

On a constant currency basis, total research and development expenses were flat in fiscal 2019, as lower employee related expenses including lower variable compensation were offset by an increase in stock-based compensation expenses.

General and Administrative Expenses: General and administrative expenses primarily consist of personnel related expenditures for IT, finance, legal and human resources support functions; and professional services fees.

(Dollars in millions)	Year Ended May 31,			
	2019	Percent Change		2018
		Actual	Constant	
General and administrative (1)	\$ 1,093	-1%	2%	\$ 1,102
Stock-based compensation	172	-5%	-5%	180
Total expenses	\$ 1,265	-1%	1%	\$ 1,282
% of Total Revenues	3%			3%

(1) Excluding stock-based compensation

Excluding the effects of currency rate fluctuations, total general and administrative expenses increased in fiscal 2019 compared to fiscal 2018 primarily due to increased professional services fees.

Amortization of Intangible Assets: Substantially all of our intangible assets were acquired through our business combinations. We amortize our intangible assets over, and monitor the appropriateness of, the estimated useful lives of these assets. We also periodically review these intangible assets for potential impairment based upon relevant facts and circumstances. Note 6 of Notes to Consolidated Financial Statements included elsewhere in this Annual Report has additional information regarding our intangible assets and related amortization.

(Dollars in millions)	Year Ended May 31,			
	2019	Percent Change		2018
		Actual	Constant	
Developed technology	\$ 857	13%	14%	\$ 758
Cloud services and license support agreements and related relationships	712	-3%	-3%	731
Other	120	-9%	-9%	131
Total amortization of intangible assets	\$ 1,689	4%	4%	\$ 1,620

Amortization of intangible assets increased in fiscal 2019 compared to fiscal 2018 primarily due to additional amortization from intangible assets, which primarily included developed technology that we acquired in connection with our recent acquisitions, partially offset by a reduction in expenses associated with certain of our intangible assets that became fully amortized.

Acquisition Related and Other Expenses: Acquisition related and other expenses consist of personnel related costs and stock-based compensation for transitional and certain other employees, integration related professional services, and certain business combination adjustments including certain adjustments after the measurement period has ended and certain other operating items, net. Stock-based compensation expenses included in acquisition related and other expenses resulted from unvested restricted stock-based awards and stock options assumed from acquisitions whereby vesting was accelerated generally upon termination of the employees pursuant to the original terms of those restricted stock-based awards and stock options.

(Dollars in millions)	Year Ended May 31,			
	2019	Percent Change		2018
		Actual	Constant	
Transitional and other employee related costs	\$ 49	3%	4%	\$ 48
Stock-based compensation	—	-100%	-100%	1
Professional fees and other, net	16	373%	426%	3
Business combination adjustments, net	(21)	*	*	—
Total acquisition related and other expenses	\$ 44	-15%	-13%	\$ 52

* Not meaningful