Worldwide High Performance Computing 2017 Total Market Model and 2018–2022 Forecast: Cloud Categories

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EXECUTIVE SUMMARY

This Intersect360 Research report presents the cloud segment of the 2017 total market model and five-year forecast for the overall High Performance Computing (HPC) market, segmented into cloud segments: raw cycles, storage, application hosting (SaaS), infrastructure hosting (IaaS, PaaS), and other. The forecast horizon is from 2018 through 2022, with compound annual growth rates (CAGRs) using 2017 as a base.

Intersect360 Research defines HPC as the use of servers, clusters, and supercomputers—plus associated software, tools, components, storage, and services—for scientific, engineering, or analytical tasks that are particularly intensive in computation, memory usage, or data management. Intersect360 Research reports available in this series include the following segmentations:

- *Products and Services:* servers, storage, networks, software, service, cloud, other
- *Economic sectors:* industry, government, academia
- *Vertical markets:* academia, national security, national research labs, national agencies, state or local governments, bio sciences, chemical engineering, consumer product manufacturing, electronics, energy, financial services, large product manufacturing, media and entertainment, retail, transportation, other
- *Regions:* North America, EMEA, Asia-Pacific, Latin America
- *Server class (HPC server revenue):* entry-level, midrange, high-end, supercomputer
- *Cloud categories (HPC cloud revenue, this report):* raw cycles, cloud storage, application hosting (SaaS), infrastructure hosting (IaaS, PaaS), other
- *Software categories (HPC software revenue):* operating environments, developer tools, middleware, storage software, transfer costs, application software, other
- *Services categories (HPC services revenue):* maintenance and repair, system engineering, system integration, training, programming services, other
- *HPC server market shares* (current year only, not forecast)
- *HPC storage market shares* (current year only, not forecast)

Perhaps the most noteworthy trend from 2017 was that public cloud consumption for HPC had a breakout year, with 44.3% growth. This sudden burst was driven by a combination of factors, including: increasing facilities costs for hosting HPC, maturation of application licensing models, increased availability of high-performance cloud resources, and a spike in requirements for machine learning applications.

There were dramatic differences in the growth rates between the various cloud segments. While revenue for raw cycles grew only 5.6% from 2016 to 2017, revenue for application hosting (SaaS) more than doubled, with 125% growth year-over-year. The application hosting segment therefore leapfrogged from the fourth-largest cloud subcategory to the largest in a single year, now claiming 27.0% of the revenue in the HPC

cloud segment. The HPC cloud segment will continue to be the highest-growth product category over the forecast period.

TECHNOLOGIES COVERED IN THIS REPORT

- HPC system elements
  - Systems, clusters
  - Server technologies
- Processor Elements
  - Accelerators and Co-processors
    - GPU computing / GPUs
- Storage elements
  - Storage systems
- Interconnect elements
  - System interconnects
- Software elements
  - Operating systems
- Services
- Cloud computing, grid computing, utility computing
- Other technology trends
  - Big Data trends
  - Government programs or investment in HPC
  - Artificial Intelligence / AI
  - Deep Learning / Machine Learning

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