

Figure 3. Cisco® Nexus™ 1000V Series Switch and VMDq in a VMware ESX* environment

Working Together

Tight integration with VMware ESX allows the Cisco Nexus 1000V Switch and Intel's VMDq to work together seamlessly to deliver near-native throughput and VM-aware networking. When incoming data packets arrive at the Intel Ethernet port, VMDq groups them into queues. NetQueue, VMware's network multiqueue technology, then forwards the queued packets to the Cisco Nexus 1000V Switch. Upon receipt of the data packets, the Cisco Nexus 1000V Switch identifies the destination address, and deploys the policies associated with the destination VM, before forwarding the packets to the VMs.

Performance

Testing performed by Intel has shown that an Intel® Ethernet 10 Gigabit Server Adapter with VMDq enabled achieves near-native throughput in a VMware ESX-based server with both the ESX vSwitch and the Cisco Nexus 1000V Switch.²

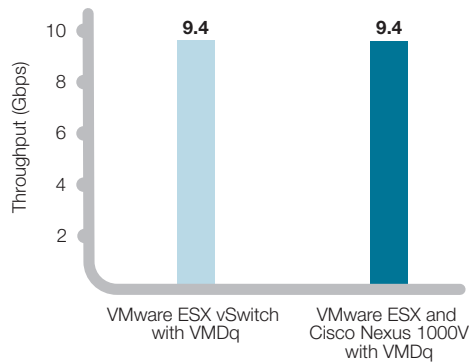


Figure 4. VMDq performance with VMware ESX* vSwitch and Cisco® Nexus™ 1000V Switch

Summary

Today's more powerful servers provide opportunities for greater consolidation through virtualization in IT data centers; however, the impact to server network management and I/O throughput cannot be forgotten. The Cisco Nexus 1000V Series Switches and VMDq from Intel address these issues to help increase data center efficiency and scalability.

With the Cisco Nexus 1000V Series, virtual machines are treated in the same way as physical servers in security policy, monitoring and troubleshooting. Nexus 1000V extends the existing operational model between network and server administrators and enables virtual machines to be true basic building blocks of the data center. These operational efficiencies lead to greater scaling of server virtualization deployments with lower operation expenditures.

VMDq's ability to offload the data packet sorting overhead from the vSwitch to hardware in the Intel Ethernet controller, frees more CPU cycles and improves throughput, allowing for greater application processing and increased VM scalability.

For More Information

For more information about Cisco Nexus 1000V Series Switches, visit www.cisco.com/go/1000v

For more information about Intel Ethernet products, visit www.intel.com/go/Ethernet

For more information about Intel Virtualization Technology for Connectivity, visit www.intel.com/go/vtc

¹Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain platform software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

²Performance claim supported by performance result of a benchmark using NTtccp. Intel internal measurement (June 2009). Production system with two Intel® Xeon® processors 5500 series 2.93 GHz, two 10GbE adapters based on the Intel® 82598 10 Gigabit Ethernet Controller, VMware ESX 4.0. Systems were connected using a Cisco Catalyst® 6503 switch with a 16-port 10GBase-T module.

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