Executive Summary

One of the key areas for a successful server virtualization deployment is providing tunable network resources to meet Service Level Agreement (SLA) requirements for individual applications. QLogic® has created a demonstration that showcases the ability to apply quality of service (QoS) characteristics to individual NIC partitions within a VMware® ESXi v5.x environment using a QLogic QLE8242 Converged Network Adapter. The demo incorporates dynamic reconfiguration of bandwidth using QLogic’s VMware vCenter™ plug-in with graphical representation of the relative bandwidth assignments, as well as validation of the on-demand modification of bandwidth capacity using Windows® Task Manager’s Network tab to view connection performance.

Benefits of QLogic NIC-based Virtualization Solutions

- Enable high-density virtual machine (VM) deployments with QLogic 10Gb Ethernet solutions, lowering CAPEX and OPEX
- Provide flexible, application-specific network resource management with QLogic NIC Partitioning (NPAR) technologies, simplifying operations
- Improve adapter management efficiency with QLogic’s VMware vCenter plug-in
- Allow for oversubscription with QoS, delivering the most effective bandwidth utilization, lowering costs, and improving application performance

View the “On-demand” Demo

- See a previously recorded version of the demo: http://qlogic.adobeconnect.com/p4drxtbhnrc
Application-Specific Network Resource Management

Challenge: In a traditional data center server implementation, application servers are “stove-piped,” meaning one application per physical server. Typically, in this environment, server resources are underutilized and require many more physical servers to run an organization’s applications. Virtualization offers a solution for server utilization issues by allowing multiple logical containers for OS and application instances, known as virtual machines (VMs), to exist on a single host server. Virtualization technology offers options for more efficient server resource utilization. However, when multiple VMs use the same resource, such as a NIC, administrators are challenged with inherent limitations and must set usage parameters for each VM to guarantee appropriate levels of service for each application.

Solution: QLogic 10Gb Ethernet NPAR in a virtualized environment enables seamless migration to 10Gb Ethernet infrastructure by exporting independent virtual interfaces, each of which can dedicate a share of the adapter hardware resources to a specific VM/application. Beyond NPAR, QoS guarantees each virtual NIC partition a predetermined network bandwidth so that applications residing on VMs and servicing various clients are always able to meet SLAs involving network data access. QoS ensures each application access to a certain percentage of the 10Gb Ethernet pipe, even during periods of high bandwidth utilization.

For More Information
- Contact the QLogic Solutions Lab: solutions.lab@qlogic.com

QLogic QoS Technology

Network Interface Virtual Partitions

QoS technology offers additional flexibility by allowing each NIC function the ability to guarantee a specific minimum bandwidth. QoS allows for oversubscription by enabling one function to use as much bandwidth as it needs so long as other applications are not using the bandwidth. However, when multiple applications require a significant “slice-of-the-pie,” bandwidth levels of “mission-critical applications” can be guaranteed so as not to drop below a pre-described level. QoS ensures that bandwidth requirements for mission-critical applications are maintained at all times and in all situations.