



Storage. Networking. Accelerated.™

LSI® Nytro™ XD Application Acceleration Storage Solution



- Reduces response times and increases the server's efficiency to reduce hardware and application license costs
- Reduces total cost of ownership (TCO) by speeding up existing SAN or DAS
- Utilizes the performance of flash technology on the Nytro WarpDrive™ card for caching frequently accessed data



IT professionals appreciate the application acceleration of solid state drive (SSD) technology but are concerned about how to apply it economically. Some storage vendors recommend moving all data to flash technology, but in many cases that isn't economically possible or even necessary. Using the performance of the Nytro WarpDrive solid state application acceleration cards, the Nytro XD solution can help improve the performance of applications regardless of the mix of reads and writes. By working with the latest enterprise level solid state technologies, this software is designed to reduce data access bottlenecks from storage area networks (SANs) or direct-attach LUNs by intelligently caching data "hot spots".

What Is It?

The Nytro XD solution has been designed to improve performance in systems that have Nytro WarpDrive cards installed. The Nytro XD solution can help improve the application response times to end users whether the server accesses storage from direct-attach storage, a fibre channel SAN or an iSCSI SAN.

How It Works

The Nytro XD solution monitors and analyzes read and write transactions between the server and the storage. It then identifies the most commonly accessed data and loads that data onto the Nytro WarpDrive card. Since this "hot spot" data is now on flash storage, it can be accessed much faster than if it had to come from attached disks.

The Result

By addressing the I/O bottleneck, end user application response times can be dramatically improved. Highly transactional applications, such as databases, can see up to a 5x improvement in response times. For virtual environments, physical servers can support as many as 12x the virtual machines they otherwise could.

Fast

- Leverages PCIe® card for reduced latency
- Accelerates SAN and direct-attach storage (DAS)
- Uses minimal CPU and memory resources

Smart

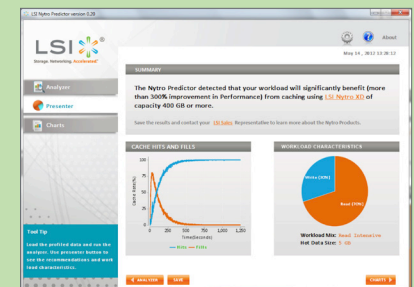
- Caching software identifies frequently accessed data and caches it in high-speed memory
- Hardware is tightly integrated with software

Easy

- No manual tuning is required
- Analysis tools are included with every Nytro product
- Offered with a broad range of OS support

Nytro Predictor™ Software Tool

Hot spot activity varies by application. The Nytro Predictor software tool*, a free assessment software package from LSI, is designed to allow system administrators to determine the potential benefits the Nytro XD solution may provide in their specific environment. Using non-intrusive Windows or Linux utilities (xperf and blktrace), traces of the storage activity generated by the application are captured and analyzed for hot spot activity using the similar algorithms that the Nytro XD solution uses. Administrators will see the potential benefits that the Nytro XD solution may provide.



*The Nytro Predictor software is provided "AS IS" without warranty of any kind express or implied for use at your sole risk. Further, use of the Nytro Predictor software is strictly subject to an end user license agreement which accompanies the software.

Ordering Information LSI Nytro XD

Name	Memory Type	Capacity	Part Number	Card Size
XD BLP4-400	eMLC	400GB	LSI00325	MD2 Low Profile



Reduce Latency and Improve Performance

Latency to storage devices, a leading cause of poor application performance, can be significantly reduced by using flash technology based PCIe acceleration boards in the server. This is why the Nytro XD solution uses WarpDrive cards for its flash storage. Array controllers and storage interfaces, like iSCSI, were designed around the characteristics of hard disk drives (HDDs), and may diminish the performance benefits of SSDs. By supporting PCIe 2.0, the WarpDrive card is designed to avoid these potential bottlenecks. The size of the cache can be easily increased by adding more WarpDrive cards.

Caching for Economy

While migrating data from HDDs to SSDs can improve overall storage performance, it can be both time consuming and expensive. As an alternative, storage performance can improve significantly through a reduction in the latency of frequently accessed data. The Nytro XD solution is designed to accomplish this through the detection and migration of the most frequently accessed data to a WarpDrive flash cache. This allows the Nytro XD solution to provide application acceleration without the need to reconfigure the application to make the best use of SSDs, while at the same time increasing HDD performance by reducing the IO workload on the HDDs.



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