

Leading Provider of Virtual Desktop Servers Gains VM Density and IOPS Performance Boost from LSI® Nytro™ Accelerator Cards

Owtware Technology Co., Ltd. Integrates Nytro MegaRAID® into its iConn Virtual Desktop Appliance



The Challenge:

Deliver greater virtual server and storage density and increased I/O performance in a cost-effective solution.

The Solution:

Incorporate LSI Nytro MegaRAID card into the iConn Virtual Desktop appliance.

The Result:

Increased virtual server density and faster I/O performance at a price far less than alternative approaches.

Background

Owtware (Shanghai) Technology Co., Ltd. provides cloud computing software and services to businesses and enterprises in China. The company's iConn Virtual Desktop appliance enables customers to deploy an integrated private virtual desktop service.

With its customers deploying increasingly demanding applications and larger configurations of virtualized desktops, Owtware sought a solution to deliver greater virtual server and storage density while maintaining linear scalability and acceptable disk I/O performance for virtual desktop machines running on iConn Virtual Desktop appliances.

The Challenge

Providing virtual desktop users short response times comparable to their laptops can be difficult when supporting many users from the same server. Storage is often a bottleneck and Owtware faced a considerable challenge in delivering these key benefits in a cost-effective manner. Solving these bottlenecks by using flash technology is possible, but doing so raises total cost of ownership and significantly increases the complexity of system management if hard drives are completely replaced.

The Solution

Owtware turned to LSI after learning about its line of Nytro flash accelerator cards. The Nytro cards help speed application performance in servers by intelligently removing storage I/O bottlenecks from slower, cheaper and higher-capacity disk drives.

Owtware evaluated the Nytro MegaRAID 8120-4i card, which combines on-board flash memory with RAID data protection and hard-disk drive connectivity to accelerate I/O in direct-attached storage environments.

To evaluate the Nytro storage solution, Owtware and LSI configured two parallel systems, one with a standard RAID controller and three 15,000 RPM 300GB drives, and the other with the Nytro MegaRAID controller and a single 7,200 RPM 4TB drive.

The two configurations were tested in four scenarios that stress the I/O subsystem. The tests were repeated with increasing numbers of virtual machines to compare the impact of increasing loads on I/O performance.

The results showed improvements in several respects. Among the most dramatic improvements were in cold booting Windows® 7 machines. As more concurrent virtual machines were added, the improvement increased. By the time 25 concurrent machines were added, boot-up time with the Nytro-equipped configuration was almost half the time required with the standard configuration.

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Daniel Walter
CTO, Owtware Technology

“The performance increase comes from the read-caching support built into the Nytro MegaRAID controller card,” notes Daniel Walter, CTO of Owtware Technology. “Each virtual machine is largely reading from a common disk image, so many of the read operations are satisfied by the cache instead of from the underlying physical disk.”

Similarly, dramatic improvement was noted in tests comparing copy file times. The time required to copy a 2GB file was measured for 1 to 10 concurrent virtual machines. Once the test reached 10 machines, the difference in copy file time was more than half – from almost 500 seconds for the standard configuration to less than 200 seconds for the Nytro-equipped configuration.

Based on the tests, Owtware decided to incorporate the Nytro MegaRAID cards into its iConn Virtual Desktop appliance.

“With the Nytro MegaRAID cards, Owtware can deliver outstanding virtual machine performance while also providing increased storage density for each iConn Virtual Desktop Server appliance,” Daniel said.

The Benefits

Incorporating the Nytro MegaRAID card into the iConn appliance has provided several benefits:

- The number of virtual machines supported by an iConn Virtual Desktop appliance in a 1U configuration has increased from 25 to as many as 40.
- The amount of storage available to each virtual machine in an iConn Virtual Desktop appliance has been increased to 150GB from 35GB.
- Both these increases have been accomplished with no change in the iConn Virtual Desktop appliance footprint while maintaining a highly competitive price point.

The Nytro based solution delivers a more cost-effective solution than competing alternatives in two ways.

First, it uses flash memory in a limited, but well-targeted fashion holding cost increases to a minimum. Second, it allows customers to keep all or most of their existing storage systems while still realizing I/O performance improvement.

“In alternative approaches, the customer will have to pay three to four times the cost and they may get only double the number of users,” Daniel says. “The Nytro MegaRAID solution is a perfect fit, because we’re able to use solid-state memory for just caching and still be able to connect standard high-capacity hard drives.

This offers real value in being able to offer our customers the capacity of the hard drive but also the low latency of flash memory at a very attractive price,” he concluded.



For more information and sales office locations, please visit the LSI website at: www.lsi.com

North American Headquarters
San Jose, CA
T: +1.866.574.5741 (within U.S.)
T: +1.408.954.3108 (outside U.S.)

LSI Europe Ltd.
European Headquarters
United Kingdom
T: [+44] 1344.413200

LSI KK Headquarters
Tokyo, Japan
T: [+81] 3.5463.7165

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