Maximizing the power of the BNT switch with NetEffect accelerated Ethernet adapters

"NetEffect adapters are the complement to our switch technology we have been seeking to address the challenges of today's data center. Working together to achieve previously unattainable levels of performance and flexibility, our two companies now provide a powerful solution for the broadest range of applications for IT managers and their users."

—Vikram Mehta, President and CEO, BLADE Network Technologies.

BUSINESS OPPORTUNITY

Together, the BLADE Network Technologies (BNT) 10Gb switch and the NetEffect 10Gb accelerated Ethernet blade adapter for the IBM BladeCenter H enable customers to achieve maximum performance and power efficiency in demanding data center applications. This tested and certified BNT/NetEffect solution turns the BladeCenter H into a high-end platform for:

> Demanding scale-out/clustering applications in financial services, oil and gas, automotive, CAD/CAE, and media and entertainment
> High-throughput streaming applications such as IPTV, Video on Demand and financial market data systems.

This solution includes the BNT Nortel 10Gb Ethernet Switch Module and the NetEffect NE020BCH 10Gb Accelerated Ethernet Mezzanine Adapter.

SUCCESS STRATEGY

Highest performance

This low power, high-performance solution achieves latency under six µsec and bi-directional throughput of 18 Gbps, outperforming the competition. In multi-connection environments such as multi-core processors, high-performance computing (HPC) and virtualized server implementations, the NetEffect 10Gb blade adapter provides unparalleled performance scalability supporting tens of thousands of accelerated connections.

Lowest power required by any solution

Within the high-density, power-constrained confines of a blade ecosystem, it is essential that networking solutions operate at the lowest power and cooling ratios possible. The combined NetEffect/BNT solution typically requires only seven Watts per port, one seventh (1/7) the power required by alternative solutions including external line cards and other Ethernet adapters. Lower power means less heat and less heat means lower cooling requirements, enabling the BladeCenter H to be more fully populated with compute blades. This achieves a higher return on hardware investment and the greatest processing power per square foot available. The net result is low heat, low power usage and the smallest-footprint adapter in a BladeCenter H rack.

Highest CPU efficiency

Leading the industry in server efficiency, the NetEffect adapter contributes to total solution performance through extremely low CPU utilization (less than 5%) for network processing, freeing more CPU cycles for applications. The BNT/NetEffect solution ensures sustained high-performance, low-latency network connectivity facilitating shorter application processing times and faster response times.

BLADE NETWORK TECHNOLOGIES

NETEFFECT

Single solution for clustering, NIC and storage applications

One NetEffect 10Gb adapter replaces three separate adapters for networking, clustering, and storage networking. In addition to cutting power consumption because fewer adapters are required, this approach offers the most cost effective means to handle all network connectivity. Requiring only one firmware image and one software driver load during installation, NetEffect adapters simplify deployment and lower maintenance and support.

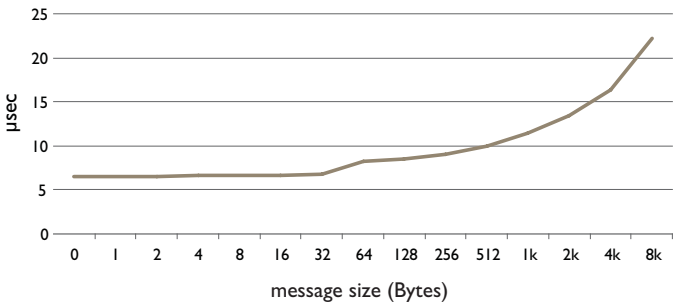
PERFORMANCE RESULTS

The BNT Switch Module connected to the NetEffect adapter has been tested and verified by BNT with both industry benchmarks and customer applications.

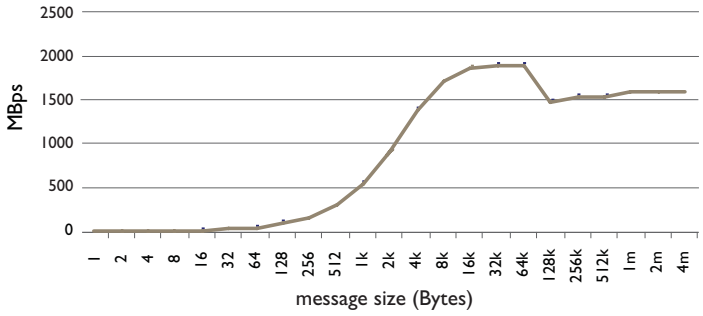
Clustering

The BNT/NetEffect solution meets the needs of even the most demanding data center applications, particularly in compute-intensive clustering/scale-out applications. IBM BladeCenter H benchmarks illustrate the ultra-low end-to-end latency and high throughput that result in much lower wall-clock times for complex simulations. Results consistently meet or exceed those of InfiniBand without the cost, risk and disruption of supporting yet another fabric.

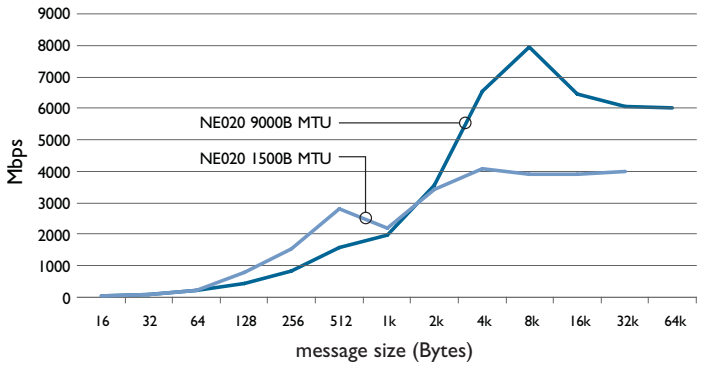
NE020BCH BladeCenter H Latency (Source: OSU)



NE020BCH BladeCenter H Bi-directional Bandwidth (Source: OSU)



NE020BCH BladeCenter H - HS21 Intel UDP Performance (Source: NetEffect)



Storage

Tests of storage I/O performance demonstrate high I/O operations per second (IOPS) running iSCSI with minimal CPU utilization. Benchmarks using Microsoft's iSCSI initiator achieves 117,000 IOPs and 220 MBps. Similarly, JetStress benchmarks demonstrate streaming backup performance of 152 MBps.

Streaming applications

Achieving seamless performance in streaming applications such as market data systems in financial services, video on demand and others, requires extremely high throughput. Meeting this demand requires best-in-class 10GbE accelerated NICs/adapters. The BNT/NetEffect solution exhibits streaming data performance up to 125K messages per second.

About BLADE Network Technologies

BLADE Network Technologies is the industry's first vendor to focus exclusively on serving the network infrastructure requirements of the rapidly growing blade server market. BNT's products represent a strategic control point in a blade server system, the gateway for all traffic directed to and from a blade server system. As such, BNT products have a direct influence on a blade server system's performance, high availability, scalability, manageability, security, and total cost-of-ownership. For more information, visit www.bladenetwork.net.

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