

1,000,000 IOPS

A small step for networks. A giant leap for converged network adapters.

Tim Dales

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In October, 2009, Emulex announced general availability of its OneConnect™ Universal Converged Network Adapters (UCNAs). IT Brand Pulse Labs has since tested the performance, power, cooling and protocol support of the Emulex OCe10102 UCNA alongside competitive products from Broadcom, Brocade and QLogic. A Test Report with the complete results of the side-by-side testing will be published on January 18, 2010.

919,269 IOPS: World Record CNA Performance

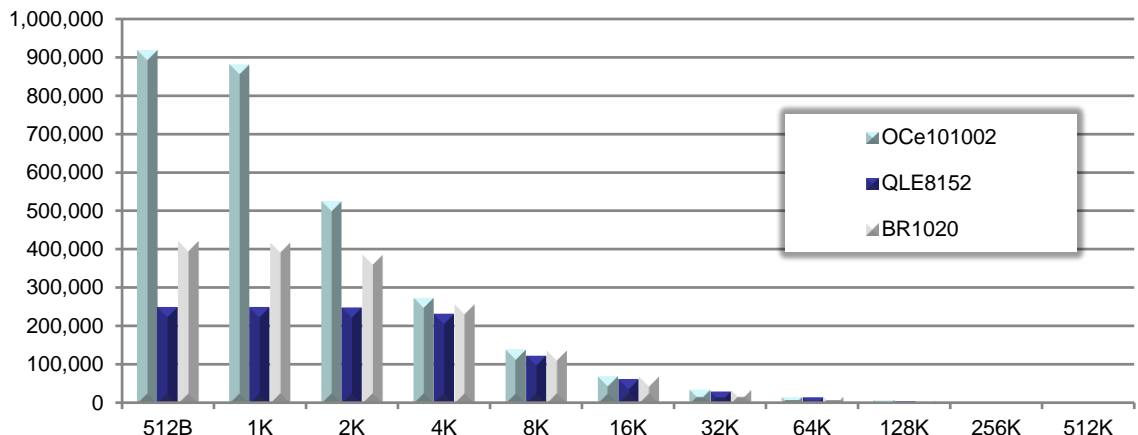
One of the standout statistics in our CNA performance test series was the 919,268 IOPS (Input/Outputs Per Second) generated by a single port of the Emulex's OCe10102 card during our FCoE (Fibre Channel over Ethernet) IOPS run. Considering the OCe10102 has just come out of the chute into production, it's our expectation that fine tuning will eventually push the performance over 1,000,000 IOPS. And after observing this world record performance, we look forward to monitoring the CNA performance wars as next-gen products from other vendors hit the market.

Every application places different demands on a storage subsystem - with reads and writes of different sizes - but we usually find that IOPS performance is a pretty good indicator of overall performance. For data center consolidation, the benefit of more CNA IOPS is that physical servers can support more VMware and Hyper-V virtual machines.

A Huge Leap for Converged Network Adapters

Not long ago, you could expect to get around 160K small-transfer IOPS with a typical 4Gb Fibre Channel HBA. Today, best-in-class performance for an 8Gb Fibre Channel HBA is approximately 500,000 IOPS. With almost double the performance of the fastest 8Gb Fibre Channel HBAs, this new generation of CNAs represents a huge leap in performance now available to administrators of IO-intensive applications and virtualized server environments.

Chart 1 – IOPS Performance Test (Sequential Reads)

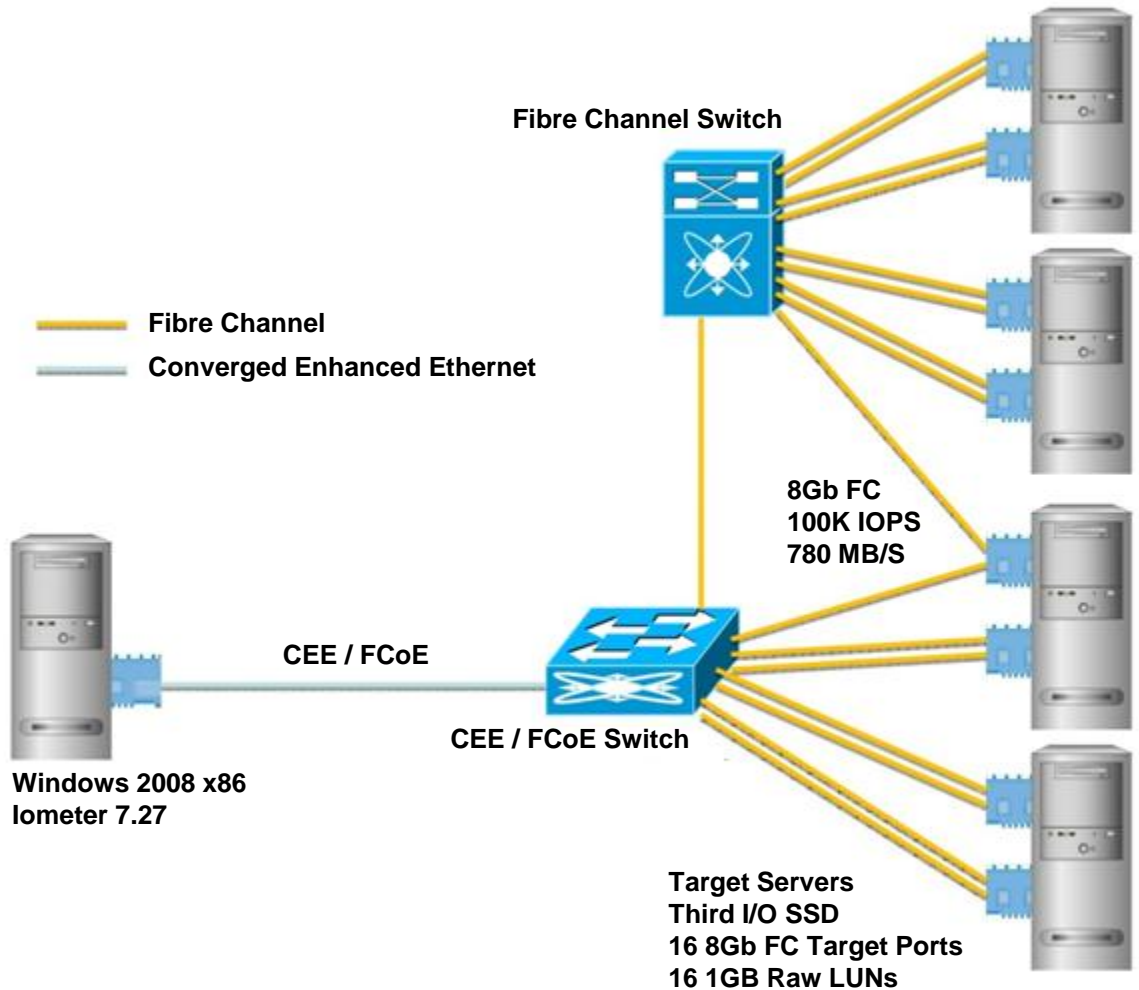


We tested the performance of three products with Iometer set to simulate transaction intensive applications such as Exchange, SQL and Oracle that use small block transfers. Separation begins to appear at the 4K transfer size. At 1K, the Emulex card's performance is more than double that of its nearest competitor.

IT Brand Pulse Labs Test Environment

The environment required to test full CNA performance and multi-protocol support included a 10Gb CEE (Converged Enhanced Ethernet) switch with support for FCoE; an 8Gb Fibre Channel switch; 10Gb CNAs from Emulex, QLogic and Brocade; and solid state disks from Third I/O Inc.

Diagram 1 – CNA Test Environment



Conclusions:

- The new benchmark for CNA performance is 900,000 IOPS.
- Next generation Intel® Xeon® 5500 servers will require the power and performance of CNAs.
- This level of performance is important to scaling virtualization and maximizing consolidation in data centers.
- FCoE and Fibre Channel environments can be easily integrated to create next generation performance and protect investments.
- FCoE storage outfitted with this class of ASIC used in target mode will compete favorably with 8Gb Fibre Channel storage.

Related Links:

Emulex Branded OneConnect™ Universal CNAs

<http://www.emulex.com/products/oneconnect-ucnas/emulex-branded.html>

Coming Soon in the Full Test Report:

In the full report due out on Jan 18, 2010, we will examine performance for NIC, iSCSI and additional FCoE uses cases, as well as review power, cooling, protocol support, installation, management and other key administrative elements.

About the Author:

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