

HPC User Site Census: Interconnects and Networks

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EXECUTIVE SUMMARY

This report, part of the Intersect360 Research Site Census series, provides an examination of the server interconnects and network characteristics found at 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 software supporting these computer installations.

The goal in this analysis of computer system interconnects and network implementation is to examine the suppliers, type, and purpose of the networks within the HPC user communities, and to explore how this usage varies between computer system interconnects, storage networks, and local area networks.

Key findings of the survey include the following:

- Ethernet and InfiniBand are the two primary standards that compete across all three locales: system interconnects, storage networks, and LANs. Ethernet is the most prevalent for all three locales when all speeds are considered. For the performance sector, InfiniBand has the greatest representation for system interconnects, 10 Gigabit Ethernet has the most representation for LANs, and InfiniBand has slightly greater representation than 10 Gigabit Ethernet for storage networks for total sites.
- Use of Ethernet and InfiniBand standards at other locales appeared to be dependent on the site heritage. That is, use of Ethernet for a system interconnect or storage network at a site was more likely if the site had an Ethernet LAN. Use of InfiniBand for storage networks and LANs was more likely if it was being used as a system interconnect at that site.
- Mellanox is the supplier used most often for system interconnects, with 18% of mentions. Cisco is the supplier used most often for storage networks, with 14% of mentions and for LANs, with 40%.
- Ethernet, as expected, is the dominant LAN network implemented at these sites with 1 Gigabit Ethernet accounting for 52% of the mentions, followed by 10 Gigabit Ethernet with 26%.

COMPANIES MENTIONED IN THIS REPORT

- 3Com
- ACE
- Apple
- Arista
- AT&T
- Avaya - Nortel
- Barracuda
- BNT
- Broadcom
- Brocade
- Bull
- C-DAC
- Chelsio
- Ciena
- Cisco Systems
- Cogent
- Cox
- Cray, Inc.
- DataDirect Networks
- Dell
- Digisol
- D-Link
- Dolphin
- EMC
- E-Net
- Extreme Networks
- Fire Channel
- Flextronics
- GE
- Grande
- GTA
- HP
- IBM
- Intel
- Juniper Networks
- Mellanox
- Myricom
- NetApp
- NetGear
- NFS
- Nortel
- Novell
- Oracle
- Panasas
- Seagate
- SGI
- Sonicwall
- Supermicro
- Trendnet

TECHNOLOGIES COVERED IN THIS REPORT

- HPC system elements
 - Systems, clusters
- Storage elements
 - Storage systems
- Interconnect elements
 - System interconnects
 - Storage interconnects
 - LAN interconnects
 - Interconnect standards
 - Ethernet
 - InfiniBand
 - Fibre Channel
 - Other interconnect standards
- Other technology trends
 - Big Data trends