CISCO SYSTEMS, INC.
Form 10-Q
February 20, 2018
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q
(Mark One)

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

For the quarterly period ended January 27, 2018

OR

o 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 0-18225

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

California	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)

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 x No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes x No o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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 x	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o

Emerging growth company o

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. o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes ¨ No x
Number of shares of the registrant's common stock outstanding as of February 15, 2018: 4,817,517,410

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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 27, 2018	July 29, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 17,624	$ 11,708
Investments	56,059	58,784
Accounts receivable, net of allowance for doubtful accounts of $181 at January 27, 2018 and $211 at July 29, 2017	3,963	5,146
Inventories	1,896	1,616
Financing receivables, net	4,925	4,856
Other current assets	1,583	1,593
Total current assets	86,050	83,703
Property and equipment, net	3,113	3,322
Financing receivables, net	4,913	4,738
Goodwill	30,391	29,766
Purchased intangible assets, net	2,474	2,539
Deferred tax assets	3,097	4,239
Other assets	1,472	1,511
TOTAL ASSETS	$ 131,510	$ 129,818
LIABILITIES AND EQUITY		
Current liabilities:		
Short-term debt	$ 13,741	$ 7,992
Accounts payable	1,060	1,385
Income taxes payable	2,204	98
Accrued compensation	2,736	2,895
Deferred revenue	11,102	10,821
Other current liabilities	4,521	4,392
Total current liabilities	35,364	27,583
Long-term debt	25,625	25,725
Income taxes payable	9,185	1,250
Deferred revenue	7,686	7,673
Other long-term liabilities	1,668	1,450
Total liabilities	79,528	63,681
Commitments and contingencies (Note 12)		
Equity:		
Cisco shareholders’ equity:		
Preferred stock, no par value: 5 shares authorized; none issued and outstanding	—	—
Common stock and additional paid-in capital, $0.001 par value: 20,000 shares authorized; 4,868 and 4,983 shares issued and outstanding at January 27, 2018 and July 29, 2017, respectively	44,535	45,253
Retained earnings	7,364	20,838
Accumulated other comprehensive income (loss)	83	46
Total equity	51,982	66,137
TOTAL LIABILITIES AND EQUITY	$ 131,510	$ 129,818

See Notes to Consolidated Financial Statements.

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
REVENUE:				
Product	$8,709	$ 8,491	$17,763	$ 17,793
Service	3,178	3,089	6,260	6,139
Total revenue	11,887	11,580	24,023	23,932
COST OF SALES:				
Product	3,354	3,305	6,969	6,708
Service	1,035	999	2,129	2,064
Total cost of sales	4,389	4,304	9,098	8,772
GROSS MARGIN	7,498	7,276	14,925	15,160
OPERATING EXPENSES:				
Research and development	1,549	1,508	3,116	3,053
Sales and marketing	2,235	2,222	4,569	4,640
General and administrative	483	456	1,040	1,011
Amortization of purchased intangible assets	60	64	121	142
Restructuring and other charges	98	133	250	544
Total operating expenses	4,425	4,383	9,096	9,390
OPERATING INCOME	3,073	2,893	5,829	5,770
Interest income	396	329	775	624
Interest expense	(247)	(222)	(482)	(420)
Other income (loss), net	10	(37)	72	(58)
Interest and other income (loss), net	159	70	365	146
INCOME BEFORE PROVISION FOR INCOME TAXES	3,232	2,963	6,194	5,916
Provision for income taxes	12,010	615	12,578	1,246
NET INCOME (LOSS)	$(8,778)	$ 2,348	$(6,384)	$ 4,670
Net income (loss) per share:				
Basic	$(1.78)	$ 0.47	$(1.29)	$ 0.93
Diluted	$(1.78)	$ 0.47	$(1.29)	$ 0.92
Shares used in per-share calculation:				
Basic	4,924	5,015	4,942	5,021
Diluted	4,924	5,040	4,942	5,054
Cash dividends declared per common share	$0.29	$ 0.26	$0.58	$ 0.52

See Notes to Consolidated Financial Statements.

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Net income (loss)	$(8,778)	$ 2,348	$(6,384)	$ 4,670
Available-for-sale investments:				
Change in net unrealized gains and losses, net of tax benefit (expense) of $1 and $(22) for the three and six months ended January 27, 2018, respectively, and $73 and $154 for the corresponding periods of fiscal 2017, respectively	(191)	(276)	(196)	(397)
Net (gains) losses reclassified into earnings, net of tax (benefit) expense of $15 and $25 for the three and six months ended January 27, 2018, respectively, and $(11) and $(6) for the corresponding periods of fiscal 2017, respectively	(43)	19	(66)	9
	(234)	(257)	(262)	(388)
Cash flow hedging instruments:				
Change in unrealized gains and losses, net of tax benefit (expense) of $(2) and $(3) for the three and six months ended January 27, 2018, respectively, and $1 and $4 for the corresponding periods of fiscal 2017, respectively	28	(1)	35	(44)
Net (gains) losses reclassified into earnings, net of tax (benefit) expense of $2 and $4 for the three and six months ended January 27, 2018, respectively, and $(2) and $(3) for the corresponding periods of fiscal 2017, respectively	(16)	25	(27)	36
	12	24	8	(8)
Net change in cumulative translation adjustment and actuarial gains and losses net of tax benefit (expense) of $(4) and $(6) for the three and six months ended January 27, 2018, respectively, and $0 and $(1) for the corresponding periods of fiscal 2017, respectively	274	(44)	291	(71)
Other comprehensive income (loss)	52	(277)	37	(467)
Comprehensive income (loss)	(8,726)	2,071	(6,347)	4,203
Comprehensive (income) loss attributable to noncontrolling interests	—	—	—	(8)
Comprehensive income (loss) attributable to Cisco Systems, Inc.	$(8,726)	$ 2,071	$(6,347)	$ 4,195

See Notes to Consolidated Financial Statements.

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

	Six Months Ended	
	January 27, 2018	January 28, 2017
Cash flows from operating activities:		
Net income (loss)	$ (6,384)	$ 4,670
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Depreciation, amortization, and other	1,112	1,148
Share-based compensation expense	785	724
Provision for receivables	(43)	4
Deferred income taxes	1,021	(26)
Excess tax benefits from share-based compensation	—	(101)
(Gains) losses on divestitures, investments and other, net	(174)	79
Change in operating assets and liabilities, net of effects of acquisitions and divestitures:		
Accounts receivable	1,236	1,396
Inventories	(276)	(51)
Financing receivables	(156)	(764)
Other assets	(15)	155
Accounts payable	(338)	(98)
Income taxes, net	10,246	(257)
Accrued compensation	(189)	(417)
Deferred revenue	237	611
Other liabilities	88	(571)
Net cash provided by operating activities	7,150	6,502
Cash flows from investing activities:		
Purchases of investments	(13,954)	(27,847)
Proceeds from sales of investments	9,111	18,420
Proceeds from maturities of investments	7,365	5,245
Acquisition of businesses, net of cash and cash equivalents acquired	(754)	(251)
Proceeds from business divestitures	27	—
Purchases of investments in privately held companies	(89)	(142)
Return of investments in privately held companies	124	108
Acquisition of property and equipment	(379)	(526)
Proceeds from sales of property and equipment	51	5
Other	(7)	10
Net cash provided by (used in) investing activities	1,495	(4,978)
Cash flows from financing activities:		
Issuances of common stock	302	386
Repurchases of common stock—repurchase program	(5,457)	(1,991)
Shares repurchased for tax withholdings on vesting of restricted stock units	(433)	(432)
Short-term borrowings, original maturities of 90 days or less, net	5,095	300
Issuances of debt	6,877	6,232
Repayments of debt	(6,230)	(1)
Excess tax benefits from share-based compensation	—	101
Dividends paid	(2,861)	(2,612)
Other	(22)	(240)

Net cash provided by (used in) financing activities	(2,729)	1,743
Net increase (decrease) in cash and cash equivalents	5,916	3,267
Cash and cash equivalents, beginning of period	11,708	7,631
Cash and cash equivalents, end of period	$ 17,624	$ 10,898
Supplemental cash flow information:		
Cash paid for interest	$ 454	$ 419
Cash paid for income taxes, net	$ 1,311	$ 1,529

See Notes to Consolidated Financial Statements.

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

	Shares of Common Stock	Common Stock and Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Cisco Shareholders' Equity	Non-controlling Interests	Total Equity
BALANCE AT JULY 29, 2017	4,983	$ 45,253	$ 20,838	$ 46	$ 66,137	$ —	$ 66,137
Net income (loss)			(6,384)		(6,384)		(6,384)
Other comprehensive income (loss)				37	37		37
Issuance of common stock	52	302			302		302
Repurchase of common stock	(154)	(1,393)	(4,238)		(5,631)		(5,631)
Shares repurchased for tax withholdings on vesting of restricted stock units	(13)	(433)			(433)		(433)
Cash dividends declared ($0.58 per common share)			(2,861)		(2,861)		(2,861)
Cumulative effect of adoption of accounting standard			9		9		9
Share-based compensation		785			785		785
Purchase acquisitions and other		21			21		21
BALANCE AT JANUARY 27, 2018	4,868	$ 44,535	$ 7,364	$ 83	$ 51,982	$ —	$ 51,982

	Shares of Common Stock	Common Stock and Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Cisco Shareholders' Equity	Non-controlling Interests	Total Equity
BALANCE AT JULY 30, 2016	5,029	$ 44,516	$ 19,396	$ (326)	$ 63,586	$ (1)	$ 63,585
Net income			4,670		4,670		4,670
Other comprehensive income (loss)				(475)	(475)	8	(467)
Issuance of common stock	57	386			386		386
Repurchase of common stock	(65)	(575)	(1,427)		(2,002)		(2,002)
Shares repurchased for tax withholdings on vesting of restricted stock units	(14)	(432)			(432)		(432)
Cash dividends declared ($0.52 per common share)			(2,612)		(2,612)		(2,612)
Tax effects from employee stock incentive plans		(54)			(54)		(54)
Share-based compensation		738			738		738
Purchase acquisitions and other		6			6		6
BALANCE AT JANUARY 28, 2017	5,007	$ 44,585	$ 20,027	$ (801)	$ 63,811	$ 7	$ 63,818

See Notes to Consolidated Financial Statements.

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

1. Basis of Presentation

The fiscal year for Cisco Systems, Inc. (the “Company” or “Cisco”) is the 52 or 53 weeks ending on the last Saturday in July. Fiscal 2018 and fiscal 2017 are each 52-week fiscal years. The Consolidated Financial Statements include the accounts of Cisco and its subsidiaries. All intercompany accounts and transactions have been eliminated. The Company conducts business globally and is 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).

The accompanying financial data as of January 27, 2018 and for the three and six months ended January 27, 2018 and January 28, 2017 has been prepared by the Company, 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 29, 2017 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, the Company believes 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 the Company’s Annual Report on Form 10-K for the fiscal year ended July 29, 2017.

The Company consolidates its investments in a venture fund managed by SOFTBANK Corp. and its affiliates (“SOFTBANK”) as this is a variable interest entity and the Company is the primary beneficiary. The noncontrolling interests attributed to SOFTBANK are presented as a separate component from the Company’s equity in the equity section of the Consolidated Balance Sheets. SOFTBANK’s share of the earnings in the venture fund are not presented separately in the Consolidated Statements of Operations as these amounts are not material for any of the fiscal periods presented.

In the opinion of management, all normal recurring adjustments necessary to present fairly the consolidated balance sheet as of January 27, 2018; the results of operations and the statements of comprehensive income (loss) for the three and six months ended January 27, 2018 and January 28, 2017; the statements of cash flows and equity for the six months ended January 27, 2018 and January 28, 2017, as applicable, have been made. The results of operations for the three and six months ended January 27, 2018 are not necessarily indicative of the operating results for the full fiscal year or any future periods.

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

2. Recent Accounting Pronouncements

(a) New Accounting Updates Recently Adopted

Share-Based Compensation In March 2016, the FASB issued an accounting standard update that impacts the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liabilities, and classification on the Consolidated Statements of Cash Flows. Cisco adopted this accounting standard update beginning the first quarter of fiscal 2018 on a prospective basis. This resulted in an overall decrease in the effective tax rate for the six months ended January 27, 2018 due to recognition of excess tax benefits from share-based compensation. The application of this accounting standard update did not have a material impact on the Company's Consolidated Financial Statements.

(b) Recent Accounting Standards or Updates Not Yet Effective as of Period End

Revenue Recognition In May 2014, the FASB issued a new accounting standard related to revenue recognition. The new standard will supersede nearly all U.S. GAAP on revenue recognition and eliminate industry-specific guidance.

The underlying principle of the new standard is to recognize revenue when a customer obtains control of promised goods or services at an amount that reflects the consideration that is expected to be received in exchange for those goods or services. It also requires increased disclosures including the nature, amount, timing, and uncertainty of revenues and cash flows related to contracts with customers.

The standard allows two methods of adoption: i) retrospectively to each prior period presented (“full retrospective method”), or ii) retrospectively with the cumulative effect recognized in retained earnings as of the date of adoption ("modified retrospective method"). Cisco will adopt the new standard using the modified retrospective method at the beginning of its first quarter of fiscal 2019.

Cisco is on schedule in establishing new accounting policies, implementing systems and processes (including more extensive use of estimates), and internal controls necessary to support the requirements of the new standard. Cisco has completed its preliminary assessment of the financial statement impact of the new standard, as discussed below, and will continue to update that assessment as more information becomes available.

The new standard will primarily impact Cisco's revenue recognition for software arrangements and sales to two-tier distributors. In both areas, the new standard will accelerate the recognition of revenue. The table below details both the current and expected revenue recognition timing in these areas:

	Current Revenue Standard	New Revenue Standard
Software arrangements:		
Perpetual software licenses	Upfront	Upfront
Term software licenses	Ratable	Upfront
Security software licenses	Ratable	Ratable
Enterprise license agreements	Ratable	Upfront
Software support services	Ratable	Ratable
Software-as-a-service	Ratable	Ratable
Two-tier distribution	Sell-Through	Sell-In

Cisco expects that the new standard will not have a material impact on total revenue in the year of adoption based on two factors: i) revenue will be accelerated consistent with the changes in timing as indicated in the preceding table, largely offset by ii) the reduction of revenue from software arrangements where revenue was previously deferred in prior periods and recognized ratably over time as required under the current standard. This preliminary assessment is based on the types and number of revenue arrangements currently in place. The exact impact of the new standard will be dependent on facts and circumstances at adoption and could vary from quarter to quarter.

In addition to the above revenue recognition timing impacts, the new standard will require incremental contract acquisition costs (such as sales commissions) for customer contracts to be capitalized and amortized over the contract period. Currently, these costs are expensed as incurred.

Cisco will be required to record cumulative effect adjustments to retained earnings (net of tax) upon adopting the new standard at the beginning of fiscal 2019. The most significant of these adjustments will be to reduce product deferred revenue and increase retained earnings at the date of adoption to reflect revenue that would have been already recognized under the new standard related to existing arrangements. There will also be an adjustment to increase accounts receivable and reduce inventories related to the changes in revenue recognition on sales to two-tier distributors. Lastly, an adjustment will be recorded to establish an asset and increase retained earnings related to the requirement to capitalize incremental contract acquisition costs for customer contracts.

Financial Instruments In January 2016, the FASB issued an accounting standard update that changes the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2019, and early adoption is permitted. The most significant impact of this accounting standard update for Cisco is that it will require the remeasurement of investments that are not accounted for under the equity method at fair value at the end of each reporting period with the changes recorded to the income statement. While Cisco is currently evaluating the impact of this accounting standard update on its Consolidated Financial Statements, Cisco expects that this accounting standard update will increase the variability of other income (loss), net.

Leases In February 2016, the FASB issued an accounting standard update related to leases requiring lessees to recognize operating and financing lease liabilities on the balance sheet, as well as corresponding right-of-use assets. The new lease standard also makes some changes to lessor accounting and aligns key aspects of the lessor accounting model with the revenue recognition standard. In addition, disclosures will be required to enable users of financial statements to assess the amount, timing, and uncertainty of cash flows arising from leases. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2020 on a modified retrospective basis, and

early adoption is permitted. Cisco is currently evaluating the impact of this accounting standard update on its Consolidated Financial Statements.
Credit Losses of Financial Instruments In June 2016, the FASB issued an accounting standard update that requires measurement and recognition of expected credit losses for financial assets held based on historical experience, current conditions, and reasonable and supportable forecasts that affect the collectibility of the reported amount. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2021 on a modified retrospective basis, and early adoption in fiscal 2020 is permitted. Cisco is currently evaluating the impact of this accounting standard update on its Consolidated Financial Statements.

Classification of Cash Flow Elements In August 2016, the FASB issued an accounting standard update related to the classification of certain cash receipts and cash payments on the statement of cash flows. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2019 on a retrospective basis, and early adoption is permitted. Cisco is currently evaluating the impact of this accounting standard update on its Consolidated Statements of Cash Flows.

Income Taxes on Intra-Entity Transfers of Assets In October 2016, the FASB issued an accounting standard update that requires recognition of the income tax consequences of intra-entity transfers of assets (other than inventory) at the transaction date. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2019 on a modified retrospective basis, and early adoption is permitted. Cisco is currently evaluating the impact of this accounting standard update on its Consolidated Financial Statements.

Restricted Cash in Statement of Cash Flow In November 2016, the FASB issued an accounting standard update that provides guidance on the classification and presentation of changes in restricted cash and cash equivalents in the statement of cash flows. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2019 using a retrospective transition method to each period presented, and early adoption is permitted. Cisco does not expect that this accounting standard update will have a material impact on its Consolidated Statements of Cash Flows.

Definition of a Business In January 2017, the FASB issued an accounting standard update that clarifies the definition of a business to help companies evaluate whether acquisition or disposal transactions should be accounted for as asset groups or as businesses. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2019 on a prospective basis. The impact of this accounting standard update will be fact dependent, but Cisco expects that some transactions that were previously accounted for as business combinations or disposal transactions will be accounted for as asset purchases or asset sales under the accounting standard update.

Simplifying the Test for Goodwill Impairment In January 2017, the FASB issued an accounting standard update that removes Step 2 of the goodwill impairment test, which requires the assessment of fair value of individual assets and liabilities of a reporting unit to measure goodwill impairments. Goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value. The accounting standard update will be effective for Cisco beginning in the first quarter of fiscal 2021 on a prospective basis, and early adoption is permitted. Cisco does not expect that this accounting standard update will impact its Consolidated Financial Statements.

Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income In February 2018, the FASB issued a new accounting standard update that allows companies to reclassify from Accumulated Other Comprehensive Income to Retained Earnings stranded tax effects resulting from the enactment of the Tax Cuts and Jobs Act (the "Tax Act"). Cisco will adopt this accounting standard update in the third quarter of fiscal 2018 on a retrospective basis. The application of this accounting standard update will not have a material impact on the Company's Consolidated Financial Statements.

3. Acquisitions and Divestitures

The Company completed five acquisitions during the six months ended January 27, 2018. 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
Viptela	$ 497	$ (18)	$ 180	$ 335
Springpath	248	(11)	160	99
Others (three in total)	43	(2)	21	24
Total	$ 788	$ (31)	$ 361	$ 458

On July 31, 2017, the Company completed its acquisition of privately held Viptela Inc. ("Viptela"), a provider of software-defined wide area networking products. Revenue from the Viptela acquisition has been included in the Company's Infrastructure Platforms product category.

On September 22, 2017, the Company completed its acquisition of privately held Springpath, Inc. ("Springpath"), a hyperconvergence software company. Revenue from the Springpath acquisition has been included in the Company's Infrastructure Platforms product category.

The total purchase consideration related to acquisitions completed during the six months ended January 27, 2018 consisted of cash consideration and vested share-based awards assumed. The total cash and cash equivalents acquired from these acquisitions was approximately $12 million. Total transaction costs related to acquisition activities were $14 million and $3 million for the six months ended January 27, 2018 and January 28, 2017, respectively. These transaction costs were expensed as incurred in general and administrative expenses ("G&A") in the Consolidated Statements of Operations. The Company recognized a gain of $46 million in the first quarter of fiscal 2018 in connection with a step acquisition. This gain was recognized in other income (loss), net in the Consolidated Statement of Operations.

The purchase price allocation for acquisitions completed during recent periods is preliminary and subject to revision as additional information about fair value of assets and liabilities becomes available. Additional information that existed as of the acquisition date but at that time was unknown to the Company may become known to the Company during the remainder of the measurement period, a period not to exceed 12 months from the acquisition date. Adjustments in the purchase price allocation may require a recasting of the amounts allocated to goodwill retroactive to the period in which the acquisition occurred.

The goodwill generated from acquisitions completed during the six months ended January 27, 2018 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 for the acquisitions completed during the six months ended January 27, 2018 have not been presented because the effects of the acquisitions, individually and in the aggregate, were not material to the Company's financial results.

The Company completed two divestitures during the second quarter of fiscal 2018. The financial statement impact of these divestitures was not material for the three and six months ended January 27, 2018.

Acquisition of BroadSoft On February 1, 2018, the Company completed its acquisition of BroadSoft, Inc. ("BroadSoft"), a cloud calling and contact center solutions company for total consideration of approximately $1.9 billion, net of cash and short-term investments. Revenue from the BroadSoft acquisition will be included in the

Company's Applications product category. The Company expects that most of the purchase price will be allocated to goodwill and purchased intangible assets.

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

4. Goodwill and Purchased Intangible Assets

(a) Goodwill

The following table presents the goodwill allocated to the Company’s reportable segments as of and during the six months ended January 27, 2018 (in millions):

	Balance at July 29, 2017	Acquisitions	Other	Balance at January 27, 2018
Americas	$18,691	$ 337	$101	$ 19,129
EMEA	7,057	93	42	7,192
APJC	4,018	28	24	4,070
Total	$29,766	$ 458	$167	$ 30,391

“Other” in the table above primarily consists of foreign currency translation, as well as immaterial purchase accounting adjustments.

(b) Purchased Intangible Assets

The following table presents details of the Company’s intangible assets acquired through acquisitions completed during the six months ended January 27, 2018 (in millions, except years):

	FINITE LIVES						INDEFINITE LIVES	TOTAL
	TECHNOLOGY		CUSTOMER RELATIONSHIPS		OTHER		IPR&D	
	Weighted-Average Useful Life (in Years)	Amount	Weighted-Average Useful Life (in Years)	Amount	Weighted-Average Useful Life (in Years)	Amount	Amount	Amount
Viptela	5.0	$ 144	6.0	$ 35	1.0	$ 1	$ —	$ 180
Springpath	4.0	157	0.0	—	0.0	—	3	160
Others (three in total)	2.5	18	4.0	3	0.0	—	—	21
Total		$ 319		$ 38		$ 1	$ 3	$ 361

The following tables present details of the Company’s purchased intangible assets (in millions):

January 27, 2018	Gross	Accumulated Amortization	Net
Purchased intangible assets with finite lives:			
Technology	$3,465	$ (1,659)	$1,806
Customer relationships	1,387	(867)	520
Other	82	(51)	31
Total purchased intangible assets with finite lives	4,934	(2,577)	2,357
In-process research and development, with indefinite lives	117	—	117
Total	$5,051	$ (2,577)	$2,474

July 29, 2017	Gross	Accumulated Amortization	Net
Purchased intangible assets with finite lives:			
Technology	$3,182	$ (1,386)	$1,796
Customer relationships	1,353	(765)	588

Other	82	(38)	44
Total purchased intangible assets with finite lives	4,617	(2,189)	2,428
In-process research and development, with indefinite lives	111	—	111
Total	$4,728	$ (2,189)	$2,539

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

There were no impairment charges related to purchased intangible assets for the three and six months ended January 27, 2018. Impairment charges related to purchased intangible assets for the three and six months ended January 28, 2017 were zero and $42 million, respectively. Of these impairment charges, $38 million was recorded to restructuring and other charges in connection with the Company's decision to exit certain product lines, and the corresponding elimination of future associated cash flows. Impairment charges were primarily as a result of declines in estimated fair values of certain purchased intangible assets resulting from the reduction or elimination of expected future cash flows associated with certain of the Company’s technology and IPR&D intangible assets.

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Amortization of purchased intangible assets:				
Cost of sales	$160	$ 124	$314	$ 253
Operating expenses				
Amortization of purchased intangible assets	60	64	121	142
Restructuring and other charges	—	—	—	38
Total	$220	$ 188	$435	$ 433

The estimated future amortization expense of purchased intangible assets with finite lives as of January 27, 2018 is as follows (in millions):

Fiscal Year	Amount
2018 (remaining six months)	$ 431
2019	781
2020	564
2021	364
2022	145
Thereafter	72
Total	$ 2,357

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5. Restructuring and Other Charges

The Company began taking action under a restructuring plan in August 2016 (the "Fiscal 2017 Plan"), in order to reinvest in its key priority areas. In the first quarter of fiscal 2018, the Company extended the Fiscal 2017 Plan to include an additional $150 million of estimated additional pretax charges for employee severance and other one-time termination benefits. The Company has substantially completed the Fiscal 2017 Plan and has incurred cumulative charges of $1.0 billion. These aggregate pretax charges are primarily cash based and consist of employee severance and other one-time termination benefits, and other associated costs. In connection with this Plan, the Company incurred charges of $98 million and $133 million for the three months ended January 27, 2018 and January 28, 2017, respectively, and $250 million and $544 million for the six months ended January 27, 2018 and January 28, 2017, respectively.

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

	FISCAL 2017 PLAN		
	Employee Severance	Other	Total
Liability as of July 29, 2017	$74	$43	$117
Charges	223	27	250
Cash payments	(213)	(27)	(240)
Non-cash items	3	(18)	(15)
Liability as of January 27, 2018	$87	$25	$112

	FISCAL 2017 AND PRIOR PLANS		
	Employee Severance	Other	Total
Liability as of July 30, 2016	$21	$24	$45
Charges	452	92	544
Cash payments	(381)	(7)	(388)
Non-cash items	(6)	(67)	(73)
Liability as of January 28, 2017	$86	$42	$128

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6. Balance Sheet Details

The following tables provide details of selected balance sheet items (in millions):

	January 27, 2018	July 29, 2017
Inventories:		
Raw materials	$ 385	$ 289
Work in Process	—	1
Finished goods:		
Distributor inventory and deferred cost of sales	465	451
Manufactured finished goods	727	552
Total finished goods	1,192	1,003
Service-related spares	292	300
Demonstration systems	27	23
Total	$ 1,896	$ 1,616

Property and equipment, net:		
Gross property and equipment:		
Land, buildings, and building and leasehold improvements	$ 4,790	$ 4,926
Computer equipment and related software	1,207	1,258
Production, engineering, and other equipment	5,702	5,707
Operating lease assets	364	356
Furniture and fixtures	375	572
Total gross property and equipment	12,438	12,819
Less: accumulated depreciation and amortization	(9,325)	(9,497)
Total	$ 3,113	$ 3,322

Deferred revenue:		
Service	$ 10,963	$ 11,302
Product:		
Deferred revenue related to recurring software and subscription offers	5,451	4,971
Other product deferred revenue	2,374	2,221
Total product deferred revenue	7,825	7,192
Total	$ 18,788	$ 18,494
Reported as:		
Current	$ 11,102	$ 10,821
Noncurrent	7,686	7,673
Total	$ 18,788	$ 18,494

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7. Financing Receivables and Operating Leases

(a) Financing Receivables

Financing receivables primarily consist of lease receivables, loan receivables, and financed service contracts. Lease receivables represent sales-type and direct-financing leases resulting from the sale of the Company'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. Loan receivables represent financing arrangements related to the sale of the Company's hardware, software, and services, which may include additional funding for other costs associated with network installation and integration of the Company's products and services. Loan receivables generally have terms of up to three years. Financed service contracts include financing receivables related to technical support and advanced services. Revenue related to the technical support services is typically deferred and included in deferred service revenue and is recognized ratably over the period during which the related services are to be performed, which typically ranges from one to three years.

A summary of the Company's financing receivables is presented as follows (in millions):

January 27, 2018	Lease Receivables	Loan Receivables	Financed Service Contracts	Total
Gross	$ 2,762	$ 4,846	$ 2,479	$ 10,087
Residual value	168	—	—	168
Unearned income	(145)	—	—	(145)
Allowance for credit loss	(165)	(94)	(13)	(272)
Total, net	$ 2,620	$ 4,752	$ 2,466	$ 9,838
Reported as:				
Current	$ 1,222	$ 2,258	$ 1,445	$ 4,925
Noncurrent	1,398	2,494	1,021	4,913
Total, net	$ 2,620	$ 4,752	$ 2,466	$ 9,838

July 29, 2017	Lease Receivables	Loan Receivables	Financed Service Contracts	Total
Gross	$ 2,784	$ 4,560	$ 2,517	$ 9,861
Residual value	173	—	—	173
Unearned income	(145)	—	—	(145)
Allowance for credit loss	(162)	(103)	(30)	(295)
Total, net	$ 2,650	$ 4,457	$ 2,487	$ 9,594
Reported as:				
Current	$ 1,301	$ 2,104	$ 1,451	$ 4,856
Noncurrent	1,349	2,353	1,036	4,738
Total, net	$ 2,650	$ 4,457	$ 2,487	$ 9,594

Future minimum lease payments to the Company on lease receivables as of January 27, 2018 are summarized as follows (in millions):

Fiscal Year	Amount
2018 (remaining six months)	$ 707
2019	1,054
2020	602
2021	292
2022	98

Thereafter	9
Total	$ 2,762

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

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(b) Credit Quality of Financing Receivables

Gross receivables, excluding residual value, less unearned income categorized by the Company's internal credit risk rating as of January 27, 2018 and July 29, 2017 are summarized as follows (in millions):

	INTERNAL CREDIT RISK RATING			
January 27, 2018	1 to 4	5 to 6	7 and Higher	Total
Lease receivables	$1,322	$1,244	$ 51	$2,617
Loan receivables	3,054	1,716	76	4,846
Financed service contracts	1,572	895	12	2,479
Total	$5,948	$3,855	$ 139	$9,942

	INTERNAL CREDIT RISK RATING			
July 29, 2017	1 to 4	5 to 6	7 and Higher	Total
Lease receivables	$1,408	$1,181	$ 50	$2,639
Loan receivables	2,865	1,516	179	4,560
Financed service contracts	1,593	902	22	2,517
Total	$5,866	$3,599	$ 251	$9,716

The Company determines the adequacy of its allowance for credit loss by assessing the risks and losses inherent in its financing receivables by portfolio segment. The portfolio segment is based on the types of financing offered by the Company to its customers, which consist of the following: lease receivables, loan receivables, and financed service contracts.

The Company's internal credit risk ratings of 1 through 4 correspond to investment-grade ratings, while credit risk ratings of 5 and 6 correspond to non-investment grade ratings. Credit risk ratings of 7 and higher correspond to substandard ratings.

In circumstances when collectibility is not deemed reasonably assured, the associated revenue is deferred in accordance with the Company's revenue recognition policies, and the related allowance for credit loss, if any, is included in deferred revenue. The Company also records deferred revenue associated with financing receivables when there are remaining performance obligations, as it does for financed service contracts.

The following tables present the aging analysis of gross receivables, excluding residual value and less unearned income as of January 27, 2018 and July 29, 2017 (in millions):

	DAYS PAST DUE (INCLUDES BILLED AND UNBILLED)							
January 27, 2018	31-60	61-90	91+	Total Past Due	Current	Total	Nonaccrual Financing Receivables	Impaired Financing Receivables
Lease receivables	$98	$ 96	$278	$ 472	$2,145	$2,617	$ 19	$ 19
Loan receivables	66	124	151	341	4,505	4,846	45	45
Financed service contracts	54	85	414	553	1,926	2,479	2	2
Total	$218	$ 305	$843	$ 1,366	$8,576	$9,942	$ 66	$ 66

	DAYS PAST DUE (INCLUDES BILLED AND UNBILLED)							
July 29, 2017	31-60	61-90	91+	Total Past Due	Current	Total	Nonaccrual Financing	Impaired Financing

							Receivables	Receivables
Lease receivables	$160	$ 60	$216	$ 436	$2,203	$2,639	$ 14	$ 14
Loan receivables	230	48	259	537	4,023	4,560	43	43
Financed service contracts	160	77	523	760	1,757	2,517	18	2
Total	$550	$ 185	$998	$ 1,733	$7,983	$9,716	$ 75	$ 59

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. The balances of either unbilled or current financing receivables included in the category of 91 days plus past due for financing receivables were $462 million and $666 million as of January 27, 2018 and July 29, 2017, respectively.

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As of January 27, 2018, the Company had financing receivables of $358 million, net of unbilled or current receivables, that were in the category of 91 days plus past due but remained on accrual status as they are well secured and in the process of collection. Such balance was $315 million as of July 29, 2017.

(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 27, 2018	CREDIT LOSS ALLOWANCES			
	Lease Receivables	Loan Receivables	Financed Service Contracts	Total
Allowance for credit loss as of October 28, 2017	$160	$ 106	$ 23	$289
Provisions	3	(13)	(10)	(20)
Foreign exchange and other	2	1	—	3
Allowance for credit loss as of January 27, 2018	$165	$ 94	$ 13	$272

Six months ended January 27, 2018	CREDIT LOSS ALLOWANCES			
	Lease Receivables	Loan Receivables	Financed Service Contracts	Total
Allowance for credit loss as of July 29, 2017	$162	$ 103	$ 30	$295
Provisions	1	(11)	(16)	(26)
Foreign exchange and other	2	2	(1)	3
Allowance for credit loss as of January 27, 2018	$165	$ 94	$ 13	$272

Three months ended January 28, 2017	CREDIT LOSS ALLOWANCES			
	Lease Receivables	Loan Receivables	Financed Service Contracts	Total
Allowance for credit loss as of October 29, 2016	$227	$ 111	$ 48	$386
Provisions	2	—	(1)	1
Recoveries (write-offs), net	(2)	(4)	—	(6)
Foreign exchange and other	(2)	(1)	—	(3)
Allowance for credit loss as of January 28, 2017	$225	$ 106	$ 47	$378

Six months ended January 28, 2017	CREDIT LOSS ALLOWANCES			
	Lease Receivables	Loan Receivables	Financed Service Contracts	Total
Allowance for credit loss as of July 30, 2016	$230	$ 97	$ 48	$375
Provisions	(2)	12	(1)	9
Recoveries (write-offs), net	(2)	(4)	—	(6)
Foreign exchange and other	(1)	1	—	—
Allowance for credit loss as of January 28, 2017	$225	$ 106	$ 47	$378

The Company assesses the allowance for credit loss related to financing receivables on either an individual or a collective basis. The Company considers various factors in evaluating lease and loan receivables and the earned portion of financed service contracts for possible impairment on an individual basis. These factors include the Company’s historical experience, credit quality and age of the receivable balances, and economic conditions that may affect a customer’s ability to pay. When the evaluation indicates that it is probable that all amounts due pursuant to the contractual terms of the financing agreement, including scheduled interest payments, are unable to be collected, the financing receivable is considered impaired. All such outstanding amounts, including any accrued interest, will be assessed and fully reserved at the customer level. The Company’s internal credit risk ratings are categorized as 1 through 10, with the lowest credit risk rating representing the highest quality financing receivables.

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Typically, the Company also considers receivables with a risk rating of 8 or higher to be impaired and will include them in the individual assessment for allowance. These balances, as of January 27, 2018 and July 29, 2017, are presented under “(b) Credit Quality of Financing Receivables” above.

The Company evaluates the remainder of its financing receivables portfolio for impairment on a collective basis and records an allowance for credit loss at the portfolio segment level. When evaluating the financing receivables on a collective basis, the Company uses expected default frequency rates published by a major third-party credit-rating agency as well as its own historical loss rate in the event of default, while also systematically giving effect to economic conditions, concentration of risk, and correlation.

(d) Operating Leases

The Company provides 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 and the associated accumulated depreciation are summarized as follows (in millions):

	January 27, 2018	July 29, 2017
Operating lease assets	$ 364	$ 356
Accumulated depreciation	(232)	(212)
Operating lease assets, net	$ 132	$ 144

Minimum future rentals on noncancelable operating leases as of January 27, 2018 are summarized as follows (in millions):

Fiscal Year	Amount
2018 (remaining six months)	$ 103
2019	137
2020	68
2021	15
Thereafter	2
Total	$ 325

8. Investments

(a) Summary of Available-for-Sale Investments

The following tables summarize the Company’s available-for-sale investments (in millions):

January 27, 2018	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Fixed income securities:				
U.S. government securities	$ 17,506	$ —	$ (140)	$17,366
U.S. government agency securities	1,722	—	(10)	1,712
Non-U.S. government and agency securities	340	—	(1)	339
Corporate debt securities	31,508	80	(233)	31,355
U.S. agency mortgage-backed securities	2,106	—	(49)	2,057
Commercial paper	1,414	—	—	1,414
Certificates of deposit	196	—	—	196
Total fixed income securities	54,792	80	(433)	54,439
Publicly traded equity securities	924	697	(1)	1,620
Total (1)	$ 55,716	$ 777	$ (434)	$56,059

July 29, 2017	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Fixed income securities:				
U.S. government securities	$ 19,880	$ 3	$ (60)	$ 19,823
U.S. government agency securities	2,057	—	(5)	2,052
Non-U.S. government and agency securities	389	—	(1)	388
Corporate debt securities	31,626	202	(93)	31,735
U.S. agency mortgage-backed securities	2,037	3	(17)	2,023
Commercial paper	996	—	—	996
Certificates of deposit	60	—	—	60
Total fixed income securities	57,045	208	(176)	57,077
Publicly traded equity securities	1,180	554	(27)	1,707
Total [1]	$ 58,225	$ 762	$ (203)	$ 58,784

[1] Includes investments that were pending settlement as of the respective fiscal years. The net unsettled investment purchases (sales) were $(3) million and $(30) million as of January 27, 2018 and July 29, 2017, respectively.

Non-U.S. government and agency securities include agency and corporate debt securities that are guaranteed by non-U.S. governments.

(b) Gains and Losses on Available-for-Sale Investments

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Gross realized gains	$ 165	$ 18	$ 232	$ 48
Gross realized losses	(107)	(48)	(141)	(63)
Total	$ 58	$ (30)	$ 91	$ (15)

The following table presents the realized net gains (losses) related to available-for-sale investments by security type (in millions):

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Net gains (losses) on investments in publicly traded equity securities	$ 154	$ 4	$ 183	$ 9
Net gains (losses) on investments in fixed income securities	(96)	(34)	(92)	(24)
Total	$ 58	$ (30)	$ 91	$ (15)

The following tables present the breakdown of the available-for-sale investments with gross unrealized losses and the duration that those losses had been unrealized at January 27, 2018 and July 29, 2017 (in millions):

	UNREALIZED LOSSES LESS THAN 12 MONTHS		UNREALIZED LOSSES 12 MONTHS OR GREATER		TOTAL	
January 27, 2018	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Fixed income securities:						
U.S. government securities	$ 11,553	$ (96)	$ 5,804	$ (44)	$17,357	$ (140)
U.S. government agency securities	1,152	(5)	559	(5)	1,711	(10)
Non-U.S. government and agency securities	136	—	203	(1)	339	(1)
Corporate debt securities	16,003	(146)	4,287	(87)	20,290	(233)
U.S. agency mortgage-backed securities	1,161	(19)	876	(30)	2,037	(49)
Total fixed income securities	30,005	(266)	11,729	(167)	41,734	(433)
Publicly traded equity securities	10	(1)	—	—	10	(1)
Total	$ 30,015	$ (267)	$ 11,729	$ (167)	$41,744	$ (434)

	UNREALIZED LOSSES LESS THAN 12 MONTHS		UNREALIZED LOSSES 12 MONTHS OR GREATER		TOTAL	
July 29, 2017	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Fixed income securities:						
U.S. government securities	$ 14,962	$ (55)	$ 771	$ (5)	$15,733	$ (60)
U.S. government agency securities	1,791	(4)	130	(1)	1,921	(5)
Non-U.S. government and agency securities	368	(1)	—	—	368	(1)
Corporate debt securities	9,487	(92)	101	(1)	9,588	(93)
U.S. agency mortgage-backed securities	1,485	(16)	38	(1)	1,523	(17)
Total fixed income securities	28,093	(168)	1,040	(8)	29,133	(176)
Publicly traded equity securities	122	(27)	—	—	122	(27)
Total	$ 28,215	$ (195)	$ 1,040	$ (8)	$29,255	$ (203)

The net realized losses related to the Company's available-for-sale investments included impairment charges of zero and $26 million for the three and six months ended January 27, 2018, respectively. These impairment charges related primarily to publicly traded equity securities and were due to a decline in the fair value of those securities below their cost basis that were determined to be other than temporary. There were no impairment charges on available-for-sale investments for the corresponding periods in fiscal 2017.

As of January 27, 2018, for fixed income securities that were in unrealized loss positions, the Company has determined that (i) it does not have the intent to sell any of these investments and (ii) it is not more likely than not that it will be required to sell any of these investments before recovery of the entire amortized cost basis. In addition, as of January 27, 2018, the Company anticipates that it will recover the entire amortized cost basis of such fixed income securities and has determined that no other-than-temporary impairments associated with credit losses were required to be recognized during the six months ended January 27, 2018.

The Company has evaluated its publicly traded equity securities as of January 27, 2018 and has determined that there were no additional other-than-temporary impairments in the respective categories of unrealized losses. This determination was based on several factors, which include the length of time and extent to which fair value has been less than the cost basis, the financial condition and near-term prospects of the issuer, and the Company's intent and ability to hold the publicly traded equity securities for a period of time sufficient to allow for any anticipated recovery in market value.

(c) Maturities of Fixed Income Securities

The following table summarizes the maturities of the Company's fixed income securities as of January 27, 2018 (in millions):

	Amortized Cost	Fair Value
Less than 1 year	$ 15,881	$ 15,847
Due in 1 to 2 years	12,267	12,188
Due in 2 to 5 years	22,095	21,926
Due after 5 years	2,443	2,421
Mortgage-backed securities with no single maturity	2,106	2,057
Total	$ 54,792	$ 54,439

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

(d) Securities Lending

The Company periodically engages in securities lending activities with certain of its available for sale investments. These transactions are accounted for as a secured lending of the securities, and the securities are typically loaned only on an overnight basis. The average daily balance of securities lending for the six months ended January 27, 2018 and January 28, 2017 was $0.4 billion and $0.9 billion, respectively. The Company requires 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. The Company engages in these secured lending transactions only with highly creditworthy counterparties, and the associated portfolio custodian has agreed to indemnify the Company against collateral losses. The Company did not experience any losses in connection with the secured lending of securities during the periods presented. As of January 27, 2018 and July 29, 2017, the Company had no outstanding securities lending transactions.

(e) Investments in Privately Held Companies

The carrying value of the investments in privately held companies was included in other assets. For such investments that were accounted for under the equity and cost method as of January 27, 2018 and July 29, 2017, the amounts are summarized in the following table (in millions):

	January 27, 2018	July 29, 2017
Equity method investments	$ 121	$ 124
Cost method investments	861	859
Total	$ 982	$ 983

For additional information on impairment charges related to investments in privately held companies, see Note 9.

Variable Interest Entities In the ordinary course of business, the Company has investments in privately held companies and provides financing to certain customers. These privately held companies and customers may be considered to be variable interest entities. The Company evaluates on an ongoing basis its investments in these privately held companies and its customer financings, and has determined that as of January 27, 2018, except as disclosed in Note 1, there were no significant variable interest entities required to be consolidated in the Company's Consolidated Financial Statements.

As of January 27, 2018, the carrying value of investments in privately held companies was $982 million, of which $528 million of such investments are considered to be in variable interest entities which are unconsolidated. In addition, the Company has additional funding commitments of $215 million related to these investments, some of which are based on the achievement of certain agreed-upon milestones, and some of which are required to be funded on demand. The carrying value of these investments and the additional funding commitments collectively represent the Company's maximum exposure related to these variable interest entities.

9. Fair Value

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required or permitted to be either recorded or disclosed at fair value, the Company considers the principal or most advantageous market in which it would transact, and it also considers assumptions that market participants would use when pricing the asset or liability.

(a) Fair Value Hierarchy

The accounting guidance for fair value measurement requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard establishes a fair value hierarchy based on the level of independent, objective evidence surrounding the inputs used to measure fair value. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The fair value hierarchy is as follows:

Level 1 applies to assets or liabilities for which there are quoted prices in active markets for identical assets or liabilities.

Level 2 applies to assets or liabilities for which there are inputs other than quoted prices that are observable for the asset or liability, such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.

Level 3 applies to assets or liabilities for which there are unobservable inputs to the valuation methodology that are significant to the measurement of the fair value of the assets or liabilities.

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

Assets and liabilities measured at fair value on a recurring basis as of January 27, 2018 and July 29, 2017 were as follows (in millions):

	JANUARY 27, 2018 FAIR VALUE MEASUREMENTS				JULY 29, 2017 FAIR VALUE MEASUREMENTS			
	Level 1	Level 2	Level 3	Total Balance	Level 1	Level 2	Level 3	Total Balance
Assets:								
Cash equivalents:								
Money market funds	$15,537	$—	$ —	$15,537	$9,567	$—	$ —	$9,567
U.S. government securities	—	—	—	—	—	139	—	139
Commercial paper	—	41	—	41	—	160	—	160
Certificates of deposit	—	—	—	—	—	25	—	25
Available-for-sale investments:								
U.S. government securities	—	17,366	—	17,366	—	19,823	—	19,823
U.S. government agency securities	—	1,712	—	1,712	—	2,052	—	2,052
Non-U.S. government and agency securities	—	339	—	339	—	388	—	388
Corporate debt securities	—	31,355	—	31,355	—	31,735	—	31,735
U.S. agency mortgage-backed securities	—	2,057	—	2,057	—	2,023	—	2,023
Commercial paper	—	1,414	—	1,414	—	996	—	996
Certificates of deposit	—	196	—	196	—	60	—	60
Publicly traded equity securities	1,620	—	—	1,620	1,707	—	—	1,707
Derivative assets	—	90	—	90	—	149	—	149
Total	$17,157	$54,570	$ —	$71,727	$11,274	$57,550	$ —	$68,824
Liabilities:								
Derivative liabilities	$—	$76	$ —	$76	$—	$4	$ —	$4
Total	$—	$76	$ —	$76	$—	$4	$ —	$4

Level 1 publicly traded equity securities are determined by using quoted prices in active markets for identical assets. Level 2 fixed income securities are priced using quoted market prices for similar instruments or nonbinding market prices that are corroborated by observable market data. The Company uses 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. The Company uses such pricing data as the primary input to make its assessments and determinations as to the ultimate valuation of its investment portfolio and has not made, during the periods presented, any material adjustments to such inputs. The Company is ultimately responsible for the financial statements and underlying estimates. The Company’s 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. The Company did not have any transfers between Level 1 and Level 2 fair value measurements during the periods presented.

Level 3 assets include certain derivative instruments, the values of which are determined based on discounted cash flow models using inputs that the Company could not corroborate with market data.

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

The following table presents the Company's assets that were measured at fair value on a nonrecurring basis during the indicated periods and the related recognized gains and losses for the periods indicated (in millions):

	TOTAL GAINS (LOSSES) FOR THE THREE MONTHS ENDED		TOTAL GAINS (LOSSES) FOR THE SIX MONTHS ENDED	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Investments in privately held companies (impaired)	$(18)	$ (64)	$(39)	$(111)
Purchased intangible assets (impaired)	—	—	—	(42)
Property held for sale—land and buildings	20	(24)	20	(24)
Total gains (losses) for nonrecurring measurements	$2	$ (88)	$(19)	$(177)

These assets were measured at fair value due to events or circumstances the Company identified as having significant impact on their fair value during the respective periods. To arrive at the valuation of these assets, the Company considers any significant changes in the financial metrics and economic variables and also uses third-party valuation reports to assist in the valuation as necessary.

The fair value measurement of the impaired investments was classified as Level 3 because significant unobservable inputs were used in the valuation due to the absence of quoted market prices and inherent lack of liquidity. Significant unobservable inputs, which included financial metrics of comparable private and public companies, financial condition and near-term prospects of the investees, recent financing activities of the investees, and the investees' capital structure as well as other economic variables, reflected the assumptions market participants would use in pricing these assets. The impairment charges, representing the difference between the net book value and the fair value as a result of the evaluation, were recorded to other income (loss), net. The remaining carrying value of the investments that were impaired was $44 million as of each of January 27, 2018 and January 28, 2017.

The fair value for purchased intangible assets measured at fair value on a nonrecurring basis was categorized as Level 3 due to the use of significant unobservable inputs in the valuation. Significant unobservable inputs that were used included expected revenues and net income related to the assets and the expected life of the assets. The difference between the estimated fair value and the carrying value of the assets was recorded as an impairment charge, which was included in product cost of sales and operating expenses as applicable. See Note 4. The remaining carrying value of the specific purchased intangible assets that were impaired was $9 million as of January 28, 2017.

The fair value of property held for sale was measured with the assistance of third-party valuation models, which used discounted cash flow techniques as part of their analysis. The fair value measurement was categorized as Level 3, as significant unobservable inputs were used in the valuation report. The impairment charge as a result of the valuations, which represented the difference between the fair value less cost to sell and the carrying amount of the assets held for sale, was included in restructuring and other charges. The remaining carrying value of the property held for sale that was impaired was zero and $11 million as of January 27, 2018 and January 28, 2017, respectively.

(d) Other Fair Value Disclosures

The carrying value of investments in privately held companies that were accounted for under the cost method was $861 million and $859 million as of January 27, 2018 and July 29, 2017, respectively. It was not practicable to

estimate the fair value of this portfolio.
The fair value of short-term loan receivables and financed service contracts approximates their carrying value due to their short duration. The aggregate carrying value of long-term loan receivables and financed service contracts as of January 27, 2018 and July 29, 2017 was $3.5 billion and $3.4 billion, respectively. The estimated fair value of long-term loan receivables and financed service contracts approximates their carrying value. The Company uses significant unobservable inputs in determining discounted cash flows to estimate the fair value of its long-term loan receivables and financed service contracts, and therefore they are categorized as Level 3.
As of January 27, 2018, the estimated fair value of the short-term debt approximates its carrying value due to the short maturities. As of January 27, 2018, the fair value of the Company's senior notes and other long-term debt was $31.8 billion with a carrying amount of $30.4 billion. This compares to a fair value of $32.1 billion and a carrying amount of $30.5 billion as of July 29, 2017. The fair value of the senior notes and other long-term debt was determined based on observable market prices in a less active market and was categorized as Level 2 in the fair value hierarchy.

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10. Borrowings

(a) Short-Term Debt

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

	January 27, 2018		July 29, 2017	
	Amount	Effective Rate	Amount	Effective Rate
Current portion of long-term debt	$4,749	1.78 %	$4,747	1.66 %
Commercial paper	8,992	1.51 %	3,245	1.16 %
Total short-term debt	$13,741		$7,992	

The Company has a short-term debt financing program of up to $10.0 billion through the issuance of commercial paper notes. The Company uses 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 the Company's long-term debt (in millions, except percentages):

		January 27, 2018		July 29, 2017	
	Maturity Date	Amount	Effective Rate	Amount	Effective Rate
Senior notes:					
Floating-rate notes:					
Three-month LIBOR plus 0.60%	February 21, 2018	$1,000	2.11%	$1,000	1.84%
Three-month LIBOR plus 0.31%	June 15, 2018	900	1.96%	900	1.62%
Three-month LIBOR plus 0.50%	March 1, 2019	500	2.04%	500	1.76%
Three-month LIBOR plus 0.34%	September 20, 2019	500	2.01%	500	1.66%
Fixed-rate notes:					
1.40%	February 28, 2018	1,250	1.47%	1,250	1.47%
1.65%	June 15, 2018	1,600	1.72%	1,600	1.72%
4.95%	February 15, 2019	2,000	5.04%	2,000	4.96%
1.60%	February 28, 2019	1,000	1.67%	1,000	1.67%
2.125%	March 1, 2019	1,750	2.18%	1,750	1.84%
1.40%	September 20, 2019	1,500	1.48%	1,500	1.48%
4.45%	January 15, 2020	2,500	4.11%	2,500	3.84%
2.45%	June 15, 2020	1,500	2.54%	1,500	2.54%
2.20%	February 28, 2021	2,500	2.30%	2,500	2.30%
2.90%	March 4, 2021	500	2.34%	500	2.00%
1.85%	September 20, 2021	2,000	1.90%	2,000	1.90%
3.00%	June 15, 2022	500	2.60%	500	2.26%
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	2.46%	1,000	2.12%
3.50%	June 15, 2025	500	2.76%	500	2.43%
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		30,500		30,500	
Unaccreted discount/issuance costs		(125)		(136)	
Hedge accounting fair value adjustments		(1)		108	
Total		$30,374		$30,472	
Reported as:					
Current portion of long-term debt		$4,749		$4,747	
Long-term debt		25,625		25,725	
Total		$30,374		$30,472	

The Company entered into interest rate swaps in prior periods with an aggregate notional amount of $6.75 billion designated as fair value hedges of certain of its 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 11.

Interest is payable semiannually on each class of the senior fixed-rate notes and payable quarterly on the floating-rate notes. Each of the senior fixed-rate notes is redeemable by the Company at any time, subject to a make-whole premium. The senior notes rank at par with the commercial paper notes that have been issued in the future pursuant to the Company’s short-term debt financing program, as discussed above under “(a) Short-Term Debt.” As of January 27, 2018, the Company was in compliance with all debt covenants.

As of January 27, 2018, future principal payments for long-term debt, including the current portion, are summarized as follows (in millions):

Fiscal Year	Amount
2018 (remaining six months)	$4,750
2019	5,250
2020	6,000
2021	3,000
2022	2,500
Thereafter	9,000
Total	$30,500

(c) Credit Facilities

On May 15, 2015, the Company entered into a credit agreement with certain institutional lenders that provides for a $3.0 billion unsecured revolving credit facility that is scheduled to expire on May 15, 2020. Any advances under the credit agreement will accrue interest at rates that are equal to, based on certain conditions, either (i) the highest of (a) the Federal Funds rate plus 0.50%, (b) Bank of America’s “prime rate” as announced from time to time, or (c) LIBOR, or a comparable or successor rate that is approved by the Administrative Agent (“Eurocurrency Rate”), for an interest period of one-month plus 1.00%, or (ii) the Eurocurrency Rate, plus a margin that is based on the Company’s 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 Eurocurrency Rate be less than zero. The Company 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/or extend the expiration date of the credit facility up to May 15, 2022.

In addition, on March 30, 2017, the Company entered into a 364-Day credit agreement with certain institutional lenders that provides for a $2.0 billion unsecured revolving credit facility that is scheduled to expire on March 29, 2018. The credit agreement also provides the Company with the option to, for a fee, convert any borrowing outstanding thereunder on March 29, 2018 to a term loan maturing no later than March 29, 2019. The interest rate applicable to outstanding balances under the credit agreement will be based on either (i) the higher of (a) the rates on overnight Federal Funds transactions with members of the Federal Reserve System (i.e., Federal Funds rate) plus 0.50%, (b) Bank of America’s “prime rate” as announced from time to time or (c) LIBOR for an interest period of one month plus 1.00%, or (ii) LIBOR plus a margin that is based on the Company's senior debt credit ratings as published by S&P Global Rating, a business unit of Standard & Poor’s Financial Services LLC, and Moody’s Investors Service, Inc.

These credit agreements require that the Company comply with certain covenants, including that the Company maintains an interest coverage ratio as defined in these agreements. As of January 27, 2018, the Company was in compliance with the required interest coverage ratios and the other covenants, and the Company had not borrowed any funds under these credit facilities.

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11. Derivative Instruments

(a) Summary of Derivative Instruments

The Company uses derivative instruments primarily to manage exposures to foreign currency exchange rate, interest rate, and equity price risks. The Company's 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. The Company's derivatives expose it to credit risk to the extent that the counterparties may be unable to meet the terms of the agreement. The Company does, however, seek to mitigate such risks by limiting its counterparties to major financial institutions. 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 the Company's 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 27, 2018	July 29, 2017	Balance Sheet Line Item	January 27, 2018	July 29, 2017
Derivatives designated as hedging instruments:						
Foreign currency derivatives	Other current assets	$ 47	$ 46	Other current liabilities	$ —	$ 1
Equity derivatives	Other current assets	—	—	Other current liabilities	49	—
Interest rate derivatives	Other assets	18	102	Other long-term liabilities	26	—
Total		65	148		75	1
Derivatives not designated as hedging instruments:						
Foreign currency derivatives	Other current assets	24	1	Other current liabilities	1	3
Total return swaps—deferred compensation	Other current assets	1	—	Other current liabilities	—	—
Total		25	1		1	3
Total		$ 90	$ 149		$ 76	$ 4

The effects of the Company's cash flow and net investment hedging instruments on other comprehensive income (OCI) and the Consolidated Statements of Operations are summarized as follows (in millions):

	GAINS (LOSSES) RECOGNIZED IN OCI ON DERIVATIVES FOR THE THREE MONTHS ENDED (EFFECTIVE PORTION)		GAINS (LOSSES) RECLASSIFIED FROM AOCI INTO INCOME FOR THE THREE MONTHS ENDED (EFFECTIVE PORTION)		
	January 27, 2018	January 28, 2017	Line Item in Statements of Operations	January 27, 2018	January 28, 2017
Derivatives designated as cash flow hedging instruments:					
Foreign currency derivatives	$ 30	$ (2)	Operating expenses	$ 14	$ (21)
			Cost of sales—service	4	(6)
Total	$ 30	$ (2)		$ 18	$ (27)

Derivatives designated as net investment hedging instruments:					
Foreign currency derivatives	$ (12)	$ (3)	Other income (loss), net	$ —	$ —

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	GAINS (LOSSES) RECOGNIZED IN OCI ON DERIVATIVES FOR THE SIX MONTHS ENDED (EFFECTIVE PORTION)		GAINS (LOSSES) RECLASSIFIED FROM AOCI INTO INCOME FOR THE SIX MONTHS ENDED (EFFECTIVE PORTION)		
	January 27, 2018	January 28, 2017	Line Item in Statements of Operations	January 27, 2018	January 28, 2017
Derivatives designated as cash flow hedging instruments:					
Foreign currency derivatives	$ 38	$ (48)	Operating expenses	$ 24	$ (30)
			Cost of sales—service	7	(9)
Total	$ 38	$ (48)		$ 31	$ (39)
Derivatives designated as net investment hedging instruments:					
Foreign currency derivatives	$ (17)	$ 6	Other income (loss), net	$ —	$ —

As of January 27, 2018, the Company estimates that approximately $56 million of net derivative gains related to its cash flow hedges included in accumulated other comprehensive income ("AOCI") will be reclassified into earnings within the next 12 months when the underlying hedged item impacts earnings.

The effect on the Consolidated Statements of Operations of derivative instruments designated as fair value hedges and the underlying hedged items is summarized as follows (in millions):

		GAINS (LOSSES) ON DERIVATIVE INSTRUMENTS FOR THE THREE MONTHS ENDED		GAINS (LOSSES) RELATED TO HEDGED ITEMS FOR THE THREE MONTHS ENDED	
Derivatives Designated as Fair Value Hedging Instruments	Line Item in Statements of Operations	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Interest rate derivatives	Interest expense	$ (63)	$ (175)	$ 63	$ 172
Equity derivatives	Other income (loss), net	(35)	—	35	—
Total		$ (98)	$ (175)	$ 98	$ 172

GAINS (LOSSES) ON DERIVATIVE INSTRUMENTS FOR THE	GAINS (LOSSES) RELATED TO HEDGED ITEMS FOR THE

Derivatives Designated as Fair Value Hedging Instruments	Line Item in Statements of Operations	SIX MONTHS ENDED January 27, 2018	SIX MONTHS ENDED January 28, 2017	SIX MONTHS ENDED January 27, 2018	SIX MONTHS ENDED January 28, 2017
Interest rate derivatives	Interest expense	$ (109)	$ (266)	$ 109	$ 262
Equity derivatives	Other income (loss), net	(49)	—	49	—
Total		$ (158)	$ (266)	$ 158	$ 262

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

		GAINS (LOSSES) FOR THE THREE MONTHS ENDED		GAINS (LOSSES) FOR THE SIX MONTHS ENDED	
Derivatives Not Designated as Hedging Instruments	Line Item in Statements of Operations	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Foreign currency derivatives	Other income (loss), net	$ 66	$ (20)	$ 73	$ (36)
Total return swaps—deferred compensation	Operating expenses	41	26	57	23
Equity derivatives	Other income (loss), net	2	8	3	9
Total		$ 109	$ 14	$ 133	$ (4)

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The notional amounts of the Company's outstanding derivatives are summarized as follows (in millions):

	January 27, 2018	July 29, 2017
Derivatives designated as hedging instruments:		
Foreign currency derivatives—cash flow hedges	$ 792	$ 1,696
Interest rate derivatives	6,750	6,750
Net investment hedging instruments	214	351
Equity derivatives	302	—
Derivatives not designated as hedging instruments:		
Foreign currency derivatives	3,072	2,258
Total return swaps—deferred compensation	590	535
Total	$ 11,720	$ 11,590

(b) Offsetting of Derivative Instruments

The Company presents its derivative instruments at gross fair values in the Consolidated Balance Sheets. However, the Company's 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, the Company also enters 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. Information related to these offsetting arrangements is summarized as follows (in millions):

	January 27, 2018					
	GROSS AMOUNTS OFFSET IN THE CONSOLIDATED BALANCE SHEETS			GROSS AMOUNTS NOT OFFSET IN THE CONSOLIDATED BALANCE SHEETS BUT WITH LEGAL RIGHTS TO OFFSET		
	Gross Amounts Recognized	Gross Amounts Offset	Net Amounts Presented	Gross Derivative Amounts	Cash Collateral	Net Amount
Derivatives assets	$ 90	$ —	$ 90	$ (32)	$ (18)	$ 40
Derivatives liabilities	$ 76	$ —	$ 76	$ (32)	$ (18)	$ 26

	July 29, 2017					
	GROSS AMOUNTS OFFSET IN THE CONSOLIDATED BALANCE SHEETS			GROSS AMOUNTS NOT OFFSET IN THE CONSOLIDATED BALANCE SHEETS BUT WITH LEGAL RIGHTS TO OFFSET		
	Gross Amounts Recognized	Gross Amounts Offset	Net Amounts Presented	Gross Derivative Amounts	Cash Collateral	Net Amount
Derivatives assets	$ 149	$ —	$ 149	$ (4)	$ (81)	$ 64
Derivatives liabilities	$ 4	$ —	$ 4	$ (4)	$ —	$ —

(c) Foreign Currency Exchange Risk

The Company conducts business globally in numerous currencies. Therefore, it is exposed to adverse movements in foreign currency exchange rates. To limit the exposure related to foreign currency changes, the Company enters into foreign currency contracts. The Company does not enter into such contracts for speculative purposes.

The Company hedges forecasted foreign currency transactions related to certain 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 Company assesses effectiveness based on changes in total fair value of the derivatives. The effective portion of the derivative instrument’s gain or loss is initially reported as a component of AOCI and subsequently reclassified into earnings when the hedged exposure affects earnings. The ineffective portion, if any, of the gain or loss is reported in earnings immediately. During the periods presented, the Company did not discontinue any cash flow hedges for which it was probable that a forecasted transaction would not occur.

The Company enters 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, including long-term customer financings, investments, 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 or other current assets, investments, or liabilities denominated in currencies other than the functional currency of the reporting entity.

The Company hedges certain net investments in its foreign operations with forward contracts to reduce the effects of foreign currency fluctuations on the Company’s net investment in those foreign subsidiaries.

(d) Interest Rate Risk

Interest Rate Derivatives, Investments   The Company’s primary objective for holding fixed income securities is to achieve an appropriate investment return consistent with preserving principal and managing risk. To realize these objectives, the Company may utilize interest rate swaps or other derivatives designated as fair value or cash flow hedges. As of January 27, 2018 and July 29, 2017, the Company did not have any outstanding interest rate derivatives related to its fixed income securities.

Interest Rate Derivatives Designated as Fair Value Hedges, Long-Term Debt In the six months ended January 27, 2018, the Company did not enter into any interest rate swaps. In prior fiscal years, the Company entered into interest rate swaps designated as fair value hedges related to fixed-rate senior notes that are due in fiscal 2019 through 2025. Under these interest rate swaps, the Company receives fixed-rate interest payments and makes 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. The fair value of the interest rate swaps was reflected in other current assets and other assets.

(e) Equity Price Risk

The Company may hold equity securities for strategic purposes or to diversify its overall investment portfolio. The publicly traded equity securities in the Company’s portfolio are subject to price risk. To manage its exposure to changes in the fair value of certain equity securities, the Company has periodically entered into equity derivatives that are designated as fair value hedges. The changes in the value of the hedging instruments are included in other income (loss), net, and offset the change in the fair value of the underlying hedged investment. In addition, the Company periodically enters into equity derivatives that are not designated as accounting hedges. The changes in the fair value of these derivatives are also included in other income (loss), net.

The Company is also exposed to variability in compensation charges related to certain deferred compensation obligations to employees. Although not designated as accounting hedges, the Company utilizes derivatives such as total return swaps to economically hedge this exposure.

(f) Hedge Effectiveness

For the periods presented, amounts excluded from the assessment of hedge effectiveness were not material for fair value, cash flow, and net investment hedges. In addition, hedge ineffectiveness for fair value, cash flow, and net investment hedges was not material for any of the periods presented.

12. Commitments and Contingencies

(a) Operating Leases

The Company leases office space in many U.S. locations. Outside the United States, larger leased sites include sites in Belgium, Canada, China, Germany, India, Israel, Japan, Mexico, Poland and the United Kingdom. The Company also leases equipment and vehicles. Future minimum lease payments under all noncancelable operating leases with an initial term in excess of one year as of January 27, 2018 are as follows (in millions):

Fiscal Year	Amount
2018 (remaining six months)	$ 220
2019	323
2020	239
2021	147
2022	122
Thereafter	178
Total	$ 1,229

(b) Purchase Commitments with Contract Manufacturers and Suppliers

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

The following table summarizes the Company's purchase commitments with contract manufacturers and suppliers as of the respective period ends (in millions):

Commitments by Period	January 27, 2018	July 29, 2017
Less than 1 year	$ 4,498	$ 4,620
1 to 3 years	690	20
3 to 5 years	540	—
Total	$ 5,728	$ 4,640

The Company records a liability for firm, noncancelable, and unconditional purchase commitments for quantities in excess of its future demand forecasts consistent with the valuation of the Company’s excess and obsolete inventory. As of January 27, 2018 and July 29, 2017, the liability for these purchase commitments was $159 million and $162 million, respectively, and was included in other current liabilities.

(c) Other Commitments

In connection with the Company’s acquisitions, the Company has 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 the Company 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 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Compensation expense related to acquisitions	$ 46	$ 73	$ 88	$ 137

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As of January 27, 2018, the Company estimated that future cash compensation expense of up to $246 million may be required to be recognized pursuant to the applicable business combination agreements.

Insieme Networks, Inc. In fiscal 2012, the Company made an investment in Insieme, an early stage company focused on research and development in the data center market. This investment included $100 million of funding and a license to certain of the Company's technology. During fiscal 2014, the Company acquired the remaining interests in Insieme, at which time the former noncontrolling interest holders became eligible to receive up to two milestone payments, which were determined using agreed-upon formulas based primarily on revenue for certain of Insieme's products. The former noncontrolling interest holders earned the maximum amount related to these two milestone payments and were paid approximately $422 million during the six months ended January 28, 2017. The Company recorded compensation expense of $12 million during the three months ended January 28, 2017, and $32 million during the six months ended January 28, 2017, related to these milestone payments. The Company does not expect a material amount of future compensation expense or further milestone payments related to this acquisition.

The Company also has certain funding commitments, primarily related to its investments in privately held companies and venture funds, some of which are based on the achievement of certain agreed-upon milestones, and some of which are required to be funded on demand. The funding commitments were $215 million and $216 million as of January 27, 2018 and July 29, 2017, respectively.

(d) Product Warranties

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

	Six Months Ended	
	January 27, 2018	January 28, 2017
Balance at beginning of period	$407	$ 414
Provisions for warranty issued	287	367
Adjustments for pre-existing warranties	(21)	(3)
Settlements	(292)	(352)
Balance at end of period	$381	$ 426

The Company accrues for warranty costs as part of its cost of sales based on associated material product costs, labor costs for technical support staff, and associated overhead. The Company's products are generally covered by a warranty for periods ranging from 90 days to five years, and for some products the Company provides a limited lifetime warranty.

(e) Financing and Other Guarantees

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

Channel Partner Financing Guarantees The Company facilitates arrangements for third-party financing extended to channel partners, consisting of revolving short-term financing, generally with payment terms ranging from 60 to 90 days. These financing arrangements facilitate the working capital requirements of the channel partners, and, in some cases, the Company guarantees a portion of these arrangements. The volume of channel partner financing was $6.9 billion and $6.3 billion for the three months ended January 27, 2018 and January 28, 2017, respectively, and was $13.6 billion and $13.2 billion for the six months ended January 27, 2018 and January 28, 2017, respectively. The balance of the channel partner financing subject to guarantees was $1.0 billion as of each of January 27, 2018 and July 29, 2017.

End-User Financing Guarantees The Company also provides financing guarantees for third-party financing arrangements extended to end-user customers related to leases and loans, which typically have terms of up to three years. The volume of financing provided by third parties for leases and loans as to which the Company had provided guarantees was $12 million and $30 million for the three months ended January 27, 2018 and January 28, 2017, respectively, and was $26 million and $36 million for the six months ended January 27, 2018 and January 28, 2017, respectively.

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Financing Guarantee Summary   The aggregate amounts of financing guarantees outstanding at January 27, 2018 and July 29, 2017, 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 27, 2018	July 29, 2017
Maximum potential future payments relating to financing guarantees:		
Channel partner	$ 288	$ 240
End user	53	74
Total	$ 341	$ 314
Deferred revenue associated with financing guarantees:		
Channel partner	$ (91)	$ (82)
End user	(40)	(52)
Total	$ (131)	$ (134)
Maximum potential future payments relating to financing guarantees, net of associated deferred revenue	$ 210	$ 180

Other Guarantees   The Company’s other guarantee arrangements as of January 27, 2018 and July 29, 2017 that were subject to recognition and disclosure requirements were not material.

(f) Supplier Component Remediation Liabilities

In fiscal 2014, the Company recorded a charge to product cost of sales of $655 million resulting from failures related to products containing memory components manufactured by a single supplier between 2005 and 2010. The Company performs regular assessments of the sufficiency of this liability and reduced the amount by $74 million and $164 million in fiscal 2016 and fiscal 2015, respectively based on updated analyses. During the second quarter of fiscal 2017, the Company further reduced the liability by $141 million to reflect lower than expected defects, actual usage history, and estimated lower future remediation costs as more of the impacted products age and near the end of the support period covered by the remediation program. In addition, during the second quarter of fiscal 2017, the Company recorded a charge to product cost of sales of $125 million related to the expected remediation costs for anticipated failures in future periods of a widely-used component sourced from a third party which is included in several of the Company’s products. The liabilities related to the supplier component remediation matters as of January 27, 2018 and July 29, 2017 were $120 million and $174 million, respectively.

(g) Indemnifications

In the normal course of business, the Company indemnifies other parties, including customers, lessors, and parties to other transactions with the Company, with respect to certain matters. The Company has agreed to hold such parties harmless 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 within which an indemnification claim can be made and the amount of the claim.

The Company has been asked to indemnify certain of the Company’s service provider customers that have been subject to patent infringement claims asserted by Sprint Communications Company, L.P. in federal court in Kansas and Delaware. Sprint alleges that the service provider customers infringed Sprint’s patents by offering VoIP telephone services utilizing products provided by the Company generally in combination with those of other manufacturers. Sprint seeks monetary damages. Following a trial on March 3, 2017 against Time Warner Inc., a jury in Kansas found that Time Warner Cable willfully infringed five Sprint patents and awarded Sprint $139.8 million in damages. On March 14, 2017, the Kansas court declined Sprint's request for enhanced damages and entered judgment in favor of Sprint for $139.8 million plus 1.06% in post-judgment interest. On May 30, 2017, the Court awarded Sprint $20.3 million in pre-judgment interest and denied Time Warner Cable's post-trial motions. Time Warner Cable has appealed. On October 16, 2017, Sprint and Comcast Cable Communications, LLC reached resolution of the claims in Sprint's lawsuit against Comcast and, on October 19, 2017, the Kansas court dismissed Sprint's lawsuit. On December 6, 2017, Sprint and Cox Communications, Inc. reached resolution of the claims in Sprint's lawsuit against Cox, and the Delaware court dismissed Sprint's lawsuit against Cox on December 7, 2017.

The Company believes that Time Warner Cable continues to have strong non-infringement and invalidity defenses and arguments and/or that Sprint's damages claims are inconsistent with prevailing law at trial and/or on appeal. Due to the uncertainty surrounding the litigation process, the Company is unable to reasonably estimate the ultimate outcome of the Time Warner Cable litigation at this time. Should Sprint prevail in litigation, mediation, or settlement, the Company, in accordance with its agreements, may have an obligation to indemnify Time Warner Cable for damages, mediation awards, or settlement amounts arising from its use of Cisco products.

On January 15, 2016, Huawei Technologies Co. Ltd. ("Huawei") filed four patent infringement actions against T-Mobile US, Inc. and T-Mobile USA, Inc. (collectively, "T-Mobile") in federal court in the Eastern District of Texas. Huawei alleged that T-Mobile's use of 3GPP standards to implement its 3G and 4G cellular networks infringed 12 patents. Huawei's infringement allegations for some of the patents were based on T-Mobile's use of products provided by the Company in combination with those of other manufacturers. T-Mobile requested indemnity by the Company with respect to portions of the network that use the Company's equipment. On December 22, 2017, the Eastern District of Texas court dismissed Huawei's four lawsuits after the parties reached settlement, and T-Mobile's indemnity request was subsequently resolved.

During the first six months of fiscal 2018, the Company recorded legal and indemnification settlement charges of $127 million to product cost of sales in relation to these matters. At this time, the Company does not anticipate that its obligations regarding the final outcome of the above matters would be material.

In addition, the Company has entered into indemnification agreements with its officers and directors, and the Company's Amended and Restated Bylaws contain similar indemnification obligations to the Company's agents. It is not possible to determine the maximum potential amount under these indemnification agreements due to the Company's limited history with prior indemnification claims and the unique facts and circumstances involved in each particular agreement. Historically, payments made by the Company under these agreements have not had a material effect on the Company's operating results, financial position, or cash flows.

(h) Legal Proceedings

Brazil Brazilian authorities have investigated the Company's Brazilian subsidiary and certain of its former employees, as well as a Brazilian importer of the Company's 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 the Company's 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 that remain 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 $257 million for the alleged evasion of import and other taxes, $1.6 billion for interest, and $1.2 billion for various penalties, all determined using an exchange rate as of January 27, 2018. The Company has completed a thorough review of the matters and believes the asserted claims against the Company's Brazilian subsidiary are without merit, and the Company is defending the claims vigorously. While the Company believes 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, the Company is unable to determine the likelihood of an unfavorable outcome against its Brazilian subsidiary and is unable to reasonably estimate a range of loss, if any. The Company does not expect a final judicial determination for several years.

SRI International On September 4, 2013, SRI International, Inc. ("SRI") asserted patent infringement claims against the Company in the U.S. District Court for the District of Delaware, accusing the Company's products and services in the area of network intrusion detection of infringing two U.S. patents. SRI sought monetary damages of at least a reasonable royalty and enhanced damages. The trial on these claims began on May 2, 2016 and on May 12, 2016, the jury returned a verdict finding willful infringement of the asserted patents. The jury awarded SRI damages of $23.7 million. On May 25, 2017, the Court awarded SRI enhanced damages and attorneys' fees, entered judgment in the new amount of $57.0 million, and ordered an ongoing royalty of 3.5% through the expiration of the patents in 2018. The Company has appealed to the United States Court of Appeals for the Federal Circuit on various grounds. The Company believes it has strong arguments to overturn the jury verdict and/or reduce the damages award. While the ultimate outcome of the case may still result in a loss, the Company does not expect it to be material.

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SSL SSL Services, LLC (“SSL”) has asserted claims for patent infringement against the Company in the U.S. District Court for the Eastern District of Texas. The proceeding was instituted on March 25, 2015. SSL alleges that the Company's AnyConnect products that include Virtual Private Networking functions infringed a U.S. patent owned by SSL. SSL seeks money damages from the Company. On August 18, 2015, the Company petitioned the Patent Trial and Appeal Board (“PTAB”) of the United States Patent and Trademark Office to review whether the patent SSL has asserted against the Company is valid over prior art. On February 23, 2016, a PTAB multi-judge panel found a reasonable likelihood that the Company would prevail in showing that SSL’s patent claims are unpatentable and instituted proceedings. On June 28, 2016, in light of the PTAB’s decision to review the patent’s validity, the district court issued an order staying the district court case pending the final written decision from the PTAB. On February 22, 2017, following a hearing, the PTAB issued its Final Written Decision that the patent’s claims are unpatentable. SSL has appealed this decision to the Court of Appeals for the Federal Circuit. The Company believes it has strong arguments that the Company's products do not infringe and the patent is invalid. If the Company does not prevail and a jury were to find that the Company's AnyConnect products infringe, the Company believes damages, as appropriately measured, would be immaterial. Due to uncertainty surrounding patent litigation processes, the Company is unable to reasonably estimate the ultimate outcome of this litigation at this time.

Straight Path On September 24, 2014, Straight Path IP Group, Inc. (“Straight Path”) asserted patent infringement claims against the Company in U.S. District Court for the Northern District of California, accusing the Company’s 9971 IP Phone, Unified Communications Manager working in conjunction with 9971 IP Phones, and Video Communication Server products of infringement. All of the asserted patents have expired and Straight Path was therefore limited to seeking monetary damages for the alleged past infringement. On November 13, 2017, the Court granted the Company's motion for summary judgment of non-infringement, thereby dismissing Straight Path's claims against the Company and cancelling a trial which had been set for March 12, 2018. On January 16, 2018, Straight Path appealed to the U.S. Court of Appeal for the Federal Circuit.

DXC Technology On August 21, 2015, the Company and Cisco Systems Capital Corporation (“Cisco Capital”) filed an action in Santa Clara County Superior Court for declaratory judgment and breach of contract against HP Inc. (“HP”) regarding a services agreement for management services of a third party’s network. HP prepaid the service agreement through a financing arrangement with Cisco Capital. HP terminated its agreement with the Company, and pursuant to the terms of the service agreement with HP, the Company determined the credit HP was entitled to receive under the agreement. HP disputed the Company’s credit calculation and contended that the Company owes a larger credit to HP than the Company had calculated. In December 2015, the Company filed an amended complaint which dropped the breach of contract claim in light of HP’s continuing payments to Cisco Capital under the financing arrangement. On January 19, 2016, HP Inc. filed a counterclaim for breach of contract simultaneously with its answer to the amended complaint. DXC Technology Corporation (“DXC”) reported that it is the party in interest in this matter pursuant to the Separation and Distribution Agreement between the then Hewlett-Packard Co. and Hewlett Packard Enterprise Company (“HPE") and the subsequent Separation and Distribution Agreement between HPE and DXC. On January 8, 2018, the court continued the trial date from March 12, 2018 to June 11, 2018. The Company is unable to reasonably estimate the ultimate outcome of this litigation due to uncertainty surrounding the litigation process. However, the Company does not anticipate that its obligation, if any, regarding the final outcome of the dispute would be material.

In addition, the Company is subject to 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, the Company does not expect that the ultimate costs to resolve these matters will have a material adverse effect on its consolidated financial position, results of operations, or cash flows.

13. Shareholders' Equity

(a) Cash Dividends on Shares of Common Stock

During the six months ended January 27, 2018, the Company declared and paid cash dividends of $0.58 per common share, or $2.9 billion, on the Company's outstanding common stock. During the six months ended January 28, 2017, the Company declared and paid cash dividends of $0.52 per common share, or $2.6 billion, on the Company's outstanding common stock.

On February 14, 2018, the Company's Board of Directors declared a quarterly dividend of $0.33 per common share to be paid on April 25, 2018 to all shareholders of record as of the close of business on April 5, 2018. Any future dividends will be subject to the approval of the Company's Board of Directors.

(b) Stock Repurchase Program

In September 2001, the Company's Board of Directors authorized a stock repurchase program. On February 14, 2018, the Company's Board of Directors authorized a $25 billion increase to the stock repurchase program. The remaining authorized amount for stock repurchases under this program, including the additional authorization, is approximately $31 billion, with no termination date. A summary of the stock repurchase activity for fiscal year 2018 and 2017 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 2018			
January 27, 2018	103	$ 39.07	$ 4,011
October 28, 2017	51	$ 31.80	$ 1,620
Fiscal 2017			
July 29, 2017	38	$ 31.61	$ 1,201
April 29, 2017	15	$ 33.71	$ 503
January 28, 2017	33	$ 30.33	$ 1,001
October 29, 2016	32	$ 31.12	$ 1,001

There were $240 million stock repurchases pending settlement as of January 27, 2018. There were $66 million of stock repurchases that were pending settlement as of July 29, 2017.

The purchase price for the shares of the Company's stock repurchased is reflected as a reduction to shareholders' equity. The Company is required to allocate the purchase price of the repurchased shares as (i) a reduction to retained earnings and (ii) a reduction of common stock and additional paid-in capital.

(c) Restricted Stock Unit Withholdings

The Company repurchased approximately 13 million and 14 million shares, for the six months ended January 27, 2018 and January 28, 2017, or $433 million and $432 million of common stock, respectively, in settlement of employee tax withholding obligations due upon the vesting of restricted stock or stock units.

(d) Preferred Stock

Under the terms of the Company's Articles of Incorporation, the Board of Directors may determine the rights, preferences, and terms of the Company's authorized but unissued shares of preferred stock.

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14. Employee Benefit Plans

(a) Employee Stock Incentive Plans

Stock Incentive Plan Program Description   As of January 27, 2018, the Company had one stock incentive plan: the 2005 Stock Incentive Plan (the "2005 Plan"). In addition, the Company has, in connection with the 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 the Company and provide incentives for them to remain with the Company. The number and frequency of share-based awards are based on competitive practices, operating results of the Company, government regulations, and other factors. The Company's primary stock incentive plan is summarized as follows:

2005 Plan   As of January 27, 2018, the maximum number of shares issuable under the 2005 Plan over its term was 694 million shares, plus shares from certain previous plans that are forfeited or are terminated for any other reason before being exercised or settled. If any awards granted under the 2005 Plan are forfeited or are terminated for any other reason before being exercised or settled, the unexercised or unsettled shares underlying the awards will again be available under the 2005 Plan. In addition, starting November 19, 2013, shares withheld by the Company from an award other than a stock option or stock appreciation right to satisfy withholding tax liabilities resulting from such award will again be available for issuance, based on the fungible share ratio in effect on the date of grant.

Pursuant to an amendment approved by the Company's shareholders on November 12, 2009, the number of shares available for issuance under the 2005 Plan is reduced by 1.5 shares for each share awarded as a stock grant or a stock unit, and any shares underlying awards outstanding from certain previous plans that expire unexercised at the end of their maximum terms become available for reissuance under the 2005 Plan. The 2005 Plan permits the granting of stock options, restricted stock, and restricted stock units ("RSUs"), the vesting of which may be performance-based or market-based along with the requisite service requirement, and stock appreciation rights to employees (including employee directors and officers), consultants of the Company and its subsidiaries and affiliates, and non-employee directors of the Company. Stock options and stock appreciation rights granted under the 2005 Plan have an exercise price of at least 100% of the fair market value of the underlying stock on the grant date. The expiration date for stock options and stock appreciation rights shall be no later than 10 years from the grant date.

The stock options will generally become exercisable for 20% or 25% of the option shares one year from the date of grant and then ratably over the following 48 months or 36 months, respectively. Time-based stock grants and time-based RSUs will generally vest over a four year term. The majority of the performance-based and market-based RSUs vests at the end of the three-year requisite service period or earlier if the award recipient meets certain retirement eligibility conditions. Certain performance-based RSUs, that are based on the achievement of financial and/or non-financial operating goals, typically vest upon the achievement of milestones (and may require subsequent service periods), with overall vesting of the shares underlying the award ranging from six months to three years. The Compensation and Management Development Committee of the Board of Directors has the discretion to use different vesting schedules. Stock appreciation rights may be awarded in combination with stock options or stock grants, and such awards shall provide that the stock appreciation rights will not be exercisable unless the related stock options or stock grants are forfeited. Stock grants may be awarded in combination with non-statutory stock options, and such awards may provide that the stock grants will be forfeited in the event that the related non-statutory stock options are exercised.

(b) Employee Stock Purchase Plan

The Company has an Employee Stock Purchase Plan, which includes its subplan named the International Employee Stock Purchase Plan (together, the "Purchase Plan"), under which 621 million shares of the Company's common stock have been reserved for issuance as of January 27, 2018. 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 number of shares of the Company's stock at a discount of up to 15% of the lesser of the market value at the beginning of the offering period or the end of each 6-month purchase period. The Purchase Plan is scheduled to terminate on January 3, 2020. The Company issued 12 million shares under the Purchase Plan during the six months ended January 27, 2018 and January 28, 2017. As of January 27, 2018, 88 million shares were available for issuance under the Purchase Plan.

(c) Summary of Share-Based Compensation Expense

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Cost of sales—product	$23	$ 19	$46	$ 40
Cost of sales—service	31	34	65	67
Share-based compensation expense in cost of sales	54	53	111	107
Research and development	134	129	270	255
Sales and marketing	135	125	270	265
General and administrative	64	45	128	94
Restructuring and other charges	12	—	18	3
Share-based compensation expense in operating expenses	345	299	686	617
Total share-based compensation expense	$399	$ 352	$797	$ 724
Income tax benefit for share-based compensation	$96	$ 102	$271	$ 207

As of January 27, 2018, the total compensation cost related to unvested share-based awards not yet recognized was $3.4 billion, which is expected to be recognized over approximately 2.6 years on a weighted-average basis.

(d) Share-Based Awards Available for Grant

A summary of share-based awards available for grant is as follows (in millions):

	Share-Based Awards Available for Grant
BALANCE AT JULY 30, 2016	242
Restricted stock, stock units, and other share-based awards granted	(76)
Share-based awards canceled/forfeited/expired	78
Shares withheld for taxes and not issued	28
BALANCE AT JULY 29, 2017	272
Restricted stock, stock units, and other share-based awards granted	(46)
Share-based awards canceled/forfeited/expired	10
Shares withheld for taxes and not issued	18
BALANCE AT JANUARY 27, 2018	254

As reflected in the preceding table, for each share awarded as restricted stock or subject to a restricted stock unit award under the 2005 Plan, an equivalent of 1.5 shares was deducted from the available share-based award balance. For restricted stock units that were awarded with vesting contingent upon the achievement of future financial performance or market-based metrics, the maximum awards that can be achieved upon full vesting of such awards were reflected in the preceding table.

(e) Restricted Stock and 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 30, 2016	145	$ 24.26	
Granted	50	27.89	
Assumed from acquisitions	15	32.21	
Vested	(54)	23.14	$ 1,701
Canceled/forfeited	(15)	23.56	
UNVESTED BALANCE AT JULY 29, 2017	141	26.94	
Granted	31	33.30	
Assumed from acquisitions	1	28.26	
Vested	(36)	25.21	$ 1,174
Canceled/forfeited	(10)	27.83	
UNVESTED BALANCE AT JANUARY 27, 2018	127	$ 28.90	

(f) Stock Option Awards

A summary of the stock option activity is as follows (in millions, except per-share amounts):

	STOCK OPTIONS OUTSTANDING	
	Number Outstanding	Weighted-Average Exercise Price per Share
BALANCE AT JULY 30, 2016	73	$ 26.78
Assumed from acquisitions	8	4.47
Exercised	(14)	12.11
Canceled/forfeited/expired	(55)	31.83
BALANCE AT JULY 29, 2017	12	6.15
Assumed from acquisitions	3	8.20
Exercised	(4)	5.28
BALANCE AT JANUARY 27, 2018	11	$ 7.03

The following table summarizes significant ranges of outstanding and exercisable stock options as of January 27, 2018 (in millions, except years and share prices):

	STOCK OPTIONS OUTSTANDING				STOCK OPTIONS EXERCISABLE		
Range of Exercise Prices	Number Outstanding	Weighted-Average Remaining Contractual Life (in Years)	Weighted-Average Exercise Price per Share	Aggregate Intrinsic Value	Number Exercisable	Weighted-Average Exercise Price per Share	Aggregate Intrinsic Value
$ 0.01 – 35.00	11	6.5	$ 7.03	$ 380	5	$ 6.40	$ 194

The aggregate intrinsic value in the preceding table represents the total pretax intrinsic value, based on the Company's closing stock price of $42.56 as of January 26, 2018, that would have been received by the option holders had those option holders exercised their stock options as of that date. The total number of in-the-money stock options exercisable as of January 27, 2018 was 5 million. As of July 29, 2017, 6 million outstanding stock options were exercisable and the weighted-average exercise price was $5.61.

(g) Valuation of Employee Share-Based Awards

Time-based restricted stock units and performance-based restricted stock units ("PRSUs") that are based on the Company’s financial performance metrics or non-financial operating goals are valued using the market value of the Company’s common stock on the date of grant, discounted for the present value of expected dividends. On the date of grant, the Company estimated the fair value of the total shareholder return ("TSR") component of the PRSUs using a Monte Carlo simulation model. The assumptions for the valuation of time-based RSUs and PRSUs are summarized as follows:

	RESTRICTED STOCK UNITS		PERFORMANCE BASED RESTRICTED STOCK UNITS	
Three Months Ended	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Number of shares granted (in millions)	21	15	—	3
Grant date fair value per share	$ 34.89	$ 27.68	$ 32.47	$ 27.90
Weighted-average assumptions/inputs:				
Expected dividend yield	3.1 %	3.4 %	3.2 %	3.4 %
Range of risk-free interest rates	0.0% – 2.1%	0.0% – 1.5%	1.0% – 1.8%	0.3% – 1.5%
Range of expected volatilities for index	N/A	N/A	13.2% – 81.0%	N/A

	RESTRICTED STOCK UNITS		PERFORMANCE BASED RESTRICTED STOCK UNITS	
Six Months Ended	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Number of shares granted (in millions)	28	23	3	6
Grant date fair value per share	$ 33.50	$ 27.96	$ 31.31	$ 28.78
Weighted-average assumptions/inputs:				
Expected dividend yield	3.2 %	3.4 %	3.6 %	3.4 %
Range of risk-free interest rates	0.0% – 2.1%	0.0% – 1.5%	1.0% – 1.8%	0.1% – 1.5%
Range of expected volatilities for index	N/A	N/A	13.2% – 81.0%	16.7% – 46.8%

The PRSUs granted during the periods presented are contingent on the achievement of the Company’s financial performance metrics, its comparative market-based returns, or the achievement of financial and non-financial operating goals. For the awards based on financial performance metrics or comparative market-based returns, generally 50% of the PRSUs are earned based on the average of annual operating cash flow and earnings per share goals established at the beginning of each fiscal year over a three-year performance period. Generally, the remaining 50% of the PRSUs are earned based on the Company’s TSR measured against the benchmark TSR of a peer group over the same period. Each PRSU recipient could vest in 0% to 150% of the target shares granted contingent on the achievement of the Company's financial performance metrics or its comparative market-based returns and 0% to 100% of the target shares granted contingent on the achievement of non-financial operating goals.

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15. Comprehensive Income (Loss)

The components of AOCI, net of tax, and the other comprehensive income (loss), excluding noncontrolling interest, for the six months ended January 27, 2018 and January 28, 2017 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 29, 2017	$ 373	$ 32	$ (359)	$ 46
Other comprehensive income (loss) before reclassifications attributable to Cisco Systems, Inc.	(174)	38	292	156
(Gains) losses reclassified out of AOCI	(91)	(31)	5	(117)
Tax benefit (expense)	3	1	(6)	(2)
BALANCE AT JANUARY 27, 2018	$ 111	$ 40	$ (68)	$ 83

	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, 2016	$ 413	$ (59)	$ (680)	$ (326)
Other comprehensive income (loss) before reclassifications attributable to Cisco Systems, Inc.	(559)	(48)	(69)	(676)
(Gains) losses reclassified out of AOCI	15	39	(1)	53
Tax benefit (expense)	148	1	(1)	148
BALANCE AT JANUARY 28, 2017	$ 17	$ (67)	$ (751)	$ (801)

The net gains (losses) reclassified out of AOCI into the Consolidated Statements of Operations, with line item location, during each period were as follows (in millions):

	Three Months Ended		Six Months Ended		
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017	
Comprehensive Income Components	Income Before Taxes		Income Before Taxes		Line Item in Statements of Operations
Net unrealized gains and losses on available-for-sale investments	$58	$ (30)	$91	$ (15)	Other income (loss), net
Net unrealized gains and losses on cash flow hedging instruments					

Foreign currency derivatives	14	(21)	24	(30)	Operating expenses
Foreign currency derivatives	4	(6)	7	(9)	Cost of sales—service
	18	(27)	31	(39)	
Cumulative translation adjustment and actuarial gains and losses	(4)	1	(5)	1	Operating expenses
Total amounts reclassified out of AOCI	$72	$ (56)	$117	$ (53)	

16. Income Taxes

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Income before provision for income taxes	$3,232	$ 2,963	$6,194	$ 5,916
Provision for income taxes	$12,010	$ 615	$12,578	$ 1,246
Effective tax rate	371.6 %	20.8 %	203.1 %	21.1 %

On December 22, 2017, the Tax Act was enacted. The Tax Act significantly revises the U.S. corporate income tax by, among other things, lowering the statutory corporate income tax rate (“federal tax rate”) from 35% to 21% effective January 1, 2018, implementing a modified territorial tax system, and imposing a mandatory one-time transition tax on accumulated earnings of foreign subsidiaries. As a fiscal-year taxpayer, certain provisions of the Tax Act impact the Company in fiscal 2018, including the change in the federal tax rate and the one-time transition tax, while other provisions will be effective at the beginning of fiscal 2019, including the implementation of a modified territorial tax system and other changes to how foreign earnings are subject to U.S. tax, and elimination of the domestic manufacturing deduction.

As a result of the decrease in the federal tax rate from 35% to 21% effective January 1, 2018, the Company has computed its income tax expense for the July 28, 2018 fiscal year using a blended federal tax rate of 27%. The 21% federal tax rate will apply to the Company’s fiscal year ending July 27, 2019 and each year thereafter. The Company must remeasure its deferred tax assets and liabilities ("DTA") using the federal tax rate that will apply when the related temporary differences are expected to reverse.

As of January 27, 2018, the Company has approximately $75 billion in undistributed earnings for certain foreign subsidiaries. Substantially all of these undistributed earnings are subject to the U.S. mandatory one-time transition tax and are eligible to be repatriated to the U.S. without additional U.S. tax under the Tax Act. The Company has historically asserted its intention to indefinitely reinvest foreign earnings in certain foreign subsidiaries. The Company has reevaluated its historic assertion as a result of enactment of the Tax Act and no longer considers these earnings to be indefinitely reinvested in its foreign subsidiaries. As a result of this change in assertion, the Company has recorded a $1.2 billion tax expense for foreign withholding tax in the second quarter of fiscal 2018. In the third quarter of fiscal 2018, the Company anticipates repatriating $67 billion of foreign subsidiary earnings to the U.S. (in the form of cash, cash equivalents, or investments), of which $26 billion was repatriated to the U.S. in February 2018.

During the three months ended January 27, 2018, the Company recorded a provisional tax expense of $11.1 billion related to the Tax Act, comprised of $9.0 billion of U.S. transition tax, $1.2 billion of foreign withholding tax (discussed above), and $0.9 billion re-measurement of net DTA. The Company plans to pay the transition tax in installments over eight years in accordance with the Tax Act. The $1.2 billion foreign withholding tax was paid in February 2018.

In December 2017, the Securities and Exchange Commission staff issued Staff Accounting Bulletin No. 118, which addresses how a company recognizes provisional amounts when a company does not have the necessary information available, prepared or analyzed (including computations) in reasonable detail to complete its accounting for the effect of the changes in the Tax Act. The measurement period ends when a company has obtained, prepared, and analyzed the information necessary to finalize its accounting, but cannot extend beyond one year. The final impact of the Tax Act may differ from the above provisional amounts due to changes in interpretations of the Tax Act, any legislative action to address questions that arise because of the Tax Act, by changes in accounting standard for income taxes and related interpretations in response to the Tax Act, and any updates or changes to estimates used in the provisional amounts. The Company has determined that the $9.0 billion of tax expense for the U.S. transition tax on accumulated earnings of foreign subsidiaries, the $1.2 billion of foreign withholding tax, and the $0.9 billion of tax expense for

DTA re-measurement were each provisional amounts and reasonable estimates as of January 27, 2018. Estimates used in the provisional amounts include: the anticipated reversal pattern of the gross DTAs; and earnings, cash positions, foreign taxes and withholding taxes attributable to foreign subsidiaries.

As of January 27, 2018, the Company had $2.0 billion of unrecognized tax benefit, of which $1.6 billion, if recognized, would favorably impact the effective tax rate. The Company regularly engages in discussions and negotiations with tax authorities regarding tax matters in various jurisdictions. The Company believes 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. The Company estimates that the unrecognized tax benefits at January 27, 2018 could be reduced by approximately $250 million in the next 12 months.

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

17. Segment Information and Major Customers
(a) Revenue and Gross Margin by Segment
The Company conducts business globally and is primarily managed on a geographic basis consisting of three segments: the Americas, EMEA, and APJC. The Company’s management makes financial decisions and allocates resources based on the information it receives from its internal management system. Sales are attributed to a segment based on the ordering location of the customer. The Company does not allocate research and development, sales and marketing, or general and administrative expenses to its segments in this internal management system because management does not include the information in its measurement of the performance of the operating segments. In addition, the Company does 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 its measurement of the performance of the operating segments.
Summarized financial information by segment for the three and six months ended January 27, 2018 and January 28, 2017, based on the Company’s internal management system and as utilized by the Company’s Chief Operating Decision Maker ("CODM"), is as follows (in millions):

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Revenue:				
Americas	$7,004	$ 6,660	$14,354	$14,103
EMEA	3,062	3,065	5,971	6,078
APJC	1,821	1,855	3,698	3,751
Total	$11,887	$ 11,580	$24,023	$23,932
Gross margin:				
Americas	$4,614	$ 4,288	$9,336	$9,121
EMEA	1,977	2,012	3,816	4,025
APJC	1,094	1,121	2,259	2,325
Segment total	7,685	7,421	15,411	15,471
Unallocated corporate items	(187)	(145)	(486)	(311)
Total	$7,498	$ 7,276	$14,925	$15,160

Revenue in the United States was $6.1 billion and $5.9 billion for the three months ended January 27, 2018 and January 28, 2017, respectively, and was $12.6 billion and $12.5 billion for the six months ended January 27, 2018 and January 28, 2017, respectively.
(b) Revenue for Groups of Similar Products and Services
The Company designs, manufactures, and sells Internet Protocol (IP)-based networking and other products related to the communications and IT industry and provides services associated with these products and their use. Effective in the first quarter of fiscal 2018, the Company began reporting its product and service revenue in the following five categories: Infrastructure Platforms, Applications, Security, Other Products, and Services. The change better aligns the Company's product categories with its evolving business model. Prior period amounts have been reclassified to conform to the current period's presentation. These products, primarily integrated by Cisco IOS Software, link geographically dispersed local-area networks (LANs), metropolitan-area networks (MANs), and wide-area networks (WANs).

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

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Revenue:				
Infrastructure Platforms	$6,694	$ 6,545	$13,664	$ 13,818
Applications	1,184	1,116	2,387	2,252
Security	558	528	1,143	1,068
Other Products	273	302	569	655
Total Product	8,709	8,491	17,763	17,793
Services	3,178	3,089	6,260	6,139
Total	$11,887	$ 11,580	$24,023	$ 23,932

(c) Additional Segment Information

The majority of the Company’s assets, excluding cash and cash equivalents and investments, was attributable to its U.S. operations as of each of January 27, 2018 and July 29, 2017. The Company’s total cash and cash equivalents and investments held by various foreign subsidiaries were $71.3 billion and $67.5 billion as of January 27, 2018 and July 29, 2017, respectively, and the remaining $2.4 billion and $3.0 billion at the respective period ends were available in the United States.

Property and equipment information is based on the physical location of the assets. The following table presents property and equipment information for geographic areas (in millions):

	January 27, 2018	July 29, 2017
Property and equipment, net:		
United States	$ 2,555	$ 2,711
International	558	611
Total	$ 3,113	$ 3,322

18. Net Income (Loss) per Share

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Net income (loss)	$(8,778)	$ 2,348	$(6,384)	$4,670
Weighted-average shares—basic	4,924	5,015	4,942	5,021
Effect of dilutive potential common shares	—	25	—	33
Weighted-average shares—diluted	4,924	5,040	4,942	5,054
Net income (loss) per share—basic	$(1.78)	$ 0.47	$(1.29)	$0.93
Net income (loss) per share—diluted	$(1.78)	$ 0.47	$(1.29)	$0.92

Employee equity share options, unvested shares, and similar equity instruments are treated as potential common shares outstanding in computing diluted earnings per share. Diluted shares outstanding include the dilutive effect of in-the-money options, unvested restricted stock, and restricted stock units. The dilutive effect of such equity awards is calculated based on the average share price for each fiscal period using the treasury stock method. Under the treasury stock method, the amount the employee must pay for exercising stock options and the amount of compensation cost for future service that has not yet recognized would be recorded in additional paid-in capital when the award becomes deductible are collectively assumed to be used to repurchase shares.

For the three and six months ended January 27, 2018, the Company excluded the impact of potentially dilutive common shares from the calculation of net income (loss) per share as the inclusion would have an antidilutive effect. The Company excluded antidilutive employee-share based awards of 20 million and 103 million for the three and six months ended January 28, 2017.

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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 (the “Securities Act”) and the Securities Exchange Act of 1934 (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,” “
“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, 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 have been powering the Internet since 1984. Across networking, security, collaboration and the cloud, our evolving intent-based technologies are constantly learning and adapting 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 27, 2018	January 28, 2017	Variance	January 27, 2018	January 28, 2017	Variance
Revenue	$11,887	$11,580	3 %	$24,023	$23,932	— %
Gross margin percentage	63.1 %	62.8 %	0.3 pts	62.1 %	63.3 %	(1.2) pts
Research and development	$1,549	$1,508	3 %	$3,116	$3,053	2 %
Sales and marketing	$2,235	$2,222	1 %	$4,569	$4,640	(2)%
General and administrative	$483	$456	6 %	$1,040	$1,011	3 %
Total research and development, sales and marketing, general and administrative	$4,267	$4,186	2 %	$8,725	$8,704	— %
Total as a percentage of revenue	35.9 %	36.1 %	(0.2) pts	36.3 %	36.4 %	(0.1) pts
Amortization of purchased intangible assets included in operating expenses	$60	$64	(6)%	$121	$142	(15)%
Restructuring and other charges included in operating expenses	$98	$133	(26)%	$250	$544	(54)%
Operating income as a percentage of revenue	25.9 %	25.0 %	0.9 pts	24.3 %	24.1 %	0.2 pts
Income tax percentage	371.6 %	20.8 %	350.8 pts	203.1 %	21.1 %	182.0 pts
Net income (loss)	$(8,778)	$2,348	(474)%	$(6,384)	$4,670	(237)%
Net income (loss) as a percentage of revenue	(73.8)%	20.3 %	(94.1) pts	(26.6)%	19.5 %	(46.1) pts
Earnings (loss) per share	$(1.78)	$0.47	(479)%	$(1.29)	$0.92	(240)%

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Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017

In the second quarter of fiscal 2018, we saw broad strength across the business and delivered solid revenue growth, strong margins and operating cash flows. We remain focused on accelerating innovation across our portfolio, and we believe that we have made continued progress on our strategic priorities. We experienced solid revenue growth in Security and Applications and modest growth in Infrastructure Platforms, and we continued to make progress in the transition of our business model to increased software and subscriptions. We continue to operate in a challenging and highly competitive environment, which has negatively impacted certain of our offerings within our Infrastructure Platforms product category. We continued to see weakness in the service provider market and we expect ongoing uncertainty in that area. 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 3% compared with the second quarter of fiscal 2017. Within total revenue, product and service revenue each increased by 3%. Total gross margin increased by 0.3 percentage points, driven by productivity improvements and favorable product mix partially offset by unfavorable impacts from pricing. As a percentage of revenue, research and development, sales and marketing, and general and administrative expenses, collectively, decreased by 0.2 percentage points. Operating income as a percentage of revenue increased by 0.9 percentage points. We had a net loss of $8.8 billion and a net loss per share of $1.78, primarily due to the $11.1 billion provisional tax expense related to the Tax Act, comprised of $9.0 billion U.S. transition tax, $1.2 billion of foreign withholding tax, and $0.9 billion of net deferred tax assets re-measurement.

In terms of our geographic segments, revenue from the Americas increased $344 million, driven in large part by product revenue growth in the United States. EMEA revenue decreased by $3 million, led by a product revenue decline in the United Kingdom. Revenue in our APJC segment decreased by $34 million, led by a product revenue decline in Japan. The “BRICM” countries experienced product revenue growth of 2% in the aggregate, driven by increased product revenue in the emerging countries of China, Russia and Brazil of 8%, 17% and 11%, respectively, partially offset by product revenue declines in India and Mexico of 11% and 4%, respectively.

From a customer market standpoint, we experienced product revenue growth in the public sector and commercial markets, partially offset by a product revenue decline in the service provider market. Product revenue in the enterprise market was flat.

From a product category perspective, product revenue increased 3% led by solid product revenue growth in Security and Applications, which each grew by 6%. We experienced a 2% product revenue increase in Infrastructure Platforms and we saw broad strength across the portfolio.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
Total revenue was flat, with product revenue flat and service revenue increasing 2%. Total gross margin decreased by 1.2 percentage points due to unfavorable impacts from pricing and a $127 million legal and indemnification settlement charge, partially offset by productivity benefits and favorable 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 increased by 0.2 percentage points. We had a net loss of $6.4 billion and a net loss per share of $1.29, due primarily to the $11.1 billion provisional tax expense related to the Tax Act as discussed above.
Strategy and Priorities
As our customers add billions of new connections to their enterprises, we believe the network is becoming more critical than ever. We believe that our customers are looking for intelligent networks that provide meaningful business value through automation, security, and analytics. Our vision is to deliver a highly secure, intelligent, platform for digital businesses. Our strategic priorities include accelerating our pace of innovation, increasing the value of the network, and delivering technology the way our customers want to consume it.
For additional discussion of our strategy and priorities, see Item 1. Business in our Annual Report on Form 10-K for the year ended July 29, 2017.
Other Key Financial Measures
The following is a summary of our other key financial measures for the second quarter and first six months of fiscal 2018 (in millions):

	January 27, 2018	July 29, 2017
Cash and cash equivalents and investments	$ 73,683	$ 70,492
Deferred revenue	$ 18,788	$ 18,494
Inventories	$ 1,896	$ 1,616

	Six Months Ended	
	January 27, 2018	January 28, 2017
Cash provided by operating activities	$ 7,150	$ 6,502
Repurchases of common stock—stock repurchase program	$ 5,631	$ 2,002
Dividends	$ 2,861	$ 2,612

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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 year ended July 29, 2017, 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

Revenue is recognized when all of the following criteria have been met:

- Persuasive evidence of an arrangement exists. Contracts, Internet commerce agreements, and customer purchase orders are generally used to determine the existence of an arrangement.
- Delivery has occurred. Shipping documents and customer acceptance, when applicable, are used to verify delivery. For software, delivery is considered to have occurred upon unrestricted license access and license term commencement, when applicable.
- The fee is fixed or determinable. We assess whether the fee is fixed or determinable based on the payment terms associated with the transaction and whether the sales price is subject to refund or adjustment.
- Collectibility is reasonably assured. We assess collectibility based primarily on the creditworthiness of the customer as determined by credit checks and analysis, as well as the customer's payment history.

In instances where final acceptance of the product, system, or solution is specified by the customer, revenue is deferred until all acceptance criteria have been met. When a sale involves multiple deliverables, such as sales of products that include services, the multiple deliverables are evaluated to determine the unit of accounting, and the entire fee from the arrangement is allocated to each unit of accounting based on the relative selling price. Revenue is recognized when the revenue recognition criteria for each unit of accounting are met. For hosting arrangements, we recognize revenue ratably over the hosting period, while usage revenue is recognized based on utilization. Software subscription revenue is deferred and recognized ratably over the subscription term upon delivery of the first product and commencement of the term.

The amount of revenue recognized in a given period is affected by our judgment as to whether an arrangement includes multiple deliverables and, if so, our valuation of the units of accounting. Our multiple element arrangements may contain only deliverables within the scope of Accounting Standards Codification (ASC) 605, Revenue Recognition, deliverables within the scope of ASC 985-605, Software-Revenue Recognition, or a combination of both. According to the accounting guidance prescribed in ASC 605, we use vendor-specific objective evidence of selling price (VSOE) for each of those units, when available. We determine VSOE based on our normal pricing and discounting practices for the specific product or service when sold separately. In determining VSOE, we require that a substantial majority of the historical standalone transactions have the selling prices for a product or service fall within a reasonably narrow pricing range, generally evidenced by approximately 80% of such historical standalone transactions falling within plus or minus 15% of the median rates. When VSOE does not exist, we apply the selling price hierarchy to applicable multiple-deliverable arrangements. Under the selling price hierarchy, third-party evidence of selling price (TPE) will be considered if VSOE does not exist, and estimated selling price (ESP) will be used if neither VSOE nor TPE is available. Generally, we are not able to determine TPE because our go-to-market strategy differs from that of others in our markets, and the extent of our proprietary technology varies among comparable products or services from those of our peers. In determining ESP, we apply significant judgment as we weigh a variety of factors, based on the characteristics of the deliverable. We typically arrive at an ESP for a product or service that is not sold separately by considering company-specific factors such as geographies, competitive landscape, internal costs, profitability objectives, pricing practices used to establish bundled pricing, and existing portfolio pricing and discounting.

As our business and offerings evolve over time, our pricing practices may be required to be modified accordingly, which could result in changes in selling prices, including both VSOE and ESP, in subsequent periods. There were no material impacts during the first six months of fiscal 2018, nor do we currently expect a material impact in the next 12 months on our revenue recognition due to any changes in our VSOE, TPE, or ESP.

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We make sales to distributors which we refer to as two-tier sales to the end customer. Revenue from two-tier distributors is recognized based on a sell-through method using point-of-sale information provided by these distributors. Distributors participate in various cooperative marketing and other incentive programs, and we maintain estimated accruals and allowances for these programs. 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.

Allowances for Receivables and Sales Returns

The allowances for receivables were as follows (in millions, except percentages):

	January 27, 2018	July 29, 2017
Allowance for doubtful accounts	$ 181	$ 211
Percentage of gross accounts receivable	4.4 %	3.9 %
Allowance for credit loss—lease receivables	$ 165	$ 162
Percentage of gross lease receivables[(1)]	5.6 %	5.5 %
Allowance for credit loss—loan receivables	$ 94	$ 103
Percentage of gross loan receivables	1.9 %	2.3 %

[(1)] Calculated as allowance for credit loss on lease receivables as a percentage of gross lease receivables and residual value before unearned income.

The allowance for doubtful accounts is based on our assessment of the collectibility of customer accounts. We regularly review the adequacy of these allowances by considering internal factors such as historical experience, credit quality and age of the receivable balances as well as external factors such as economic conditions that may affect a customer's ability to pay as well as historical and expected default frequency rates, which are published by major third-party credit-rating agencies and are updated on a quarterly basis. We also consider the concentration of receivables outstanding with a particular customer in assessing the adequacy of our allowances for doubtful accounts. If a major customer's creditworthiness deteriorates, if actual defaults are higher than our historical experience, or if other circumstances arise, our estimates of the recoverability of amounts due to us could be overstated, and additional allowances could be required, which could have an adverse impact on our operating results.

The allowance for credit loss on financing receivables is also based on the assessment of collectibility of customer accounts. We regularly review the adequacy of the credit allowances determined either on an individual or a collective basis. When evaluating the financing receivables on an individual basis, we consider historical experience, credit quality and age of receivable balances, and economic conditions that may affect a customer's ability to pay. When evaluating financing receivables on a collective basis, we use expected default frequency rates published by a major third-party credit-rating agency as well as our own historical loss rate in the event of default, while also systematically giving effect to economic conditions, concentration of risk and correlation. Determining expected default frequency rates and loss factors associated with internal credit risk ratings, as well as assessing factors such as economic conditions, concentration of risk, and correlation, are complex and subjective. Our ongoing consideration of all these factors could result in an increase in our allowance for credit loss in the future, which could adversely affect our operating results. Both accounts receivable and financing receivables are charged off at the point when they are considered uncollectible.

A reserve for future sales returns is established based on historical trends in product return rates. The reserve for future sales returns as of January 27, 2018 and July 29, 2017 was $121 million and $122 million, respectively, and was recorded as a reduction of our accounts receivable and revenue. If the actual future returns were to deviate from the historical data on which the reserve had been established, our revenue could be adversely affected.

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 market, 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. As of January 27, 2018, the liability for these purchase commitments was $159 million, compared with $162 million as of July 29, 2017, and was included in other current liabilities.

Our provision for inventory was $31 million and $35 million for the first six months of fiscal 2018 and 2017, respectively. The provision for the liability related to purchase commitments with contract manufacturers and suppliers was $44 million and $74 million for the first six months of fiscal 2018 and 2017, respectively. If there were to be a sudden and significant decrease in demand for our products, or if there were a higher incidence of inventory obsolescence because of rapidly changing technology and customer requirements, 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. 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, particularly in light of current macroeconomic uncertainties and conditions and the resulting potential for changes in future demand forecast.

Loss Contingencies and Product Warranties

We are subject to the possibility of various losses arising in the ordinary course of business. We consider the likelihood of impairment of an asset or 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 an asset has been impaired or 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.

In fiscal 2014, we recorded a charge to product cost of sales of $655 million resulting from failures related to products containing memory components manufactured by a single supplier between 2005 and 2010. We perform regular assessments of the sufficiency of this liability and reduced the amount by $74 million and $164 million in fiscal 2016 and fiscal 2015, respectively based on updated analyses. During the second quarter of fiscal 2017, we further reduced the liability by $141 million to reflect lower than expected defects, actual usage history, and estimated lower future remediation costs as more of the impacted products age and near the end of the support period covered by the remediation program. In addition, during the second quarter of fiscal 2017, we recorded a $125 million charge to product cost of sales related to the expected remediation costs for anticipated failures in future periods of a widely-used component sourced from a third party which is included in several of our products. The liabilities related to the supplier component remediation matters as of January 27, 2018 and July 29, 2017 were $120 million and $174 million, respectively.

Estimating these liabilities is complex and subjective, and if we experience changes in a number of underlying assumptions and estimates such as a change in claims compared with our expectations, or if the cost of servicing these claims is different than expected, our estimated liabilities for these matters may be impacted.

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. We accrue for warranty costs as part of our cost of sales based on associated material costs, technical support labor costs, and associated overhead. Material cost is estimated based primarily upon historical trends in the volume of product returns within the warranty period and the cost to repair or replace the equipment. Technical support labor cost is estimated based primarily upon historical trends in the rate of customer cases and the cost to support the customer cases within the warranty period. Overhead cost is applied based on estimated time to support warranty activities.

If we experience an increase in warranty claims compared with our historical experience, or if the cost of servicing warranty claims is greater than expected, our profitability could be adversely affected.

Fair Value Measurements

Our fixed income and publicly traded equity securities, collectively, are reflected in the Consolidated Balance Sheets at a fair value of $56.1 billion as of January 27, 2018, compared with $58.8 billion as of July 29, 2017. Our fixed income investment portfolio as of January 27, 2018 consisted primarily of high quality investment-grade securities. See Note 8 to the Consolidated Financial Statements.

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As described more fully in Note 9 to the Consolidated Financial Statements, a valuation hierarchy is based on the level of independent, objective evidence available regarding the value of the investments. It encompasses three classes of investments: Level 1 consists of securities for which there are quoted prices in active markets for identical securities; Level 2 consists of securities for which observable inputs other than Level 1 inputs are used, such as quoted prices for similar securities in active markets or quoted prices for identical securities in less active markets and model-derived valuations for which the variables are derived from, or corroborated by, observable market data; and Level 3 consists of securities for which there are unobservable inputs to the valuation methodology that are significant to the measurement of the fair value.

Our Level 2 securities are valued 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 independent pricing vendors, quoted market prices, or other sources to determine the ultimate fair value of our assets and liabilities. We use such pricing data as the primary input, to which we have not made any material adjustments during the periods presented, to make our assessments and determinations as to the ultimate valuation of our investment portfolio. We are ultimately responsible for the financial statements and underlying estimates.

The inputs and fair value are reviewed for reasonableness, may be further validated by comparison to publicly available information, and could be adjusted based on market indices or other information that management deems material to its estimate of fair value. The assessment of fair value can be difficult and subjective. However, given the relative reliability of the inputs we use to value our investment portfolio, and because substantially all of our valuation inputs are obtained using quoted market prices for similar or identical assets, we do not believe that the nature of estimates and assumptions affected by levels of subjectivity and judgment was material to the valuation of the investment portfolio as of January 27, 2018. Level 3 assets do not represent a significant portion of our total assets measured at fair value on a recurring basis as of January 27, 2018 and July 29, 2017.

Other-than-Temporary Impairments

We recognize an impairment charge when the declines in the fair values of our fixed income or publicly traded equity securities below their cost basis are judged to be other than temporary. The ultimate value realized on these securities, to the extent unhedged, is subject to market price volatility until they are sold.

If the fair value of a debt security is less than its amortized cost, we assess whether the impairment is other than temporary. An impairment is considered other than temporary if (i) we have the intent to sell the security, (ii) it is more likely than not that we will be required to sell the security before recovery of its entire amortized cost basis, or (iii) we do not expect to recover the entire amortized cost of the security. If an impairment is considered other than temporary based on (i) or (ii) described in the prior sentence, the entire difference between the amortized cost and the fair value of the security is recognized in earnings. If an impairment is considered other than temporary based on condition (iii), the amount representing credit loss, defined as the difference between the present value of the cash flows expected to be collected and the amortized cost basis of the debt security, will be recognized in earnings, and the amount relating to all other factors will be recognized in other comprehensive income (OCI). In estimating the amount and timing of cash flows expected to be collected, we consider all available information, including past events, current conditions, the remaining payment terms of the security, the financial condition of the issuer, expected defaults, and the value of underlying collateral.

For publicly traded equity securities, we consider various factors in determining whether we should recognize an impairment charge, including the length of time and extent to which the fair value has been less than our cost basis, the financial condition and near-term prospects of the issuer, and our intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value.

We also have investments in privately held companies, some of which are in the startup or development stages. As of January 27, 2018, our investments in privately held companies were $982 million, compared with $983 million as of July 29, 2017, and were included in other assets. We monitor these investments for events or circumstances indicative of potential impairment, and we make appropriate reductions in carrying values if we determine that an impairment charge is required, based primarily on the financial condition and near-term prospects of these companies. 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.

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.

The goodwill recorded in the Consolidated Balance Sheets as of January 27, 2018 and July 29, 2017 was \$30.4 billion and \$29.8 billion, respectively. 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 2018 and 2017.

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.

There were no impairment charges related to purchased intangible assets for the first six months of fiscal 2018, and there were \$42 million of such impairment charges for the first six months of fiscal 2017. Our ongoing consideration of all the factors described previously could result in additional 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, domestic manufacturing deductions, tax audit settlements, nondeductible compensation, international realignments, and transfer pricing adjustments. Our effective tax rate was 371.6% and 20.8% in the second quarter of fiscal 2018 and 2017, respectively. Our effective tax rate was 203.1% and 21.1% in the first six months of fiscal 2018 and 2017, respectively.

The Tax Act, enacted on December 22, 2017, lowers the U.S. federal corporation income tax rate from 35% to 21% effective January 1, 2018, while also imposing a mandatory one-time transition tax on accumulated earnings of foreign subsidiaries. During the three months ended January 27, 2018, the Company recorded a provisional tax expense of \$11.1 billion related to the Tax Act, comprised of \$9.0 billion of U.S. transition tax, \$1.2 billion of foreign withholding tax and \$0.9 billion of DTA re-measurement.

In December 2017, the Securities and Exchange Commission staff issued Staff Accounting Bulletin No. 118, which addresses how a company recognizes provisional estimates when a company does not have the necessary information available, prepared or analyzed (including computations) in reasonable detail to complete its accounting for the effect of the changes in the Tax Act. The measurement period ends when a company has obtained, prepared, and analyzed the information necessary to finalize its accounting, but cannot extend beyond one year. The final impact of the Tax Act may differ from the provisional estimates due to changes in interpretations of the Tax Act, and legislative action to address questions that arise because of the Tax Act, by changes in accounting standard for income taxes and related interpretations in response to the Tax Act, and updates or changes to estimates used in the provisional amounts. We have determined that the $9.0 billion of tax expense for the U.S. transition tax on accumulated earnings of foreign subsidiaries, the $1.2 billion of foreign withholding tax, and the $0.9 billion of tax expense for DTA re-measurement were each provisional amounts and reasonable estimates as of January 27, 2018. Estimates used in the provisional amounts include: the anticipated reversal pattern of the gross DTAs; and earnings, cash positions, foreign taxes and withholding taxes attributable to foreign subsidiaries.

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 domestic manufacturing deduction laws, regulations, or interpretations thereof; by expiration of or lapses in tax incentives; by transfer pricing adjustments, including the effect of acquisitions on our intercompany R&D cost-sharing arrangement and legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, 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 35 countries, including the United States, has made changes to numerous long-standing tax principles. There can be no assurance that these changes, 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 is 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.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

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 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent
Revenue:								
Product	$8,709	$8,491	$ 218	3 %	$17,763	$17,793	$ (30)	— %
Percentage of revenue	73.3 %	73.3 %			73.9 %	74.3 %		
Service	3,178	3,089	89	3 %	6,260	6,139	121	2 %
Percentage of revenue	26.7 %	26.7 %			26.1 %	25.7 %		
Total	$11,887	$11,580	$ 307	3 %	$24,023	$23,932	$ 91	— %

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 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent
Revenue:								
Americas	$7,004	$6,660	$ 344	5 %	$14,354	$14,103	$ 251	2 %
Percentage of revenue	58.9 %	57.5 %			59.7 %	58.9 %		
EMEA	3,062	3,065	(3)	— %	5,971	6,078	(107)	(2)%
Percentage of revenue	25.8 %	26.5 %			24.9 %	25.4 %		
APJC	1,821	1,855	(34)	(2)%	3,698	3,751	(53)	(1)%
Percentage of revenue	15.3 %	16.0 %			15.4 %	15.7 %		
Total	$11,887	$11,580	$ 307	3 %	$24,023	$23,932	$ 91	— %

Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
Total revenue increased by 3%. Product and service revenue each increased by 3%. The increase in total revenue reflected solid growth in the Americas segment, while revenue declined in the APJC segment and was flat in the EMEA segment. The emerging countries of BRICM, in the aggregate, experienced 2% product revenue growth, with increases in China, Russia and Brazil partially offset by decreases in the other two BRICM countries.
In addition to the impact of macroeconomic factors, including a reduced IT spending environment and reductions in 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-element arrangements; 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. As has been the case in certain emerging countries from time to time, customers require greater levels of financing arrangements, service, and support, and these activities may occur in future periods, which may also impact the timing of the recognition of revenue.
Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
Total revenue was flat. Product revenue was flat while service revenue increased by 2%. Our total revenue grew in the Americas segment and declined in the EMEA and APJC segments. Product revenue for the emerging countries of BRICM, in the aggregate, was flat, as revenue increases in Brazil, Russia and China were offset by decreases in the

other two BRICM countries.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

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 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent
Product revenue:								
Americas	$4,988	$ 4,695	$ 293	6 %	$10,380	$ 10,175	$ 205	2 %
Percentage of product revenue	57.3 %	55.3 %			58.4 %	57.2 %		
EMEA	2,375	2,392	(17)	(1)%	4,614	4,756	(142)	(3)%
Percentage of product revenue	27.3 %	28.2 %			26.0 %	26.7 %		
APJC	1,346	1,404	(58)	(4)%	2,769	2,862	(93)	(3)%
Percentage of product revenue	15.4 %	16.5 %			15.6 %	16.1 %		
Total	$8,709	$ 8,491	$ 218	3 %	$17,763	$ 17,793	$ (30)	— %

Americas
Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
Product revenue in the Americas segment increased by 6%, led by solid growth in the service provider and public sector markets and, to a lesser extent, growth in the commercial market. These increases were partially offset by a product revenue decline in the enterprise market. The product revenue increase in the public sector market was due primarily to higher sales to the U.S. federal government. From a country perspective, product revenue increased by 5% in the United States, 19% in Canada and 11% in Brazil, partially offset by a decrease of 4% in Mexico.
Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
The increase in product revenue in the Americas segment was led by solid growth in the commercial market and, to a lesser extent, growth in the public sector and service provider markets. These increases were partially offset by a product revenue decline in the enterprise market. The product revenue growth in the public sector market was due primarily to higher sales to the U.S. federal government. From a country perspective, product revenue increased by 1% in the United States, 20% in Brazil and 8% in Canada, partially offset by a decrease of 16% in Mexico.
EMEA
Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
Product revenue in the EMEA segment decreased by 1%, led by a decline in the service provider market and, to a lesser extent, a decline in the enterprise market, partially offset by product revenue growth in the public sector and commercial markets. Product revenue from emerging countries within EMEA increased by 7% while product revenue for the remainder of the EMEA segment decreased by 3%.
Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
The decrease in product revenue in the EMEA segment of 3% was driven by a decline in the service provider market and, to a lesser extent, a decline in the enterprise market. We experienced product revenue growth in the public sector and commercial markets in this segment. Product revenue from emerging countries within EMEA increased by 1% while product revenue for the remainder of the EMEA segment decreased by 4%.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

APJC
Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
Product revenue in the APJC segment decreased by 4%. The product revenue decrease was led by a decline in the service provider market, partially offset by solid growth in the commercial and enterprise markets. Product revenue in the public sector market was flat. From a country perspective, product revenue decreased by 21% in Japan and 11% in India, while product revenue increased by 8% in China.
Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
The decrease in product revenue in the APJC segment of 3% was led by decline in the service provider market, partially offset by product revenue growth in the commercial, enterprise and public sector markets. From a country perspective, product revenue decreased by 15% in Japan and 5% in India, while product revenue increased by 3% in China.

Product Revenue by Groups of Similar Products
In addition to the primary view on a geographic basis, we also prepare financial information related to groups of similar products and customer markets for various purposes. Effective in the first quarter of fiscal 2018, we began reporting our product revenue in the following categories: Infrastructure Platforms, Applications, Security, and Other Products. This change better aligns our product categories with our evolving business model. Prior period amounts have been reclassified to conform to the current period's presentation.
The following table presents revenue for groups of similar products (in millions, except percentages):

	Three Months Ended				Six Months Ended			
	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent
Product revenue:								
Infrastructure Platforms	$6,694	$ 6,545	$ 149	2 %	$13,664	$ 13,818	$ (154)	(1)%
Applications	1,184	1,116	68	6 %	2,387	2,252	135	6 %
Security	558	528	30	6 %	1,143	1,068	75	7 %
Other Products	273	302	(29)	(10)%	569	655	(86)	(13)%
Total	$8,709	$ 8,491	$ 218	3 %	$17,763	$ 17,793	$ (30)	— %

Infrastructure Platforms
Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
The Infrastructure Platforms product category represents our core networking offerings related to switching, routing, wireless, and the data center. The Infrastructure Platforms product category increased by 2%, or $149 million, and we saw broad strength across the portfolio. Within switching, we had strong growth in our data center switching and we saw solid momentum with our intent-based networking Catalyst 9000 Series. Our revenue from data center also had strong growth driven by higher sales of server products and our hyperconverged data center offering, HyperFlex. We experienced solid revenue growth from wireless products driven by our Wave 2 offerings as well as Meraki. We had a modest decrease in sales of routing products driven by continued weakness in the service provider market.
Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
The Infrastructure Platforms product category decreased by 1%, or $154 million, with the vast majority of the decrease driven by lower revenue from routing products. The decrease in routing revenue was driven by weakness in the service provider market and a slowdown in enterprise routing sales. Our switching revenue decreased modestly but we saw solid momentum in campus switching with our intent-based networking Catalyst 9000 Series. Within switching, we experienced an increase in sales of data center switches, driven by strength in our Application Centric Infrastructure (ACI) portfolio. We experienced solid revenue growth from wireless products and our data center

products driven by higher sales of server products and HyperFlex.

Applications

Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017

The Applications product category includes our collaboration offerings (unified communications, Cisco TelePresence and conferencing) as well as IoT and analytics software offerings from AppDynamics and Jasper. Revenue in our Applications product category increased by 6%, or $68 million, driven by increased revenue in Telepresence, Conferencing and analytics from our fiscal 2017 acquisition of AppDynamics partially offset by decreased revenue from unified communications endpoints. We continue to increase the amount of deferred revenue and the proportion of recurring revenue related to our Applications product category.

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017

Revenue in our Applications product category increased by 6%, or $135 million, with analytics from our fiscal 2017 acquisition of AppDynamics driving the majority of the increase and a modest revenue increase from collaboration offerings.

Security

Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017

Revenue in our Security product category increased 6%, or $30 million, driven by higher sales of unified threat management and web security products. We continue to increase the amount of deferred revenue and the proportion of recurring revenue related to our Security product category.

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017

Revenue in our Security product category increased 7%, or $75 million, driven by higher sales of unified threat management and web security products.

Other Products

Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017

The decrease in revenue from our Other Products category of 10%, or $29 million, was driven by a decrease in revenue from Service Provider Video software and solutions.

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017

The decrease in revenue from our Other Products category of 13%, or $86 million, was driven by a decrease in revenue from Service Provider Video software and solutions.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

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 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent
Service revenue:								
Americas	$2,016	$ 1,965	$ 51	3 %	$3,974	$ 3,928	$ 46	1 %
Percentage of service revenue	63.4 %	63.6 %			63.5 %	64.0 %		
EMEA	687	673	14	2 %	1,357	1,322	35	3 %
Percentage of service revenue	21.6 %	21.8 %			21.7 %	21.5 %		
APJC	475	451	24	5 %	929	889	40	4 %
Percentage of service revenue	15.0 %	14.6 %			14.8 %	14.5 %		
Total	$3,178	$ 3,089	$ 89	3 %	$6,260	$ 6,139	$ 121	2 %

Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017

Service revenue increased 3%. Technical support services revenue and advanced services revenue each increased by 3%. Technical support services revenue increased across all geographic segments. The increase in technical support services revenue was driven by an increase in software and solution support offerings. Advanced services revenue, which relates to professional services for specific customer network needs, had solid revenue growth in our EMEA and Americas segments and declined in our APJC segment.

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017

Service revenue increased across all geographic segments. Technical support services revenue increased by 2% and advanced services increased by 3%. Technical support services revenue had solid growth in APJC and increased to a lesser extent in our Americas and EMEA segments. Advanced services revenue had strong growth in the EMEA segment and grew modestly in our APJC and Americas segments.

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 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Gross margin:								
Product	$5,355	$ 5,186	61.5 %	61.1 %	$10,794	$ 11,085	60.8 %	62.3 %
Service	2,143	2,090	67.4 %	67.7 %	4,131	4,075	66.0 %	66.4 %
Total	$7,498	$ 7,276	63.1 %	62.8 %	$14,925	$ 15,160	62.1 %	63.3 %

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 2018 as compared with the corresponding prior year periods:

	Product Gross Margin Percentage	
	Three Months Ended	Six Months Ended
Fiscal 2017	61.1 %	62.3 %
Product pricing	(1.3)%	(1.7)%
Legal and indemnification settlements	— %	(0.7)%
Amortization of purchased intangibles	(0.4)%	(0.4)%
Mix of products sold	0.5 %	0.3 %
Productivity [1]	1.7 %	0.9 %
Other	(0.1)%	0.1 %
Fiscal 2018	61.5 %	60.8 %

[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 27, 2018 Compared with Three Months Ended January 28, 2017

Product gross margin increased by 0.4 percentage points driven by productivity improvements and a favorable mix impact partially offset by unfavorable impacts from product pricing.

Productivity improvements were driven by value engineering efforts (e.g. component redesign, board configuration, test processes, and transformation processes), lower warranty expenses and continued operational efficiency in manufacturing operations. Our productivity continued to be negatively impacted by an increase in the cost of certain memory components which are currently constrained. We expect the higher costs on these memory components to continue to impact productivity in the near term. The favorable product mix impact was driven by our products within the Infrastructure Platforms product category. The negative pricing impact was driven by typical market factors and impacted each of our geographic segments and customer markets.

Our product gross margin was also negatively impacted by higher amortization expense from purchased intangible assets.

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017

Product gross margin decreased by 1.5 percentage points due largely to unfavorable impacts from product pricing and a charge of $127 million to product cost of sales recorded in the first six months of fiscal 2018 related to legal and indemnification settlements, partially offset by productivity benefits and favorable product mix.

The negative pricing impact was driven by typical market factors and impacted each of our geographic segments and customer markets. While productivity was positive to overall product gross margin, the benefit was lower than the prior year as these improvements were adversely impacted by an increase in the cost of certain memory components which are currently constrained. In addition, productivity was negatively impacted by decreases in Infrastructure Platforms revenue which limited our ability to generate cost savings. Productivity improvements were driven by value engineering efforts, lower warranty expenses and continued operational efficiency in manufacturing operations. Our product gross margin was also negatively impacted by higher amortization expense from purchased intangible assets.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

Service Gross Margin
Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
Our service gross margin percentage decreased by 0.3 percentage points due to increased headcount-related costs and unfavorable mix. These cost impacts were partially offset by the resulting benefit to gross margin of higher sales volume in both advanced services and technical support services.
Our service gross margin normally experiences some fluctuations due to various factors such as the timing of contract initiations and renewals, our strategic investments in headcount, and the resources we deploy to support the overall service business. Another factor is 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 27, 2018 Compared with Six Months Ended January 28, 2017
Service gross margin percentage decreased by 0.4 percentage points due largely to increased headcount-related costs and, to a lesser extent, increased delivery costs. These cost impacts were partially offset by the resulting benefit to gross margin of higher sales volume in both advanced services and technical support services.
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 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Gross margin:								
Americas	$4,614	$ 4,288	65.9 %	64.4 %	$9,336	$ 9,121	65.0 %	64.7 %
EMEA	1,977	2,012	64.6 %	65.6 %	3,816	4,025	63.9 %	66.2 %
APJC	1,094	1,121	60.1 %	60.4 %	2,259	2,325	61.1 %	62.0 %
Segment total	7,685	7,421	64.7 %	64.1 %	15,411	15,471	64.2 %	64.6 %
Unallocated corporate items [1]	(187)	(145)			(486)	(311)		
Total	$7,498	$ 7,276	63.1 %	62.8 %	$14,925	$ 15,160	62.1 %	63.3 %

[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.
Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017
The Americas segment experienced a gross margin percentage increase due to productivity improvements and favorable product mix, partially offset by negative impacts from pricing. The favorable mix impact was driven by our products within the Infrastructure Platforms product category.
The gross margin percentage decrease in our EMEA segment was due primarily to negative impacts from pricing and mix partially offset by productivity improvements. Lower service gross margin also contributed to the decrease in the gross margin in this geographic segment.
Our APJC segment gross margin percentage decreased due to negative impacts from pricing and mix, partially offset by productivity improvements. Lower service gross margin also contributed to the decrease in the overall gross margin in this segment.

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CISCO SYSTEMS, INC.
MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017
We experienced a gross margin percentage increase in our Americas segment due to productivity improvements and, to a lesser extent, a favorable product mix, partially offset by unfavorable impacts from pricing.
The gross margin percentage decrease in our EMEA segment was due primarily to the negative impacts from pricing and, to a lesser extent, an unfavorable product mix partially offset by productivity improvements.
The APJC segment gross margin percentage decreased due primarily to negative impacts from pricing, partially offset by productivity improvements and 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 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent	January 27, 2018	January 28, 2017	Variance in Dollars	Variance in Percent
Research and development	$1,549	$ 1,508	$ 41	3 %	$3,116	$ 3,053	$ 63	2 %
Percentage of revenue	13.0 %	13.0 %			13.0 %	12.8 %		
Sales and marketing	2,235	2,222	13	1 %	4,569	4,640	(71)	(2)%
Percentage of revenue	18.8 %	19.2 %			19.0 %	19.4 %		
General and administrative	483	456	27	6 %	1,040	1,011	29	3 %
Percentage of revenue	4.1 %	3.9 %			4.3 %	4.2 %		
Total	$4,267	$ 4,186	$ 81	2 %	$8,725	$ 8,704	$ 21	— %
Percentage of revenue	35.9 %	36.1 %			36.3 %	36.4 %		

R&D Expenses
R&D expenses increased in the second quarter and first six months of fiscal 2018, as compared with the corresponding periods of fiscal 2017, primarily due to higher headcount-related expenses, higher discretionary spending and higher share-based compensation expense, partially offset by lower contracted services and lower acquisition-related costs.
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.

Sales and Marketing Expenses
Sales and marketing expenses increased in the second quarter of fiscal 2018, as compared with the second quarter of fiscal 2017, due to higher headcount-related expenses and higher share-based compensation expense, partially offset by lower contracted services and lower discretionary spending.

Sales and marketing expenses decreased in the first six months of fiscal 2018, as compared with the first six months of fiscal 2017, due to lower contracted services and lower discretionary spending, partially offset by higher headcount-related expenses and, to a lesser extent, higher share-based compensation expense.

G&A Expenses

G&A expenses increased in the second quarter of fiscal 2018, as compared with the second quarter of fiscal 2017, due to increases in contracted services, share-based compensation expense, headcount-related expenses and discretionary spending, partially offset by the gains on divestitures.

G&A expenses increased in the first six months of fiscal 2018, as compared with the first six months of fiscal 2017, due to increases in contracted services, share-based compensation expense, discretionary spending and acquisition-related costs, partially offset by a decrease in headcount-related expenses.

Effect of Foreign Currency

In the second quarter of fiscal 2018, foreign currency fluctuations, net of hedging, increased the combined R&D, sales and marketing, and G&A expenses by approximately $24 million, or 0.6%, compared with the second quarter of fiscal 2017.

In the first six months of fiscal 2018, foreign currency fluctuations, net of hedging, increased the combined R&D, sales and marketing, and G&A expenses by approximately $41 million, or 0.5%, compared with the first six months of fiscal 2017.

Share-Based Compensation Expense

The following table presents share-based compensation expense (in millions):

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Cost of sales—product	$23	$ 19	$46	$ 40
Cost of sales—service	31	34	65	67
Share-based compensation expense in cost of sales	54	53	111	107
Research and development	134	129	270	255
Sales and marketing	135	125	270	265
General and administrative	64	45	128	94
Restructuring and other charges	12	—	18	3
Share-based compensation expense in operating expenses	345	299	686	617
Total share-based compensation expense	$399	$ 352	$797	$ 724

The increase in share-based compensation expense in the second quarter and first six months of fiscal 2018, as compared with the corresponding periods of fiscal 2017, was due primarily to higher expense related to equity awards assumed with respect to our recent acquisitions and higher restructuring charges.

Amortization of Purchased Intangible Assets

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

	Three Months Ended		Six Months Ended	
	January 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Amortization of purchased intangible assets:				
Cost of sales	$160	$ 124	$314	$ 253
Operating expenses:				
Amortization of purchased intangible assets	60	64	121	142
Restructuring and other charges	—	—	—	38
Total	$220	$ 188	$435	$ 433

Amortization of purchased intangible assets increased for the second quarter of fiscal 2018, as compared with the second quarter of fiscal 2017, due to amortization of purchased intangible assets from our recent acquisitions. Amortization of purchased intangible assets increased slightly for the first six months of fiscal 2018, as compared with the first six months of fiscal 2017, due to amortization of purchased intangible assets from our recent acquisitions, partially offset by the impact of the impairment charges in the prior period.

Restructuring and Other Charges

We incurred restructuring and other charges of $98 million and $133 million for the second quarter of fiscal 2018 and fiscal 2017, respectively, and $250 million and $544 million for first six months of fiscal 2018 and fiscal 2017, respectively. These charges were related primarily to employee severance charges for employees impacted by the restructuring action announced in August 2016. In the second quarter of fiscal 2018, we extended the restructuring action to include an additional $150 million of estimated additional pretax charges for employee severance and other one-time termination benefits. We have substantially completed the restructuring action and have incurred cumulative charges of $1.0 billion as of January 27, 2018.

We expect to reinvest substantially all of the cost savings from the restructuring action in our key priority areas. As a result, the overall cost savings from the restructuring action 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 27, 2018	January 28, 2017	January 27, 2018	January 28, 2017
Operating income	$3,073	$ 2,893	$5,829	$ 5,770
Operating income as a percentage of revenue	25.9 %	25.0 %	24.3 %	24.1 %

For the second quarter of fiscal 2018, as compared with the second quarter of fiscal 2017, operating income increased by 6% and as a percentage of revenue operating income increased by 0.9 percentage points. These increases resulted primarily from a revenue increase, a gross margin percentage increase and a decrease in restructuring and other charges related to the restructuring actions announced in August 2016.

For the first six months of fiscal 2018, as compared with the first six months of fiscal 2017, operating income increased by 1% and as a percentage of revenue operating income increased by 0.2 percentage points. These increases resulted primarily from a decrease in restructuring and other charges related to the restructuring actions announced in August 2016, partially offset by a gross margin percentage decrease driven by unfavorable impacts from pricing and the charge of $127 million for legal and indemnification settlements.

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 27, 2018	January 28, 2017	Variance in Dollars	January 27, 2018	January 28, 2017	Variance in Dollars
Interest income	$396	$ 329	$ 67	$775	$ 624	$ 151
Interest expense	(247)	(222)	(25)	(482)	(420)	(62)
Interest income (expense), net	$149	$ 107	$ 42	$293	$ 204	$ 89

Interest income increased driven by an increase in our portfolio of cash, cash equivalents, and fixed income investments as well as higher yields on our portfolio. The increase in interest expense was driven by higher average debt balances and the impact of higher effective interest rates.

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

	Three Months Ended			Six Months Ended		
	January 27, 2018	January 28, 2017	Variance in Dollars	January 27, 2018	January 28, 2017	Variance in Dollars
Gains (losses) on investments, net:						
Publicly traded equity securities	$ 154	$ 4	$ 150	$ 183	$ 9	$ 174
Fixed income securities	(96)	(34)	(62)	(92)	(24)	(68)
Total available-for-sale investments	58	(30)	88	91	(15)	106
Privately held companies	2	(3)	5	37	(53)	90
Net gains (losses) on investments	60	(33)	93	128	(68)	196
Other gains (losses), net	(50)	(4)	(46)	(56)	10	(66)
Other income (loss), net	$ 10	$ (37)	$ 47	$ 72	$ (58)	$ 130

Three Months Ended January 27, 2018 Compared with Three Months Ended January 28, 2017

The change in total net gains (losses) on available-for-sale investments was primarily attributable to higher realized gains on publicly traded equity securities, partially offset by higher realized losses on fixed income securities as a result of market conditions and the timing of sales of these securities.

The change in net gains (losses) on investments in privately held companies was primarily due to lower impairment charges on investments in privately held companies partially offset by lower realized gains on investments in privately held companies.

The change in other gains (losses), net was primarily driven by net unfavorable foreign exchange impacts and, to a lesser extent, impacts from equity derivatives.

Six Months Ended January 27, 2018 Compared with Six Months Ended January 28, 2017

The change in total net gains (losses) on available-for-sale investments was primarily attributable to higher realized gains on publicly traded equity securities, partially offset by higher realized losses on fixed income securities as a result of market conditions and the timing of sales of these securities and $26 million of impairment charges on publicly traded equity securities.

The change in net gains (losses) on investments in privately held companies was primarily due to lower impairment charges and higher realized gains on investments in privately held companies.

The change in other gains (losses), net was primarily driven by net unfavorable foreign exchange impacts and to a lesser extent, impacts from equity derivatives.

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Provision for Income Taxes

On December 22, 2017, the Tax Act was enacted. The Tax Act significantly revises the U.S. corporate income tax by, among other things, lowering the statutory corporate income tax rate (“federal tax rate”) from 35% to 21% effective January 1, 2018, implementing a modified territorial tax system, and imposing a mandatory one-time transition tax on accumulated earnings of foreign subsidiaries. As a fiscal-year taxpayer, certain provisions of the Tax Act impact us in fiscal 2018, including the change in the federal tax rate and the one-time transition tax, while other provisions will be effective at the beginning of fiscal 2019, including the implementation of a modified territorial tax system and other changes to how foreign earnings are subject to U.S. tax, and elimination of the domestic manufacturing deduction.

As a result of the decrease in the federal tax rate from 35% to 21% effective January 1, 2018, we have computed our income tax expense for the July 28, 2018 fiscal year using a blended federal tax rate of 27%. The 21% federal tax rate will apply to our fiscal year ending July 27, 2019 and each year thereafter. We must remeasure our deferred tax assets and liabilities ("DTA") using the federal tax rate that will apply when the related temporary differences are expected to reverse.

As of January 27, 2018, we had approximately $75 billion in undistributed earnings for certain foreign subsidiaries. Substantially all of these undistributed earnings are subject to the U.S. mandatory one-time transition tax and are eligible to be repatriated to the U.S. without additional U.S. tax under the Tax Act. We have historically asserted our intention to indefinitely reinvest foreign earnings in certain foreign subsidiaries. We have reevaluated our historic assertion as a result of enactment of the Tax Act and no longer consider these earnings to be indefinitely reinvested in our foreign subsidiaries. As a result of this change in assertion, we have recorded a $1.2 billion tax expense for foreign withholding tax in the second quarter of fiscal 2018. In the third quarter of fiscal 2018, we anticipate repatriating $67 billion of foreign subsidiary earnings to the U.S. (in the form of cash, cash equivalents, or investments), of which $26 billion was repatriated to the U.S. in February 2018.

During the three months ended January 27, 2018, we recorded a provisional tax expense of $11.1 billion related to the Tax Act, comprised of $9.0 billion of U.S. transition tax, $1.2 billion of foreign withholding tax (discussed above), and $0.9 billion re-measurement of net DTA. We plan to pay the transition tax in installments over eight years in accordance with the Tax Act. The $1.2 billion foreign withholding tax was paid in February 2018. The Tax Act is discussed more fully in Note 16 to the Consolidated Financial Statements.

The provision for income taxes resulted in an effective tax rate of 371.6% for the second quarter of fiscal 2018 compared with 20.8% for the second quarter of fiscal 2017, a net 350.8 percentage point increase for the second quarter of fiscal 2018 as compared with the second quarter of fiscal 2017. The provision for income taxes resulted in an effective tax rate of 203.1% for the first six months of fiscal 2018 as compared with 21.1% for the first six months of fiscal 2017, a net 182.0 percentage point increase for the first six months of fiscal 2018 as compared with the first six months of fiscal 2017. The increase in the effective tax rate was primarily due to the mandatory one-time transition tax on accumulated earnings of foreign subsidiaries, foreign withholding tax, and DTA re-measurement during the second quarter of fiscal 2018.

As a result of the adoption of the new accounting standard on share-based compensation, our effective tax rate will increase or decrease based upon the tax effect of the difference between the share-based compensation expenses and the benefits taken on the company's tax returns. We recognize excess tax benefits on a discrete basis and therefore anticipate the effective tax rate to vary from quarter to quarter depending on our share price in each period.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

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 27, 2018	July 29, 2017	Increase (Decrease)
Cash and cash equivalents	$ 17,624	$ 11,708	$ 5,916
Fixed income securities	54,439	57,077	(2,638)
Publicly traded equity securities	1,620	1,707	(87)
Total	$ 73,683	$ 70,492	$ 3,191

The net increase in cash and cash equivalents and investments in the first six months of fiscal 2018 was primarily driven by cash provided by operating activities of $7.2 billion and a net increase in debt of $5.7 billion. These sources of cash were partially offset by cash returned to shareholders in the form of repurchases of common stock of $5.5 billion under the stock repurchase program and cash dividends of $2.9 billion; net cash paid for acquisitions of $0.8 billion; and capital expenditures of $0.4 billion.
Our total in cash and cash equivalents and investments held by various foreign subsidiaries was $71.3 billion and $67.5 billion as of January 27, 2018 and July 29, 2017, respectively. The balance of cash and cash equivalents and investments available in the United States as of January 27, 2018 and July 29, 2017 was $2.4 billion and $3.0 billion, respectively. During the three months ended January 27, 2018, as a result of the Tax Act, all historical undistributed foreign subsidiary earnings were subject to a mandatory one-time transition tax, which resulted in a provisional tax expense of $9.0 billion. We plan to pay the transition tax in installments over eight years in accordance with the Tax Act. Approximately $0.8 billion is payable in less than one year; $1.4 billion is payable between 1 to 3 years; another $1.4 billion is payable between 3 to 5 years; and the remaining $5.4 billion is payable in more than 5 years. In February 2018, we repatriated to the U.S. $26 billion of historical undistributed foreign subsidiary earnings and paid foreign withholding tax of $1.2 billion. In the third quarter of fiscal 2018, we anticipate repatriating to the U.S. an additional $41 billion of historical undistributed foreign subsidiary earnings. Future repatriation of cash and other property held by our foreign subsidiaries will generally not be subject to U.S. federal tax. As we evaluate the impact of the Tax Act and the future cash needs of our global operations, we may revise the amount of foreign earnings considered to be permanently reinvested in our foreign subsidiaries.
In addition to cash requirements in the normal course of business, in the third quarter of fiscal 2018, we closed the acquisition of BroadSoft for a purchase price of approximately $1.9 billion net of cash and investments. Additionally, $9.0 billion of commercial paper notes and $4.75 billion of long term debt which were outstanding at January 27, 2018 will mature within the next 12 months from the balance sheet date. See further discussion of liquidity under "Liquidity and Capital Resource Requirements" below.
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 fixed income 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.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

Free Cash Flow and Capital Allocation As part of our capital allocation strategy, we intend to return a minimum of 50% of our free cash flow annually to our shareholders 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 27, 2018	January 28, 2017
Net cash provided by operating activities	$7,150	$ 6,502
Acquisition of property and equipment	(379)	(526)
Free cash flow	$6,771	$ 5,976

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 shareholders 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 income 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 2018						
January 27, 2018	$0.29	$ 1,425	103	$ 39.07	$ 4,011	$ 5,436
October 28, 2017	$0.29	$ 1,436	51	$ 31.80	$ 1,620	$ 3,056
Fiscal 2017						
July 29, 2017	$0.29	$ 1,448	38	$ 31.61	$ 1,201	$ 2,649
April 29, 2017	$0.29	$ 1,451	15	$ 33.71	$ 503	$ 1,954
January 28, 2017	$0.26	$ 1,304	33	$ 30.33	$ 1,001	$ 2,305
October 29, 2016	$0.26	$ 1,308	32	$ 31.12	$ 1,001	$ 2,309

On February 14, 2018, our Board of Directors declared a quarterly dividend of $0.33 per common share to be paid on April 25, 2018 to all shareholders of record as of the close of business on April 5, 2018. Any future dividends are subject to the approval of our Board of Directors.

On February 14, 2018, our Board of Directors authorized a $25 billion increase to the stock repurchase program. The remaining authorized amount for stock repurchases under this program, including the additional authorization, is approximately $31 billion, with no termination date. We expect to utilize this remaining authorized amount for stock repurchases over the next 18 to 24 months.

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

	January 27, 2018	July 29, 2017	Increase (Decrease)
Accounts receivable, net	$ 3,963	$ 5,146	$ (1,183)

Our accounts receivable net, as of January 27, 2018 decreased by approximately 23%, as compared with the end of fiscal 2017, primarily due to product billings being more linear and the amount and timing of service billings in the second quarter of fiscal 2018 compared with the fourth quarter of fiscal 2017.

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

	January 27, 2018	July 29, 2017	Increase (Decrease)
Inventories	$ 1,896	$ 1,616	$ 280

Inventory as of January 27, 2018 increased by 17% from our inventory balance at the end of fiscal 2017. The increase in inventory was due to higher levels of manufactured finished goods in support of current order activity and an increase in raw materials due to securing memory supply which is currently constrained.

Our finished goods consist of distributor inventory and deferred cost of sales and manufactured finished goods. Distributor inventory and deferred cost of sales are related to unrecognized revenue on shipments to distributors and retail partners as well as shipments to customers. Manufactured finished goods consist primarily of build-to-order and build-to-stock products.

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 purchase commitments are for short-term product manufacturing requirements as well as for commitments to suppliers to secure manufacturing capacity. Certain of our purchase commitments with contract manufacturers and suppliers relate to arrangements to secure long-term 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. We believe our inventory and purchase commitments levels are in line with our current demand forecasts. The following table summarizes our purchase commitments with contract manufacturers and suppliers as of the respective period ends (in millions):

Commitments by Period	January 27, 2018	July 29, 2017
Less than 1 year	$4,498	$4,620
1 to 3 years	690	20
3 to 5 years	540	—
Total	$5,728	$4,640

Purchase commitments with contract manufacturers and suppliers increased by approximately 23% compared to the end of fiscal 2017. On a combined basis, inventories and purchase commitments with contract manufacturers and suppliers increased by 22% compared with the end of fiscal 2017.

We record a liability, included in other current liabilities, 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.

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 rapidly changing technology and customer requirements. We believe the amount of our inventory and purchase commitments is appropriate for our revenue levels.

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

	January 27, 2018	July 29, 2017	Increase (Decrease)
Lease receivables, net	$ 2,620	$ 2,650	$ (30)
Loan receivables, net	4,752	4,457	295
Financed service contracts, net	2,466	2,487	(21)
Total, net	$ 9,838	$ 9,594	$ 244

Financing Receivables Our financing arrangements include leases, loans, and financed service contracts. Lease receivables include sales-type and direct-financing leases. Arrangements related to leases are generally collateralized by a security interest in the underlying assets. Our loan receivables include customers financing purchases of our hardware, software and services and also may include additional funds for other costs associated with network installation and integration of our products and services. We also provide financing to certain qualified customers for long-term service contracts, which primarily relate to technical support services. The majority of the revenue from these financed service contracts is deferred and is recognized ratably over the period during which the services are performed. Financing receivables increased by 3%. We expect to continue to expand the use of our financing programs in the near term.

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 to customers 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, generally with payment terms 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 $13.6 billion and $13.2 billion for the first six months of fiscal 2018 and 2017, 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 $1.0 billion as of each of January 27, 2018 and July 29, 2017. We could be called upon to make payments under these guarantees in the event of nonpayment by the channel partners or end-user customers. Historically, our payments under these arrangements have been immaterial. Where we provide a guarantee, we defer the revenue associated with the channel partner and end-user 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 27, 2018, the total maximum potential future payments related to these guarantees was approximately $341 million, of which approximately $131 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 27, 2018	July 29, 2017
Senior notes:			
Floating-rate notes:			
Three-month LIBOR plus 0.60%	February 21, 2018	$ 1,000	$ 1,000
Three-month LIBOR plus 0.31%	June 15, 2018	900	900
Three-month LIBOR plus 0.50%	March 1, 2019	500	500
Three-month LIBOR plus 0.34%	September 20, 2019	500	500
Fixed-rate notes:			
1.40%	February 28, 2018	1,250	1,250
1.65%	June 15, 2018	1,600	1,600
4.95%	February 15, 2019	2,000	2,000
1.60%	February 28, 2019	1,000	1,000
2.125%	March 1, 2019	1,750	1,750
1.40%	September 20, 2019	1,500	1,500
4.45%	January 15, 2020	2,500	2,500
2.45%	June 15, 2020	1,500	1,500
2.20%	February 28, 2021	2,500	2,500
2.90%	March 4, 2021	500	500
1.85%	September 20, 2021	2,000	2,000
3.00%	June 15, 2022	500	500
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	$ 30,500	$ 30,500

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. Interest is payable quarterly on the floating-rate notes. We were in compliance with all debt covenants as of January 27, 2018.

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 $9.0 billion and $3.2 billion commercial paper notes outstanding as of January 27, 2018 and July 29, 2017, respectively.

Credit Facilities On May 15, 2015, we entered into a credit agreement with certain institutional lenders that provides for a $3.0 billion unsecured revolving credit facility that is scheduled to expire on May 15, 2020. Any advances under the credit agreement will accrue interest at rates that are equal to, based on certain conditions, either (i) the highest of (a) the Federal Funds rate plus 0.50%, (b) Bank of America's "prime rate" as announced from time to time, or (c) LIBOR, or a comparable or successor rate that is approved by the Administrative Agent ("Eurocurrency Rate"), for an interest period of one month plus 1.00%, or (ii) the Eurocurrency Rate, 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 Eurocurrency Rate be less than zero. 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/or extend the expiration date of the credit facility up to May 15, 2022.

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CISCO SYSTEMS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (Continued)

In addition, on March 30, 2017 we entered into a 364-Day credit agreement with certain institutional lenders that provides for a $2.0 billion unsecured revolving credit facility that is scheduled to expire on March 29, 2018. The credit agreement also provides us the option to, for a fee, convert any borrowings outstanding thereunder on March 29, 2018 to a term loan maturing no later than March 29, 2019. The interest rate applicable to outstanding balances under the credit agreement will be based on either (i) the higher of (a) the rates on overnight Federal Funds transactions with members of the Federal Reserve System (i.e., Federal Funds rate) plus 0.50%, (b) Bank of America's "prime rate" as announced from time to time or (c) LIBOR for an interest period of one month plus 1.00%, or (ii) LIBOR plus a margin that is based on our senior debt credit ratings as published by S&P Global Rating, a business unit of Standard & Poor's Financial Services LLC, and Moody's Investors Service, Inc.

These credit agreements require that we comply with certain covenants, including that we maintain interest coverage ratios as defined in these agreements. As of January 27, 2018, we were in compliance with the required interest coverage ratios and the other covenants, and we had not borrowed any funds under these credit facilities.

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

	January 27, 2018	July 29, 2017	Increase (Decrease)
Service	$ 10,963	$11,302	$ (339)
Product:			
Deferred revenue related to recurring software and subscription offers	5,451	4,971	480
Other product deferred revenue	2,374	2,221	153
Total product deferred revenue	7,825	7,192	633
Total	$ 18,788	$18,494	$ 294
Reported as:			
Current	$ 11,102	$10,821	$ 281
Noncurrent	7,686	7,673	13
Total	$ 18,788	$18,494	$ 294

Deferred product revenue increased 9% primarily due to increased deferrals related to recurring software and subscription offers. The portion of product deferred revenue related to recurring software and subscription offers grew 36% on a year-over-year basis to $5.5 billion as of January 27, 2018. Security and Applications continued to experience strong product deferred revenue growth during the period. The 3% decrease in deferred service revenue was driven by the impact of ongoing amortization of deferred service revenue.

Contractual Obligations

Operating Leases

We lease office space in many U.S. locations. Outside the United States, larger leased sites include sites in Belgium, Canada, China, Germany, India, Israel, Japan, Mexico, Poland and the United Kingdom. We also lease equipment and vehicles. The future minimum lease payments under all of our noncancelable operating leases with an initial term in excess of one year as of January 27, 2018 were $1.2 billion.

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 12 to the Consolidated Financial Statements.

Insieme Networks, Inc. In fiscal 2012, we made an investment in Insieme, an early stage company focused on research and development in the data center market. This investment included $100 million of funding and a license to certain of our technology. During fiscal 2014, we acquired the remaining interests in Insieme, at which time the former noncontrolling interest holders became eligible to receive up to two milestone payments, which were determined using agreed-upon formulas based primarily on revenue for certain of Insieme's products. The former noncontrolling interest holders earned the maximum amount related to these two milestone payments and were paid approximately $422 million during the first six months of fiscal 2017. During the first six months of fiscal 2017, we recorded compensation expense of $32 million related to these milestone payments. We do not expect a material amount of future compensation expense or further milestone payments related to this acquisition.

Other Funding Commitments We also have certain funding commitments primarily related to our investments in privately held companies and venture funds, some of which are based on the achievement of certain agreed-upon milestones, and some of which are required to be funded on demand. The funding commitments were $215 million as of January 27, 2018, compared with $216 million as of July 29, 2017.

Off-Balance Sheet Arrangements

We consider our investments in unconsolidated variable interest entities to be off-balance sheet arrangements. In the ordinary course of business, we have investments in privately held companies including venture funds and provide financing to certain customers. Certain of these investments are considered to be variable interest entities. We evaluate on an ongoing basis our investments in these privately held companies and customer financings, and we have determined that as of January 27, 2018 there were no material unconsolidated variable interest entities.

On an ongoing basis, we reassess our investments in privately held companies 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 and end-user customers. We could be called upon to make payments under these guarantees in the event of nonpayment by the channel partners or end-user customers. See the previous discussion of these financing guarantees under "Financing Receivables and Guarantees."

Securities Lending

We periodically engage in securities lending activities with certain of our available for sale investments. These transactions are accounted for as a secured lending of the securities, and the securities are typically loaned only on an overnight basis. The average daily balance of securities lending for the six months ended January 27, 2018 and January 28, 2017 was $0.4 billion and $0.9 billion, respectively. 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. As of January 27, 2018 and July 29, 2017, we had no outstanding securities lending transactions. We believe these arrangements do not present a material risk or impact to our liquidity requirements.

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, 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. 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

Fixed Income Securities We maintain an investment portfolio of various holdings, types, and maturities. Our primary objective for holding fixed income securities 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 fixed income 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 fixed income securities as of January 27, 2018. Our fixed income investments are held for purposes other than trading. Our fixed income investments are not leveraged as of January 27, 2018. 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 27, 2018, our financing receivables had a carrying value of $9.8 billion, compared with $9.6 billion as of July 29, 2017. As of January 27, 2018, 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 27, 2018, we had $30.5 billion in principal amount of senior notes outstanding, which consisted of $2.9 billion floating-rate notes and $27.6 billion fixed-rate notes. The carrying amount of the senior notes was $30.4 billion, and the related fair value based on market prices was $31.8 billion. As of January 27, 2018, a hypothetical 50 BPS increase or decrease in market interest rates would change the fair value of the fixed-rate debt, excluding the $6.8 billion of hedged debt, by a decrease or increase of approximately $0.6 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

The fair value of our equity investments in publicly traded companies is subject to market price volatility. We may hold equity securities for strategic purposes or to diversify our overall investment portfolio. Our equity portfolio consists of securities with characteristics that most closely match the Standard & Poor’s 500 Index or NASDAQ Composite Index. These equity securities are held for purposes other than trading. To manage our exposure to changes in the fair value of certain equity securities, we may enter into equity derivatives designated as hedging instruments.

Publicly Traded Equity Securities The following tables present the hypothetical fair values of publicly traded equity securities as a result of selected potential decreases and increases in the price of each equity security in the portfolio, excluding hedged equity securities, if any. Potential fluctuations in the price of each equity security in the portfolio of plus or minus 10%, 20%, and 30% were selected based on potential near-term changes in those security prices. The hypothetical fair values as of January 27, 2018 and July 29, 2017 are as follows (in millions):

	VALUATION OF SECURITIES GIVEN AN X% DECREASE IN EACH STOCK’S PRICE			FAIR VALUE AS OF JANUARY 27, 2018	VALUATION OF SECURITIES GIVEN AN X% INCREASE IN EACH STOCK’S PRICE		
	(30)%	(20)%	(10)%		10%	20%	30%
Publicly traded equity securities	$888	$1,015	$1,142	$ 1,269	$1,396	$1,523	$1,650

	VALUATION OF SECURITIES	FAIR VALUE	VALUATION OF SECURITIES

	GIVEN AN X% DECREASE IN EACH STOCK'S PRICE			AS OF JULY 29, 2017	GIVEN AN X% INCREASE IN EACH STOCK'S PRICE		
	(30)%	(20)%	(10)%		10%	20%	30%
Publicly traded equity securities	$1,195	$1,366	$1,536	$ 1,707	$1,878	$2,048	$2,219

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Investments in Privately Held Companies We have also invested in privately held companies. These investments are recorded in other assets in our Consolidated Balance Sheets and are accounted for using primarily either the cost or the equity method. As of January 27, 2018, the total carrying amount of our investments in privately held companies was $982 million, compared with $983 million at July 29, 2017. Some of the privately held 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 investments in privately held companies is based on the fundamentals of the businesses invested in, including, among other factors, the nature of their technologies and potential for financial return.

Foreign Currency Exchange Risk

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

	January 27, 2018		July 29, 2017	
	Notional Amount	Fair Value	Notional Amount	Fair Value
Forward contracts:				
Purchased	$3,204	$ 64	$2,562	$ 39
Sold	$506	$ —	$729	$ (2)
Option contracts:				
Purchased	$194	$ 6	$528	$ 7
Sold	$174	$ —	$486	$ (1)

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 2018, foreign currency fluctuations, net of hedging, increased our combined R&D, sales and marketing, and G&A expenses by approximately $41 million, or 0.5%, compared with the first six months of fiscal 2017. To reduce variability in operating expenses and service cost of sales caused by non-U.S.-dollar denominated operating expenses and costs, we 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, investments, 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.

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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 2018 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

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 that remain 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 $257 million for the alleged evasion of import and other taxes, $1.6 billion for interest, and $1.2 billion for various penalties, all determined using an exchange rate as of January 27, 2018. 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.

SRI International   On September 4, 2013, SRI International, Inc. ("SRI") asserted patent infringement claims against us in the U.S. District Court for the District of Delaware, accusing our products and services in the area of network intrusion detection of infringing two U.S. patents. SRI sought monetary damages of at least a reasonable royalty and enhanced damages. The trial on these claims began on May 2, 2016 and on May 12, 2016, the jury returned a verdict finding willful infringement of the asserted patents. The jury awarded SRI damages of $23.7 million. On May 25, 2017, the Court awarded SRI enhanced damages and attorneys' fees, entered judgment in the new amount of $57.0 million, and ordered an ongoing royalty of 3.5% through the expiration of the patents in 2018. We have appealed to the United States Court of Appeals for the Federal Circuit on various grounds. We believe we have strong arguments to overturn the jury verdict and/or reduce the damages award. While the ultimate outcome of the case may still result in a loss, we do not expect it to be material.

SSL   SSL Services, LLC ("SSL") has asserted claims for patent infringement against us in the U.S. District Court for the Eastern District of Texas. The proceeding was instituted on March 25, 2015. SSL alleges that our AnyConnect products that include Virtual Private Networking functions infringed a U.S. patent owned by SSL. SSL seeks money damages from us. On August 18, 2015, we petitioned the Patent Trial and Appeal Board ("PTAB") of the United States

Patent and Trademark Office to review whether the patent SSL has asserted against us is valid over prior art. On February 23, 2016, a PTAB multi-judge panel found a reasonable likelihood that we would prevail in showing that SSL's patent claims are unpatentable and instituted proceedings. On June 28, 2016, in light of the PTAB's decision to review the patent's validity, the district court issued an order staying the district court case pending the final written decision from the PTAB. On February 22, 2017, following a hearing, the PTAB issued its Final Written Decision that the patent's claims are unpatentable. SSL has appealed this decision to the Court of Appeals for the Federal Circuit. We believe we have strong arguments that our products do not infringe and the patent is invalid. If we do not prevail and a jury were to find that our AnyConnect products infringe, we believe damages, as appropriately measured, would be immaterial. Due to uncertainty surrounding patent litigation processes, we are unable to reasonably estimate the ultimate outcome of this litigation at this time.

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Straight Path On September 24, 2014, Straight Path IP Group, Inc. (“Straight Path”) asserted patent infringement claims against us in the U.S. District Court for the Northern District of California, accusing our 9971 IP Phone, Unified Communications Manager working in conjunction with 9971 IP Phones, and Video Communication Server products of infringement. All of the asserted patents have expired and Straight Path was therefore limited to seeking monetary damages for the alleged past infringement. On November 13, 2017, the Court granted our motion for summary judgment of non-infringement, thereby dismissing Straight Path's claims against us and cancelling a trial which had been set for March 12, 2018. On January 16, 2018, Straight Path appealed to the U.S. Court of Appeal for the Federal Circuit.

DXC Technology On August 21, 2015, Cisco and Cisco Systems Capital Corporation (“Cisco Capital”) filed an action in Santa Clara County Superior Court for declaratory judgment and breach of contract against HP Inc. (“HP”) regarding a services agreement for management services of a third party’s network. HP prepaid the service agreement through a financing arrangement with Cisco Capital. HP terminated its agreement with us, and pursuant to the terms of the service agreement with HP, we determined the credit HP was entitled to receive under the agreement. HP disputed our credit calculation and contended that we owe a larger credit to HP than we had calculated. In December 2015, we filed an amended complaint which dropped the breach of contract claim in light of HP’s continuing payments to Cisco Capital under the financing arrangement. On January 19, 2016, HP Inc. filed a counterclaim for breach of contract simultaneously with its answer to the amended complaint. DXC Technology Corporation (“DXC”) reported that it is the party in interest in this matter pursuant to the Separation and Distribution Agreement between the then Hewlett-Packard Co. and Hewlett Packard Enterprise Company (“HPE") and the subsequent Separation and Distribution Agreement between HPE and DXC. On January 8, 2018, the court continued the trial date from March 12, 2018 to June 11, 2018. We are unable to reasonably estimate the ultimate outcome of this litigation due to uncertainty surrounding the litigation process. However, we do not anticipate that our obligation, if any, regarding the final outcome of the dispute would be material.

In addition, we are subject to 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 expect that the ultimate costs to resolve these matters will have a material adverse effect on our consolidated financial position, results of operations, or cash flows. 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.

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 29, 2017.

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, as described below
- 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 in engineering, sales, service, and marketing
- 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 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
- Higher overhead costs as a percentage of revenue and higher interest expense

The global macroeconomic environment has been challenging and inconsistent. 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 recent United Kingdom “Brexit” referendum to withdraw from the European Union, 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. For example, emerging countries in the aggregate experienced a decline in product orders in the first quarter of fiscal 2018, in fiscal 2017, and in certain prior periods.

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 is 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.

WE HAVE BEEN INVESTING AND EXPECT TO CONTINUE TO INVEST IN KEY PRIORITY AND GROWTH AREAS AS WELL AS MAINTAINING LEADERSHIP IN INFRASTRUCTURE PLATFORMS AND IN SERVICES, AND IF THE RETURN ON THESE INVESTMENTS IS LOWER OR DEVELOPS MORE SLOWLY THAN WE EXPECT, OUR OPERATING RESULTS MAY BE HARMED

We expect to realign and dedicate resources into key priority and growth areas, such as Security and Applications, while also focusing on maintaining leadership in Infrastructure Platforms and in Services. However, the return on our 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.

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 and related market uncertainty.

Our revenue may grow at a slower rate than in past periods or decline as it did in the first quarter of fiscal 2018 and in fiscal 2017 on a year-over-year basis. 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, primarily in the United States and in emerging countries. 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.

Inventory management remains an area of focus. We have experienced longer than normal manufacturing lead times in the past which have caused some customers to place the same order multiple times within our various sales channels and to cancel the duplicative orders upon receipt of the product, or to 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 and, as a result, could impair our ability to manage parts inventory effectively. In addition, our efforts to improve manufacturing lead-time performance may result in corresponding reductions in order backlog. A decline in backlog levels could result in more variability and less predictability in our quarter-to-quarter 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 purchase commitments. Increases in our purchase commitments to shorten lead times could also lead to excess and obsolete inventory charges 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.

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Any of the above factors could have a material adverse impact on our operations and financial results.

WE EXPECT GROSS MARGIN TO VARY OVER TIME, AND OUR LEVEL OF PRODUCT GROSS MARGIN MAY NOT BE SUSTAINABLE

Our product gross margins declined in the first quarter of fiscal 2018 and in fiscal 2017, and in certain other prior periods, and could decline in future quarters 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, which could be significant especially during periods of supply constraints such as those impacting the market for memory components
- Excess inventory and inventory holding charges
- Obsolescence charges
- Changes in shipment volume
- The timing of revenue recognition and revenue deferrals
- Increased cost, 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 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 Infrastructure Platforms and Applications products, in addition to longer sales cycles. Product orders from the service provider market decreased in the first half of fiscal 2018 and in fiscal 2017, and at various times in the past 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 some of these or other conditions in the service provider market 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. Revenue from distributors is generally recognized based on a sell-through method using information provided by them. These distributors are generally given business terms that allow them to return a portion of inventory, receive credits for changes in selling prices, and participate in various cooperative marketing programs. 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. Although variability to date has not been significant, 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:

- We compete 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
- 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 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. Our competitors include Amazon Web Services LLC; Arista Networks, Inc.; ARRIS Group, Inc.; Check Point Software Technologies Ltd.; Dell Technologies Inc.; Extreme Networks, Inc.; F5 Networks, Inc.; FireEye, Inc.; Fortinet, Inc.; Hewlett-Packard Enterprise Company; Huawei Technologies Co., Ltd.; Juniper Networks, Inc.; Lenovo Group Limited; Microsoft Corporation; New Relic, Inc.; Nokia Corporation; Nutanix, Inc.; Palo Alto Networks, Inc.; Symantec Corporation; Ubiquiti Networks and VMware, Inc.; among others.

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 in our view 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, ASICs 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
- 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.

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OUR 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 our 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. Revenue to our distributors generally is recognized based on a sell-through method using information provided by them, and they 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.

SUPPLY CHAIN ISSUES, INCLUDING FINANCIAL PROBLEMS OF CONTRACT MANUFACTURERS OR COMPONENT SUPPLIERS, OR A SHORTAGE OF ADEQUATE COMPONENT SUPPLY OR MANUFACTURING CAPACITY THAT INCREASED OUR COSTS OR CAUSED 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:

- Any financial problems of either contract manufacturers or component suppliers could either limit supply or increase costs
- Reservation of manufacturing capacity at our contract manufacturers by other companies, inside or outside of our industry, could either limit supply or increase costs
- Industry consolidation occurring within one or more component supplier markets, such as the semiconductor market, could either limit supply or increase costs

A reduction or interruption in supply; a significant increase in the price of one or more components; 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. We have experienced longer than normal lead times in the past. 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. See the risk factor above entitled “Our revenue for a particular period is difficult to predict, and a shortfall in revenue may harm our operating results.”

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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. 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 in the industry 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, at least initially, on unfamiliar supply chains or relatively small supply partners
- 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 purchase commitments. Increases in our purchase commitments to shorten lead times could also lead to excess and obsolete inventory charges 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 regarding our purchase commitments with contract manufacturers and suppliers, see Note 12 to the Consolidated Financial Statements.

WE DEPEND UPON THE DEVELOPMENT OF NEW PRODUCTS AND ENHANCEMENTS TO EXISTING PRODUCTS, 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 are characterized by rapidly changing technology, evolving industry standards, new product introductions, and evolving methods of building and operating networks. Our operating results depend on our ability to develop and introduce new products into existing and emerging markets and to reduce the production costs of existing products. Many of our strategic initiatives and investments we have made, and our architectural approach, are designed to enable the increased use of the network as the platform for automating, orchestrating, integrating, and delivering an ever-increasing array of IT-based products and services. For example, in June 2017 we announced our Catalyst 9000 series of switches which represent the initial foundation of our intent-based networking capabilities. Other current initiatives include our focus on security; the market transition related to digital transformation and IoT; the transition in cloud; and the move towards more programmable, flexible and virtual networks.

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The process of developing new technology, including intent-based networking, more programmable, flexible and virtual networks, and technology related to other market transitions— such as security, digital transformation and IoT, 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 priorities to developing new products before knowing whether our investments will result in products 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.

Our strategy is to lead our customers in their digital transition with solutions that deliver greater agility, productivity, security and other advanced network capabilities, and that intelligently connect nearly everything that can be connected. Over the last few years, we have 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 depends on several factors, including proper new product definition, component costs, timely completion and introduction of these products, differentiation of new products from those of our competitors, and market acceptance of these products. There can be no assurance that we will successfully identify new product opportunities, develop and bring new products to market in a timely manner, or achieve market acceptance of our products or that products and technologies developed by others will not render our products 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.

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.

In August 2016, we announced a restructuring plan. We began taking action under this plan in the first quarter of fiscal 2017, and the plan has been substantially completed. The implementation of this restructuring plan may be disruptive to our business, and following completion of the restructuring plan 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.

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OVER THE LONG TERM WE INTEND TO INVEST IN ENGINEERING, SALES, SERVICE AND MARKETING ACTIVITIES, 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 Security and Applications, and we also intend to focus on maintaining leadership in Infrastructure Platforms 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, or if the achievement of these benefits is delayed, our operating results may be adversely affected.

OUR BUSINESS SUBSTANTIALLY DEPENDS UPON THE CONTINUED GROWTH OF THE INTERNET AND INTERNET-BASED SYSTEMS

A substantial portion of our business and revenue depends on growth and evolution of the Internet, including the continued development of the Internet and the anticipated market transitions, and on the deployment of our products by customers who depend on such continued growth and evolution. To the extent that an economic slowdown or uncertainty and related reduction in capital spending adversely affect spending on Internet infrastructure, including spending or investment related to anticipated market transitions, we could experience material harm to our business, operating results, and financial condition.

Because of the rapid introduction of new products and changing customer requirements related to matters such as cost-effectiveness and security, we believe that there could be performance problems with Internet communications in the future, which could receive a high degree of publicity and visibility. Because we are a large supplier of networking products, our business, operating results, and financial condition may be materially adversely affected, regardless of whether or not these problems are due to the performance of our own products. Such an event could also result in a material adverse effect on the market price of our common stock independent of direct effects on our business.

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 shareholders’ 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

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- 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 intercompany R&D cost sharing arrangement and legal structure
- Incur large and immediate 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.

From time to time, we have made acquisitions that resulted in charges in an individual quarter. These charges may occur in any particular quarter, resulting in variability in our quarterly earnings. 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. See the risk factors above, including the risk factor entitled “We depend upon the development of new products and enhancements to existing products, and if we fail to predict and respond to emerging technological trends and customers’ changing needs, our operating results and market share may suffer” for additional information.

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, provision of greater levels of services, support and financing by us may result in a delay in the timing of revenue recognition. In addition, 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 has been a trend toward industry consolidation in our markets for several years. 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

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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. For example, in the second quarter of fiscal 2017 we recorded a charge to product cost of sales of $125 million related to the expected remediation costs for anticipated failures in future periods of a widely-used component sourced from a third party which is included in several of our products, and in the second quarter of fiscal 2014 we recorded a pre-tax charge of $655 million related to the expected remediation costs for certain products sold in prior fiscal years containing memory components manufactured by a single supplier between 2005 and 2010.

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. Emerging countries in the aggregate experienced a decline in orders in the first quarter of fiscal 2018, in fiscal 2017, and in certain prior periods. We continue to assess the sustainability of any improvements 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, including impacts from global central bank monetary policy; issues related to the political relationship between the United States and other countries that can affect the willingness of customers in those countries to purchase products from companies headquartered in the United States; and the challenging and inconsistent global macroeconomic environment, any or all of which could have a material adverse effect on our operating results and financial condition, including, among others, the following:

- Foreign currency exchange rates
- Political or social unrest
- Economic instability or weakness or natural disasters in a specific country or region, including the current economic challenges in China and global economic ramifications of Chinese economic difficulties; instability as a result of Brexit; environmental and trade protection measures 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
- Political considerations that affect service provider and government spending patterns
- Health or similar issues, such as a pandemic or epidemic
- Difficulties in staffing and managing international operations
- 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. We monitor individual customer payment capability in granting such open credit arrangements, seek to limit such open credit to amounts we believe the customers can pay, and maintain reserves we believe are adequate to cover exposure for doubtful accounts. Beyond our open credit arrangements, we have also experienced demands for customer financing and facilitation of leasing arrangements. We expect demand for customer financing to continue, and recently we have been experiencing an increase in this demand as the credit markets have been impacted by the challenging and inconsistent global

macroeconomic environment, including increased demand from customers in certain emerging countries.
We believe customer financing is a competitive factor in obtaining business, particularly in serving customers involved in significant infrastructure projects. 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.

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Our exposure to the credit risks relating to our financing activities described above may increase if our customers are adversely affected by a global economic downturn or periods of economic uncertainty. Although we have programs in place that are designed to monitor and mitigate the associated risk, including monitoring of particular risks in certain geographic areas, there can be no assurance that such programs will be effective in reducing our credit risks.

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. A portion of our sales is derived through our distributors. These distributors are generally given business terms that allow them to return a portion of inventory, receive credits for changes in selling prices, and participate in various cooperative marketing programs. We maintain estimated accruals and allowances for such business terms. However, distributors tend to have more limited financial resources than other resellers and end-user customers and therefore represent potential sources of increased credit risk, because they may be more likely to lack the reserve resources to meet payment obligations. 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. These securities are generally classified as available-for-sale and, consequently, are recorded on our Consolidated Balance Sheets at fair value with unrealized gains or losses reported as a component of accumulated other comprehensive income (loss), net of tax. Our portfolio includes fixed income securities and equity investments in publicly traded companies, the values of which are subject to market price volatility to the extent unhedged. 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 when the decline is judged to be other than temporary. For information regarding the sensitivity of and risks associated with the market value of portfolio investments and interest rates, refer to the section titled "Quantitative and Qualitative Disclosures About Market Risk." Our investments in private companies 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.

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. 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. Historically, our primary exposures have related to nondollar-denominated sales in Japan, Canada, and Australia and certain nondollar-denominated operating expenses and service cost of sales in Europe, Latin America, and Asia, where we sell primarily in U.S. dollars. Additionally, we have exposures to 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.

Currently, we enter into foreign exchange forward contracts and options to reduce the short-term impact of foreign currency fluctuations on certain foreign currency receivables, investments, and payables. In addition, we periodically hedge anticipated foreign currency cash flows. Our attempts to hedge against these risks may result in an adverse impact on our net income.

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

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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 12(g) 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.

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.

OUR OPERATING RESULTS AND FUTURE PROSPECTS COULD BE MATERIALLY HARMED BY UNCERTAINTIES OF REGULATION OF THE INTERNET

Currently, few laws or regulations apply directly to access or commerce on the Internet. We could be materially adversely affected by regulation of the Internet and Internet commerce in any country where we operate. Such regulations could include matters such as voice over the Internet or using IP, encryption technology, sales or other taxes on Internet product or service sales, and access charges for Internet service providers. The adoption of regulation of the Internet and Internet commerce could decrease demand for our products and, at the same time, increase the cost of selling our products, which could have a material adverse effect on our business, operating results, and financial condition.

CHANGES IN TELECOMMUNICATIONS REGULATION AND TARIFFS COULD HARM OUR PROSPECTS AND FUTURE SALES

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Changes in telecommunications requirements, or regulatory requirements in other industries in which we operate, in the United States or other countries could affect the sales of our products. In particular, we believe that there may be future changes in U.S. telecommunications regulations that could slow the expansion of the service providers’ network infrastructures and materially adversely affect our business, operating results, and financial condition, including "net neutrality" rules to the extent they impact decisions on investment in network infrastructure.

Future changes in tariffs by regulatory agencies or application of tariff requirements to currently untariffed services could affect the sales of our products for certain classes of customers. Additionally, in the United States, our products must comply with various requirements and regulations of the Federal Communications Commission and other regulatory authorities. In countries outside of the United States, our products must meet various requirements of local telecommunications and other industry authorities. Changes in tariffs or failure by us to obtain timely approval of products could have a material adverse effect on our business, operating results, and financial condition.

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 these 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. Litigation can be expensive, lengthy, and disruptive to normal business operations. Moreover, the results of complex legal proceedings are difficult to predict. For example, 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. The asserted claims by Brazilian federal tax authorities which remain 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 $257 million for the alleged evasion of import and other taxes, $1.6 billion for interest, and $1.2 billion for various penalties, all determined using an exchange rate as of January 27, 2018. 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. 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 Item 1, “Legal Proceedings,” contained in Part II of this report.

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 domestic manufacturing deduction laws, regulations, or interpretations thereof; by expiration of or lapses in tax incentives; by transfer pricing adjustments, including the effect of acquisitions on our intercompany R&D cost sharing arrangement and legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, 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

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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 35 countries, including the United States, has made changes to numerous long-standing tax principles. There can be no assurance that these changes, 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 is 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

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 suppliers and logistics centers are located in regions that have been or may be affected by earthquake, tsunami and flooding activity which in the past has disrupted, and in the future could disrupt, the flow of components and delivery of products. A significant natural disaster, such as an earthquake, a hurricane, volcano, or a flood, could have a material adverse impact on our business, operating results, and financial condition.

MAN-MADE PROBLEMS SUCH AS CYBER-ATTACKS, DATA PROTECTION BREACHES, COMPUTER VIRUSES OR TERRORISM MAY DISRUPT OUR OPERATIONS, HARM OUR OPERATING RESULTS AND DAMAGE OUR REPUTATION, AND CYBER-ATTACKS OR DATA PROTECTION BREACHES ON OUR CUSTOMERS’ NETWORKS, OR IN CLOUD-BASED SERVICES PROVIDED BY OR ENABLED BY US, COULD RESULT IN LIABILITY FOR US, DAMAGE OUR REPUTATION OR OTHERWISE HARM OUR BUSINESS

Despite our implementation of network security measures, the products and services we sell to customers, and our servers, data centers and the cloud-based solutions on which our data, and data of our customers, suppliers and business partners are stored, are vulnerable to cyber-attacks, data protection breaches, computer viruses, and similar disruptions from unauthorized tampering or human error. Any such event could compromise our networks or those of our customers, and the information stored on our networks or those of our customers could be accessed, publicly disclosed, lost or stolen, which could subject us to liability to our customers, suppliers, business partners and others, and could have a material adverse effect on our business, operating results, and financial condition and may cause damage to our reputation. Efforts to limit the ability of malicious third parties to disrupt the operations of the Internet or undermine our own security efforts may be costly to implement and meet with resistance, and may not be successful. Breaches of network security in our customers’ networks, or in cloud-based services provided by or enabled by us, regardless of whether the breach is attributable to a vulnerability in our products or services, could result in liability for us, damage our reputation or otherwise harm our business.

In addition, the continued threat of terrorism and heightened security and military action in response to this threat, or any future acts of terrorism, may cause further disruptions to the economies of the United States and other countries and create further uncertainties or otherwise materially harm 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.

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 and in the past have established a joint venture to market services associated with our Cisco Unified Computing System products. 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 the joint venture. 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.

OUR STOCK PRICE MAY BE VOLATILE

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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.

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 2018, we have senior unsecured notes outstanding in an aggregate principal amount of $30.5 billion that mature at specific dates from calendar year 2018 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 $9.0 billion in commercial paper notes outstanding under this program as of January 27, 2018. The outstanding senior unsecured notes bear fixed-rate interest payable semiannually, except $2.9 billion of the notes which bears interest at a floating rate payable quarterly. The fair value of the long-term debt is subject to market interest rate volatility. The instruments governing the senior unsecured notes contain certain covenants applicable to us and our wholly-owned subsidiaries that may adversely affect our ability to incur certain liens or engage in certain types of sale and leaseback transactions. In addition, we will be required to have available in the United States sufficient cash to service the interest on our debt and repay all of our notes on maturity. 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.

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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 29, 2017 to November 25, 2017	12	$ 35.06	12	$ 9,651
November 26, 2017 to December 23, 2017	30	$ 38.09	30	$ 8,508
December 24, 2017 to January 27, 2018	61	$ 40.36	61	$ 6,066
Total	103	$ 39.07	103	

On September 13, 2001, we announced that our Board of Directors had authorized a stock repurchase program. On February 14, 2018, our Board of Directors authorized a $25 billion increase to the stock repurchase program. The remaining authorized amount for stock repurchases under this program, including the additional authorization, is approximately $31 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 (see Note 13 to the Consolidated Financial Statements).

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

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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	
10.1	Cisco Systems, Inc. 2005 Stock Incentive Plan (including related form agreements)	8-K	000-18225	10.1	12/12/2017	
10.2	Cisco Systems, Inc. Executive Incentive Plan	8-K	000-18225	10.2	12/12/2017	
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	XBRL Instance Document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X

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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 20, 2018	By: /S/ Kelly A. Kramer
	Kelly A. Kramer
	Executive Vice President and
	Chief Financial Officer
	(Principal Financial Officer and duly authorized signatory)

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