

Adapter unleashes Ethernet potential

The introduction of a 10 Gigabit Ethernet (10GE) fibre-based standard in 2002 saw companies in the industry scrambling to improve this emerging technology for widespread commercial markets. Its unmatched reliability, availability and scalability (RAS) has seen IT managers and Chief Information Officers adopt it more often as the medium of choice for high-speed transport in networked servers, storage and cluster computing environments. Yet, the true potential of the technology has only recently been realised with Neterion's 10GE adaptor designed to help eliminate the input/output (I/O) connectivity bottleneck problems by offloading I/O processing, and thereby freeing up the CPU.

Currently Ethernet is in use in over 85% of all network connection with almost all internet traffic beginning and ending daily on Ethernet fed work stations. It is widely considered to be vital in its support of critical applications in data enterprise centres throughout the world. 10 Gigabit Ethernet describes the transmission of Ethernet frames at a rate of 10 gigabits

per second and has been used in Metropolitan Area Networks (MAN) and Wide Area Networks (WAN) since its standardisation in 2002. Historically, organisations have followed the trend in the technology, shifting their corporate backbones from 100Mbps Ethernet (Fast Ethernet) to 1 Gigabit Ethernet speed, and now to 10GE. The ten-fold increase in speed facilitates many applications, such as video conferencing, multi-media content distribution, cluster computing, video streaming, on-line training materials, and data mining systems. It uses the same Ethernet size format and frame as well as the standard Ethernet media access control (MAC) protocol. However, the flood of 10 billion bits data per second can obstruct the I/O connectivity and affect the CPU causing end-user frustration with data access delays and high cost system maintenance. With its range of 10 Gigabit Ethernet adapters, Neterion is able to provide effective solutions to these problems. The adapters are designed to integrate with existing IT architectures and offer a unique multi-channel approach. Neterion's products also support high speed I/O Virtualisation (IOV) with an Application Specific Integrated Circuit (ASIC) for inter-channel communication thereby offering true hardware separation and protection between channels.

According to Todd Oseth, who has been Neterion's CEO since April 2009, the company is experiencing a vast amount of interest from the market. "The ten gigabit market is exploding," he says. "And that explosion is based around the virtualisation technologies. There are numerous virtualisation technologies on the servers, but there is really only one leader in the networking space, and that is Neterion. We offer the ultimate solution with our products in the industry which connect through larger networking switches and storage. Our latest product came out in March 2009. It's our third generation IOV adaptor and we've been working hard to bring that to market both as an Original Equipment Manufacturer (OEM) product and through the world wide channel of distributors."

Neterion's X3110 10GbE is the industry's first fully-virtualised Ethernet controller. It has integrated hypervisor offload technology to free up system resources for applications. It offers bandwidth guarantees for workloads and provides the opportunity for true I/O isolation. It also utilises Virtual Link Technology (VLT) that enables the adapter to trick the system into managing it as if it was multiple Gigabit adapters. "The company has really focused on its virtualisation," explains Oseth. "This is the ability for an adapter to look like multiple adaptors. We've made the virtual machine believe it really has its own physical connection for one gig Ethernet. This is something no one else does. This is a really big milestone as the rest of the industry is probably lagging 12 to 18 months behind us."

At the 2009 Intel Developers Forum (IDF), Neterion demonstrated its

advanced I/O virtualisation technology, providing people in the industry with the opportunity to see the technology at work using heavy work loads, and enabling them to compare it to other approaches. "It opened people's eyes," says Oseth. "Other approaches are half the throughput. We've seen a keen interest in Neterion products since the forum. Now it's important that we get our go-to-market strategy in place."

The company distributes through channels in North America, Japan and Australia, and is looking to expand into European markets and China in multiple locations. It also has OEM branded products featuring partner companies like Fujitsu, Hitachi, IBM and HP. "The market has been quite small recently," says Oseth. "In the last two years the industry has had minimal data centre updates, mainly due to the recession. Any new enterprise needs to implement a 10 gigabit infrastructure. It's less expensive and there are fewer cables, which increases the reliability of the system significantly, and it uses less power. The Neterion ecosystem is very green. It runs on about 30% less power than most others. We also have a card that runs at about 15 watts, where most of our competition runs at 20 watts and above. In 2010 we expect a market demand for around 500 thousand adaptors. In 2011 it will jump to over a million. So this is just in its infancy. But what is important to know, is that for anyone putting any kind of network or server infrastructure together, they need to think virtualised server, they need to think 10 gigabits."

In the next few years Neterion plans to focus on developing the next generation of products to support larger numbers of virtual machines with dedicated I/O



capabilities. "You'll see us going more into the software space," says Oseth. "We want to help in the management functions of the network, and we plan to focus on power reduction, for the environment. We are also looking to work with the right partners in order to deliver the highest quality, highest performing, and lowest cost solutions in the industry. But really, once you've established a 10 GigE infrastructure and a virtualised server connecting you to 10 GigE enabled storage, the real challenge becomes the management of the resources. Today there is no-one with software to manage an entire vertical strip through network into storage, based upon application needs. That will be a challenge for the industry in years to come."



Neterion Inc.
295 Santa Ana Court
Sunnyvale, CA 94085
U.S.A.
Website: www.neterion.com