USING QLOGIC 2500 SERIES ADAPTERS TO OPTIMIZE AND SECURE IT INFRASTRUCTURES

By David P. Clark

QLogic® 2500 Series 8 Gbps Fibre Channel host bus adapters are optimized for next-generation data centers built on multiprocessor, multi-core Dell™ PowerEdge™ servers, including support for virtualization; dynamic power management; high levels of reliability, availability, and serviceability; flexible, powerful security; and simplified deployment.

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Multi-core processors, high-density servers, increased server I/O performance, and OS virtualization have become key elements of enterprise data centers in recent years. Critical data center applications such as disk-to-disk replication, streaming video, and Web 2.0 technologies not only require high-bandwidth networks, but also the ability to scale storage networking along with the overall IT infrastructure.

To plan for and help meet the ever-growing demands on enterprise data centers, IT managers must deploy a scalable architecture that addresses concerns such as cost, performance, and backward compatibility. They also must meet the key requirements of next-generation data centers, including consolidation and density (through virtualization and blade server deployment); power and cooling; reliability, availability, and serviceability (RAS); security; and simplified deployment and management. The QLogic 2500 Series family of 8 Gbps Fibre Channel–to–PCI Express 2.0 host bus adapters (HBAs) are designed to help organizations meet these requirements in environments based on Dell PowerEdge servers by providing support for virtualization; dynamic power management; high levels of RAS; flexible, powerful security; and simplified deployment.

IDENTIFYING ENTERPRISE REQUIREMENTS

Advanced data storage practices and technologies—including disk-to-disk replication, remote mirroring, de-duplication, and high-density, high-efficiency infrastructures using multi-core processors, blade architectures, and virtualization—are important tools to help enterprises meet evolving needs and scale to support new critical applications. Next-generation 8 Gbps Fibre Channel technology can play a key role in developing a successful infrastructure that meets these needs (see Figure 1):

- **Consolidation and high density:** Consolidating multiple applications on a single physical server can help increase density. Effective deployment requires scalable, reliable, high-capacity I/O interconnects as well as end-to-end isolation and security.
- **Optimized power and cooling:** Green IT initiatives and budget constraints require that IT managers strive to optimize energy use for every component in the data center. Dynamic power and performance throttling can help ensure an optimal and power and cooling infrastructure.
- **RAS:** Demanding service level agreements (SLAs) often require IT managers to plan for remote, long-distance, real-time data backup and rapid failover. These SLAs drive the need for increased RAS, reduced time windows to complete tasks, and proliferation of critical applications. The core of 8 Gbps Fibre Channel technology helps address these issues by doubling the potential performance and bandwidth over previous-generation 4 Gbps Fibre Channel technology.

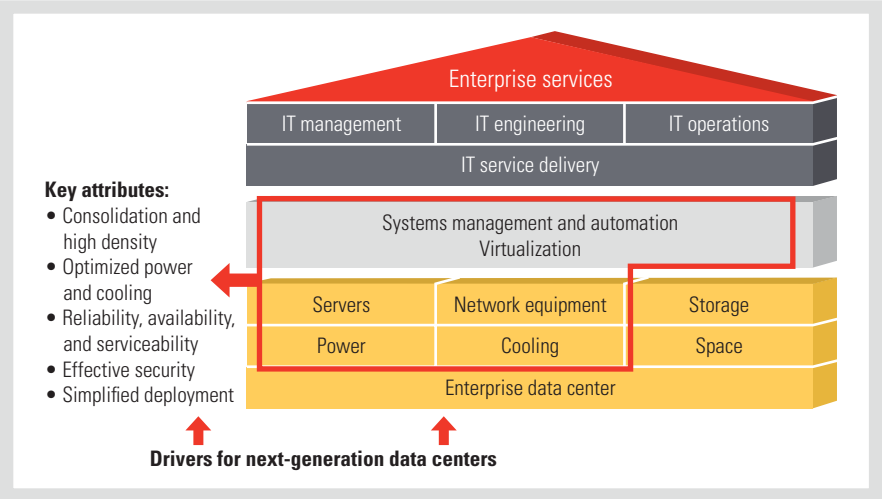

Figure 1. *Key components and attributes of an enterprise-class data center*

- **Effective security:** As data centers adopt virtualization, enhancing security to help prevent privacy loss, data theft, impersonation attacks, and data integrity compromises becomes increasingly important. Effective security strategies and authentication infrastructures enable IT managers to deploy advanced security protocols and extend access control solutions to help meet these needs.
- **Simplified deployment:** As IT infrastructures have grown increasingly complex, simplified deployment of both hardware and software has become critical for efficient operations.

MEETING DATA CENTER CHALLENGES WITH QLOGIC 2500 SERIES ADAPTERS

Next-generation 8 Gbps Fibre Channel technology can provide a migration path that supports current infrastructures and helps overcome ongoing data center challenges. QLogic 2500 Series 8 Gbps Fibre Channel HBAs are designed for virtualized data centers built on powerful multiprocessor, multi-core Dell PowerEdge servers, and are optimized for the key requirements of enterprise-class data centers:

- **Virtualization support:** QLogic 2500 Series HBAs are designed for enhanced security, quality of service, and dynamic provisioning during live migration of virtual servers. They also allow multiple logical (virtual) connections to share the same physical port, with each logical connection having its own resources, priorities, and the ability to be managed independently.
- **Dynamic power management:** QLogic 2500 Series HBAs take advantage of QLogic StarPower™ technology. Dynamic power management technology senses different types of PCI Express buses and consumes only the amount of power necessary to run at full speed. QLogic Cool HBA™ technology enables the HBAs to operate without airflow.
- **High levels of RAS:** QLogic 2500 Series HBAs are designed for high levels of RAS. Overlapping Protection Domains (OPDs) provide overlapping parity and cyclic redundancy checking and generation, helping provide continuous data protection. In addition, the unified driver model helps free storage area network (SAN) administrators from managing driver and firmware version matching.
- **Flexible, powerful security:** QLogic 2500 Series HBAs support SAN-level authentication through Fibre Channel Security Protocol (FC-SP), fabric-level isolation through N_Port ID Virtualization (NPIV), and end-to-end data integrity through T10 standards.
- **Simplified deployment:** QLogic 2500 Series HBAs are backward compatible with 4 Gbps and 2 Gbps Fibre Channel technologies, using a single common driver for each OS across Fibre Channel generations to help simplify deployment. QLogic 2500 Series HBAs provide nondisruptive migration to a next-generation infrastructure, providing immediate advantages and helping address the needs of enterprise-class data centers.

OPTIMIZING AND SECURING IT INFRASTRUCTURES

Enterprise data centers are constantly evolving. The need to consolidate servers, storage, and floor space has led to the adoption of virtualization; infrastructure and economic dynamics have led to energy-efficient infrastructures; and regulations for data security and data loss have created challenges related to authentication, integrity, and encryption. Critical, high-bandwidth applications have created expectations for continuously improving efficiency, response times, and the end-user experience. By deploying QLogic 2500 Series 8 Gbps Fibre Channel HBAs with Dell PowerEdge servers in conjunction with an overall plan to take advantage of new and emerging technologies, enterprise IT managers can help ensure a robust infrastructure that can help meet their needs now and in the future.

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