which are obtained from quoted market prices, independent pricing vendors, or other sources, to determine the ultimate fair value of these assets and liabilities. We use such pricing data as the primary input to make our assessments and determinations as to the ultimate valuation of our investment portfolio and have not made, during the periods presented, any material adjustments to such inputs. We are ultimately responsible for the financial statements and underlying estimates. Our derivative instruments are primarily classified as Level 2, as they are not actively traded and are valued using pricing models that use observable market inputs. We did not have any transfers between Level 1 and Level 2 fair value measurements during the periods presented.

(b) Assets Measured at Fair Value on a Nonrecurring Basis

Our non-marketable equity securities using the measurement alternative are adjusted to fair value on a non-recurring basis. Adjustments are made when observable transactions for identical or similar investments of the same issuer occur, or due to impairment. These securities are classified as Level 3 in the fair value hierarchy because we estimate the value based on valuation methods using the observable transaction price at the transaction date and other unobservable inputs such as volatility, rights, and obligations of the securities we hold.

(c) Other Fair Value Disclosures

The fair value of our short-term loan receivables approximates their carrying value due to their short duration. The aggregate carrying value of our long-term loan receivables as of January 28, 2023 and July 30, 2022 was $3.0 billion and $3.4 billion, respectively. The estimated fair value of our long-term loan receivables approximates their carrying value. We use unobservable inputs in determining discounted cash flows to estimate the fair value of our long-term loan receivables, and therefore they are categorized as Level 3.

As of January 28, 2023, the estimated fair value of our short-term debt approximates its carrying value due to the short maturities. As of January 28, 2023, the fair value of our senior notes was $9.4 billion with a carrying amount of $8.9 billion. This compares to a fair value of $9.7 billion and a carrying amount of $8.9 billion as of July 30, 2022. The fair value of the senior notes was determined based on observable market prices in a less active market and was categorized as Level 2 in the fair value hierarchy.

12. Borrowings

(a) Short-Term Debt

The following table summarizes our short-term debt (in millions, except percentages):

	January 28, 2023		July 30, 2022	
	Amount	Effective Rate	Amount	Effective Rate
Current portion of long-term debt	$ 1,250	2.44 %	$ 499	2.68 %
Commercial paper	—	—	600	2.05 %
Total	$ 1,250		$ 1,099	

We have a short-term debt financing program of up to $10.0 billion through the issuance of commercial paper notes. We use the proceeds from the issuance of commercial paper notes for general corporate purposes.

The effective rates for the short- and long-term debt include the interest on the notes, the accretion of the discount, the issuance costs, and, if applicable, adjustments related to hedging.

(b) Long-Term Debt

The following table summarizes our long-term debt (in millions, except percentages):

		January 28, 2023		July 30, 2022	
	Maturity Date	Amount	Effective Rate	Amount	Effective Rate
Senior notes:					
Fixed-rate notes:					
2.60%	February 28, 2023	$ 500	2.68%	$ 500	2.68%
2.20%	September 20, 2023	750	2.27%	750	2.27%
3.625%	March 4, 2024	1,000	5.28%	1,000	2.69%
3.50%	June 15, 2025	500	5.65%	500	3.20%
2.95%	February 28, 2026	750	3.01%	750	3.01%
2.50%	September 20, 2026	1,500	2.55%	1,500	2.55%
5.90%	February 15, 2039	2,000	6.11%	2,000	6.11%
5.50%	January 15, 2040	2,000	5.67%	2,000	5.67%
Total		9,000		9,000	
Unaccreted discount/issuance costs		(71)		(75)	
Hedge accounting fair value adjustments		(42)		(10)	
Total		$ 8,887		$ 8,915	
Reported as:					
Current portion of long-term debt		$ 1,250		$ 499	
Long-term debt		7,637		8,416	
Total		$ 8,887		$ 8,915	

We have entered into interest rate swaps in prior periods with an aggregate notional amount of $1.5 billion designated as fair value hedges of certain of our fixed-rate senior notes. These swaps convert the fixed interest rates of the fixed-rate notes to floating interest rates based on the London InterBank Offered Rate (LIBOR). The gains and losses related to changes in the fair value of the interest rate swaps substantially offset changes in the fair value of the hedged portion of the underlying debt that are attributable to the changes in market interest rates. For additional information, see Note 13.

Interest is payable semiannually on each class of the senior fixed-rate notes. Each of the senior fixed-rate notes is redeemable by us at any time, subject to a make-whole premium. The senior notes rank at par with the commercial paper notes that may be issued in the future pursuant to our short-term debt financing program, as discussed above under “(a) Short-Term Debt.” As of January 28, 2023, we were in compliance with all debt covenants.

As of January 28, 2023, future principal payments for long-term debt, including the current portion, are summarized as follows (in millions):

Fiscal Year	Amount
2023 (remaining six months)	$ 500
2024	1,750
2025	500
2026	750
2027	1,500
Thereafter	4,000
Total	$ 9,000

(c) Credit Facility

On May 13, 2021, we entered into a 5-year credit agreement with certain institutional lenders that provides for a $3.0 billion unsecured revolving credit facility that is scheduled to expire on May 13, 2026. As of January 28, 2023, we were in compliance with the required interest coverage ratio and the other covenants, and we had not borrowed any funds under the credit agreement.

Any advances under the 5-year credit agreement will accrue interest at rates that are equal to, based on certain conditions, either (a) with respect to loans in U.S. dollars, (i) LIBOR or (ii) the Base Rate (to be defined as the highest of (x) the Bank of America prime rate, (y) the Federal Funds rate plus 0.50% and (z) a daily rate equal to one-month LIBOR plus 1.0%), (b) with respect to loans in Euros, EURIBOR, (c) with respect to loans in Yen, TIBOR and (d) with respect to loans in Pounds Sterling, SONIA plus a credit spread adjustment, plus a margin that is based on our senior debt credit ratings as published by Standard & Poor's Financial Services, LLC and Moody's Investors Service, Inc., provided that in no event will the interest rate be less than 0.0%. We will pay a quarterly commitment fee during the term of the 5-year credit agreement which may vary depending on our senior debt credit ratings. In addition, the 5-year credit agreement incorporates certain sustainability-linked metrics. Specifically, our applicable interest rate and commitment fee are subject to upward or downward adjustments if we achieve, or fail to achieve, certain specified targets based on two key performance indicator metrics: (i) social impact and (ii) foam reduction. We may also, upon the agreement of either the then-existing lenders or additional lenders not currently parties to the agreement, increase the commitments under the credit facility by up to an additional $2.0 billion and, at our option, extend the maturity of the facility for an additional year up to two times. The credit agreement requires that we comply with certain covenants, including that we maintain an interest coverage ratio as defined in the agreement.

13. Derivative Instruments

(a) Summary of Derivative Instruments

We use derivative instruments primarily to manage exposures to foreign currency exchange rate, interest rate, and equity price risks. Our primary objective in holding derivatives is to reduce the volatility of earnings and cash flows associated with changes in foreign currency exchange rates, interest rates, and equity prices. Our derivatives expose us to credit risk to the extent that the counterparties may be unable to meet the terms of the agreement. We do, however, seek to mitigate such risks by limiting our counterparties to major financial institutions and requiring collateral in certain cases. In addition, the potential risk of loss with any one counterparty resulting from this type of credit risk is monitored. Management does not expect material losses as a result of defaults by counterparties.

The fair values of our derivative instruments and the line items on the Consolidated Balance Sheets to which they were recorded are summarized as follows (in millions):

	DERIVATIVE ASSETS			DERIVATIVE LIABILITIES		
	Balance Sheet Line Item	January 28, 2023	July 30, 2022	Balance Sheet Line Item	January 28, 2023	July 30, 2022
Derivatives designated as hedging instruments:						
Foreign currency derivatives	Other current assets	$ 21	$ 55	Other current liabilities	$ 1	$ —
Foreign currency derivatives	Other assets	1	9	Other long-term liabilities	4	—
Interest rate derivatives	Other assets	—	—	Other long-term liabilities	42	10
Total		22	64		47	10
Derivatives not designated as hedging instruments:						
Foreign currency derivatives	Other current assets	10	14	Other current liabilities	26	69
Foreign currency derivatives	Other assets	4	—	Other long-term liabilities	—	9
Equity derivatives	Other current assets	—	—	Other current liabilities	—	1
Total		14	14		26	79
Total		$ 36	$ 78		$ 73	$ 89

The following amounts were recorded on the Consolidated Balance Sheets related to cumulative basis adjustments for our fair value hedges (in millions):

Balance Sheet Line Item of Hedged Item	CARRYING AMOUNT OF THE HEDGED ASSETS/(LIABILITIES) January 28, 2023	CARRYING AMOUNT OF THE HEDGED ASSETS/(LIABILITIES) July 30, 2022	CUMULATIVE AMOUNT OF FAIR VALUE HEDGING ADJUSTMENT INCLUDED IN THE CARRYING AMOUNT OF THE HEDGED ASSETS/LIABILITIES January 28, 2023	CUMULATIVE AMOUNT OF FAIR VALUE HEDGING ADJUSTMENT INCLUDED IN THE CARRYING AMOUNT OF THE HEDGED ASSETS/LIABILITIES July 30, 2022
Long-term debt	$ (1,456)	$ (1,487)	$ 42	$ 10

The effect of derivative instruments designated as fair value hedges, recognized in interest and other income (loss), net is summarized as follows (in millions):

	Three Months Ended January 28, 2023	Three Months Ended January 29, 2022	Six Months Ended January 28, 2023	Six Months Ended January 29, 2022
Interest rate derivatives:				
Hedged items	$ (7)	$ 32	$ 32	$ 58
Derivatives designated as hedging instruments	7	(32)	(32)	(59)
Total	$ —	$ —	$ —	$ (1)

The effect on the Consolidated Statements of Operations of derivative instruments not designated as hedges is summarized as follows (in millions):

Derivatives Not Designated as Hedging Instruments	Line Item in Statements of Operations	GAINS (LOSSES) FOR THE THREE MONTHS ENDED January 28, 2023	GAINS (LOSSES) FOR THE THREE MONTHS ENDED January 29, 2022	GAINS (LOSSES) FOR THE SIX MONTHS ENDED January 28, 2023	GAINS (LOSSES) FOR THE SIX MONTHS ENDED January 29, 2022
Foreign currency derivatives	Other income (loss), net	$ 140	$ (36)	$ 68	$ (56)
Total return swaps—deferred compensation	Operating expenses and other	44	(41)	19	(20)
Equity derivatives	Other income (loss), net	5	(3)	4	1
Total		$ 189	$ (80)	$ 91	$ (75)

The notional amounts of our outstanding derivatives are summarized as follows (in millions):

	January 28, 2023	July 30, 2022
Foreign currency derivatives	$ 4,555	$ 4,521
Interest rate derivatives	1,500	1,500
Total return swaps—deferred compensation	720	651
Total	$ 6,775	$ 6,672

(b) Offsetting of Derivative Instruments

We present our derivative instruments at gross fair values in the Consolidated Balance Sheets. However, our master netting and other similar arrangements with the respective counterparties allow for net settlement under certain conditions, which are designed to reduce credit risk by permitting net settlement with the same counterparty.

To further limit credit risk, we also enter into collateral security arrangements related to certain derivative instruments whereby cash is posted as collateral between the counterparties based on the fair market value of the derivative instrument. Under these collateral security arrangements, the net cash collateral provided for was $42 million and $14 million as of January 28, 2023 and July 30, 2022, respectively.

(c) Foreign Currency Exchange Risk

We conduct business globally in numerous currencies. Therefore, we are exposed to adverse movements in foreign currency exchange rates. To limit the exposure related to foreign currency changes, we enter into foreign currency contracts. We do not enter into such contracts for speculative purposes.

We hedge forecasted foreign currency transactions related to certain revenues, operating expenses and service cost of sales with currency options and forward contracts. These currency options and forward contracts, designated as cash flow hedges, generally have maturities of less than 24 months. The derivative instrument's gain or loss is initially reported as a component of accumulated other comprehensive income (AOCI) and subsequently reclassified into earnings when the hedged exposure affects earnings.

We enter into foreign exchange forward and option contracts to reduce the short-term effects of foreign currency fluctuations on assets and liabilities such as foreign currency receivables, long-term customer financings and payables. These derivatives are not designated as hedging instruments. Gains and losses on the contracts are included in other income (loss), net, and substantially offset foreign exchange gains and losses from the remeasurement of intercompany balances, other current assets, or liabilities denominated in currencies other than the functional currency of the reporting entity.

We hedge certain net investments in our foreign operations with forward contracts to reduce the effects of foreign currency fluctuations on our net investment in those foreign subsidiaries. These derivative instruments generally have maturities of up to six months.

(d) Interest Rate Risk

We hold interest rate swaps designated as fair value hedges related to fixed-rate senior notes that are due in fiscal 2024 through 2025. Under these interest rate swaps, we receive fixed-rate interest payments and make interest payments based on LIBOR plus a fixed number of basis points. The effect of such swaps is to convert the fixed interest rates of the senior fixed-rate notes to floating interest rates based on LIBOR. The gains and losses related to changes in the fair value of the interest rate swaps are included in interest expense and substantially offset changes in the fair value of the hedged portion of the underlying debt that are attributable to the changes in market interest rates.

(e) Equity Price Risk

We hold marketable equity securities in our portfolio that are subject to price risk. To diversify our overall portfolio, we also hold equity derivatives that are not designated as accounting hedges. The change in the fair value of each of these investment types are included in other income (loss), net.

We are also exposed to variability in compensation charges related to certain deferred compensation obligations to employees. Although not designated as accounting hedges, we utilize derivatives such as total return swaps to economically hedge this exposure and offset the related compensation expense.

14. Commitments and Contingencies

(a) Purchase Commitments with Contract Manufacturers and Suppliers

We purchase components from a variety of suppliers and use several contract manufacturers to provide manufacturing services for our products. During the normal course of business, in order to manage manufacturing lead times and help ensure adequate component supply, we enter into agreements with contract manufacturers and suppliers that allow them to procure inventory based upon criteria as defined by us or establish the parameters defining our requirements. A significant portion of our reported purchase commitments arising from these agreements consists of firm, noncancelable, and unconditional commitments. Certain of these inventory purchase commitments with contract manufacturers and suppliers relate to arrangements to secure supply and pricing for certain product components for multi-year periods. In certain instances, these agreements allow us the option to cancel, reschedule, and adjust our requirements based on our business needs prior to firm orders being placed.

The following table summarizes our inventory purchase commitments with contract manufacturers and suppliers by period (in millions):

	January 28, 2023	July 30, 2022
Less than 1 year	$ 8,651	$ 9,954
1 to 3 years	1,693	2,240
3 to 5 years	607	770
Total	$ 10,951	$ 12,964

We record a liability for firm, noncancelable, and unconditional purchase commitments for quantities in excess of our future demand forecasts consistent with the valuation of our excess and obsolete inventory. As of January 28, 2023 and July 30, 2022, the liability for these purchase commitments was $450 million and $313 million, respectively, and was included in other current liabilities.

(b) Other Commitments

In connection with our acquisitions, we have agreed to pay certain additional amounts contingent upon the achievement of certain agreed-upon technology, development, product, or other milestones or upon the continued employment with Cisco of certain employees of the acquired entities.

The following table summarizes the compensation expense related to acquisitions (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Compensation expense related to acquisitions	$ 49	$ 75	$ 123	$ 164

As of January 28, 2023, we estimated that future cash compensation expense of up to $338 million may be required to be recognized pursuant to the applicable business combination agreements.

We also have certain funding commitments, primarily related to our privately held investments, some of which are based on the achievement of certain agreed-upon milestones or are required to be funded on demand. The funding commitments were $0.3 billion and $0.4 billion as of January 28, 2023 and July 30, 2022, respectively.

(c) Product Warranties

The following table summarizes the activity related to the product warranty liability (in millions):

	Six Months Ended	
	January 28, 2023	January 29, 2022
Balance at beginning of period	$ 333	$ 336
Provisions for warranties issued	188	218
Adjustments for pre-existing warranties	13	2
Settlements	(218)	(222)
Balance at end of period	$ 316	$ 334

We accrue for warranty costs as part of our cost of sales based on associated material product costs, labor costs for technical support staff, and associated overhead. Our products are generally covered by a warranty for periods ranging from 90 days to five years, and for some products we provide a limited lifetime warranty.

(d) Financing and Other Guarantees

In the ordinary course of business, we provide financing guarantees for various third-party financing arrangements extended to channel partners customers. Payments under these financing guarantee arrangements were not material for the periods presented.

Channel Partner Financing Guarantees We facilitate arrangements for third-party financing extended to channel partners, consisting of revolving short-term financing, with payment terms generally ranging from 60 to 90 days. These financing arrangements facilitate the working capital requirements of the channel partners, and, in some cases, we guarantee a portion of these arrangements. The volume of channel partner financing was $7.5 billion and $6.8 billion for the second quarter of fiscal 2023 and 2022, respectively, and $15.1 billion and $13.4 billion for the first six months of fiscal 2023 and 2022, respectively. The balance of the channel partner financing subject to guarantees was $1.6 billion and $1.4 billion as of January 28, 2023 and July 30, 2022, respectively.

Financing Guarantee Summary The aggregate amounts of channel partner financing guarantees outstanding at January 28, 2023 and July 30, 2022, representing the total maximum potential future payments under financing arrangements with third parties along with the related deferred revenue, are summarized in the following table (in millions):

	January 28, 2023	July 30, 2022
Maximum potential future payments	$ 180	$ 188
Deferred revenue	(35)	(9)
Total	$ 145	$ 179

(e) Indemnifications

In the normal course of business, we have indemnification obligations to other parties, including customers, lessors, and parties to other transactions with us, with respect to certain matters. We have agreed to indemnify against losses arising from a breach of representations or covenants or out of intellectual property infringement or other claims made against certain parties. These agreements may limit the time or circumstances within which an indemnification claim can be made and the amount of the claim.

It is not possible to determine the maximum potential amount for claims made under the indemnification obligations due to uncertainties in the litigation process, coordination with and contributions by other parties and the defendants in these types of cases, and the unique facts and circumstances involved in each particular case and agreement. Historically, indemnity payments made by us have not had a material effect on our Consolidated Financial Statements.

In addition, we have entered into indemnification agreements with our officers and directors, and our Amended and Restated Bylaws contain similar indemnification obligations to our agents.

(f) Legal Proceedings

Brazil Brazilian authorities have investigated our Brazilian subsidiary and certain of its former employees, as well as a Brazilian importer of our products, and its affiliates and employees, relating to alleged evasion of import taxes and alleged improper transactions involving the subsidiary and the importer. Brazilian tax authorities have assessed claims against our Brazilian subsidiary based on a theory of joint liability with the Brazilian importer for import taxes, interest, and penalties. In addition to claims asserted by the Brazilian federal tax authorities in prior fiscal years, tax authorities from the Brazilian state of Sao Paulo have asserted similar claims on the same legal basis in prior fiscal years. The asserted claims by Brazilian federal tax authorities are for calendar years 2003 through 2007, and the asserted claims by the tax authorities from the state of Sao Paulo are for calendar years 2005 through 2007. The total asserted claims by Brazilian state and federal tax authorities aggregate to $159 million for the alleged evasion of import and other taxes, $873 million for interest, and $394 million for various penalties, all determined using an exchange rate as of January 28, 2023.

We have completed a thorough review of the matters and believe the asserted claims against our Brazilian subsidiary are without merit, and we are defending the claims vigorously. While we believe there is no legal basis for the alleged liability, due to the complexities and uncertainty surrounding the judicial process in Brazil and the nature of the claims asserting joint liability with the importer, we are unable to determine the likelihood of an unfavorable outcome against our Brazilian subsidiary and are unable to reasonably estimate a range of loss, if any. We do not expect a final judicial determination for several years.

Centripetal On February 13, 2018, Centripetal Networks, Inc. (“Centripetal”) asserted patent infringement claims against us in the U.S. District Court for the Eastern District of Virginia, alleging that several of our products and services infringe eleven Centripetal U.S. patents. The district court case went to trial on five asserted patents. Subsequently, on October 5, 2020, the district court issued a judgment finding validity and willful infringement of four of the asserted patents and non-infringement of the fifth patent and awarded $1.9 billion in damages and $14 million in pre-judgment interest, declined to issue an injunction but, instead, awarded Centripetal a royalty against future revenue for an initial three-year term at a 10% rate, with a minimum and maximum annual royalty of $168 million and $300 million, respectively, and for a second three-year term at a 5% rate, with a minimum and maximum annual royalty of $84 million and $150 million, respectively. We appealed and, on June 23, 2022, the U.S. Court of Appeals for the Federal Circuit (“Federal Circuit”) vacated the district court’s final judgment, remanded the case back to the district court to be assigned to a new judge and ordered the district court to conduct additional proceedings and the district court set a hearing to commence on June 22, 2023. On August 9, 2022, Centripetal filed a petition for writ of certiorari in the U.S. Supreme Court challenging the Federal Circuit’s decision. The Supreme Court denied Centripetal’s petition on December 5, 2022.

Between April 2020 and February 2022, Centripetal filed complaints in the District Court of Dusseldorf in Germany (“German Court”), asserting a total of five patents and one utility model. Centripetal sought damages and injunctive relief in all cases. On December 10, 2021, the German Court rejected Centripetal’s complaints on two patents, and Centripetal appealed. A hearing for a Cisco nullity action in the Federal Patent Court in Germany on one of those two patents occurred on August 1, 2022, and we are waiting for the Court’s opinion. On December 21, 2021, the German Court stayed its decision on infringement of the third patent pending a decision by the Federal Patent Court in a related nullity proceeding. On May 17, 2022, Centripetal withdrew its complaint for infringement of the German utility model. The German Court conducted a hearing on the remaining two Centripetal complaints on November 22, 2022. The German Court found no infringement on one patent and stayed the decision in the final case pending a decision by the European Patent Office in a related opposition proceeding.

Due to uncertainty surrounding patent litigation processes in the U.S. and Europe, we are unable to reasonably estimate the ultimate outcome of the litigations at this time. If we do not prevail in either litigation, we believe that any damages ultimately assessed would not have a material effect on our Consolidated Financial Statements.

Ramot On June 12, 2019, Ramot at Tel Aviv University Ltd. (“Ramot”) asserted patent infringement claims against us in the U.S. District Court for the Eastern District of Texas (“E.D. Tex.”), seeking damages, including enhanced damages, and a royalty on future sales. Ramot alleges that certain Cisco optical transceiver modules and line cards infringe three patents. The U.S. Patent and Trademark Office (“PTO”) preliminarily found all asserted claims unpatentable in ex parte reexamination proceedings and the pending District Court case has been stayed. On February 26, 2021, Ramot asserted patent infringement claims against Acacia Communications, Inc. (“Acacia”) in the District of Delaware (“D. Del.”), seeking damages, including enhanced damages, and a royalty on future sales. Ramot alleges that certain Acacia optical transceiver modules and integrated circuits infringe two of the three patents that Ramot asserted in the E.D. Tex. case and this case is also stayed pending reexamination proceedings.

On September 28, 2021 and May 24, 2022, Cisco and Acacia filed two declaratory judgment actions of noninfringement against Ramot in D. Del on other Ramot patents in the same family as those involved in the pending cases above. Ramot is asserting counterclaims for infringement of the same patents and seeks damages, including enhanced damages, and a royalty on future sales. While we believe that we have strong non-infringement and invalidity arguments in these litigations, and that Ramot's damages theories in such cases are not supported by prevailing law, we are unable to reasonably estimate the ultimate outcome of these litigations at this time due to uncertainties in the litigation processes. If we do not prevail in court in these litigations, we believe any damages ultimately assessed would not have a material effect on our Consolidated Financial Statements.

Viasat On November 6, 2019, Viasat, Inc. ("Viasat") filed suit against Acacia in the California Superior Court for San Diego County ("SDSC"), alleging contract and trade secret claims for certain Acacia products sold from January 1, 2019 forward ("Viasat 2"). Viasat 2 is similar to a previous suit Viasat filed against Acacia and which resolved in July 2022 for an immaterial amount ("Viasat 1"). On June 9, 2020, Viasat filed a third suit in SDSC alleging contract and trade secrets claims for sales of additional Acacia products ("Viasat 3", together with Viasat 2, the "Viasat Cases"). In October 2022, an amended complaint was filed in Viasat 3 asserting the same claims but alleging additional information.

On July 28, 2017, Acacia filed suit in the Commonwealth of Massachusetts Superior Court against Viasat alleging claims for defamation, unfair competition, business torts, and declaratory judgment of no trade secret misappropriation (the "Massachusetts Action"). On April 5, 2018, Viasat counterclaimed with contract, trade secret, and unfair competition claims. Following resolution of Viasat 1, Acacia and Viasat jointly agreed to dismiss the Massachusetts Action in October 2022, thereby resolving the case.

We are unable to reasonably estimate the ultimate outcome of any of the Viasat Cases at this time due to uncertainties in the litigation processes. If we do not prevail, we believe that any relief ultimately assessed in any of the Viasat Cases would not have a material effect on our Consolidated Financial Statements.

Egenera On August 8, 2016, Egenera, Inc. ("Egenera") asserted infringement claims against us in the U.S. District Court for the District of Massachusetts, alleging that Cisco's Unified Computing System Manager infringes three patents. Egenera sought damages, including enhanced damages, and an injunction. Two of the asserted patents were dismissed, leaving Egenera's infringement claim based on one asserted patent. On March 25, 2022, the PTO preliminarily found all of the asserted claims of the remaining patent unpatentable in ex parte reexamination proceedings. On August 15, 2022, after a jury trial for the remaining patent, the jury returned a verdict in favor of Cisco. The District Court denied Egenera's post-trial motions, and Egenera filed an appeal to the Federal Circuit on January 13, 2023 and those proceedings are ongoing.

In addition to the above matters, we are subject to other legal proceedings, claims, and litigation arising in the ordinary course of business, including intellectual property litigation. While the outcome of these matters is currently not determinable, we do not believe that the ultimate costs to resolve these matters will have a material effect on our Consolidated Financial Statements. For additional information regarding intellectual property litigation, see "Part II, Item 1A. Risk Factors—We may be found to infringe on intellectual property rights of others" herein.

15. Stockholders' Equity

(a) Stock Repurchase Program

In September 2001, our Board of Directors authorized a stock repurchase program. As of January 28, 2023, the remaining authorized amount for stock repurchases under this program was approximately $13.4 billion with no termination date. A summary of the stock repurchase activity for fiscal 2023 and 2022 under the stock repurchase program, reported based on the trade date, is summarized as follows (in millions, except per-share amounts):

Quarter Ended	Shares	Weighted-Average Price per Share	Amount
Fiscal 2023			
January 28, 2023	26	$ 47.72	$ 1,256
October 29, 2022	12	$ 43.76	$ 502
Fiscal 2022			
July 30, 2022	54	$ 44.02	$ 2,402
April 30, 2022	5	$ 54.20	$ 252
January 29, 2022	82	$ 58.36	$ 4,824
October 30, 2021	5	$ 56.49	$ 256

There were stock repurchases of $68 million and $70 million that were pending settlement as of January 28, 2023 and July 30, 2022, respectively.

The purchase price for the shares of our stock repurchased is reflected as a reduction to stockholders' equity. We are required to allocate the purchase price of the repurchased shares as (i) a reduction to retained earnings or an increase to accumulated deficit and (ii) a reduction of common stock and additional paid-in capital.

(b) Cash Dividends Declared

On February 15, 2023, our Board of Directors declared a quarterly dividend of $0.39 per common share to be paid on April 26, 2023 to all stockholders of record as of the close of business on April 5, 2023. Any future dividends will be subject to the approval of our Board of Directors.

(c) Preferred Stock

Under the terms of our Amended and Restated Certificate of Incorporation, the Board of Directors is authorized to issue preferred stock in one or more series and, in connection with the creation of such series, to fix by resolution the designation, powers (including voting powers (if any)), preferences and relative, participating, optional or other special rights, if any, of such series, and any qualifications, limitations or restrictions thereof, of the shares of such series. As of January 28, 2023, we had not issued any shares of preferred stock.

16. Employee Benefit Plans

(a) Employee Stock Incentive Plans

We have one stock incentive plan: the 2005 Stock Incentive Plan (the "2005 Plan"). In addition, we have, in connection with our acquisitions of various companies, assumed the share-based awards granted under stock incentive plans of the acquired companies or issued share-based awards in replacement thereof. Share-based awards are designed to reward employees for their long-term contributions to us and provide incentives for them to remain with us. The number and frequency of share-based awards are based on competitive practices, our operating results, government regulations, and other factors. Our primary stock incentive plan is summarized as follows:

The 2005 Plan provides for the granting of stock options, stock grants, stock units and stock appreciation rights (SARs), the vesting of which may be time-based or upon satisfaction of performance goals, or both, and/or other conditions. Employees (including employee directors and executive officers) and consultants of Cisco and its subsidiaries and affiliates and non-employee directors of Cisco are eligible to participate in the 2005 Plan. The 2005 Plan may be terminated by our Board of Directors at any time and for any reason, and is currently set to terminate at the 2030 Annual Meeting unless re-adopted or extended by our stockholders prior to or on such date.

Under the 2005 Plan's share reserve feature, a distinction is made between the number of shares in the reserve attributable to (i) stock options and SARs and (ii) "full value" awards (i.e., stock grants and stock units). Shares issued as stock grants, pursuant to stock units or pursuant to the settlement of dividend equivalents are counted against shares available for issuance under the 2005 Plan on a 1.5-to-1 ratio. For each share awarded as restricted stock or a restricted stock unit award under the 2005 Plan, 1.5 shares was deducted from the available share-based award balance. If awards issued under the 2005 Plan are forfeited or terminated for any reason before being exercised or settled, then the shares underlying such awards, plus the number of additional shares, if any, that counted against shares available for issuance under the 2005 Plan at the time of grant as a result of the application of the share ratio described above, will become available again for issuance under the 2005 Plan. As of January 28, 2023, 133 million shares were authorized for future grant under the 2005 Plan.

(b) Employee Stock Purchase Plan

We have an Employee Stock Purchase Plan under which eligible employees are offered shares through a 24-month offering period, which consists of four consecutive 6-month purchase periods. Employees may purchase a limited amount of shares of our stock at a discount of up to 15% of the lesser of the fair market value at the beginning of the offering period or the end of each 6-month purchase period. The Employee Stock Purchase Plan is scheduled to terminate on the earlier of (i) January 3, 2030 and (ii) the date on which all shares available for issuance under the Employee Stock Purchase Plan are sold pursuant to exercised purchase rights. Under the Employee Stock Purchase Plan, we issued 9 million shares during the second quarter and first six months of fiscal 2023 and 8 million shares during the second quarter and first six months of fiscal 2022. As of January 28, 2023, 98 million shares were available for issuance under the Employee Stock Purchase Plan.

(c) Summary of Share-Based Compensation Expense

Share-based compensation expense consists primarily of expenses for RSUs, stock purchase rights, and stock options, granted to employees or assumed from acquisitions. The following table summarizes share-based compensation expense (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Cost of sales—product	$ 40	$ 29	$ 71	$ 54
Cost of sales—service	66	52	116	96
Share-based compensation expense in cost of sales	106	81	187	150
Research and development	261	205	465	386
Sales and marketing	166	142	319	282
General and administrative	71	49	129	111
Restructuring and other charges	(3)	—	(3)	1
Share-based compensation expense in operating expenses	495	396	910	780
Total share-based compensation expense	$ 601	$ 477	$ 1,097	$ 930
Income tax benefit for share-based compensation	$ 109	$ 152	$ 208	$ 256

As of January 28, 2023, the total compensation cost related to unvested share-based awards not yet recognized was $5.3 billion which is expected to be recognized over approximately 2.5 years on a weighted-average basis.

(d) Restricted Stock Unit Awards

A summary of the restricted stock and stock unit activity, which includes time-based and performance-based or market-based RSUs, is as follows (in millions, except per-share amounts):

	Restricted Stock/ Stock Units	Weighted-Average Grant Date Fair Value per Share	Aggregate Fair Value
Unvested balance at July 31, 2021	94	$ 42.93	
Granted and assumed	52	50.06	
Vested	(37)	42.27	$ 1,979
Canceled/forfeited/other	(12)	45.63	
Unvested balance at July 30, 2022	97	$ 46.67	
Granted and assumed	56	40.62	
Vested	(21)	47.39	$ 923
Canceled/forfeited/other	(5)	45.73	
Unvested balance at January 28, 2023	127	$ 43.92	

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17. Comprehensive Income (Loss)

The components of AOCI, net of tax, and the other comprehensive income (loss), for the first six months of fiscal 2023 and 2022 are summarized as follows (in millions):

	Net Unrealized Gains (Losses) on Available-for-Sale Investments	Net Unrealized Gains (Losses) Cash Flow Hedging Instruments	Cumulative Translation Adjustment and Actuarial Gains (Losses)	Accumulated Other Comprehensive Income (Loss)
Balance at July 30, 2022	$ (379)	$ 44	$ (1,287)	$ (1,622)
Other comprehensive income (loss) before reclassifications	(76)	(12)	106	18
(Gains) losses reclassified out of AOCI	9	(37)	(1)	(29)
Tax benefit (expense)	11	12	24	47
Balance at January 28, 2023	$ (435)	$ 7	$ (1,158)	$ (1,586)

	Net Unrealized Gains (Losses) on Available-for-Sale Investments	Net Unrealized Gains (Losses) Cash Flow Hedging Instruments	Cumulative Translation Adjustment and Actuarial Gains (Losses)	Accumulated Other Comprehensive Income (Loss)
Balance at July 31, 2021	$ 182	$ (1)	$ (598)	$ (417)
Other comprehensive income (loss) before reclassifications	(296)	18	(162)	(440)
(Gains) losses reclassified out of AOCI	(16)	(3)	1	(18)
Tax benefit (expense)	80	(3)	9	86
Balance at January 29, 2022	$ (50)	$ 11	$ (750)	$ (789)

18. Income Taxes

The following table provides details of income taxes (in millions, except percentages):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Income before provision for income taxes	$ 3,415	$ 3,603	$ 6,890	$ 7,260
Provision for income taxes	$ 642	$ 630	$ 1,447	$ 1,307
Effective tax rate	18.8 %	17.5 %	21.0 %	18.0 %

As of January 28, 2023, we had $3.4 billion of unrecognized tax benefits, of which $2.4 billion, if recognized, would favorably impact the effective tax rate. We regularly engage in discussions and negotiations with tax authorities regarding tax matters in various jurisdictions. We believe it is reasonably possible that certain federal, foreign, and state tax matters may be concluded in the next 12 months. Specific positions that may be resolved include issues involving transfer pricing and various other matters.

19. Segment Information and Major Customers

(a) Revenue and Gross Margin by Segment

We conduct business globally and are primarily managed on a geographic basis consisting of three segments: the Americas, EMEA, and APJC. Our management makes financial decisions and allocates resources based on the information it receives from our internal management system. Sales are attributed to a segment based on the ordering location of the customer. We do not allocate research and development, sales and marketing, or general and administrative expenses to our segments in this internal management system because management does not include the information in our measurement of the performance of the operating segments. In addition, we do not allocate amortization and impairment of acquisition-related intangible assets, share-based compensation expense, significant litigation settlements and other contingencies, charges related to asset impairments and restructurings, and certain other charges to the gross margin for each segment because management does not include this information in our measurement of the performance of the operating segments.

Summarized financial information by segment for the second quarter and first six months of fiscal 2023 and 2022, based on our internal management system and as utilized by our Chief Operating Decision Maker ("CODM"), is as follows (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Revenue:				
Americas	$ 7,825	$ 7,146	$ 15,738	$ 14,706
EMEA	3,728	3,564	7,404	6,867
APJC	2,039	2,010	4,082	4,046
Total	$ 13,592	$ 12,720	$ 27,224	$ 25,620
Gross margin:				
Americas	$ 4,920	$ 4,611	$ 9,904	$ 9,486
EMEA	2,469	2,381	4,795	4,509
APJC	1,298	1,337	2,571	2,654
Segment total	8,687	8,328	17,269	16,649
Unallocated corporate items	(260)	(279)	(496)	(547)
Total	$ 8,427	$ 8,049	$ 16,773	$ 16,102

Amounts may not sum due to rounding.

Revenue in the United States was $7.0 billion and $6.4 billion for the second quarter of fiscal 2023 and 2022, respectively, and $14.0 billion and $13.2 billion for the first six months of fiscal 2023 and 2022, respectively.

(b) Revenue for Groups of Similar Products and Services

We design and sell Internet Protocol (IP)-based networking and other products related to the communications and IT industry and provide services associated with these products and their use.

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

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Revenue:				
Secure, Agile Networks	$ 6,746	$ 5,899	$ 13,430	$ 11,867
Internet for the Future	1,306	1,322	2,616	2,695
Collaboration	958	1,067	2,044	2,176
End-to-End Security	943	883	1,914	1,778
Optimized Application Experiences	199	180	393	361
Other Products	3	2	4	5
Total Product	10,155	9,353	20,400	18,882
Services	3,437	3,367	6,824	6,738
Total	$ 13,592	$ 12,720	$ 27,224	$ 25,620

Amounts may not sum due to rounding. We have made certain reclassifications to the product revenue amounts for prior periods to conform to the current year presentation.

20. Net Income per Share

The following table presents the calculation of basic and diluted net income per share (in millions, except per-share amounts):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Net income	$ 2,773	$ 2,973	$ 5,443	$ 5,953
Weighted-average shares—basic	4,103	4,183	4,105	4,201
Effect of dilutive potential common shares	13	22	10	21
Weighted-average shares—diluted	4,116	4,205	4,115	4,222
Net income per share—basic	$ 0.68	$ 0.71	$ 1.33	$ 1.42
Net income per share—diluted	$ 0.67	$ 0.71	$ 1.32	$ 1.41
Antidilutive employee share-based awards, excluded	17	11	91	41

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

Forward-Looking Statements

This Quarterly Report on Form 10-Q, including this Management's Discussion and Analysis of Financial Condition and Results of Operations, contains forward-looking statements regarding future events and our future results that are subject to the safe harbors created under the Securities Act of 1933, as amended (the "Securities Act") and the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements other than statements of historical facts are statements that could be deemed forward-looking statements. These statements are based on current expectations, estimates, forecasts, and projections about the industries in which we operate and the beliefs and assumptions of our management. Words such as "expects," "anticipates," "targets," "goals," "projects," "intends," "plans," "believes," "momentum," "seeks," "estimates," "continues," "endeavors," "strives," "may," variations of such words, and similar expressions are intended to identify such forward-looking statements. In addition, any statements that refer to projections of our future financial performance, our anticipated growth and trends in our businesses, future responses to and effects of the COVID-19 pandemic, and other characterizations of future events or circumstances are forward-looking statements. Readers are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties, and assumptions that are difficult to predict, including those under "Part II, Item 1A. Risk Factors," and elsewhere herein. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. We undertake no obligation to revise or update any forward-looking statements for any reason.

OVERVIEW

Cisco designs and sells a broad range of technologies that power the Internet. We are integrating our platforms across networking, security, collaboration, applications and the cloud. These platforms are designed to help our customers manage more users, devices and things connecting to their networks. This will enable us to provide customers with a highly secure, intelligent platform for their digital business.

A summary of our results is as follows (in millions, except percentages and per-share amounts):

	Three Months Ended			Six Months Ended		
	January 28, 2023	January 29, 2022	% Variance	January 28, 2023	January 29, 2022	% Variance
Revenue	$ 13,592	$ 12,720	7 %	$ 27,224	$ 25,620	6 %
Gross margin percentage	62.0 %	63.3 %	(1.3) pts	61.6 %	62.8 %	(1.2) pts
Research and development	$ 1,855	$ 1,670	11 %	$ 3,636	$ 3,384	7 %
Sales and marketing	$ 2,384	$ 2,266	5 %	$ 4,775	$ 4,527	5 %
General and administrative	$ 582	$ 544	7 %	$ 1,147	$ 1,095	5 %
Total research and development, sales and marketing, general and administrative	$ 4,821	$ 4,480	8 %	$ 9,558	$ 9,006	6 %
Total as a percentage of revenue	35.5 %	35.2 %	0.3 pts	35.1 %	35.2 %	(0.1) pts
Amortization of purchased intangible assets included in operating expenses	$ 71	$ 79	(10) %	$ 142	$ 163	(13) %
Restructuring and other charges included in operating expenses	$ 243	$ 3	NM	$ 241	$ 8	NM
Operating income as a percentage of revenue	24.2 %	27.4 %	(3.2) pts	25.1 %	27.0 %	(1.9) pts
Interest and other income (loss), net	$ 123	$ 116	6 %	$ 58	$ 335	(83) %
Income tax percentage	18.8 %	17.5 %	1.3 pts	21.0 %	18.0 %	3.0 pts
Net income	$ 2,773	$ 2,973	(7) %	$ 5,443	$ 5,953	(9) %
Net income as a percentage of revenue	20.4 %	23.4 %	(3.0) pts	20.0 %	23.2 %	(3.2) pts
Earnings per share—diluted	$ 0.67	$ 0.71	(6) %	$ 1.32	$ 1.41	(6) %

Percentages may not recalculate due to rounding.

NM — Not meaningful

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

In the second quarter of fiscal 2023, we delivered strong results with growth in revenue. We remain focused on delivering innovation across our technologies to assist our customers in executing on their digital transformations. We have, and continue to take, multiple steps in order to mitigate the component shortages and deliver products to our customers in order to address supply constraints seen industry-wide. We did see further improvements in supply constraints during the second quarter of fiscal 2023. However, we expect the constraints to continue and the duration is uncertain. We continued to make progress in the transition of our business model delivering increased software and subscriptions. We remain focused on accelerating innovation across our portfolio, and we believe that we have made continued progress on our strategic priorities. We continue to operate in a challenging macroeconomic and highly competitive environment. While the overall environment remains uncertain, we continue to aggressively invest in priority areas with the objective of driving profitable growth over the long term.

Total revenue increased by 7% compared with the second quarter of fiscal 2022. Within total revenue, product revenue increased by 9% and service revenue increased by 2%. In the second quarter of fiscal 2023, total software revenue was $4.2 billion across all product areas and service, an increase of 10%. Within total software revenue, subscription revenue increased 15%. Total gross margin decreased by 1.3 percentage points. Product gross margin decreased by 1.6 percentage points, largely driven by increased costs related to supply constraints, partially offset by favorable pricing and product mix. As a percentage of revenue, research and development, sales and marketing, and general and administrative expenses, collectively, increased by 0.3 percentage points. Operating income as a percentage of revenue decreased by 3.2 percentage points. We incurred restructuring and other charges of $243 million in the second quarter of fiscal 2023. Diluted earnings per share decreased 6%, driven by a decrease of 7% in net income, partially offset by a decrease in diluted share count of 89 million shares.

In terms of our geographic segments, revenue from the Americas increased $679 million, EMEA revenue increased by $164 million and APJC revenue increased by $29 million. Although total revenue increased, we saw a decline in product demand compared to the second quarter of fiscal 2022. The decline was against the comparable prior year period in which we experienced unusually high demand. We did see an increase in product demand compared to the first quarter of fiscal 2023.

From a customer market standpoint, we experienced product revenue growth in each of our customer markets.

From a product category perspective, the product revenue increase of 9% was driven by growth in revenue for Secure, Agile Networks of 14%; End-to-End Security of 7%; and Optimized Application Experiences of 11%; partially offset by product revenue declines in Internet for the Future of 1% and Collaboration of 10%.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Total revenue increased 6%, with product revenue increasing 8% and service revenue increasing 1%. Total gross margin decreased 1.2 percentage points due to increased costs related to supply constraints, partially offset by favorable pricing, and to a lesser extent, favorable impacts from product mix. As a percentage of revenue, research, and development, sales and marketing, and general and administrative expenses collectively decreased by 0.1 percentage points. Operating income as a percentage of revenue decreased by 1.9 percentage points. We incurred restructuring and other charges of $241 million in the first six months of fiscal 2023. Diluted earnings per share decreased 6%, driven by a decrease of 9% in net income, partially offset by a decrease in diluted share count of 107 million shares.

Strategy and Priorities

As our customers add billions of new connections to their enterprises, and as more applications move to a multicloud environment, the network becomes even more critical. Our customers are navigating change at an unprecedented pace. In this dynamic environment, we believe their priorities are to reimagine applications, power hybrid work, transform infrastructure, and secure the enterprise. Our strategy is to help our customers connect, secure, and automate to accelerate their digital agility in a cloud-first world. We are committed to driving a trusted customer experience, through our innovation, choice, and people.

For additional discussion of our strategy and priorities, see Item 1. Business in our Annual Report on Form 10-K for the fiscal year ended July 30, 2022.

Other Key Financial Measures

The following is a summary of our other key financial measures for the second quarter of fiscal 2023 (in millions):

	January 28, 2023	July 30, 2022
Cash and cash equivalents and investments	$ 22,061	$ 19,267
Remaining performance obligations	$ 31,772	$ 31,539
Inventories	$ 3,140	$ 2,568

	Six Months Ended	
	January 28, 2023	January 29, 2022
Cash provided by operating activities	$ 8,701	$ 5,888
Repurchases of common stock—stock repurchase program	$ 1,758	$ 5,080
Dividends paid	$ 3,120	$ 3,102

CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the United States requires us to make judgments, assumptions, and estimates that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. Note 2 to the Consolidated Financial Statements in our Annual Report on Form 10-K for the fiscal year ended July 30, 2022, as updated as applicable in Note 2 to the Consolidated Financial Statements herein, describes the significant accounting policies and methods used in the preparation of the Consolidated Financial Statements. The accounting policies described below are significantly affected by critical accounting estimates. Such accounting policies require significant judgments, assumptions, and estimates used in the preparation of the Consolidated Financial Statements, and actual results could differ materially from the amounts reported based on these policies.

Revenue Recognition

We enter into contracts with customers that can include various combinations of products and services which are generally distinct and accounted for as separate performance obligations. As a result, our contracts may contain multiple performance obligations. We determine whether arrangements are distinct based on whether the customer can benefit from the product or service on its own or together with other resources that are readily available and whether our commitment to transfer the product or service to the customer is separately identifiable from other obligations in the contract. We classify our hardware, perpetual software licenses, and SaaS as distinct performance obligations. Term software licenses represent multiple obligations, which include software licenses and software maintenance. In transactions where we deliver hardware or software, we are typically the principal and we record revenue and costs of goods sold on a gross basis.

We recognize revenue upon transfer of control of promised goods or services in a contract with a customer in an amount that reflects the consideration we expect to receive in exchange for those products or services. Transfer of control occurs once the customer has the contractual right to use the product, generally upon shipment, electronic delivery (or when the software is available for download by the customer), or once title and risk of loss has transferred to the customer. Transfer of control can also occur over time for software maintenance and services as the customer receives the benefit over the contract term. Our hardware and perpetual software licenses are distinct performance obligations where revenue is recognized upfront upon transfer of control. Term software licenses include multiple performance obligations where the term licenses are recognized upfront upon transfer of control, with the associated software maintenance revenue recognized ratably over the contract term as services and software updates are provided. SaaS arrangements do not include the right for the customer to take possession of the software during the term, and therefore have one distinct performance obligation which is satisfied over time with revenue recognized ratably over the contract term as the customer consumes the services. On our product sales, we record consideration from shipping and handling on a gross basis within net product sales. We record our revenue net of any associated sales taxes.

Revenue is allocated among these performance obligations in a manner that reflects the consideration that we expect to be entitled to for the promised goods or services based on standalone selling prices (SSP). SSP is estimated for each distinct performance obligation and judgment may be required in their determination. The best evidence of SSP is the observable price of a product or service when we sell the goods separately in similar circumstances and to similar customers. In instances where SSP is not directly observable, we determine SSP using information that may include market conditions and other observable inputs.

We assess relevant contractual terms in our customer contracts to determine the transaction price. We apply judgment in identifying contractual terms and determining the transaction price as we may be required to estimate variable consideration when determining the amount of revenue to recognize. Variable consideration includes potential contractual penalties and various rebate, cooperative marketing and other incentive programs that we offer to our distributors, channel partners and customers. When determining the amount of revenue to recognize, we estimate the expected usage of these programs, applying the expected value or most likely estimate and update the estimate at each reporting period as actual utilization becomes available. We also consider the customers' right of return in determining the transaction price, where applicable. If actual credits received by distributors under these programs were to deviate significantly from our estimates, which are based on historical experience, our revenue could be adversely affected.

See Note 3 to the Consolidated Financial Statements for more details.

Inventory Valuation and Liability for Purchase Commitments with Contract Manufacturers and Suppliers

Inventory is written down based on excess and obsolete inventories, determined primarily by future demand forecasts. Inventory write-downs are measured as the difference between the cost of the inventory and net realizable value, based upon assumptions about future demand, and are charged to the provision for inventory, which is a component of our cost of sales. At the point of the loss recognition, a new, lower cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis.

We record a liability for firm, noncancelable, and unconditional purchase commitments with contract manufacturers and suppliers for quantities in excess of our future demand forecasts consistent with the valuation of our excess and obsolete inventory.

Our provision for inventory was $92 million and $45 million for the first six months of fiscal 2023 and 2022, respectively. The provision for the liability related to purchase commitments with contract manufacturers and suppliers was $199 million and $80 million for the first six months of fiscal 2023 and 2022, respectively. If there were to be a sudden and significant decrease in demand for our products, if there were a higher incidence of inventory obsolescence because of rapidly changing technology and customer requirements, or if supply constraints were to continue, we could be required to increase our inventory write-downs, and our liability for purchase commitments with contract manufacturers and suppliers, and accordingly our profitability, could be adversely affected. We regularly evaluate our exposure for inventory write-downs and the adequacy of our liability for purchase commitments. While we saw further improvements in the second quarter of fiscal 2023, we continue to manage through significant supply constraints seen industry-wide due to component shortages caused, in part, by the COVID-19 pandemic. For further discussion around the Supply Constraints Impacts and Risks, see "Result of Operations—Product Gross Margin—Supply Constraints Impact and Risks" and "Liquidity and Capital Resources—Inventory Supply Chain."

Loss Contingencies

We are subject to the possibility of various losses arising in the ordinary course of business. We consider the likelihood of the incurrence of a liability, as well as our ability to reasonably estimate the amount of loss, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. We regularly evaluate information available to us to determine whether such accruals should be made or adjusted and whether new accruals are required.

Third parties, including customers, have in the past and may in the future assert claims or initiate litigation related to exclusive patent, copyright, trademark, and other intellectual property rights to technologies and related standards that are relevant to us. These assertions have increased over time as a result of our growth and the general increase in the pace of patent claims assertions, particularly in the United States. If any infringement or other intellectual property claim made against us by any third party is successful, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results, and financial condition could be materially and adversely affected.

Goodwill and Purchased Intangible Asset Impairments

Our methodology for allocating the purchase price relating to purchase acquisitions is determined through established valuation techniques. Goodwill represents a residual value as of the acquisition date, which in most cases results in measuring goodwill as an excess of the purchase consideration transferred plus the fair value of any noncontrolling interest in the acquired company over the fair value of net assets acquired, including contingent consideration. We perform goodwill impairment tests on an annual basis in the fourth fiscal quarter and between annual tests in certain circumstances for each reporting unit. The assessment of fair value for goodwill and purchased intangible assets is based on factors that market participants would use in an orderly transaction in accordance with the new accounting guidance for the fair value measurement of nonfinancial assets.

In response to changes in industry and market conditions, we could be required to strategically realign our resources and consider restructuring, disposing of, or otherwise exiting businesses, which could result in an impairment of goodwill. There was no impairment of goodwill in each of the first six months of fiscal 2023 and 2022.

The fair value of acquired technology and patents, as well as acquired technology under development, is determined at acquisition date primarily using the income approach, which discounts expected future cash flows to present value. The discount rates used in the present value calculations are typically derived from a weighted-average cost of capital analysis and then adjusted to reflect risks inherent in the development lifecycle as appropriate. We consider the pricing model for products related to these acquisitions to be standard within the high-technology communications industry, and the applicable discount rates represent the rates that market participants would use for valuation of such intangible assets.

We make judgments about the recoverability of purchased intangible assets with finite lives whenever events or changes in circumstances indicate that an impairment may exist. Recoverability of purchased intangible assets with finite lives is measured by comparing the carrying amount of the asset to the future undiscounted cash flows the asset is expected to generate. We review indefinite-lived intangible assets for impairment annually or whenever events or changes in circumstances indicate that the asset might be impaired. If the asset is considered to be impaired, the amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset. Assumptions and estimates about future values and remaining useful lives of our purchased intangible assets are complex and subjective. They can be affected by a variety of factors, including external factors such as industry and economic trends, and internal factors such as changes in our business strategy and our internal forecasts. Our ongoing consideration of all the factors described previously could result in impairment charges in the future, which could adversely affect our net income.

Income Taxes

We are subject to income taxes in the United States and numerous foreign jurisdictions. Our effective tax rates differ from the statutory rate, primarily due to the tax impact of state taxes, foreign operations, R&D tax credits, foreign-derived intangible income deductions, global intangible low-taxed income, tax audit settlements, nondeductible compensation, and international realignments. Our effective tax rate was 18.8% and 17.5% in the second quarter of fiscal 2023 and 2022, respectively, and 21.0% and 18.0% in the first six months of fiscal 2023 and 2022, respectively.

Significant judgment is required in evaluating our uncertain tax positions and determining our provision for income taxes. Although we believe our reserves are reasonable, no assurance can be given that the final tax outcome of these matters will not be different from that which is reflected in our historical income tax provisions and accruals. We adjust these reserves in light of changing facts and circumstances, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will impact the provision for income taxes in the period in which such determination is made. The provision for income taxes includes the impact of reserve provisions and changes to reserves that are considered appropriate, as well as the related net interest and penalties.

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

Our provision for income taxes is subject to volatility and could be adversely impacted by earnings being lower than anticipated in countries that have lower tax rates and higher than anticipated in countries that have higher tax rates; by changes in the valuation of our deferred tax assets and liabilities; by changes to foreign-derived intangible income deduction, global intangible low-tax income and base erosion and anti-abuse tax laws, regulations, or interpretations thereof; by expiration of or lapses in tax incentives; by transfer pricing adjustments, including the effect of acquisitions on our legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, treaties, or interpretations thereof, including changes to the taxation of earnings of our foreign subsidiaries, the deductibility of expenses attributable to foreign income, and the foreign tax credit rules. Significant judgment is required to determine the recognition and measurement attributes prescribed in the accounting guidance for uncertainty in income taxes. The Organisation for Economic Co-operation and Development (OECD), an international association comprised of 38 countries, including the United States, has made changes and is contemplating additional changes to numerous long-standing tax principles. There can be no assurance that these changes and any contemplated changes if finalized, once adopted by countries, will not have an adverse impact on our provision for income taxes. As a result of certain of our ongoing employment and capital investment actions and commitments, our income in certain countries was subject to reduced tax rates. Our failure to meet these commitments could adversely impact our provision for income taxes. In addition, we are subject to the continuous examination of our income tax returns by the Internal Revenue Service (IRS) and other tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuous examinations will not have an adverse impact on our operating results and financial condition.

RESULTS OF OPERATIONS

Revenue

The following table presents the breakdown of revenue between product and service (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent
Revenue:								
Product	$ 10,155	$ 9,353	$ 802	9 %	$ 20,400	$ 18,882	$ 1,518	8 %
Percentage of revenue	*74.7 %*	*73.5 %*			*74.9 %*	*73.7 %*		
Service	3,437	3,367	70	2 %	6,824	6,738	86	1 %
Percentage of revenue	*25.3 %*	*26.5 %*			*25.1 %*	*26.3 %*		
Total	$ 13,592	$ 12,720	$ 872	7 %	$ 27,224	$ 25,620	$ 1,604	6 %

We manage our business primarily on a geographic basis, organized into three geographic segments. Our revenue, which includes product and service for each segment, is summarized in the following table (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent
Revenue:								
Americas	$ 7,825	$ 7,146	$ 679	9 %	$ 15,738	$ 14,706	$ 1,032	7 %
Percentage of revenue	*57.6 %*	*56.2 %*			*57.8 %*	*57.4 %*		
EMEA	3,728	3,564	164	5 %	7,404	6,867	537	8 %
Percentage of revenue	*27.4 %*	*28.0 %*			*27.2 %*	*26.8 %*		
APJC	2,039	2,010	29	1 %	4,082	4,046	36	1 %
Percentage of revenue	*15.0 %*	*15.8 %*			*15.0 %*	*15.8 %*		
Total	$ 13,592	$ 12,720	$ 872	7 %	$ 27,224	$ 25,620	$ 1,604	6 %

Amounts may not sum and percentages may not recalculate due to rounding.

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Total revenue increased by 7%. Product revenue increased by 9% and service revenue increased by 2%. Our total revenue reflected growth across each of our geographic segments.

In addition to the impact of macroeconomic factors, including the IT spending environment and the level of spending by government entities, revenue by segment in a particular period may be significantly impacted by several factors related to revenue recognition, including the complexity of transactions such as multiple performance obligations; the mix of financing arrangements provided to channel partners and customers; and final acceptance of the product, system, or solution, among other factors. In addition, certain customers tend to make large and sporadic purchases, and the revenue related to these transactions may also be affected by the timing of revenue recognition, which in turn would impact the revenue of the relevant segment.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Total revenue increased by 6%. Product revenue increased by 8% and service revenue increased by 1%. Our total revenue reflected growth across each of our geographic segments.

Product Revenue by Segment

The following table presents the breakdown of product revenue by segment (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Dollars
Product revenue:								
Americas	$ 5,728	$ 5,127	$ 601	12 %	$ 11,574	$ 10,649	$ 925	9 %
Percentage of product revenue	*56.4 %*	*54.8 %*			*56.8 %*	*56.4 %*		
EMEA	2,917	2,760	157	6 %	5,803	5,273	530	10 %
Percentage of product revenue	*28.7 %*	*29.5 %*			*28.4 %*	*27.9 %*		
APJC	1,510	1,466	44	3 %	3,023	2,961	62	2 %
Percentage of product revenue	*14.9 %*	*15.7 %*			*14.8 %*	*15.7 %*		
Total	$ 10,155	$ 9,353	$ 802	9 %	$ 20,400	$ 18,882	$ 1,518	8 %

Amounts may not sum and percentages may not recalculate due to rounding.

Americas

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Product revenue in the Americas segment increased by 12%, with growth across all customer markets. From a country perspective, product revenue increased in the United States, Canada, Brazil and Mexico by 11%, 9%, 44% and 11%, respectively.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Product revenue in the Americas segment increased by 9%, with growth across all customer markets. From a country perspective, product revenue increased in the United States, Canada, Brazil and Mexico by 8%, 11%, 29% and 17%, respectively.

EMEA

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Product revenue in the EMEA segment increased by 6%, driven by growth in the public sector, enterprise and commercial markets, partially offset by a decline in the service provider market. From a country perspective, product revenue increased in Germany and France by 24% and 28%, respectively. Product revenue in the United Kingdom was flat.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Product revenue in the EMEA segment increased by 10%, driven by growth in the public sector, commercial and enterprise markets, partially offset by a decline in the service provider market. From a country perspective, product revenue increased in Germany, the United Kingdom and France by 22%, 3% and 29%, respectively.

APJC

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Product revenue in the APJC segment increased by 3%, driven by growth in the commercial and public sector markets, partially offset by a decline in the enterprise market. The service provider market in this geographic segment was flat. From a country perspective, product revenue increased in India, Australia and China by 59%, 4% and 20%, respectively, partially offset by a decline in Japan of 12%.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Product revenue in the APJC segment increased by 2%, driven by growth in the commercial and public sector markets, partially offset by declines in the enterprise and service provider markets. From a country perspective, product revenue increased in India and China by 49% and 27%, respectively, partially offset by declines in Japan and Australia of 11% and 2%, respectively.

Product Revenue by Category

In addition to the primary view on a geographic basis, we also prepare financial information related to product categories and customer markets for various purposes.

The following table presents product revenue by category (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent
Product revenue:								
Secure, Agile Networks	$ 6,746	$ 5,899	$ 847	14 %	$ 13,430	$ 11,867	$ 1,563	13 %
Internet for the Future	1,306	1,322	(16)	(1) %	2,616	2,695	(79)	(3) %
Collaboration	958	1,067	(109)	(10) %	2,044	2,176	(132)	(6) %
End-to-End Security	943	883	60	7 %	1,914	1,778	136	8 %
Optimized Application Experiences	199	180	19	11 %	393	361	32	9 %
Other Products	3	2	1	25 %	4	5	(1)	(17) %
Total	$ 10,155	$ 9,353	$ 802	9 %	$ 20,400	$ 18,882	$ 1,518	8 %

Amounts may not sum and percentages may not recalculate due to rounding.

Secure, Agile Networks

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

The Secure, Agile Networks product category represents our core networking offerings related to switching, enterprise routing, wireless, and compute. Secure, Agile Networks revenue increased by 14%, or $847 million, with growth across the portfolio except servers. Revenue grew in campus switching, primarily driven by strong growth in our Catalyst 9000 series and Meraki switching offerings. Data center switching revenue declined, although we had revenue growth in our Nexus 9000 series. Enterprise routing had strong growth primarily driven by our Catalyst 8000 series, SD-WAN and IoT routing offerings. Wireless had strong double-digit growth driven by our WiFi-6 products and Meraki offerings.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Revenue from the Secure, Agile Networks product category increased by 13%, or $1.6 billion, with growth across the portfolio except servers. Revenue grew in campus switching primarily driven by growth in our Catalyst 9000 series and Meraki switching offerings. Data center switching revenue declined, although we had revenue growth in our Nexus 9000 series. The increase in enterprise routing was primarily driven by growth in our Catalyst 8000 series and SD-WAN offerings. Wireless had strong double-digit growth driven by our WiFi-6 products and Meraki offerings.

Internet for the Future

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

The Internet for the Future product category includes our routed optical networking, public 5G, silicon and optics offerings. Revenue in our Internet for the Future product category decreased by 1%, or $16 million, primarily driven by declines in our Optical and Edge portfolio, partially offset by growth in our Cisco 8000 series offerings. We also saw growth in the webscale provider market.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Revenue in our Internet for the Future product category decreased by 3%, or $79 million, primarily driven by declines in our Cable, Optical and Edge portfolio, partially offset by growth in our Cisco 8000 series offerings. We also saw growth in the webscale provider market.

Collaboration

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

The Collaboration product category consists of our Collaboration Devices, Meetings, Calling and contact center offerings. Revenue in our Collaboration product category decreased by 10%, or $109 million, primarily driven by declines in Meetings and Collaboration Devices, partially offset by growth in our contact center offerings.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Revenue in our Collaboration product category decreased by 6%, or $132 million, primarily driven by declines in Meetings and Collaboration Devices.

End-to-End Security

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Revenue in our End-to-End Security product category increased 7%, or $60 million primarily driven by growth in our Unified Threat Management and Zero Trust offerings.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Revenue in our End-to-End Security product category increased 8%, or $136 million primarily driven by growth in our Unified Threat Management and Zero Trust offerings. The growth in our Zero Trust portfolio was driven by strong growth in our Duo offerings.

Optimized Application Experiences

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

The Optimized Application Experiences product category includes our full stack observability and cloud-native platforms offerings. Revenue in our Optimized Application Experiences product category increased 11%, or $19 million, driven by growth in our ThousandEyes offerings.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Revenue in our Optimized Application Experiences product category increased 9%, or $32 million, driven by growth in our ThousandEyes offerings.

Service Revenue by Segment

The following table presents the breakdown of service revenue by segment (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent
Service revenue:								
Americas	$ 2,097	$ 2,019	$ 78	4 %	$ 4,164	$ 4,057	$ 107	3 %
Percentage of service revenue	*61.0 %*	*60.0 %*			*61.0 %*	*60.2 %*		
EMEA	812	804	8	1 %	1,601	1,594	7	— %
Percentage of service revenue	*23.6 %*	*23.9 %*			*23.5 %*	*23.7 %*		
APJC	529	544	(15)	(3) %	1,059	1,086	(27)	(2) %
Percentage of service revenue	*15.4 %*	*16.1 %*			*15.5 %*	*16.1 %*		
Total	$ 3,437	$ 3,367	$ 70	2 %	$ 6,824	$ 6,738	$ 86	1 %

Amounts may not sum and percentages may not recalculate due to rounding.

Service revenue increased 2% in the second quarter of fiscal 2023 compared with the second quarter of fiscal 2022, primarily driven by revenue growth in our solution support offerings and maintenance business, partially offset by declines in our advisory services and software support offerings. Service revenue increased in the Americas and EMEA segments, partially offset by a decline in the APJC segment for the second quarter of fiscal 2023.

Service revenue increased 1% in the first six months of fiscal 2023 compared to the first six months of fiscal 2022, primarily driven by revenue growth in our solution support offerings and maintenance business, offset by declines in our advisory services and software support offerings. Service revenue increased in the Americas segment, partially offset by a decline in the APJC segment for the first six months of fiscal 2023. Service revenue for the EMEA segment was flat.

Gross Margin

The following table presents the gross margin for products and services (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	AMOUNT		PERCENTAGE		AMOUNT		PERCENTAGE	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Gross margin:								
Product	$ 6,117	$ 5,784	60.2 %	61.8 %	$ 12,183	$ 11,640	59.7 %	61.6 %
Service	2,310	2,265	67.2 %	67.3 %	4,590	4,462	67.3 %	66.2 %
Total	$ 8,427	$ 8,049	62.0 %	63.3 %	$ 16,773	$ 16,102	61.6 %	62.8 %

Product Gross Margin

The following table summarizes the key factors that contributed to the change in product gross margin percentage for the second quarter and first six months of fiscal 2023, as compared with the corresponding prior year periods:

	Product Gross Margin Percentage	
	Three Months Ended	Six Months Ended
Fiscal 2022	61.8 %	61.6 %
Productivity [(1)]	(4.3)%	(4.4)%
Product pricing	1.3 %	1.4 %
Mix of products sold	0.9 %	0.5 %
Others	0.5 %	0.6 %
Fiscal 2023	60.2 %	59.7 %

[(1)] Productivity includes overall manufacturing-related costs, such as component costs, warranty expense, provision for inventory, freight, logistics, shipment volume, and other items not categorized elsewhere.

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Product gross margin decreased by 1.6 percentage points primarily driven by negative impacts from productivity, largely driven by increased costs related to supply constraints from component and other costs. These impacts were partially offset by favorable pricing and product mix. The favorable pricing was primarily driven by price increases implemented during fiscal 2022. These benefits are recognized as we ship our products. We implemented the price increases to partially offset increases in commodity and other costs.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Product gross margin decreased by 1.9 percentage points primarily driven by negative impacts from productivity, largely driven by increased costs related to supply constraints from component, freight, logistics and other costs. These impacts were partially offset by favorable pricing. The benefit we saw from favorable pricing was primarily driven by price increases implemented during fiscal 2022. We also saw benefits from product mix.

Supply Constraints Impacts and Risks

While we saw further improvements in the second quarter of fiscal 2023, we continue to manage through significant supply constraints seen industry-wide due to component shortages caused, in part, by the COVID-19 pandemic, and for which the duration of such constraints is uncertain. These shortages have resulted in increased costs (i.e., component and other commodity costs, freight, expedite fees, etc.) which have had a negative impact on our product gross margin and have resulted in extended lead times for us and our customers. We have taken a number of steps in order to mitigate the supply constraint related impacts including: partnering with several of our key suppliers utilizing our volume purchasing ability and extending supply coverage, including, in certain cases, revising supplier arrangements; paying significantly higher component and logistics costs to secure supply; modifying our product designs in order to leverage alternate suppliers, where possible; and continually optimizing our inventory build and customer delivery plans, among others. We believe these actions are helping us to optimize our access to critical components and meet customer demand for our products. As a result, in order to secure supply to meet customer demand, we have increased our inventory balances, inventory purchase commitments, and inventory deposits and prepayments (see "Liquidity and Capital Resources—Inventory Supply Chain"), which, in turn, has increased our supply chain exposure. Additionally, in certain situations, we have prepaid or made deposits with suppliers to secure future supply. These actions significantly increase the risk of future material excess and obsolete inventory and related losses if customer demand were to suddenly and significantly decrease in future periods. While we believe we are taking the right strategic and operational actions to address the supply situation, we recognize the increased risks.

Service Gross Margin

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Our service gross margin percentage decreased by 0.1 percentage points primarily due to higher headcount-related and delivery costs, partially offset by higher sales volume and favorable mix of service offerings.

Our service gross margin normally experiences some fluctuations due to various factors such as the timing of contract initiations in our renewals, our strategic investments in headcount, and the resources we deploy to support the overall service business. Other factors include the mix of service offerings, as the gross margin from our advanced services is typically lower than the gross margin from technical support services.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Service gross margin increased by 1.1 percentage points primarily due to favorable mix of service offerings, higher sales volume and lower headcount-related and delivery costs.

Gross Margin by Segment

The following table presents the total gross margin for each segment (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	AMOUNT		PERCENTAGE		AMOUNT		PERCENTAGE	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Gross margin:								
Americas	$ 4,920	$ 4,611	62.9 %	64.5 %	$ 9,904	$ 9,486	62.9 %	64.5 %
EMEA	2,469	2,381	66.2 %	66.8 %	4,795	4,509	64.8 %	65.7 %
APJC	1,298	1,337	63.6 %	66.5 %	2,571	2,654	63.0 %	65.6 %
Segment total	8,687	8,328	63.9 %	65.5 %	17,269	16,649	63.4 %	65.0 %
Unallocated corporate items [(1)]	(260)	(279)			(496)	(547)		
Total	$ 8,427	$ 8,049	62.0 %	63.3 %	$ 16,773	$ 16,102	61.6 %	62.8 %

(1) The unallocated corporate items include the effects of amortization and impairments of acquisition-related intangible assets, share-based compensation expense, significant litigation settlements and other contingencies, charges related to asset impairments and restructurings, and certain other charges. We do not allocate these items to the gross margin for each segment because management does not include such information in measuring the performance of the operating segments.

Amounts may not sum and percentages may not recalculate due to rounding.

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

We experienced a gross margin percentage decrease in our Americas segment due to negative impacts from productivity, partially offset by favorable pricing and favorable product mix.

Gross margin in our EMEA segment decreased primarily due to negative impacts from productivity, partially offset by favorable pricing and favorable product mix.

The APJC segment gross margin percentage decrease was primarily due to negative impacts from productivity, and to a lesser extent, unfavorable impacts from product mix, partially offset by favorable pricing and higher service gross margin.

The gross margin percentage for a particular segment may fluctuate, and period-to-period changes in such percentages may or may not be indicative of a trend for that segment.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

The Americas segment had a gross margin percentage decrease driven by negative impacts from productivity, partially offset by favorable pricing and favorable product mix.

The gross margin percentage decrease in our EMEA segment was primarily due to negative impacts from productivity, and to a lesser extent, unfavorable impacts from product mix, partially offset by favorable pricing.

The APJC segment gross margin percentage decrease was driven by negative impacts from productivity and unfavorable impacts from pricing, partially offset by favorable product mix.

Research and Development ("R&D"), Sales and Marketing, and General and Administrative ("G&A") Expenses

R&D, sales and marketing, and G&A expenses are summarized in the following table (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent	January 28, 2023	January 29, 2022	Variance in Dollars	Variance in Percent
Research and development	$ 1,855	$ 1,670	$ 185	11 %	$ 3,636	$ 3,384	$ 252	7 %
Percentage of revenue	*13.6 %*	*13.1 %*			*13.4 %*	*13.2 %*		
Sales and marketing	2,384	2,266	118	5 %	4,775	4,527	248	5 %
Percentage of revenue	*17.5 %*	*17.8 %*			*17.5 %*	*17.7 %*		
General and administrative	582	544	38	7 %	1,147	1,095	52	5 %
Percentage of revenue	*4.3 %*	*4.3 %*			*4.2 %*	*4.3 %*		
Total	$ 4,821	$ 4,480	$ 341	8 %	$ 9,558	$ 9,006	$ 552	6 %
Percentage of revenue	*35.5 %*	*35.2 %*			*35.1 %*	*35.2 %*		

R&D Expenses

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

R&D expenses increased due to higher headcount-related expenses, higher share-based compensation expense and higher discretionary spending, partially offset by lower contracted services spending.

We continue to invest in R&D in order to bring a broad range of products to market in a timely fashion. If we believe that we are unable to enter a particular market in a timely manner with internally developed products, we may purchase or license technology from other businesses, or we may partner with or acquire businesses as an alternative to internal R&D.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

R&D expenses increased due to higher headcount-related expenses, higher discretionary spending and higher share-based compensation expense, partially offset by lower contracted services spending.

Sales and Marketing Expenses

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Sales and marketing expenses increased primarily due to higher headcount-related expenses, higher share-based compensation expense and higher discretionary spending, partially offset by lower contracted services spending.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Sales and marketing expenses increased primarily due to higher headcount-related expenses, higher discretionary spending and higher share-based compensation expense, partially offset by lower contracted services spending.

G&A Expenses

For each of the second quarter and first six months of fiscal 2023, G&A expenses increased due to higher headcount-related expenses, higher discretionary spending and higher share-based compensation expense, partially offset by lower contracted services spending and lower acquisition and divestitures related costs.

Effect of Foreign Currency

In the second quarter of fiscal 2023, foreign currency fluctuations, net of hedging, decreased the combined R&D, sales and marketing, and G&A expenses by approximately $121 million, or 3.2%, compared with the second quarter of fiscal 2022.

In the first six months of fiscal 2023, foreign currency fluctuations, net of hedging, decreased the combined R&D, sales and marketing, and G&A expenses by approximately $263 million, or 2.9%, compared with the first six months of fiscal 2022.

Amortization of Purchased Intangible Assets

The following table presents the amortization of purchased intangible assets including impairment charges (in millions):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Amortization of purchased intangible assets:				
Cost of sales	$ 158	$ 201	$ 316	$ 403
Operating expenses	71	79	142	163
Total	$ 229	$ 280	$ 458	$ 566

For each of the second quarter and first six months of fiscal 2023, the decrease in amortization of purchased intangible assets was primarily due to certain purchased intangible assets that became fully amortized, partially offset by amortization of purchased intangibles from our recent acquisitions.

Restructuring and Other Charges

In the second quarter of fiscal 2023, we announced a restructuring plan in order to rebalance the organization and enable further investment in key priority areas. This rebalancing includes talent movement options and restructuring. Additionally, we have begun optimizing our real estate portfolio, aligned to the broader hybrid work strategy. The total pretax charges are estimated to be approximately $600 million and is expected to impact approximately 5% of our global workforce. In connection with this restructuring plan, we incurred charges of $243 million in the second quarter and the first six months of fiscal 2023. We expect the plan to be substantially completed by the end of the first quarter of fiscal 2024. We expect to reinvest substantially all of the cost savings from this restructuring plan in our key priority areas. As a result, the overall cost savings from this restructuring plan are not expected to be material for future periods.

Operating Income

The following table presents our operating income and our operating income as a percentage of revenue (in millions, except percentages):

	Three Months Ended		Six Months Ended	
	January 28, 2023	January 29, 2022	January 28, 2023	January 29, 2022
Operating income	$ 3,292	$ 3,487	$ 6,832	$ 6,925
Operating income as a percentage of revenue	24.2 %	27.4 %	25.1 %	27.0 %

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

Operating income decreased by 6%, and operating income as a percentage of revenue decreased by 3.2 percentage points. These changes resulted primarily due to a gross margin percentage decrease (driven by negative impacts from productivity partially offset by favorable pricing and favorable product mix) and higher restructuring and other charges, partially offset by a revenue increase.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

Operating income decreased by 1%, and operating income as a percentage of revenue decreased by 1.9 percentage points. These changes resulted primarily from a gross margin percentage decrease (driven by negative impacts from productivity, partially offset by favorable pricing, and to a lesser extent, favorable product mix) and higher restructuring and other charges, partially offset by a revenue increase.

Interest and Other Income (Loss), Net

Interest Income (Expense), Net The following table summarizes interest income and interest expense (in millions):

	Three Months Ended			Six Months Ended		
	January 28, 2023	January 29, 2022	Variance in Dollars	January 28, 2023	January 29, 2022	Variance in Dollars
Interest income	$ 219	$ 111	$ 108	$ 388	$ 232	$ 156
Interest expense	(107)	(88)	(19)	(207)	(177)	(30)
Interest income (expense), net	$ 112	$ 23	$ 89	$ 181	$ 55	$ 126

For the each of the second quarter and first six months of fiscal 2023, the increase in interest income was driven by higher average balance of cash and available-for-sale debt investments and higher interest rates. The increase in interest expense was primarily driven by higher interest rates, partially offset by a lower average debt balance.

Other Income (Loss), Net The components of other income (loss), net, are summarized as follows (in millions):

	Three Months Ended			Six Months Ended		
	January 28, 2023	January 29, 2022	Variance in Dollars	January 28, 2023	January 29, 2022	Variance in Dollars
Gains (losses) on investments, net:						
Available-for-sale debt investments	$ (3)	$ 10	$ (13)	$ (9)	$ 16	$ (25)
Marketable equity investments	19	(18)	37	(2)	(13)	11
Privately held investments	19	121	(102)	(73)	326	(399)
Net gains (losses) on investments	35	113	(78)	(84)	329	(413)
Other gains (losses), net	(24)	(20)	(4)	(39)	(49)	10
Other income (loss), net	$ 11	$ 93	$ (82)	$ (123)	$ 280	$ (403)

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

The decrease in our other income (loss), net was primarily driven by lower unrealized gains on our privately held investments and changes in net gains (losses) on available-for-sale debt investments and marketable equity investments.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

The decrease in our other income (loss), net was primarily driven by realized and unrealized losses on our privately held investments.

Provision for Income Taxes

Three Months Ended January 28, 2023 Compared with Three Months Ended January 29, 2022

The provision for income taxes resulted in an effective tax rate of 18.8% for the second quarter of fiscal 2023 compared with 17.5% for the second quarter of fiscal 2022. The increase in the effective tax rate was primarily due to a decrease in stock based compensation windfall and the impact of new U.S. foreign tax credit regulations effective for fiscal 2023. The increase was partially offset by a U.S. foreign-derived intangible income deduction benefit driven by the capitalization and amortization of R&D expenses effective for fiscal 2023 as required by the Tax Cuts and Jobs Act.

Six Months Ended January 28, 2023 Compared with Six Months Ended January 29, 2022

The provision for income taxes resulted in an effective tax rate of 21.0% for the first six months of fiscal 2023 compared with 18.0% for the first six months of fiscal 2022. The increase in the effective tax rate was primarily due to an increase in net discrete tax expenses, a decrease in stock based compensation windfall, and the impact of new U.S. foreign tax credit regulations effective for fiscal 2023. The increase was partially offset by a U.S. foreign-derived intangible income deduction benefit driven by the capitalization and amortization of R&D expenses effective for fiscal 2023 as required by the Tax Cuts and Jobs Act.

LIQUIDITY AND CAPITAL RESOURCES

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

Balance Sheet and Cash Flows

Cash and Cash Equivalents and Investments The following table summarizes our cash and cash equivalents and investments (in millions):

	January 28, 2023	July 30, 2022	Increase (Decrease)
Cash and cash equivalents	$ 9,009	$ 7,079	$ 1,930
Available-for-sale debt investments	12,772	11,947	825
Marketable equity securities	280	241	39
Total	$ 22,061	$ 19,267	$ 2,794

The net increase in cash and cash equivalents and investments in the first six months of fiscal 2023 was primarily driven by cash provided by operating activities of $8.7 billion. This source of cash was partially offset by cash returned to stockholders in the form of repurchases of common stock of $1.8 billion and cash dividends of $3.1 billion, a net decrease of debt of $0.6 billion and capital expenditures of $0.3 billion.

In the second quarter of fiscal 2023, we deferred our federal tax payment due to the IRS tax relief related to the California floods. We expect our cash paid for income taxes for the second half of fiscal 2023 to increase as a result of payment of the previously deferred second quarter federal tax payment and the effects of capitalization and amortization of R&D expenses as required by the Tax Cuts and Jobs Act.

We maintain an investment portfolio of various holdings, types, and maturities. We classify our investments as short-term investments based on their nature and their availability for use in current operations. We believe the overall credit quality of our portfolio is strong, with our cash equivalents and our available-for-sale debt investment portfolio consisting primarily of high quality investment-grade securities. We believe that our strong cash and cash equivalents and investments position allows us to use our cash resources for strategic investments to gain access to new technologies, for acquisitions, for customer financing activities, for working capital needs, and for the repurchase of shares of common stock and payment of dividends as discussed below.

Securities Lending We periodically engage in securities lending activities with certain of our available-for-sale debt investments. These transactions are accounted for as a secured lending of the securities, and the securities are typically loaned only on an overnight basis. We require collateral equal to at least 102% of the fair market value of the loaned security and that the collateral be in the form of cash or liquid, high-quality assets. We engage in these secured lending transactions only with highly creditworthy counterparties, and the associated portfolio custodian has agreed to indemnify us against collateral losses. We did not experience any losses in connection with the secured lending of securities during the periods presented. As of January 28, 2023 and July 30, 2022, we had no outstanding securities lending transactions.

Free Cash Flow and Capital Allocation As part of our capital allocation strategy, we target to return a minimum of 50% of our free cash flow annually to our stockholders through cash dividends and repurchases of common stock.

We define free cash flow as net cash provided by operating activities less cash used to acquire property and equipment. The following table reconciles our net cash provided by operating activities to free cash flow (in millions):

	Six Months Ended	
	January 28, 2023	January 29, 2022
Net cash provided by operating activities	$ 8,701	$ 5,888
Acquisition of property and equipment	(346)	(232)
Free cash flow	$ 8,355	$ 5,656

We expect that cash provided by operating activities may fluctuate in future periods as a result of a number of factors, including fluctuations in our operating results, the rate at which products are shipped during the quarter (which we refer to as shipment linearity), the timing and collection of accounts receivable and financing receivables, inventory and supply chain management, deferred revenue, and the timing and amount of tax and other payments. For additional discussion, see "Part II, Item 1A. Risk Factors" in this report.

We consider free cash flow to be a liquidity measure that provides useful information to management and investors because of our intent to return a stated percentage of free cash flow to stockholders in the form of dividends and stock repurchases. We further regard free cash flow as a useful measure because it reflects cash that can be used to, among other things, invest in our business, make strategic acquisitions, repurchase common stock, and pay dividends on our common stock, after deducting capital investments. A limitation of the utility of free cash flow as a measure of financial performance and liquidity is that the free cash flow does not represent the total increase or decrease in our cash balance for the period. In addition, we have other required uses of cash, including repaying the principal of our outstanding indebtedness. Free cash flow is not a measure calculated in accordance with U.S. generally accepted accounting principles and should not be regarded in isolation or as an alternative for net cash provided by operating activities or any other measure calculated in accordance with such principles, and other companies may calculate free cash flow in a different manner than we do.

The following table summarizes the dividends paid and stock repurchases (in millions, except per-share amounts):

	DIVIDENDS		STOCK REPURCHASE PROGRAM			
Quarter Ended	Per Share	Amount	Shares	Weighted-Average Price per Share	Amount	TOTAL
Fiscal 2023						
January 28, 2023	$ 0.38	$ 1,560	26	$ 47.72	$ 1,256	$ 2,816
October 29, 2022	$ 0.38	$ 1,560	12	$ 43.76	502	$ 2,062
Fiscal 2022						
July 30, 2022	$ 0.38	$ 1,567	54	$ 44.02	$ 2,402	$ 3,969
April 30, 2022	$ 0.38	$ 1,555	5	$ 54.20	$ 252	$ 1,807
January 29, 2022	$ 0.37	$ 1,541	82	$ 58.36	$ 4,824	$ 6,365
October 30, 2021	$ 0.37	$ 1,561	5	$ 56.49	$ 256	$ 1,817

On February 15, 2023, our Board of Directors declared a quarterly dividend of $0.39 per common share to be paid on April 26, 2023 to all stockholders of record as of the close of business on April 5, 2023. Any future dividends are subject to the approval of our Board of Directors.

The remaining authorized amount for stock repurchases under this program is approximately $13.4 billion, with no termination date.

Accounts Receivable, Net The following table summarizes our accounts receivable, net (in millions):

	January 28, 2023	July 30, 2022	Increase (Decrease)
Accounts receivable, net	$ 5,237	$ 6,622	$ (1,385)

Our accounts receivable net, as of January 28, 2023 decreased by approximately 21%, as compared with the end of fiscal 2022, primarily due to timing and amount of product and service billings in the second quarter of fiscal 2023 compared with the fourth quarter of fiscal 2022.

Inventory Supply Chain The following table summarizes our inventories and inventory purchase commitments with contract manufacturers and suppliers (in millions):

	January 28, 2023	July 30, 2022	July 31, 2021	Variance vs. July 30, 2022	Variance vs. July 31, 2021
Inventories	$ 3,140	$ 2,568	$ 1,559	$ 572	$ 1,581
Inventory purchase commitments	$ 10,951	$ 12,964	$ 10,254	$ (2,013)	$ 697
Inventory deposits and prepayments	$ 1,688	$ 1,484	$ 162	$ 204	$ 1,526

The following table summarizes our inventory purchase commitments with contract manufacturers and suppliers by period (in millions):

	January 28, 2023	July 30, 2022	July 31, 2021	Variance vs. July 30, 2022	Variance vs. July 31, 2021
Less than 1 year	$ 8,651	$ 9,954	$ 6,903	$ (1,303)	$ 1,748
1 to 3 years	1,693	2,240	1,806	(547)	(113)
3 to 5 years	607	770	1,545	(163)	(938)
Total	$ 10,951	$ 12,964	$ 10,254	$ (2,013)	$ 697

Inventory as of January 28, 2023 increased by 22% and 101% from our inventory balances at the end of fiscal 2022 and fiscal 2021, respectively. Inventory purchase commitments with contract manufacturers and suppliers decreased by 16% and increased by 7% from our balances at the end of fiscal 2022 and fiscal 2021, respectively. The decrease in inventory purchase commitments as compared with the end of fiscal 2022 was primarily due to fulfillment of customer demand as our supply availability improved and our continued efforts to work with contract manufacturers and suppliers to optimize our inventory and purchase commitments position. We increased our balances in prior fiscal years in order to address significant supply constraints seen industry-wide. The increases were primarily due to arrangements to secure supply and pricing for certain product components and commitments with contract manufacturers to meet customer demand and to address extended lead times, as well as advance payments with suppliers to secure future supply, as a result of the supply constraints. We have partnered with several of our key suppliers utilizing our volume purchasing and extending supply coverage, including revising supplier arrangements. As discussed, our risks of future material excess and obsolete inventory and related losses are further outlined in the Result of Operations—Product Gross Margin section.

We purchase components from a variety of suppliers and use several contract manufacturers to provide manufacturing services for our products. During the normal course of business, in order to manage manufacturing lead times and help ensure adequate component supply, we enter into agreements with contract manufacturers and suppliers that allow them to procure inventory based upon criteria as defined by us or that establish the parameters defining our requirements and our commitment to securing manufacturing capacity.

Our inventory purchase commitments are for short-term product manufacturing requirements as well as for commitments to suppliers to secure manufacturing capacity. Certain of our inventory purchase commitments with contract manufacturers and suppliers relate to arrangements to secure supply and pricing for certain product components for multi-year periods. A significant portion of our reported purchase commitments arising from these agreements are firm, noncancelable, and unconditional commitments. In certain instances, these agreements allow us the option to cancel, reschedule, and adjust our requirements based on our business needs prior to firm orders being placed.

Inventory and supply chain management remain areas of focus as we balance the need to maintain supply chain flexibility to help ensure competitive lead times with the risk of inventory obsolescence because of supply constraints, rapidly changing technology and customer requirements. We believe the amount of our inventory and inventory purchase commitments is appropriate for our current and expected customer demand and revenue levels.

Financing Receivables and Guarantees The following table summarizes our financing receivables (in millions):

	January 28, 2023	July 30, 2022	Increase (Decrease)
Loan receivables, net	$ 6,042	$ 6,739	$ (697)
Lease receivables, net	1,069	1,175	(106)
Total, net	$ 7,111	$ 7,914	$ (803)

Financing Receivables Our financing arrangements include loans and leases. Our loan receivables include customer financing for purchases of our hardware, software and services (including technical support and advanced services), and also may include additional funds for other costs associated with network installation and integration of our products and services. Lease receivables include sales-type leases. Arrangements related to leases are generally collateralized by a security interest in the underlying assets. Financing receivables decreased by 10%, as compared with the end of fiscal 2022.

Financing Guarantees In the normal course of business, third parties may provide financing arrangements to our customers and channel partners under financing programs. The financing arrangements provided by third parties are related to leases and loans and typically have terms of up to three years. In some cases, we provide guarantees to third parties for these lease and loan arrangements. The financing arrangements to channel partners consist of revolving short-term financing provided by third parties, with payment terms generally ranging from 60 to 90 days. In certain instances, these financing arrangements result in a transfer of our receivables to the third party. The receivables are derecognized upon transfer, as these transfers qualify as true sales, and we receive payments for the receivables from the third party based on our standard payment terms.

The volume of channel partner financing was $15.1 billion and $13.4 billion for the first six months of fiscal 2023 and 2022, respectively. These financing arrangements facilitate the working capital requirements of the channel partners, and in some cases, we guarantee a portion of these arrangements. The balance of the channel partner financing subject to guarantees was $1.6 billion and $1.4 billion as of January 28, 2023 and July 30, 2022, respectively. We could be called upon to make payments under these guarantees in the event of nonpayment by the channel partners. Historically, our payments under these arrangements have been immaterial. Where we provide a guarantee, we defer the revenue associated with the channel partner financing arrangement in accordance with revenue recognition policies, or we record a liability for the fair value of the guarantees. In either case, the deferred revenue is recognized as revenue when the guarantee is removed. As of January 28, 2023, the total maximum potential future payments related to these guarantees was approximately $180 million, of which approximately $35 million was recorded as deferred revenue.

Borrowings

Senior Notes The following table summarizes the principal amount of our senior notes (in millions):

	Maturity Date	January 28, 2023	July 30, 2022
Senior notes:			
Fixed-rate notes:			
2.60%	February 28, 2023	$ 500	$ 500
2.20%	September 20, 2023	750	750
3.625%	March 4, 2024	1,000	1,000
3.50%	June 15, 2025	500	500
2.95%	February 28, 2026	750	750
2.50%	September 20, 2026	1,500	1,500
5.90%	February 15, 2039	2,000	2,000
5.50%	January 15, 2040	2,000	2,000
Total		$ 9,000	$ 9,000

Interest is payable semiannually on each class of the senior fixed-rate notes, each of which is redeemable by us at any time, subject to a make-whole premium. We were in compliance with all debt covenants as of January 28, 2023.

Commercial Paper We have a short-term debt financing program in which up to $10.0 billion is available through the issuance of commercial paper notes. We use the proceeds from the issuance of commercial paper notes for general corporate purposes. We had no commercial paper notes outstanding as of January 28, 2023 and $0.6 billion in commercial paper outstanding as of July 30, 2022.

Credit Facility On May 13, 2021, we entered into a 5-year credit agreement with certain institutional lenders that provides for a $3.0 billion unsecured revolving credit facility that is scheduled to expire on May 13, 2026. As of January 28, 2023, we were in compliance with the required interest coverage ratio and the other covenants, and we had not borrowed any funds under the credit agreement.

Any advances under the 5-year credit agreement will accrue interest at rates that are equal to, based on certain conditions, either (a) with respect to loans in U.S. dollars, (i) LIBOR or (ii) the Base Rate (to be defined as the highest of (x) the Bank of America prime rate, (y) the Federal Funds rate plus 0.50% and (z) a daily rate equal to one-month LIBOR plus 1.0%), (b) with respect to loans in Euros, EURIBOR, (c) with respect to loans in Yen, TIBOR and (d) with respect to loans in Pounds Sterling, SONIA plus a credit spread adjustment, plus a margin that is based on our senior debt credit ratings as published by Standard & Poor's Financial Services, LLC and Moody's Investors Service, Inc., provided that in no event will the interest rate be less than 0.0%. We will pay a quarterly commitment fee during the term of the 5-year credit agreement which may vary depending on our senior debt credit ratings. In addition, the 5-year credit agreement incorporates certain sustainability-linked metrics. Specifically, our applicable interest rate and commitment fee are subject to upward or downward adjustments if we achieve, or fail to achieve, certain specified targets based on two key performance indicator metrics: (i) social impact and (ii) foam reduction. We may also, upon the agreement of either the then-existing lenders or additional lenders not currently parties to the agreement, increase the commitments under the credit facility by up to an additional $2.0 billion and, at our option, extend the maturity of the facility for an additional year up to two times. The credit agreement requires that we comply with certain covenants, including that we maintain an interest coverage ratio as defined in the agreement.

Remaining Performance Obligations The following table presents the breakdown of remaining performance obligations (in millions):

	January 28, 2023	July 30, 2022	Increase (Decrease)
Product	$ 14,517	$ 14,090	$ 427
Service	17,255	17,449	(194)
Total	$ 31,772	$ 31,539	$ 233
Short-term RPO	$ 16,865	$ 16,936	$ (71)
Long-term RPO	14,907	14,603	304
Total	$ 31,772	$ 31,539	$ 233

Total remaining performance obligations as of January 28, 2023 increased 1% compared to the end of fiscal 2022. Remaining performance obligations for product increased by 3% compared to the end of fiscal 2022. Remaining performance obligations for service decreased 1%. We expect approximately 53% of total remaining performance obligations to be recognized as revenue over the next 12 months.

Deferred Revenue The following table presents the breakdown of deferred revenue (in millions):

	January 28, 2023	July 30, 2022	Increase (Decrease)
Product	$ 10,679	$ 10,427	$ 252
Service	13,248	12,837	411
Total	$ 23,927	$ 23,264	$ 663
Reported as:			
Current	$ 13,109	$ 12,784	$ 325
Noncurrent	10,818	10,480	338
Total	$ 23,927	$ 23,264	$ 663

Total deferred revenue increased 3% compared to the end of fiscal 2022. The increase in deferred product revenue was primarily due to increased deferrals related to our recurring software offerings. The increase in deferred service revenue of 3% was driven by the impact of contract renewals, partially offset by amortization of deferred service revenue.

Contractual Obligations

Transition Tax Payable

The income tax payable outstanding as of January 28, 2023 for the U.S. transition tax on accumulated earnings for foreign subsidiaries is $5.5 billion. Approximately $1.4 billion is payable in less than one year and $4.1 billion is payable between 1 to 3 years.

For our Contractual Obligations see our Annual Report on Form 10-K for the fiscal year ended July 30, 2022.

Other Commitments

In connection with our acquisitions, we have agreed to pay certain additional amounts contingent upon the achievement of certain agreed-upon technology, development, product, or other milestones or the continued employment with us of certain employees of the acquired entities. See Note 14 to the Consolidated Financial Statements.

We also have certain funding commitments primarily related to our privately held investments, some of which may be based on the achievement of certain agreed-upon milestones or are required to be funded on demand. The funding commitments were $0.3 billion and $0.4 billion as of January 28, 2023 and July 30, 2022, respectively.

In the ordinary course of business, we have privately held investments and provide financing to certain customers. Certain of these investments are considered to be variable interest entities. We evaluate on an ongoing basis our privately held investments and customer financings, and we have determined that as of January 28, 2023 there were no material unconsolidated variable interest entities.

On an ongoing basis, we reassess our privately held investments and customer financings to determine if they are variable interest entities and if we would be regarded as the primary beneficiary pursuant to the applicable accounting guidance. As a result of this ongoing assessment, we may be required to make additional disclosures or consolidate these entities. Because we may not control these entities, we may not have the ability to influence these events.

We provide financing guarantees, which are generally for various third-party financing arrangements extended to our channel partners. We could be called upon to make payments under these guarantees in the event of nonpayment by the channel partners. See the previous discussion of these financing guarantees under "Financing Receivables and Guarantees."

Liquidity and Capital Resource Requirements

Based on past performance and current expectations, we believe our cash and cash equivalents, investments, cash generated from operations, and ability to access capital markets and committed credit lines will satisfy, through at least the next 12 months, our liquidity requirements, both in total and domestically, including the following: working capital needs (including inventory and other supply related payments), capital expenditures, investment requirements, stock repurchases, cash dividends, contractual obligations, commitments, principal and interest payments on debt, pending acquisitions, future customer financings, and other liquidity requirements associated with our operations. We expect increased payments related to inventory and other supply related payments through at least the next 12 months. There are no other transactions, arrangements, or relationships with unconsolidated entities or other persons that are reasonably likely to materially affect the liquidity and the availability of, as well as our requirements for, capital resources.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Our financial position is exposed to a variety of risks, including interest rate risk, equity price risk, and foreign currency exchange risk.

Interest Rate Risk

Available-for-Sale Debt Investments We maintain an investment portfolio of various holdings, types, and maturities. Our primary objective for holding available-for-sale debt investments is to achieve an appropriate investment return consistent with preserving principal and managing risk. At any time, a sharp rise in market interest rates could have a material adverse impact on the fair value of our available-for-sale debt investment portfolio. Conversely, declines in interest rates, including the impact from lower credit spreads, could have a material adverse impact on interest income for our investment portfolio. We may utilize derivative instruments designated as hedging instruments to achieve our investment objectives. We had no outstanding hedging instruments for our available-for-sale debt investments as of January 28, 2023. Our available-for-sale debt investments are held for purposes other than trading. Our available-for-sale debt investments are not leveraged as of January 28, 2023. We monitor our interest rate and credit risks, including our credit exposures to specific rating categories and to individual issuers. We believe the overall credit quality of our portfolio is strong.

Financing Receivables As of January 28, 2023, our financing receivables had a carrying value of $7.1 billion, compared with $7.9 billion as of July 30, 2022. As of January 28, 2023, a hypothetical 50 basis points ("BPS") increase or decrease in market interest rates would change the fair value of our financing receivables by a decrease or increase of approximately $0.1 billion, respectively.

Debt As of January 28, 2023, we had $9.0 billion in principal amount of senior fixed-rate notes outstanding. The carrying amount of the senior notes was $8.9 billion, and the related fair value based on market prices was $9.4 billion. As of January 28, 2023, a hypothetical 50 BPS increase or decrease in market interest rates would change the fair value of the fixed-rate debt, excluding the $1.5 billion of hedged debt, by a decrease or increase of approximately $0.3 billion, respectively. However, this hypothetical change in interest rates would not impact the interest expense on the fixed-rate debt that is not hedged.

Equity Price Risk

Marketable Equity Investments The fair value of our marketable equity investments is subject to market price volatility. We hold equity securities for strategic purposes or to diversify our overall investment portfolio. These equity securities are held for purposes other than trading. The total fair value of our marketable equity securities was $280 million and $241 million as of January 28, 2023 and July 30, 2022, respectively.

Privately Held Investments These investments are recorded in other assets in our Consolidated Balance Sheets. The total carrying amount of our investments in privately held investments was $1.8 billion and $1.9 billion as of January 28, 2023 and July 30, 2022, respectively. Some of these companies in which we invested are in the startup or development stages. These investments are inherently risky because the markets for the technologies or products these companies are developing are typically in the early stages and may never materialize. We could lose our entire investment in these companies. Our evaluation of privately held investments is based on the fundamentals of the businesses invested in, including, among other factors, the nature of their technologies and potential for financial return.

Foreign Currency Exchange Risk

Our foreign exchange forward contracts outstanding as of the respective period-ends are summarized in U.S. dollar equivalents as follows (in millions):

	January 28, 2023		July 30, 2022	
	Notional Amount	Fair Value	Notional Amount	Fair Value
Forward contracts:				
Purchased	$ 2,559	$ (7)	$ 2,578	$ (50)
Sold	$ 1,996	$ 12	$ 1,943	$ 50

We conduct business globally in numerous currencies. The direct effect of foreign currency fluctuations on revenue has not been material because our revenue is primarily denominated in U.S. dollars. However, if the U.S. dollar strengthens relative to other currencies, such strengthening could have an indirect effect on our revenue to the extent it raises the cost of our products to non-U.S. customers and thereby reduces demand. A weaker U.S. dollar could have the opposite effect. However, the precise indirect effect of currency fluctuations is difficult to measure or predict because our revenue is influenced by many factors in addition to the impact of such currency fluctuations.

Approximately 70% of our operating expenses are U.S.-dollar denominated. In the first six months of fiscal 2023, foreign currency fluctuations, net of hedging, decreased our combined R&D, sales and marketing, and G&A expenses by approximately $263 million, or 2.9%, compared with the first six months of fiscal 2022. To reduce variability in operating expenses and service cost of sales caused by non-U.S.-dollar denominated operating expenses and costs, we may hedge certain forecasted foreign currency transactions with currency options and forward contracts. These hedging programs are not designed to provide foreign currency protection over long time horizons. In designing a specific hedging approach, we consider several factors, including offsetting exposures, significance of exposures, costs associated with entering into a particular hedge instrument, and potential effectiveness of the hedge. The gains and losses on foreign exchange contracts mitigate the effect of currency movements on our operating expenses and service cost of sales.

We also enter into foreign exchange forward and option contracts to reduce the short-term effects of foreign currency fluctuations on receivables and payables that are denominated in currencies other than the functional currencies of the entities. The market risks associated with these foreign currency receivables and payables relate primarily to variances from our forecasted foreign currency transactions and balances. We do not enter into foreign exchange forward or option contracts for speculative purposes.

Item 4. Controls and Procedures

Evaluation of disclosure controls and procedures. Based on our management's evaluation (with the participation of our principal executive officer and principal financial officer), as of the end of the period covered by this report, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, (the "Exchange Act")) are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in internal control over financial reporting. There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during our second quarter of fiscal 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

For a description of our pending legal proceedings, see Note 14, "Commitments and Contingencies—(f) Legal Proceedings" in the Notes to Consolidated Financial Statements.

Item 1A. Risk Factors

Set forth below and elsewhere in this report and in other documents we file with the SEC are descriptions of the risks and uncertainties that could cause our actual results to differ materially from the results contemplated by the forward-looking statements contained in this report. The descriptions below include any material changes to and supersede the description of the risk factors affecting our business previously disclosed in “Part I, Item 1A. Risk Factors” of our Annual Report on Form 10-K for the fiscal year ended July 30, 2022.

Risks Related to our Business and Industry

Our business, results of operations and financial condition have been adversely affected and could in the future be materially adversely affected by the COVID-19 pandemic.

The COVID-19 pandemic and the resulting containment measures have caused economic and financial disruptions globally, including in most of the regions in which we sell our products and services and conduct our business operations. Beginning in the second half of fiscal 2020, the COVID-19 pandemic impacted our financial results and business operations. While we saw further improvements in the second quarter of fiscal 2023, we continue to manage through significant supply constraints seen industry-wide due to component shortages which have resulted in extended lead times and higher supply chain costs. The magnitude and duration of the disruption of the pandemic, its continuing impact on us, and resulting decline in global business activity is uncertain.

The COVID-19 pandemic and the responsive measures taken in many countries have adversely affected and could in the future materially adversely affect our business, results of operations and financial condition. Shelter-in-place and/or lockdown orders globally and other measures have and could in the future impact our supply chain. In addition, current and future restrictions or disruptions of transportation, such as reduced availability of air transport, port closures, and increased border controls or closures, can also impact our ability to meet customer demand and could materially adversely affect us. Our customers have also experienced, and may continue to experience, disruptions in their operations, which can result in delayed, reduced, or canceled orders, and increased collection risks, and which may adversely affect our results of operations.

The COVID-19 pandemic has also led to increased disruption and volatility in capital markets and credit markets. The pandemic and resulting economic uncertainty could adversely affect our liquidity and capital resources in the future. The inputs into certain of our judgments, assumptions, and estimates considered the economic implications of the COVID-19 pandemic on our critical and significant accounting estimates. The actual results that we experience may differ materially from our estimates. As the COVID-19 pandemic continues to develop, many of our estimates could require increased judgment and carry a higher degree of variability and volatility. As events continue to evolve our estimates may change materially in future periods.

The extent of the impact of the COVID-19 pandemic on our operational and financial performance is currently uncertain and will depend on many factors outside our control, including, without limitation, the timing, extent, trajectory and duration of the pandemic, the efficacy of available vaccines, the imposition of protective public safety measures, and the impact of the pandemic on the global economy. Potential negative impacts of these external factors include, but are not limited to, material adverse effects on demand for our products and services; our supply chain and sales and distribution channels; collectability of customer accounts; our ability to execute strategic plans; impairments; and our profitability and cost structure. To the extent the COVID-19 pandemic adversely affects our business, results of operations and financial condition, it may also have the effect of exacerbating the other risks discussed in this “Risk Factors” section.

Our operating results may fluctuate in future periods, which may adversely affect our stock price.

Our operating results have been in the past, and will continue to be, subject to quarterly and annual fluctuations as a result of numerous factors, some of which may contribute to more pronounced fluctuations in an uncertain global economic environment. These factors include:

- Fluctuations in demand for our products and services, especially with respect to service providers and Internet businesses, in part due to changes in the global economic environment
- Changes in sales and implementation cycles for our products and reduced visibility into our customers’ spending plans and associated revenue
- Our ability to maintain appropriate inventory levels and purchase commitments
- Price and product competition in the communications and networking industries, which can change rapidly due to technological innovation and different business models from various geographic regions
- The overall movement toward industry consolidation among both our competitors and our customers
- The introduction and market acceptance of new technologies and products, and our success in new and evolving markets, and in emerging technologies, as well as the adoption of new standards

- The transformation of our business to deliver more software and subscription offerings where revenue is recognized over time
- Variations in sales channels, product costs, mix of products sold, or mix of direct sales and indirect sales
- The timing, size, and mix of orders from customers
- Manufacturing and customer lead times
- Fluctuations in our gross margins, and the factors that contribute to such fluctuations
- The ability of our customers, channel partners, contract manufacturers and suppliers to obtain financing or to fund capital expenditures, especially during a period of global credit market disruption or in the event of customer, channel partner, contract manufacturer or supplier financial problems
- Actual events, circumstances, outcomes, and amounts differing from judgments, assumptions, and estimates used in determining the values of certain assets (including the amounts of related valuation allowances), liabilities, and other items reflected in our Consolidated Financial Statements
- How well we execute on our strategy and operating plans and the impact of changes in our business model that could result in significant restructuring charges
- Our ability to achieve targeted cost reductions
- Benefits anticipated from our investments
- Changes in tax laws or accounting rules, or interpretations thereof

As a consequence, operating results for a particular future period are difficult to predict, and, therefore, prior results are not necessarily indicative of results to be expected in future periods. Any of the foregoing factors, or any other factors discussed elsewhere herein, could have a material adverse effect on our business, results of operations, and financial condition that could adversely affect our stock price.

Our operating results may be adversely affected by unfavorable economic and market conditions and the uncertain geopolitical environment.

Challenging economic conditions, including rising inflation, or other changes, worldwide have from time to time contributed, and may continue to contribute, to slowdowns in the communications and networking industries at large, as well as in specific segments and markets in which we operate, resulting in: reduced demand for our products as a result of continued constraints on IT-related capital spending by our customers, particularly service providers, and other customer markets as well; increased price competition for our products, not only from our competitors but also as a consequence of customers disposing of unutilized products; risk of excess and obsolete inventories; risk of supply constraints; risk of excess facilities and manufacturing capacity; and higher overhead costs as a percentage of revenue and higher interest expense.

The global macroeconomic environment continues to be challenging and inconsistent, and is being significantly impacted by the COVID-19 pandemic. In certain prior periods, we have seen a broad-based weakening in the global macroeconomic environment which has impacted and could impact in the future certain of our markets. Additionally, instability in the global credit markets, the impact of uncertainty regarding global central bank monetary policy, the instability in the geopolitical environment in many parts of the world (including as a result of the on-going Russia and Ukraine war, and China-Taiwan relations), the current economic challenges in China, including global economic ramifications of Chinese economic difficulties, and other disruptions may continue to put pressure on global economic conditions. If global economic and market conditions, or economic conditions in key markets, remain uncertain or deteriorate further, we may experience material impacts on our business, operating results, and financial condition.

Our operating results in one or more segments may also be affected by uncertain or changing economic conditions particularly germane to that segment or to particular customer markets within that segment. In addition, reports of certain intelligence gathering methods of the U.S. government could affect customers' perception of the products of IT companies which design and manufacture products in the United States. Trust and confidence in us as an IT supplier are critical to the development and growth of our markets. Impairment of that trust, or foreign regulatory actions taken in response to reports of certain intelligence gathering methods of the U.S. government, could affect the demand for our products from customers outside of the United States and could have an adverse effect on our operating results.

Our revenue for a particular period is difficult to predict, and a shortfall in revenue may harm our operating results.

As a result of a variety of factors discussed in this report, our revenue for a particular quarter is difficult to predict, especially in light of a challenging and inconsistent global macroeconomic environment (including as a result of the Russia and Ukraine war), the significant impacts of the COVID-19 pandemic, and related market uncertainty. Our revenue may grow at a slower rate than in past periods, as it did in certain prior periods. Our ability to meet financial expectations could also be adversely affected if the nonlinear sales pattern seen in some of our past quarters recurs in future periods. We have experienced periods of time during which shipments have exceeded net bookings or manufacturing issues have delayed shipments, leading to nonlinearity in shipping patterns. In addition to making it difficult to predict revenue for a particular period, nonlinearity in shipping can increase costs, because irregular shipment patterns result in periods of underutilized capacity and periods in which overtime expenses may be incurred, as well as in potential additional inventory management-related costs. In addition, to the extent that manufacturing issues and any related component shortages result in delayed shipments in the future, and particularly in periods in which our contract manufacturers are operating at higher levels of capacity, it is possible that revenue for a quarter could be adversely affected if such matters occur and are not remediated within the same quarter.

The timing of large orders can also have a significant effect on our business and operating results from quarter to quarter. From time to time, we receive large orders that have a significant effect on our operating results in the period in which the order is recognized as revenue. The timing of such orders is difficult to predict, and the timing of revenue recognition from such orders may affect period to period changes in revenue. As a result, our operating results could vary materially from quarter to quarter based on the receipt of such orders and their ultimate recognition as revenue. Longer than normal manufacturing lead times in the past have caused, and in the future could cause, some customers to place the same or a similar order multiple times within our various sales channels and to cancel the duplicative orders upon shipment or receipt of the product, or to also place orders with other vendors with shorter manufacturing lead times. Such multiple ordering (along with other factors) or risk of order cancellation may cause difficulty in predicting our revenue. Further, our efforts to improve manufacturing lead-time performance may result in more variability and less predictability in our revenue and operating results. In addition, when facing component supply-related challenges we have increased our efforts in procuring components in order to meet customer expectations, which in turn contribute to an increase in inventory and purchase commitments. In recent periods, we increased our inventory and purchase commitments in light of the significant supply constraints seen industry-wide due to component shortages, caused in part by the COVID-19 pandemic. While we saw further improvements of the industry-wide supply constraints in the second quarter of fiscal 2023, we expect such constraints to continue for an uncertain duration. These increases in our inventory and purchase commitments to shorten lead times could also lead to material excess and obsolete inventory charges in future periods if the demand for our products is less than our expectations. We plan our operating expense levels based primarily on forecasted revenue levels. These expenses and the impact of long-term commitments are relatively fixed in the short term. A shortfall in revenue could lead to operating results being below expectations because we may not be able to quickly reduce these fixed expenses in response to short-term business changes. Any of the above factors could have a material adverse impact on our operations and financial results. For additional information and a further discussion of current impacts and risks related to our significant supply constraints, inventory commitments and our purchase commitments with contract manufacturers and suppliers, see “Results of Operations—Product Gross Margin—Supply Constraints Impacts and Risks”, “Liquidity and Capital Resources—Inventory Supply Chain” and Note 14 to the Consolidated Financial Statements.

Supply chain issues, including financial problems of contract manufacturers or component suppliers, or a shortage of adequate component supply or manufacturing capacity that increase our costs or cause a delay in our ability to fulfill orders, could have an adverse impact on our business and operating results, and our failure to estimate customer demand properly may result in excess or obsolete component supply, which could adversely affect our gross margins.

The fact that we do not own or operate the bulk of our manufacturing facilities and that we are reliant on our extended supply chain could have an adverse impact on the supply of our products and on our business and operating results. Financial problems of either contract manufacturers or component suppliers, reservation of manufacturing capacity at our contract manufacturers by other companies, and industry consolidation occurring within one or more component supplier markets, such as the semiconductor market, in each case, could either limit supply or increase costs.

A reduction or interruption in supply, including disruptions on our global supply chain, caused in part by public health emergencies (including the COVID-19 pandemic), geopolitical tensions (including as a result of China-Taiwan relations) or a significant natural disaster (including as a result of climate change); a significant increase in the price of one or more components (including as a result of inflation); a failure to adequately authorize procurement of inventory by our contract manufacturers; a failure to appropriately cancel, reschedule, or adjust our requirements based on our business needs; or a decrease in demand for our products could materially adversely affect our business, operating results, and financial condition and could materially damage customer relationships. Furthermore, as a result of binding price or purchase commitments with suppliers, we may be obligated to purchase components at prices that are higher than those available in the current market. In the event that we become committed to purchase components at prices in excess of the current market price when the components are actually used, our gross margins could decrease. In addition, vendors may be under pressure to allocate product to certain customers for business, regulatory or political reasons, and/or demand changes in agreed pricing as a condition of supply. Although we have generally secured additional supply or taken other mitigation actions when significant disruptions have occurred, if similar situations occur in the future, they could have a material adverse effect on our business, results of operations, and financial condition.

Our growth and ability to meet customer demands depend in part on our ability to obtain timely deliveries of parts from our suppliers and contract manufacturers. We have experienced component shortages in the past, including shortages caused by manufacturing process issues, that have affected our operations, including longer than normal lead times. There is currently a market shortage of semiconductor and other component supply which has affected, and could further affect, lead times, the cost of that supply, and our ability to meet customer demand for our products if we cannot secure sufficient supply in a timely manner. We continue to manage through significant supply constraints seen industry-wide due to component shortages, including significant constraints with certain critical components which prevents us from completing manufacturing of certain of our products. For example, we saw an additional unanticipated supply challenge with COVID-19 related lockdowns in certain parts of China in the second half of fiscal 2022 that resulted in a severe shortage of certain critical components. While we saw further improvements of the industry-wide supply constraints in the second quarter of fiscal 2023, we expect such constraints to continue for an uncertain duration. Additionally, we may in the future experience a shortage of certain component parts as a result of our own manufacturing issues, manufacturing issues at our suppliers or contract manufacturers, capacity problems experienced by our suppliers or contract manufacturers including capacity or cost problems resulting from industry consolidation, or strong demand for those parts. Growth in the economy is likely to create greater pressures on us and our suppliers to accurately project overall component demand and component demands within specific product categories and to establish optimal component levels and manufacturing capacity, especially for labor-intensive components, components for which we purchase a substantial portion of the supply, or the re-ramping of manufacturing capacity for highly complex products. During periods of shortages or delays the price of components may increase, or the components may not be available at all, and we may also encounter shortages if we do not accurately anticipate our needs. We may not be able to secure enough components at reasonable prices or of acceptable quality to build new products in a timely manner in the quantities or configurations needed. Accordingly, our revenue and gross margins could suffer until other sources can be developed.

Our operating results would also be adversely affected if, anticipating greater demand than actually develops, we commit to the purchase of more components than we need, which is more likely to occur in a period of demand uncertainties such as we are currently experiencing. There can be no assurance that we will not encounter these problems in the future. Although in many cases we use standard parts and components for our products, certain components are presently available only from a single source or limited sources, and a global economic downturn and related market uncertainty could negatively impact the availability of components from one or more of these sources, especially during times such as we have recently seen when there are supplier constraints based on labor and other actions taken during economic downturns. We may not be able to diversify sources in a timely manner, which could harm our ability to deliver products to customers and seriously impact present and future sales.

We believe that we may be faced with the following challenges in the future: new markets in which we participate may grow quickly, which may make it difficult to quickly obtain significant component capacity; as we acquire companies and new technologies, we may be dependent on unfamiliar supply chains or relatively small supply partners; and we face competition for certain components that are supply-constrained, from existing competitors, and companies in other markets.

Manufacturing capacity and component supply constraints could continue to be significant issues for us. We purchase components from a variety of suppliers and use several contract manufacturers to provide manufacturing services for our products. During the normal course of business, in order to improve manufacturing lead-time performance and to help ensure adequate component supply, we enter into agreements with contract manufacturers and suppliers that either allow them to procure inventory based upon criteria as defined by us or that establish the parameters defining our requirements. In certain instances, these agreements allow us the option to cancel, reschedule, and adjust our requirements based on our business needs prior to firm orders being placed. When facing component supply-related challenges we have increased our efforts in procuring components in order to meet customer expectations, which in turn contributes to an increase in inventory and purchase commitments. In recent periods, we increased our inventory and purchase commitments in light of the significant supply constraints seen industry-wide due to component shortages, caused in part by the COVID-19 pandemic. These increases in our inventory and purchase commitments to shorten lead times could also lead to material excess and obsolete inventory charges in future periods if the demand for our products is less than our expectations. If we fail to anticipate customer demand properly, an oversupply of parts could result in excess or obsolete components that could adversely affect our gross margins. For additional information and a further discussion of current impacts and risks related to our significant supply constraints, inventory commitments and our purchase commitments with contract manufacturers and suppliers, see “Results of Operations—Product Gross Margin—Supply Constraints Impacts and Risks”, “Liquidity and Capital Resources—Inventory Supply Chain” and Note 14 to the Consolidated Financial Statements.

We expect gross margin to vary over time, and our level of product gross margin may not be sustainable.

Our level of product gross margins declined in the first half of fiscal 2023, and have declined in certain prior periods on a year-over-year basis, and could decline in future periods due to adverse impacts from various factors, including:

- Changes in customer, geographic, or product mix, including mix of configurations within each product group

- Introduction of new products, including products with price-performance advantages, and new business models including the transformation of our business to deliver more software and subscription offerings
- Our ability to reduce production costs
- Entry into new markets or growth in lower margin markets, including markets with different pricing and cost structures, through acquisitions or internal development
- Sales discounts
- Increases in material, labor or other manufacturing-related costs (i.e. component costs, broker fees, expedited freight and overtime) or higher supply chain logistics costs, any of which could be significant, especially during periods of supply constraints for certain costs, such as those currently impacting the market for components, including semiconductors and memory, and which costs have in the past and may continue to be exacerbated by inflation
- Excess inventory, inventory holding charges, and obsolescence charges
- Changes in shipment volume
- The timing of revenue recognition and revenue deferrals
- Increased costs (including those caused by tariffs or economic conditions, including inflation), loss of cost savings or dilution of savings due to changes in component pricing or charges incurred due to inventory holding periods if parts ordering does not correctly anticipate product demand or if the financial health of either contract manufacturers or suppliers deteriorates
- Lower than expected benefits from value engineering
- Increased price competition, including competitors from Asia, especially from China
- Changes in distribution channels
- Increased warranty or royalty costs
- Increased amortization of purchased intangible assets, especially from acquisitions
- How well we execute on our strategy and operating plans

Changes in service gross margin may result from various factors such as changes in the mix between technical support services and advanced services, as well as the timing of technical support service contract initiations and renewals and the addition of personnel and other resources to support higher levels of service business in future periods.

Sales to the service provider market are especially volatile, and weakness in orders from this industry may harm our operating results and financial condition.

Sales to the service provider market have been characterized by large and sporadic purchases, especially relating to our router sales and sales of certain other Secure, Agile Networks and Collaboration products, in addition to longer sales cycles. Service provider product orders decreased during the first half of fiscal 2023 and in certain prior periods, and at various times in the past, including in recent quarters, we have experienced significant weakness in product orders from service providers. Product orders from the service provider market could continue to decline and, as has been the case in the past, such weakness could persist over extended periods of time given fluctuating market conditions. Sales activity in this industry depends upon the stage of completion of expanding network infrastructures; the availability of funding; and the extent to which service providers are affected by regulatory, economic, and business conditions in the country of operations. Weakness in orders from this industry, including as a result of any slowdown in capital expenditures by service providers (which may be more prevalent during a global economic downturn, or periods of economic, political or regulatory uncertainty), could have a material adverse effect on our business, operating results, and financial condition. Such slowdowns may continue or recur in future periods. Orders from this industry could decline for many reasons other than the competitiveness of our products and services within their respective markets. For example, in the past, many of our service provider customers have been materially and adversely affected by slowdowns in the general economy, by overcapacity, by changes in the service provider market, by regulatory developments, and by constraints on capital availability, resulting in business failures and substantial reductions in spending and expansion plans. These conditions have materially harmed our business and operating results in the past, and could affect our business and operating results in any future period. Finally, service provider customers typically have longer implementation cycles; require a broader range of services, including design services; demand that vendors take on a larger share of risks; often require acceptance provisions, which can lead to a delay in revenue recognition; and expect financing from vendors. All these factors can add further risk to business conducted with service providers.

Disruption of or changes in our distribution model could harm our sales and margins.

If we fail to manage distribution of our products and services properly, or if our distributors' financial condition or operations weaken, our revenue and gross margins could be adversely affected. A substantial portion of our products and services is sold through our channel partners, and the remainder is sold through direct sales. Our channel partners include systems integrators, service providers, other resellers, and distributors. Systems integrators and service providers typically sell directly to end users and often provide system installation, technical support, professional services, and other support services in addition to network equipment sales. Systems integrators also typically integrate our products into an overall solution, and a number of service providers are also systems integrators. Distributors stock inventory and typically sell to systems integrators, service providers, and other resellers. We refer to sales through distributors as our two-tier system of sales to the end customer. If sales through indirect channels increase, this may lead to greater difficulty in forecasting the mix of our products and, to a degree, the timing of orders from our customers.

Historically, we have seen fluctuations in our gross margins based on changes in the balance of our distribution channels. There can be no assurance that changes in the balance of our distribution model in future periods would not have an adverse effect on our gross margins and profitability. Some factors could result in disruption of or changes in our distribution model, which could harm our sales and margins, including the following: competition with some of our channel partners, including through our direct sales, which may lead these channel partners to use other suppliers that do not directly sell their own products or otherwise compete with them; some of our channel partners may demand that we absorb a greater share of the risks that their customers may ask them to bear; some of our channel partners may have insufficient financial resources and may not be able to withstand changes and challenges in business conditions; and revenue from indirect sales could suffer if our distributors' financial condition or operations weaken. In addition, we depend on our channel partners globally to comply with applicable regulatory requirements. To the extent that they fail to do so, that could have a material adverse effect on our business, operating results, and financial condition. Further, sales of our products outside of agreed territories can result in disruption to our distribution channels.

The markets in which we compete are intensely competitive, which could adversely affect our achievement of revenue growth.

The markets in which we compete are characterized by rapid change, converging technologies, and a migration to networking and communications solutions that offer relative advantages. These market factors represent a competitive threat to us. We compete with numerous vendors in each product category. The overall number of our competitors providing niche product solutions may increase. Also, the identity and composition of competitors may change as we increase our activity in newer product areas, and in key priority and growth areas. For example, as products related to network programmability, such as software defined networking (SDN) products, become more prevalent, we expect to face increased competition from companies that develop networking products based on commoditized hardware, referred to as "white box" hardware, to the extent customers decide to purchase those product offerings instead of ours. In addition, the growth in demand for technology delivered as a service enables new competitors to enter the market. As we continue to expand globally, we may see new competition in different geographic regions. In particular, we have experienced price-focused competition from competitors in Asia, especially from China, and we anticipate this will continue.

Some of our competitors compete across many of our product lines, while others are primarily focused in a specific product area. Barriers to entry are relatively low, and new ventures to create products that do or could compete with our products are regularly formed. In addition, some of our competitors may have greater resources, including technical and engineering resources, than we do. As we expand into new markets, we will face competition not only from our existing competitors but also from other competitors, including existing companies with strong technological, marketing, and sales positions in those markets. We also sometimes face competition from resellers and distributors of our products. Companies with which we have strategic alliances in some areas may be competitors in other areas, and this trend may increase. For example, the enterprise data center is undergoing a fundamental transformation arising from the convergence of technologies, including computing, networking, storage, and software, that previously were segregated. Due to several factors, including the availability of highly scalable and general purpose microprocessors, application specific integrated circuits offering advanced services, standards based protocols, cloud computing and virtualization, the convergence of technologies within the enterprise data center is spanning multiple, previously independent, technology segments. Also, some of our current and potential competitors for enterprise data center business have made acquisitions, or announced new strategic alliances, designed to position them to provide end-to-end technology solutions for the enterprise data center. As a result of all of these developments, we face greater competition in the development and sale of enterprise data center technologies, including competition from entities that are among our long-term strategic alliance partners. Companies that are strategic alliance partners in some areas of our business may acquire or form alliances with our competitors, thereby reducing their business with us.

The principal competitive factors in the markets in which we presently compete and may compete in the future include the ability to sell successful business outcomes; the ability to provide a broad range of networking and communications products and services; product performance; price; the ability to introduce new products, including providing continuous new customer value and products with price-performance advantages; the ability to reduce production costs; the ability to provide value-added features such as security, reliability, and investment protection; conformance to standards; market presence; the ability to provide financing; and disruptive technology shifts and new business models.

We also face competition from customers to which we license or supply technology and suppliers from which we transfer technology. The inherent nature of networking requires interoperability. As such, we must cooperate and at the same time compete with many companies. Any inability to effectively manage these complicated relationships with customers, suppliers, and strategic alliance partners could have a material adverse effect on our business, operating results, and financial condition and accordingly affect our chances of success.

If we do not successfully manage our strategic alliances, we may not realize the expected benefits from such alliances, and we may experience increased competition or delays in product development.

We have several strategic alliances with large and complex organizations and other companies with which we work to offer complementary products and services. These arrangements are generally limited to specific projects, the goal of which is generally to facilitate product compatibility and adoption of industry standards. There can be no assurance we will realize the expected benefits from these strategic alliances or from joint ventures. If successful, these relationships may be mutually beneficial and result in industry growth. However, alliances carry an element of risk because, in most cases, we must compete in some business areas with a company with which we have a strategic alliance and, at the same time, cooperate with that company in other business areas. Also, if these companies fail to perform or if these relationships fail to materialize as expected, we could suffer delays in product development or other operational difficulties. Joint ventures can be difficult to manage, given the potentially different interests of joint venture partners.

Inventory management relating to our sales to our two-tier distribution channel is complex, and excess inventory may harm our gross margins.

We must manage inventory relating to sales to our distributors effectively, because inventory held by them could affect our results of operations. Our distributors may increase orders during periods of product shortages, cancel orders if their inventory is too high, or delay orders in anticipation of new products. They also may adjust their orders in response to the supply of our products and the products of our competitors that are available to them, and in response to seasonal fluctuations in end-user demand. Our distributors are generally given business terms that allow them to return a portion of inventory, receive credits for changes in selling price, and participate in various cooperative marketing programs. Inventory management remains an area of focus as we balance the need to maintain strategic inventory levels to ensure competitive lead times against the risk of inventory obsolescence because of rapidly changing technology and customer requirements. When facing component supply-related challenges, we have increased our efforts in procuring components in order to meet customer expectations. If we ultimately determine that we have excess inventory, we may have to reduce our prices and write down inventory, which in turn could result in lower gross margins.

We depend upon the development of new products and services, and enhancements to existing products and services, and if we fail to predict and respond to emerging technological trends and customers' changing needs, our operating results and market share may suffer.

The markets for our products and services are characterized by rapidly changing technology, evolving industry standards, new product and service introductions, and evolving methods of building and operating networks. Our operating results depend on our ability to develop and introduce new products and services into existing and emerging markets and to reduce the production costs of existing products. If customers do not purchase and/or renew our offerings our business could be harmed. The COVID-19 pandemic may also result in long-term changes in customer needs for our products and services in various sectors, along with IT-related capital spending reductions, or shifts in spending focus, that could materially adversely affect us if we are unable to adjust our product and service offerings to match customer needs.

The process of developing new technology, including more programmable, flexible and virtual networks, and technology related to other market transitions— such as security, digital transformation and Internet of Things, and cloud— is complex and uncertain, and if we fail to accurately predict customers' changing needs and emerging technological trends our business could be harmed. We must commit significant resources, including the investments we have been making in our strategic priorities to developing new products and services before knowing whether our investments will result in products and services the market will accept. In particular, if our model of the evolution of networking does not emerge as we believe it will, or if the industry does not evolve as we believe it will, or if our strategy for addressing this evolution is not successful, many of our strategic initiatives and investments may be of no or limited value. For example, if we do not introduce products related to network programmability, such as software-defined-networking products, in a timely fashion, or if product offerings in this market that ultimately succeed are based on technology, or an approach to technology, that differs from ours, such as, for example, networking products based on "white box" hardware, our business could be harmed. Similarly, our business could be harmed if we fail to develop, or fail to develop in a timely fashion, offerings to address other transitions, or if the offerings addressing these other transitions that ultimately succeed are based on technology, or an approach to technology, different from ours. In addition, our business could be adversely affected in periods surrounding our new product introductions if customers delay purchasing decisions to qualify or otherwise evaluate the new product offerings. We have also been transforming our business to move from selling individual products and services to selling products and services integrated into architectures and solutions, and we are seeking to meet the evolving needs of customers which include offering our products and solutions in the manner in which customers wish to consume them. As a part of this transformation, we continue to make changes to how we are organized and how we build and deliver our technology, including changes in our business models with customers. If our strategy for addressing our customer needs, or the architectures and solutions we develop do not meet those needs, or the changes we are making in how we are organized and how we build and deliver or technology is incorrect or ineffective, our business could be harmed.

Furthermore, we may not execute successfully on our vision or strategy because of challenges with regard to product planning and timing, technical hurdles that we fail to overcome in a timely fashion, or a lack of appropriate resources. This could result in competitors, some of which may also be our strategic alliance partners, providing those solutions before we do and loss of market share, revenue, and earnings. In addition, the growth in demand for technology delivered as a service enables new competitors to enter the market. The success of new products and services depends on several factors, including proper new product and service definition, component costs, timely completion and introduction of these products and services, differentiation of new products and services from those of our competitors, and market acceptance of these products and services. There can be no assurance that we will successfully identify new product and services opportunities, develop and bring new products and services to market in a timely manner, or achieve market acceptance of our products and services or that products, services and technologies developed by others will not render our products, services or technologies obsolete or noncompetitive. The products and technologies in our other product categories and key priority and growth areas may not prove to have the market success we anticipate, and we may not successfully identify and invest in other emerging or new products and services.

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

In response to changes in industry and market conditions, we may be required to strategically realign our resources and to consider restructuring, disposing of, or otherwise exiting businesses. Any resource realignment, or decision to limit investment in or dispose of or otherwise exit businesses, may result in the recording of special charges, such as inventory and technology-related write-offs, workforce reduction or restructuring costs, charges relating to consolidation of excess facilities, or claims from third parties who were resellers or users of discontinued products. Our estimates with respect to the useful life or ultimate recoverability of our carrying basis of assets, including purchased intangible assets, could change as a result of such assessments and decisions. Although in certain instances our supply agreements allow us the option to cancel, reschedule, and adjust our requirements based on our business needs prior to firm orders being placed, our loss contingencies may include liabilities for contracts that we cannot cancel with contract manufacturers and suppliers. Further, our estimates relating to the liabilities for excess facilities are affected by changes in real estate market conditions. Additionally, we are required to perform goodwill impairment tests on an annual basis and between annual tests in certain circumstances, and future goodwill impairment tests may result in a charge to earnings. We initiated a restructuring plan in the second quarter of fiscal 2023, for which we expect such plan to be substantially completed by the end of the first quarter of fiscal 2024. Our business may not be more efficient or effective than prior to implementation of the plan. Our restructuring activities, including any related charges and the impact of the related headcount restructurings, could have a material adverse effect on our business, operating results, and financial condition.

Over the long term we intend to invest in engineering, sales, service and marketing activities, and in key priority and growth areas, and these investments may achieve delayed, or lower than expected, benefits which could harm our operating results.

While we intend to focus on managing our costs and expenses, over the long term, we also intend to invest in personnel and other resources related to our engineering, sales, service and marketing functions as we realign and dedicate resources on key priority and growth areas, such as End-to-End Security and Internet for the Future, and we also intend to focus on maintaining leadership in Secure, Agile Networks and in Services. We are likely to recognize the costs associated with these investments earlier than some of the anticipated benefits, and the return on these investments may be lower, or may develop more slowly, than we expect. If we do not achieve the benefits anticipated from these investments (including if our selection of areas for investment does not play out as we expect), or if the achievement of these benefits is delayed, our operating results may be adversely affected.

We have made and expect to continue to make acquisitions that could disrupt our operations and harm our operating results.

Our growth depends upon market growth, our ability to enhance our existing products, and our ability to introduce new products on a timely basis. We intend to continue to address the need to develop new products and enhance existing products through acquisitions of other companies, product lines, technologies, and personnel. Acquisitions involve numerous risks, including the following:

- Difficulties in integrating the operations, systems, technologies, products, and personnel of the acquired companies, particularly companies with large and widespread operations and/or complex products
- Diversion of management's attention from normal daily operations of the business and the challenges of managing larger and more widespread operations resulting from acquisitions
- Potential difficulties in completing projects associated with in-process research and development intangibles
- Difficulties in entering markets in which we have no or limited direct prior experience and where competitors in such markets have stronger market positions
- Initial dependence on unfamiliar supply chains or relatively small supply partners
- Insufficient revenue to offset increased expenses associated with acquisitions
- The potential loss of key employees, customers, distributors, vendors and other business partners of the companies we acquire following and continuing after announcement of acquisition plans

Acquisitions may also cause us to:

- Issue common stock that would dilute our current stockholders' percentage ownership
- Use a substantial portion of our cash resources, or incur debt
- Significantly increase our interest expense, leverage and debt service requirements if we incur additional debt to pay for an acquisition
- Assume liabilities
- Record goodwill and intangible assets that are subject to impairment testing on a regular basis and potential periodic impairment charges
- Incur amortization expenses related to certain intangible assets
- Incur tax expenses related to the effect of acquisitions on our legal structure
- Incur large write-offs and restructuring and other related expenses
- Become subject to intellectual property or other litigation

Mergers and acquisitions of high-technology companies are inherently risky and subject to many factors outside of our control, and no assurance can be given that our previous or future acquisitions will be successful and will not materially adversely affect our business, operating results, or financial condition. Failure to manage and successfully integrate acquisitions could materially harm our business and operating results. Prior acquisitions have resulted in a wide range of outcomes, from successful introduction of new products and technologies to a failure to do so. Even when an acquired company has already developed and marketed products, there can be no assurance that product enhancements will be made in a timely fashion or that pre-acquisition due diligence will have identified all possible issues that might arise with respect to such products. In addition, our effective tax rate for future periods is uncertain and could be impacted by mergers and acquisitions. Risks related to new product development also apply to acquisitions.

Entrance into new or developing markets exposes us to additional competition and will likely increase demands on our service and support operations.

As we focus on new market opportunities and key priority and growth areas, we will increasingly compete with large telecommunications equipment suppliers as well as startup companies. Several of our competitors may have greater resources, including technical and engineering resources, than we do. Additionally, as customers in these markets complete infrastructure deployments, they may require greater levels of service, support, and financing than we have provided in the past, especially in emerging countries. Demand for these types of service, support, or financing contracts may increase in the future. There can be no assurance that we can provide products, service, support, and financing to effectively compete for these market opportunities. Further, entry into other markets has subjected and will subject us to additional risks, particularly to those markets, including the effects of general market conditions and reduced consumer confidence. For example, as we add direct selling capabilities globally to meet changing customer demands, we will face increased legal and regulatory requirements.

Industry consolidation may lead to increased competition and may harm our operating results.

There is a continuing trend toward industry consolidation in our markets. We expect this trend to continue as companies attempt to strengthen or hold their market positions in an evolving industry and as companies are acquired or are unable to continue operations. For example, some of our current and potential competitors for enterprise data center business have made acquisitions, or announced new strategic alliances, designed to position them with the ability to provide end-to-end technology solutions for the enterprise data center. Companies that are strategic alliance partners in some areas of our business may acquire or form alliances with our competitors, thereby reducing their business with us. We believe that industry consolidation may result in stronger competitors that are better able to compete as sole-source vendors for customers. This could lead to more variability in our operating results and could have a material adverse effect on our business, operating results, and financial condition. Furthermore, particularly in the service provider market, rapid consolidation will lead to fewer customers, with the effect that loss of a major customer could have a material impact on results not anticipated in a customer marketplace composed of more numerous participants.

Product quality problems could lead to reduced revenue, gross margins, and net income.

We produce highly complex products that incorporate leading-edge technology, including both hardware and software. Software typically contains bugs that can unexpectedly interfere with expected operations. There can be no assurance that our pre-shipment testing programs will be adequate to detect all defects, either ones in individual products or ones that could affect numerous shipments, which might interfere with customer satisfaction, reduce sales opportunities, or affect gross margins. From time to time, we have had to replace certain components and provide remediation in response to the discovery of defects or bugs in products that we had shipped. There can be no assurance that such remediation, depending on the product involved, would not have a material impact. An inability to cure a product defect could result in the failure of a product line, temporary or permanent withdrawal from a product or market, damage to our reputation, inventory costs, or product reengineering expenses, any of which could have a material impact on our revenue, margins, and net income.

Due to the global nature of our operations, political or economic changes or other factors in a specific country or region could harm our operating results and financial condition.

We conduct significant sales and customer support operations in countries around the world. As such, our growth depends in part on our increasing sales into emerging countries. We also depend on non-U.S. operations of our contract manufacturers, component suppliers and distribution partners. Our business in emerging countries in the aggregate experienced a decline in orders in certain prior periods. We continue to assess the sustainability of any improvements in our business in these countries and there can be no assurance that our investments in these countries will be successful. Our future results could be materially adversely affected by a variety of political, economic or other factors relating to our operations inside and outside the United States, any or all of which could have a material adverse effect on our operating results and financial condition, including the following: impacts from global central bank monetary policy; issues related to the political relationship between the United States and other countries that can affect regulatory matters, affect the willingness of customers in those countries to purchase products from companies headquartered in the United States or affect our ability to procure components if a government body were to deny us access to those components; government-related disruptions or shutdowns; the challenging and inconsistent global macroeconomic environment; foreign currency exchange rates; geopolitical tensions (including China-Taiwan relations); political or social unrest; economic instability or weakness or natural disasters in a specific country or region, including economic challenges in China and global economic ramifications of Chinese economic difficulties; environmental protection regulations (including new laws and regulations related to climate change); trade protection measures such as tariffs, and other legal and regulatory requirements, some of which may affect our ability to import our products to, export our products from, or sell our products in various countries or affect our ability to procure components; political considerations that affect service provider and government spending patterns; health or similar issues, including pandemics or epidemics, such as the COVID-19 pandemic, which could continue to affect customer purchasing decisions; difficulties in staffing and managing international operations; and adverse tax consequences, including imposition of withholding or other taxes on our global operations.

We are exposed to the credit risk of some of our customers and to credit exposures in weakened markets, which could result in material losses.

Most of our sales are on an open credit basis, with typical payment terms of 30 days in the United States, and, because of local customs or conditions, longer in some markets outside the United States. Beyond our open credit arrangements, we have also experienced demands for customer financing and facilitation of leasing arrangements. Our loan financing arrangements may include not only financing the acquisition of our products and services but also providing additional funds for other costs associated with network installation and integration of our products and services. Our exposure to the credit risks relating to our financing activities may increase if our customers are adversely affected by a global economic downturn or periods of economic uncertainty. There can be no assurance that programs we have in place to monitor and mitigate credit risks will be effective. In the past, there have been significant bankruptcies among customers both on open credit and with loan or lease financing arrangements, particularly among Internet businesses and service providers, causing us to incur economic or financial losses. There can be no assurance that additional losses will not be incurred. Although these losses have not been material to date, future losses, if incurred, could harm our business and have a material adverse effect on our operating results and financial condition. Additionally, to the degree that turmoil in the credit markets makes it more difficult for some customers to obtain financing, those customers' ability to pay could be adversely impacted, which in turn could have a material adverse impact on our business, operating results, and financial condition.

We are exposed to fluctuations in the market values of our portfolio investments and in interest rates; impairment of our investments could harm our earnings.

We maintain an investment portfolio of various holdings, types, and maturities. Our portfolio includes available-for-sale debt investments and equity investments, the values of which are subject to market price volatility. If such investments suffer market price declines, as we experienced with some of our investments in the past, we may recognize in earnings the decline in the fair value of our investments below their cost basis. Our privately held investments are subject to risk of loss of investment capital. These investments are inherently risky because the markets for the technologies or products they have under development are typically in the early stages and may never materialize. We could lose our entire investment in these companies. For information regarding the market risks associated with the fair value of portfolio investments and interest rates, refer to the section titled "Quantitative and Qualitative Disclosures About Market Risk."

We are exposed to fluctuations in currency exchange rates that could negatively impact our financial results and cash flows.

Because a significant portion of our business is conducted outside the United States, we face exposure to adverse movements in foreign currency exchange rates, including emerging market currencies which can have extreme currency volatility. An increase in the value of the dollar could increase the real cost to our customers of our products in those markets outside the United States where we sell in dollars and a weakened dollar could increase the cost of local operating expenses and procurement of raw materials to the extent that we must purchase components in foreign currencies. These exposures may change over time as business practices evolve, and they could have a material adverse impact on our financial results and cash flows.

Failure to retain and recruit key personnel would harm our ability to meet key objectives.

Our success has always depended in large part on our ability to attract and retain highly skilled technical, managerial, sales, and marketing personnel. Competition for such personnel is intense, especially in the Silicon Valley area of Northern California. Stock incentive plans are designed to reward employees for their long-term contributions and provide incentives for them to remain with us. Volatility or lack of positive performance in our stock price or equity incentive awards, or changes to our overall compensation program, including our stock incentive program, resulting from the management of share dilution and share-based compensation expense or otherwise, may also adversely affect our ability to retain key employees. As a result of one or more of these factors, we may increase our hiring in geographic areas outside the United States, which could subject us to additional geopolitical and exchange rate risk. The loss of services of any of our key personnel; the inability to retain and attract qualified personnel in the future; or delays in hiring required personnel, particularly engineering and sales personnel, could make it difficult to meet key objectives, such as timely and effective product introductions. In addition, companies in our industry whose employees accept positions with competitors frequently claim that competitors have engaged in improper hiring practices. We have received these claims in the past and may receive additional claims to this effect in the future.

Adverse resolution of litigation or governmental investigations may harm our operating results or financial condition.

We are a party to lawsuits in the normal course of our business. Additionally, there are existing claims and lawsuits in Russia, and the potential for future claims and lawsuits in Russia and/or Belarus, related to the Russia and Ukraine war and related trade restrictions and sanctions. In the event of an unfavorable resolution of any of these lawsuits, the potential outcome could include the seizure of our assets in Russia and/or Belarus, which, collectively, represents less than 0.1% of our total assets at the end of the second quarter of fiscal 2023. Litigation can be costly, lengthy, and disruptive to normal business operations. Moreover, the results of complex legal proceedings are difficult to predict. An unfavorable resolution of lawsuits or governmental investigations could have a material adverse effect on our business, operating results, or financial condition. For additional information regarding certain of the matters in which we are involved, see Note 14 to the Consolidated Financial Statements, subsection (f) "Legal Proceedings."

Our operating results may be adversely affected and damage to our reputation may occur due to production and sale of counterfeit versions of our products.

As is the case with leading products around the world, our products are subject to efforts by third parties to produce counterfeit versions of our products. While we work diligently with law enforcement authorities in various countries to block the manufacture of counterfeit goods and to interdict their sale, and to detect counterfeit products in customer networks, and have succeeded in prosecuting counterfeiters and their distributors, resulting in fines, imprisonment and restitution to us, there can be no guarantee that such efforts will succeed. While counterfeiters often aim their sales at customers who might not have otherwise purchased our products due to lack of verifiability of origin and service, such counterfeit sales, to the extent they replace otherwise legitimate sales, could adversely affect our operating results.

Changes in our provision for income taxes or adverse outcomes resulting from examination of our income tax returns could adversely affect our results.

Our provision for income taxes is subject to volatility and could be adversely affected by earnings being lower than anticipated in countries that have lower tax rates and higher than anticipated in countries that have higher tax rates; by changes in the valuation of our deferred tax assets and liabilities; by changes to foreign-derived intangible income, global intangible low-tax income and base erosion and anti-abuse tax laws, regulations, or interpretations thereof; by expiration of or lapses in tax incentives; by transfer pricing adjustments, including the effect of acquisitions on our legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, treaties, or interpretations thereof, including changes to the taxation of earnings of our foreign subsidiaries, the deductibility of expenses attributable to foreign income, and the foreign tax credit rules. Significant judgment is required to determine the recognition and measurement attribute prescribed in the accounting guidance for uncertainty in income taxes. The Organisation for Economic Co-operation and Development (OECD), an international association comprised of 38 countries, including the United States, has made changes and is contemplating additional changes to numerous long-standing tax principles. There can be no assurance that these changes and any contemplated changes if finalized, once adopted by countries, will not have an adverse impact on our provision for income taxes. Further, as a result of certain of our ongoing employment and capital investment actions and commitments, our income in certain countries was subject to reduced tax rates. Our failure to meet these commitments could adversely impact our provision for income taxes. In addition, we are subject to the continuous examination of our income tax returns by the Internal Revenue Service and other tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuous examinations will not have an adverse effect on our operating results and financial condition.

Our business and operations are especially subject to the risks of earthquakes, floods, and other natural catastrophic events (including as a result of global climate change).

Our corporate headquarters, including certain of our research and development operations are located in the Silicon Valley area of Northern California, a region known for seismic activity. Additionally, a certain number of our facilities are located near rivers that have experienced flooding in the past. Also certain of our customers, suppliers and logistics centers are located in regions that have been or may be affected by earthquake, tsunami and flooding or other weather-related activity which in the past has disrupted, and in the future could disrupt, the flow of components and delivery of products. In addition, global climate change may result in significant natural disasters occurring more frequently or with greater intensity, such as drought, wildfires, storms, sea-level rise, and flooding. We have not to date experienced a material event to these matters; however, the occurrence of any such event in the future could have a material adverse impact on our business, operating results, and financial condition.

Terrorism, war, and other events may harm our business, operating results and financial condition.

The continued threat of terrorism and heightened security and military action in response thereto, or any other current or future acts of terrorism, war (such as the on-going Russia and Ukraine war), and other events (such as economic sanctions and trade restrictions, including those related to the on-going Russia and Ukraine war) may cause further disruptions to the economies of the United States and other countries and create further uncertainties or could otherwise negatively impact our business, operating results, and financial condition. Likewise, events such as loss of infrastructure and utilities services such as energy, transportation, or telecommunications could have similar negative impacts. To the extent that such disruptions or uncertainties result in delays or cancellations of customer orders or the manufacture or shipment of our products, our business, operating results, and financial condition could be materially and adversely affected. See “Part I, Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Overview—Russia and Ukraine War” for a discussion of the impact on Cisco’s business of the on-going Russia and Ukraine war.

There can be no assurance that our operating results and financial condition will not be adversely affected by our incurrence of debt.

As of the end of the second quarter of fiscal 2023, we have senior unsecured notes outstanding in an aggregate principal amount of $9.0 billion that mature at specific dates from calendar year 2023 through 2040. We have also established a commercial paper program under which we may issue short-term, unsecured commercial paper notes on a private placement basis up to a maximum aggregate amount outstanding at any time of $10.0 billion, and we had no commercial paper notes outstanding under this program as of January 28, 2023. There can be no assurance that our incurrence of this debt or any future debt will be a better means of providing liquidity to us than would our use of our existing cash resources. Further, we cannot be assured that our maintenance of this indebtedness or incurrence of future indebtedness will not adversely affect our operating results or financial condition. In addition, changes by any rating agency to our credit rating can negatively impact the value and liquidity of both our debt and equity securities, as well as the terms upon which we may borrow under our commercial paper program or future debt issuances.

Our reputation and/or business could be negatively impacted by ESG matters and/or our reporting of such matters.

There is an increasing focus from regulators, certain investors, and other stakeholders concerning environmental, social, and governance ("ESG") matters, both in the United States and internationally. We communicate certain ESG-related initiatives, goals, and/or commitments regarding environmental matters, diversity, responsible sourcing and social investments, and other matters, in our annual Purpose Report, on our website, in our filings with the SEC, and elsewhere. These initiatives, goals, or commitments could be difficult to achieve and costly to implement. For example, in September 2021, we announced our commitment to achieve net zero across all scopes of greenhouse gas emissions by 2040, the achievement of which relies, in large part, on the accuracy of our estimates and assumptions around the enhanced power efficiency of our products, the adoption of renewable energy at customer sites, and the adoption of certain of our products and services by our customers. We could fail to achieve, or be perceived to fail to achieve, our 2040 net zero commitment or other ESG-related initiatives, goals, or commitments. In addition, we could be criticized for the timing, scope or nature of these initiatives, goals, or commitments, or for any revisions to them. To the extent that our required and voluntary disclosures about ESG matters increase, we could be criticized for the accuracy, adequacy, or completeness of such disclosures. Our actual or perceived failure to achieve our ESG-related initiatives, goals, or commitments could negatively impact our reputation or otherwise materially harm our business.

Risks Related to Intellectual Property

Our proprietary rights may prove difficult to enforce.

We generally rely on patents, copyrights, trademarks, and trade secret laws to establish and maintain proprietary rights in our technology and products. Although we have been issued numerous patents and other patent applications are currently pending, there can be no assurance that any of these patents or other proprietary rights will not be challenged, invalidated, or circumvented or that our rights will, in fact, provide competitive advantages to us. Furthermore, many key aspects of networking technology are governed by industrywide standards, which are usable by all market entrants. In addition, there can be no assurance that patents will be issued from pending applications or that claims allowed on any patents will be sufficiently broad to protect our technology. In addition, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States. The outcome of any actions taken in these foreign countries may be different than if such actions were determined under the laws of the United States. Although we are not dependent on any individual patents or group of patents for particular segments of the business for which we compete, if we are unable to protect our proprietary rights to the totality of the features (including aspects of products protected other than by patent rights) in a market, we may find ourselves at a competitive disadvantage to others who need not incur the substantial expense, time, and effort required to create innovative products that have enabled us to be successful.

We may be found to infringe on intellectual property rights of others.

Third parties, including customers, have in the past and may in the future assert claims or initiate litigation related to exclusive patent, copyright, trademark, and other intellectual property rights to technologies and related standards that are relevant to us. These assertions have increased over time as a result of our growth and the general increase in the pace of patent claims assertions, particularly in the United States. Because of the existence of a large number of patents in the networking field, the secrecy of some pending patents, and the rapid rate of issuance of new patents, it is not economically practical or even possible to determine in advance whether a product or any of its components infringes or will infringe on the patent rights of others. The asserted claims and/or initiated litigation can include claims against us or our manufacturers, suppliers, or customers, alleging infringement of their proprietary rights with respect to our existing or future products or components of those products. Regardless of the merit of these claims, they can be time-consuming, result in costly litigation and diversion of technical and management personnel, or require us to develop a non-infringing technology or enter into license agreements. Where claims are made by customers, resistance even to unmeritorious claims could damage customer relationships. There can be no assurance that licenses will be available on acceptable terms and conditions, if at all, or that our indemnification by our suppliers will be adequate to cover our costs if a claim were brought directly against us or our customers. Furthermore, because of the potential for high court awards that are not necessarily predictable, it is not unusual to find even arguably unmeritorious claims settled for significant amounts. If any infringement or other intellectual property claim made against us by any third party is successful, if we are required to indemnify a customer with respect to a claim against the customer, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results, and financial condition could be materially and adversely affected. For additional information regarding our indemnification obligations, see Note 14(e) to the Consolidated Financial Statements contained in this report. Our exposure to risks associated with the use of intellectual property may be increased as a result of acquisitions, as we have a lower level of visibility into the development process with respect to such technology or the care taken to safeguard against infringement risks. Further, in the past, third parties have made infringement and similar claims after we have acquired technology that had not been asserted prior to our acquisition.

We rely on the availability of third-party licenses.

Many of our products are designed to include software or other intellectual property licensed from third parties. It may be necessary in the future to seek or renew licenses relating to various aspects of these products. There can be no assurance that the necessary licenses would be available on acceptable terms, if at all. The inability to obtain certain licenses or other rights or to obtain such licenses or rights on favorable terms, or the need to engage in litigation regarding these matters, could have a material adverse effect on our business, operating results, and financial condition. Moreover, the inclusion in our products of software or other intellectual property licensed from third parties on a nonexclusive basis could limit our ability to protect our proprietary rights in our products.

Risks Related to Cybersecurity, Privacy, and Regulatory Requirements

Cyber attacks, data breaches or malware may disrupt our operations, harm our operating results and financial condition, and damage our reputation or otherwise materially harm our business; and cyber attacks or data breaches on our customers' or third-party providers' networks, or in cloud-based services provided to, by, or enabled by us, could result in claims of liability against us, give rise to legal and/or regulatory action, damage our reputation or otherwise materially harm our business.

We experience cyber attacks and other attempts to gain unauthorized access to our products, services, and IT environment on a regular basis, and we anticipate continuing to be subject to such attempts as cyber attacks become increasingly sophisticated and more difficult to predict and protect against. Despite our implementation of security measures, (i) our products and services, and (ii) the servers, data centers, and cloud-based solutions on which our and third-party data is stored or processed (including servers, data centers and cloud-based solutions operated by third parties on which we rely) (collectively, our "IT environment"), are vulnerable to cyber attacks, data breaches, malware, inadvertent error, disruptions from unauthorized access, tampering or other theft or misuse, including by employees, contingent workers, malicious actors, or nation-states or their agents (which cyber attack or related activity may intensify during periods of diplomatic or armed conflict, such as the Russia and Ukraine war). Such events have caused, and in the future could result in, compromise to, or the disruption of access to, the operation of our products, services, and IT environment or those of our customers or third-party providers we rely on, or result in confidential information stored on our systems, our customers' systems, or other third-party systems being improperly accessed, processed, disclosed now or in the future, or be lost or stolen. For example, in December 2021, multiple vulnerabilities were reported for the widely used Java logging library, Apache Log4j. We reviewed the use of this library within our products and services, its use in our enterprise IT environment, and its use by our third-party providers, and have taken steps to mitigate these vulnerabilities, including by providing security updates for affected products to our customers. We have not to date experienced a material event related to a cybersecurity matter; however, the occurrence of any such event in the future could subject us to liability to our customers, data subjects, suppliers, business partners, employees, and others, give rise to legal and/or regulatory action, could damage our reputation or could otherwise materially harm our business, any of which could have a material adverse effect on our business, operating results, and financial condition. Efforts to limit the ability of malicious actors to disrupt the operations of the Internet or undermine our own security efforts are costly to implement and may not be successful. Breaches of security in our customers' or third-party providers' networks, in third-party products we use, or in cloud-based services provided to, by, or enabled by us, regardless of whether the breach is attributable to a vulnerability in our products or services, or a failure to maintain the digital security infrastructure or security tools that protect the integrity of our products, services, and IT environment, could, in each case, result in claims of liability against us, damage our reputation or otherwise materially harm our business.

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

The products and services we sell to customers, and our cloud-based solutions, inevitably contain vulnerabilities or security defects which have not been remedied and cannot be disclosed without compromising security. We also make prioritization decisions in determining which vulnerabilities or security defects to fix and the timing of these fixes. Customers may also need to test security updates before they can be deployed which can delay implementation. When customers do not deploy security updates in a timely manner, or decide not to upgrade to the latest versions of our products, services or cloud-based solutions containing the security update, they may be left vulnerable. In addition, we rely on third-party providers of software and cloud-based services on which our and third-party data is stored or processed, and we cannot control the timing at which third-party providers remedy vulnerabilities, which could leave us vulnerable. Vulnerabilities and security defects, prioritization errors in remedying vulnerabilities or security defects, failure of third-party providers to remedy vulnerabilities or security defects, or customers not deploying security updates in a timely manner or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation or otherwise materially harm our business.

Our actual or perceived failure to adequately protect personal data could result in claims of liability against us, damage our reputation or otherwise materially harm our business.

Global privacy and data protection-related laws and regulations are evolving, extensive, and complex. Compliance with these laws and regulations is difficult and costly. In addition, evolving legal requirements restricting or controlling the collection, processing, or cross-border transmission of data, including for regulation of cloud-based services, could materially affect our customers' ability to use, and our ability to sell, our products and services. The interpretation and application of these laws in some instances is uncertain, and our legal and regulatory obligations are subject to frequent changes. For example, the European Union's ("EU") General Data Protection Regulation ("GDPR") applies to our activities conducted from an establishment in the EU or related to products and services offered in the EU and imposes a range of compliance obligations regarding the handling of personal data. Additionally, we are subject to California's Consumer Privacy Act and other laws, regulations and obligations that relate to the handling of personal data. Our actual or perceived failure to comply with applicable laws and regulations or other obligations relating to personal data, or to protect personal data from unauthorized access, use, or other processing, could subject us to liability to our customers, data subjects, suppliers, business partners, employees, and others, give rise to legal and/or regulatory action, could damage our reputation or could otherwise materially harm our business, any of which could have a material adverse effect on our business, operating results, and financial condition.

Our business, operating results and financial condition could be materially harmed by evolving regulatory uncertainty or obligations applicable to our products and services.

Changes in regulatory requirements applicable to the industries in which we operate, in the United States and in other countries, could materially affect the sales of our products and services. In particular, economic sanctions and changes to export control requirements, have impacted and may continue to impact our ability to sell and support our products and services in certain jurisdictions. In addition, changes in telecommunications regulations could impact our service provider customers' purchase of our products and services, and they could also impact sales of our own regulated offerings. Additional areas of uncertainty that could impact sales of our products and services include laws and regulations related to encryption technology, environmental sustainability (including climate change), human rights, product certification, and national security controls applicable to our supply chain. For example, new laws and regulations in response to climate change could result in increased energy efficiency requirements for our products and increased compliance and energy costs. Changes in regulatory requirements in any of these areas could have a material adverse effect on our business, operating results, and financial condition.

Risks Related to Ownership of Our Stock

Our stock price may be volatile.

Historically, our common stock has experienced substantial price volatility, particularly as a result of variations between our actual financial results and the published expectations of analysts and as a result of announcements by our competitors and us. Furthermore, speculation in the press or investment community about our strategic position, financial condition, results of operations, business, security of our products, or significant transactions can cause changes in our stock price. In addition, the stock market has experienced extreme price and volume fluctuations that have affected the market price of many technology companies, in particular, and that have often been unrelated to the operating performance of these companies. These factors, as well as general economic and political conditions and the announcement of proposed and completed acquisitions or other significant transactions, or any difficulties associated with such transactions, by us or our current or potential competitors, may materially adversely affect the market price of our common stock in the future. Additionally, volatility, lack of positive performance in our stock price or changes to our overall compensation program, including our stock incentive program, may adversely affect our ability to retain key employees, virtually all of whom are compensated, in part, based on the performance of our stock price.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

(a) None.

(b) None.

(c) Issuer Purchases of Equity Securities (in millions, except per-share amounts):

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs
October 30, 2022 to November 26, 2022	5	$ 46.46	5	$ 14,482
November 27, 2022 to December 24, 2022	9	$ 48.30	9	$ 14,053
December 25, 2022 to January 28, 2023	12	$ 47.80	12	$ 13,447
Total	26	$ 47.72	26	

On September 13, 2001, we announced that our Board of Directors had authorized a stock repurchase program. The remaining authorized amount for stock repurchases under this program is approximately $13.4 billion with no termination date.

For the majority of restricted stock units granted, the number of shares issued on the date the restricted stock units vest is net of shares withheld to meet applicable tax withholding requirements. Although these withheld shares are not issued or considered common stock repurchases under our stock repurchase program, and therefore are not included in the preceding table, they are treated as common stock repurchases in our financial statements as they reduce the number of shares that would have been issued upon vesting.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

The following documents are filed as exhibits to this report:

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
31.1	Rule 13a-14(a)/15d-14(a) Certification of Principal Executive Officer					X
31.2	Rule 13a-14(a)/15d-14(a) Certification of Principal Financial Officer					X
32.1	Section 1350 Certification of Principal Executive Officer					X
32.2	Section 1350 Certification of Principal Financial Officer					X
101.INS	Inline XBRL Instance - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.					X
101.SCH	Inline XBRL Taxonomy Extension Schema Document					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document					X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)					X

* Indicates a management contract or compensatory plan or arrangement.

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.

Cisco Systems, Inc.

Date: February 21, 2023	By	/S/ R. Scott Herren
		R. Scott Herren Executive Vice President and Chief Financial Officer (Principal Financial Officer and duly authorized signatory)