

QLogic's FlexSuite 2600 Series Adapters: Meeting the challenges of today's and tomorrow's datacenters

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The challenges of operating and managing datacenters for IT professionals are many. Among the foremost challenge is the unprecedented growth of data that is created by Big Data, Web 2.0, cloud and analytics applications. The complication of this data growth is that it must be stored, archived, protected and analyzed – an usurious activity that takes not only lots of manpower, but many compute and storage resources.

To support this explosion of data, the networking environment has become increasingly complex. More powerful servers, outfitted with multiple cores, more memory and high-performing solid state drives, are being deployed to stem the problems with virtualization and the sharing of storage resources. Networking technologies are causing increasing bandwidth problems as more and more data is transported over the LAN or WAN and in and out of the cloud. Mixed deployments of physical and virtual networks, whether in private or public clouds, are complicating this complexity.

Add to this that the IT professional is being pressured to stay on budget and ensure investment protection, as well as future-proofing for datacenter purchases. And, they are being required to make these changes with limited budgets that are already allocated to just keeping the lights on in the datacenter and maintaining the datacenter 'status quo.' Further, to meet their strained budgets, they also need to procure equipment that fits into existing environments without major infrastructure changes or forklift upgrades.

A datacenter evolution

A fundamental shift in this model needs to take place if IT managers want to save cost and time managing the network. IT needs to be able to transition from one product to another product with little effort and little impact on the network. If a person were to single out servers and storage (and the IO between them) as the part of the network that needs fixing, IT needs a single product that supports their investments in Fibre Channel in existing environments today and if, they move to a converged GbE environment in the future, that it will be supported with minimal change.

One strategy QLogic has adopted is what the company calls the 'Adaptive Convergence,' where a single PCIe slot in a server can be used over the lifetime of a server to service existing or changing SAN, LAN or converged network deployments. This approach eliminates rip-and-replace infrastructures, lessens the management and maintenance of the infrastructure and provides an agile I/O connectivity solution, while also providing sufficient bandwidth for the data transported continually across the network.

QLogic has instantiated this server attach strategy with its newest product – the QLogic 2600 Series Adapter -- which blends 16Gb Fibre Channel technology with 10GbE technology and iSCSI, to preserve investments in network gear, while looking to the future where storage may converge with data networks and be built using solely Ethernet.

The QLogic Solution

The QLogic 2600 Series Adapter, the first product in the FlexSuite family of products, is introduced as 16Gb Fibre Channel that is auto-negotiable and maintains backward compatibility to existing 8Gb and 4Gb storage area networks (SANs). Available with a no-charge firmware upgrade early next year, the FlexSuite 2600 can be converted to a converged network adapter (CNA) running 10GbE or iSCSI with just a customer-installable small form factor pluggable (SFP) optics update. The FlexSuite family is designed to help companies smoothly transition their data center networks at their own

pace, and provide the versatility to adapt to changing conditions or as management dictates, empowering virtualized enterprises and cloud computing environments with what QLogic calls 'complete fabric freedom'.

By deploying a dual-personality adapter, the IT professional maintains compatibility with existing storage infrastructures, while future-proofing a transition to a converged 10Gb Enhanced Ethernet environment. The 2600 is optimized for virtualization and exhibits a low CPU utilization through protocol offload for Fibre Channel and IPsec. When converted to a CNA offers offloads of Fibre Channel over Ethernet, TCP/IP, and iSCSI. Further, according to company claims, the QLogic 2600 Series adapter is 40% faster than a 10GbE FCoE adapter and more than double the performance of previous generation adapters with over 1.2 million IOPS and 3,200 MBps bidirectional throughput, improving your price per performance which lowers your power per Gb, and increases PCIe slot conservation.

It features five technology drivers within QLogic's Adaptive Convergence strategy:

- FlexOffload, which ensures the adapter fully offloads Fibre Channel, FCoE and iSCSI protocols onto the adapter, thus freeing CPU cycles for other work;
- QLogic IOFlex Technology, enables any IO from any network allowing a single adapter to perform as a Fibre Channel adapter or a fully Converged Network Adapter (CNA) and support FCoE, iSCSI or TCP/IP;
- ConvergeFlex, which allows the CNA to offer FCoE, iSCSI and TCP/IP (NIC) traffic through a single port; and,
- VMFlex, which provides support for increased number of NPIVs for QoS and N-port isolation on the Fibre Channel protocol. If configured as a CNA, VMFlex enables switch-agnostic NIC partitioning (NPAR) and granular QoS and oversubscription; and,
- SecureFlex, which ensures data reliability and integrity through incorporation of features such as the T10 Data Integrity Feature (T10 Dif), which provides a way to check the integrity of data read and written from the host bus adapter to the disk and back through the SAN fabric, and QLogic's Overlapping Protection Domain (OPD technology). OPD protects the data and address paths as information moves between the host bus interface and the Fibre Channel (FC) interface within the FC controller.

The QLogic 2600 Series Adapter is optimized for the most demanding applications -- virtualization and cloud computing, media streaming, data warehousing and online transaction processing and backup and recovery. It features a single or dual port 16Gb Fibre Channel to Gen3 PCIe connectivity and low-cost SR optics. For drivers it supports Windows, Linux, VMware ESX, Solaris and XenServer. Further it supports diskless boot using BIOS, the Unified Extensible Firmware Interface (UEFI) or OpenBoot using Forth Code (FCode). And, standard QLogic utilities, such as QConverge Console and the QLogic QConverge Console Plug-in for VMware vCenter, are used to simplify management.

To ensure optimal power utilization in PCIe Gen3 slots, the 2600 Series uses dynamic power management and reduces power by using a minimal amount of power to operate the PCIe lanes within the computer and maximizing power conservation of the ASIC on the adapter.

Finally, QLogic raises the bar for reliability in data and storage networking by offers the industry's only portfolio of adapters to be backed by a five-year standard warranty, helping customers achieve a higher return on their investments with critical data center hardware that is ensured to be operational over a longer lifetime.

Our Take

QLogic's FlexSuite 2600 Series Adapter is a necessary component in the evolving datacenter. It meets the requirement of backward compatibility, future-proofing and easy migration between technologies. The 2600 delivers better-than-ever performance in today's datacenter networks and relieves bandwidth problems while allowing an easy path for future migration to a converged network. It is a welcome fit into the fluid, nothing stands still, datacenter.

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