



UPDATE

The Broader HPC Market: Servers, Storage, Software, Middleware, and Services

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IN THIS UPDATE

This IDC update shows IDC's tracking of the broader HPC market, including and extending beyond the compute server, and provides five-year forecasts for each category. The base HPC compute server market is projected to grow at a compound annual growth rate (CAGR) of 8.2% from 2014 to 2019, growing from \$10.2 billion in 2014 to reach \$15.2 billion in 2019. The broader HPC market is projected to grow from \$21.0 billion in 2014 to \$31.3 billion by 2019. The broader HPC market that IDC tracks includes (in addition to servers):

- Storage
- Application software
- Middleware
- Repair and maintenance services

The Broader HPC Market

Definitions of the HPC Market Categories

In the context of HPC and for this market update, IDC uses the following definitions:

- A **compute server**, synonymous with an HPC system, includes processors, cabinets, power supplies, scratch disk, special hardware, special paint jobs, in-built storage, and anything else required for the device to be able to power up and operate as an independent system. A compute server does not include application software or services.
- **Storage** refers to devices, including disks, tape, and SSDs, that are used to record electronic data for later retrieval. Storage does not include scratch disk space that may be built into compute servers.
- **Middleware** refers to the software stack at work between user applications and the operating system. In response to changing HPC demands and new environments, this stack has played an increasingly important and diverse role. From their intermediate position, middleware programs perform a wide variety of crucial linking, mediating, and control functions.
- **Applications** are software programs designed to perform specific tasks that employ end users' data and directly benefit the work of end users.
- **Services** refer to repair and maintenance services and do not include professional services.

Note: All numbers in this document may not be exact due to rounding.

The Historic Size of the Broader HPC Market Segments

Table 1 shows revenue for the broader HPC ecosystem categories for the historical year 2014. Server revenue made up close to half of total HPC market spending, while storage and applications accounted for 20.1% and 17.1%, respectively, and 5.5% was spent for middleware and 8.7% for services. Software as a whole accounted for 22.6% of total HPC spending (note that this excludes software that is bundled within the servers).

TABLE 1

Worldwide Broader HPC Ecosystem Revenue by Category, 2014

	Revenue (\$M)	Share (%)
Server	10,222.3	48.6
Storage	4,229.5	20.1
Middleware	1,163.5	5.5
Applications	3,598.2	17.1
Services	1,819.0	8.7
Total	21,032.4	100.0

Source: IDC, 2015

Growth Rates for the Broader HPC Market

Table 2 shows IDC's forecast broken out by these key HPC budget categories: server hardware, storage, middleware, application software, and repair services. IDC expects total spending across these categories will increase during the 2014-2019 period at a healthy CAGR of 8.3% to reach \$31.3 billion in 2019, or about double the \$15.2 billion forecast for the server category alone.

TABLE 2**Worldwide Broader HPC Ecosystem Revenue by Category, 2012-2019 (\$M)**

	2012	2013	2014	2015	2016	2017	2018	2019	2014–2019 CAGR (%)
Server	11,097.7	10,298.8	10,222.3	10,718.2	11,466.9	12,957.6	14,073.2	15,164.6	8.2
Storage	4,058.9	4,153.8	4,229.5	4,504.4	4,864.7	5,545.8	6,122.6	6,796.0	9.9
Middleware	1,198.8	1,157.7	1,163.5	1,216.7	1,294.2	1,426.2	1,534.4	1,645.4	7.2
Applications	3,610.7	3,574.2	3,598.2	3,769.2	4,028.0	4,479.1	4,823.5	5,167.4	7.5
Services	1,887.5	1,828.1	1,819.0	1,894.9	2,006.1	2,223.1	2,356.0	2,496.8	6.5
Total	21,853.6	21,012.6	21,032.4	22,103.4	23,659.9	26,631.8	28,909.8	31,270.2	8.3

Source: IDC, 2015

In addition:

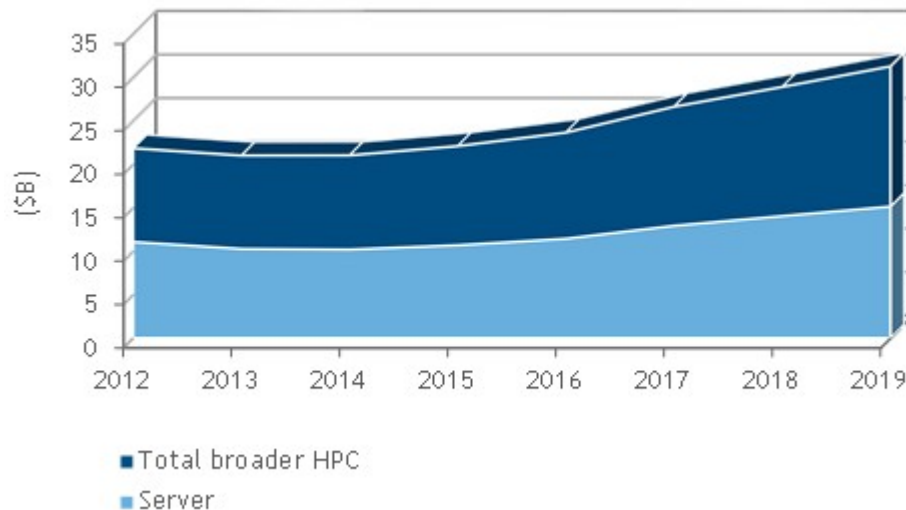
- IDC forecasts that HPC server revenue will grow at an 8.2% CAGR to reach \$15.2 billion in 2019. Server hardware will remain the largest spending category and one of the faster-growing segments.
- IDC forecasts that storage revenue will expand at a strong 9.9% CAGR to reach about \$6.8 billion in 2019, or about 21.7% of all HPC expenditures. Storage revenue have been growing faster than server revenue for several years, and IDC expects this trend will continue as HPC sites contend with the data explosion, which is even more pronounced in many HPC environments than in their enterprise counterparts.
- Middleware revenue will grow at a healthy rate (7.2% CAGR) to exceed \$1.6 billion in 2019, or about 5.3% of all HPC expenditures. Growth could be larger if dedicated HPC cloud computing environments, especially public and hybrid clouds, and data-intensive computing ("Big Data") ramp up faster than expected and present larger opportunities for middleware vendors.
- IDC expects that application software revenue will increase at a healthy 7.5% CAGR to reach \$5.2 billion in 2019, or 16.5% of overall HPC spending. Because high-end government and university centers rely less on paid ISV applications than do industrial/commercial sites, the global petascale/exascale race will not benefit ISVs as heavily. Harder to predict is the extent to which ISVs will succeed in the difficult task of creating software licensing models that are more attuned to contemporary highly parallel, multicore, heterogeneous HPC systems.
- Services revenue should continue growing at a moderate rate (6.5% CAGR) to reach \$2.5 billion in 2019, or about 8.0% of overall HPC expenditures.

Growth Trends for the Broader HPC Market

Figure 1 displays the key information contained in Table 2, illustrating that the forecast server growth rate (8.2%) slightly lags behind the forecast growth rate for the broader HPC market that also includes the other categories (8.3%).

FIGURE 1

Worldwide Broader HPC Ecosystem Server and Total HPC Revenue, 2012-2019



Source: IDC, 2015

In Summary

The broader HPC market that includes technical servers, storage, middleware (HPC management software), applications software, and repair services has bounced back from the global economic recession and is on a healthy growth path. IDC predicts that the market will expand at an 8.3% CAGR to reach \$31 billion in 2019 compared with \$21 billion in 2014. This represents a net revenue gain of 48.7% during the five-year forecast period.

Servers, the largest revenue category, will continue to represent about half of the broader market and will account for \$15.2 billion in 2019. Storage will continue to be the fastest-growing category, with a 9.9% CAGR that yields \$6.8 billion in 2019 revenue. The software categories including middleware and applications will experience healthy growth and will together generate about \$6.8 billion by 2019. The services category will grow at a slightly more moderate rate (6.5% CAGR) to reach \$2.5 billion in 2019.

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Related Research

Additional research from IDC in the technical computing hardware program includes the following documents:

- *Experiences with Accelerators and Coprocessors in High-Performance Computing: HPC User Forum, September 15-17, 2014, Seattle, Washington* (IDC #251973, October 2014)
- *Major Global High-Performance Computing Initiatives: HPC User Forum, September 15-17, 2014, Seattle, Washington* (IDC #251971, October 2014)
- *Lenovo Completes Acquisition of IBM's x86 Server Business* (IDC #lcUS25176214, September 2014)
- *Worldwide Broader HPC 2014-2018 Forecast: Servers, Storage, Software, Middleware, and Services* (IDC #248835, June 2014)
- *Worldwide Technical Computing Server 2014-2018 Forecast* (IDC #248779, May 2014)
- *Global HPC Market Dynamics in 2013* (IDC #248137, April 2014)
- *Worldwide HPC Public Cloud Computing 2014-2017 Forecast* (IDC #247846, April 2014)
- *Summary of IDC's 2014 Research in the Use of HPC by Oil and Gas Organizations* (IDC #247704, March 2014)
- *IBM Sale to Lenovo Opens Opportunity for Other HPC Vendors* (IDC #lcUS24694314, February 2014)
- *IDC's Worldwide High-Performance Computing Predictions 2014* (IDC #WC20140211, February 2014)
- *Market Analysis Perspective: Worldwide HPC, 2013 – Directions, Trends, and Customer Requirements* (IDC #244742, December 2013)
- *HPDA Pulse Results: 2013 Hardware and Storage Market Analysis* (IDC #244493, November 2013)
- *HP FY13: Revenue Declines Abate on Stronger Core Business* (IDC #lcUS24466413, November 2013)
- *China Eyes 10,000-Fold Data Reduction for Internet of Things* (IDC #lcUS24392513, October 2013)
- *National and International Initiatives: HPC User Forum, September 2013, Boston, Massachusetts* (IDC #243776, October 2013)
- *High-Performance Data Analysis in the Life Sciences: HPC User Forum, September 2013, Boston, Massachusetts* (IDC #243774, October 2013)
- *Chinese Research in Processor Designs for High-Performance Computing and Other Uses* (IDC #243502, October 2013)
- *The Broader HPC Market 2012-2017 Forecast: Servers, Storage, Software, Middleware, and Services* (IDC #242742, August 2013)
- *IDC's Worldwide Technical Server Taxonomy, 2013* (IDC #242725, August 2013)
- *China Regains Top Supercomputer Title* (IDC #lcUS24190613, June 2013)
- *Worldwide High-Performance Data Analysis 2013-2017 Forecast* (IDC #241315, June 2013)
- *Top Issues for HPC Sites: HPC User Forum, April 29-May 1, 2013, Tucson, Arizona* (IDC #241463, June 2013)

About IDC

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