HPC User Site Census: Life Cycles

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EXECUTIVE SUMMARY

This report, part of our HPC User Site Census series, examines the life cycle of servers and storage systems installed in a sample of HPC user sites. Intersect360 Research surveyed a broad range of users about their current computer system installations, storage systems, networks, middleware, and supporting software. The resulting data is presented in a series of reports throughout the year, each describing different aspects of the HPC end-user landscape.

Our goal in this analysis of the life cycle of an HPC system is to examine the length of time a system is installed and examine the tendency and timing for upgrading a system.

Key findings of the survey include the following:

- About 61% of the 707 servers had been installed for three years or less, and only 15% of the servers were older than five years when surveys were completed, indicating a very young installed base. The average age for servers was 3.3 years.

- Improvements, either via additional nodes or upgrades to the servers, continue to occur after the initial sale for about 73% of the servers. More than one-third (35%) of the servers were upgraded in the first year of ownership.

- About two-thirds (64%) of the storage systems have been installed for three years or less, similar to servers. The average age for storage systems was 3.3 years.

- Upgrades to storage systems were reported for about 72% of the storage systems. Most (87%) of the upgrades occurred on storage systems owned for four years or less.

- The share of servers with upgrades reported has increased significantly since 2008. In 2008, about 49% of respondents stated they made either additions or upgrades or both after acquiring the server compared to 73% in 2015. Upgrades appear to be used to maintain performance during the server's average three year life rather than extending the life. In our latest study, servers with upgrades were on average a year older than those not reporting an upgrade.

TECHNOLOGIES COVERED IN THIS REPORT

- HPC system elements
  - Systems, clusters
- Storage elements
  - Storage systems