



## SOFTWARE

# Mellanox Virtual-IQ™

Intelligent queuing for data center I/O consolidation

## Overview

Virtualization and virtualized servers in the data center today demand more network bandwidth and flexibility to connect to more networks and storage to run multiple applications on the host. I/O Virtualization provides this flexibility in the data center by replacing multiple I/O cards with virtual I/O resources. I/O Virtualization enhances data center agility by reducing cabling costs, power costs, and most importantly supporting I/O consolidation for all traffic types (LAN, SAN and clustering) on a server with a single I/O card for any data center application.

Mellanox Virtual-IQ is a (Virtual Intelligent Queuing technology) is available on ConnectX® and ConnectX-2® adapters. Virtual-IQ, a breakthrough I/O Virtualization technology, allows I/O consolidation over Mellanox InfiniBand and 10 Gigabit Ethernet. Virtual-IQ technology supports hardware assisted direct VM access, VM to VM switching, advanced memory management, traffic filtering (LAN, SAN, VM migration, and console management), QoS, improved server utilization, and segregation of all traffic types across multiple virtual NICs (vNICs) and virtual HBAs (vHBAs). All these feature support includes guaranteed programmable sustained bandwidth in both transmit and receive directions for each virtual connection with no changes to data center infrastructure.

## Virtual-IQ with InfiniBand

With I/O consolidation over 40Gb/s InfiniBand, all storage and network traffic are consolidated on a single cable per server:

- Segregate LAN and SAN traffic with vNICs and vHBAs in a native OS environment
- Segregate LAN, SAN, VM-VM traffic, VM migration and console management in a virtual OS environment
- Quality of Service (QoS) with user-defined guaranteed performance per application or per vNIC/vHBA
- Provide the same high-performance transactions for cloud or data center applications
- Transmission reliability with support for flow control
- Dedicated and on-demand resources for different traffic flows

## Enhance VMware Server Virtualization with Virtual-IQ

Virtual-IQ complements server virtualization in delivering connectivity required for successfully deploying virtual servers in the data center. Virtual-IQ allows for consolidation of switch ports and cabling by using a 40Gb/s InfiniBand infrastructure while maintaining the existing Ethernet and FC-based VMware configurations and user experience. This technology enables I/O consolidation by keeping the infrastructure update completely transparent to the VMware platform, enabling 40Gb/s InfiniBand adapter to appear as a flexible number of vNICs and vHBAs. Virtual-IQ enables environments running VMware vSphere 4 to deliver the flexibility of available 40Gb/s bandwidth divided across multiple traffic types.



## BENEFITS

- I/O Virtualization with consolidation for native and Virtual OS
- Run all storage and network connections on a single Virtual I/O capable card
- Reduce TCO with reduction in server deployment, cabling and power costs
- On-Demand virtual I/O resource allocation
- No change in cloud and datacenter infrastructure connectivity and deployment

## FEATURE SUMMARY

- Differentiate LAN & SAN traffic for native OS
- Segregate LAN, SAN, VM-VM, VM migration and management traffic for Virtual OS
- Quality of Service per application or per vNIC and vHBA
- Guaranteed programmable bandwidth for both transmit and receive
- Support I/O consolidation over both 40Gb/s InfiniBand and 10 Gigabit Ethernet

## HARDWARE SUPPORT

- ConnectX
- ConnectX EN
- ConnectX-2
- ConnectX-2 EN
- ConnectX ENt



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