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## NSS SAN Accelerator

Intelligent, predictable storage acceleration

*Solid-state storage is quickly gaining momentum as an alternative solution for application and platform acceleration. To help organizations capitalize on this growing technology, the FalconStor® NSS SAN Accelerator enables application, virtualization, VDI, and global SAN acceleration for cost-effective implementation of solid-state technology.*

### Highlights

- > Seamless integration of solid-state storage
- > Supports any storage environment including XenDesktop, XenServer, Microsoft VDI, Microsoft HyperV, VMware View, and VMware vSphere
- > Significant boost to legacy storage system performance
- > Effective use of solid-state storage as a cache
- > Immediate acceleration with quick response to sudden application/platform requests
- > Application/platform read/write acceleration
- > Global acceleration to all storage resources
- > Built-in local and remote data protection
- > Between 2x and 10x the performance at one-third the cost

Organizations depend on their business applications and process automation to improve productivity and gain a competitive edge with regards to electronic transactions. Applications such as cloud services are differentiated by their ability to quickly respond to customer and user queries regardless of the variation of demand level over time.

When it comes to storage, organizations have traditionally dealt with random input/output (I/O) application performance bottlenecks in two ways: by dedicating high-performance disk resources such as Fibre Channel (FC) or SAS drives to those applications requiring high levels of IOPS and low latency, and by adding more disks to match the most demanding, unpredictable I/O profiles of those supported applications and platforms.

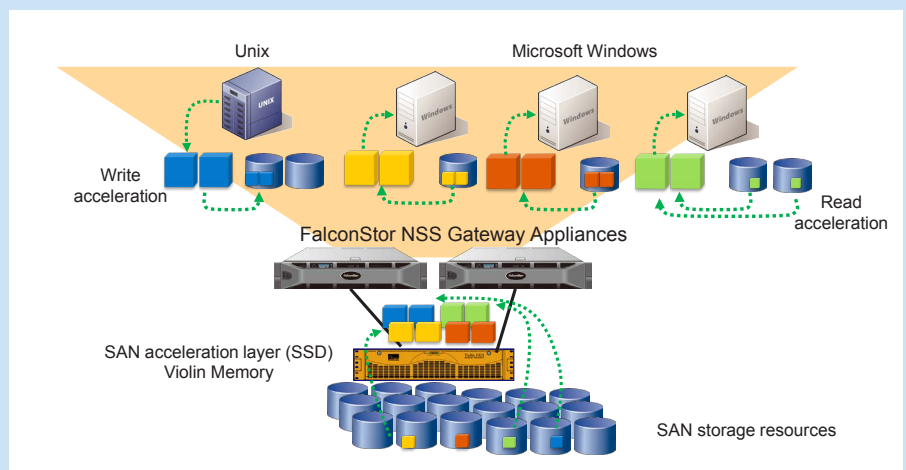
### Application and virtualization platform performance

FalconStor NSS SAN Accelerator leverages new technologies such as solid-state disk (SSD) and solid-state memory arrays in a whole new way, to deliver intelligent, predictable performance acceleration across heterogeneous storage resources. The performance of solid-state storage makes the solution an ideal fit for high-performance environments by providing a high level of IOPS and low latency to respond to heavy load transactional applications. FalconStor NSS SAN Accelerator integrates solid-state storage as an on-demand dynamic cache to offer all of the performance benefits of a high-performance, low-latency storage tier without the high costs associated with legacy storage array deployments. Many legacy storage arrays leverage only SSD for primary storage, which still bears a high cost of deployment.

When it comes to application performance, organizations need to address two scenarios: application/platform writes and application/platform reads. FalconStor NSS SAN Accelerator leverages solid-state storage as an on-demand dynamic storage tier to accelerate both writes and reads with two key features: FalconStor® SafeCache™ and HotZone® technology respectively. Either solid-state disks (SSD) or solid-state memory resources can be dedicated to specific workloads or can be global to the whole storage environment, allowing efficient allocation of the



### Intelligent, predictable acceleration for legacy storage and SAN resources



solid-state storage cache. The intelligent algorithms of SafeCache and HotZone accelerate and protect applications where performance enhancements are needed the most.

## Accelerating application/platform writes

SafeCache technology allows users to define a segment of the solid-state storage as a dynamic caching device. This segment of the solid-state storage-based cache tier dedicated to writes will receive all disk writes to the SAN, providing a very high-performance and low-latency acknowledgment of application writes, significantly accelerating application in platform write processes. The data is then transparently written to the destination LUNs on the SAN in a sequential write process which further accelerates the writes to SAN resources.

SafeCache allows organizations to optimally consolidate and leverage solid-state storage to accelerate write processes to all applications hosted on the SAN instead of being exclusive to one or a few applications, maximizing return on investment (ROI) and providing a cost-effective way to maximize SAN write performance.

## Accelerating application/platform reads

HotZone technology also leverages solid-state storage as a cache, but it uses that cache differently. HotZone technology is designed to work with random access database applications by monitoring the

disk access pattern and intelligently copying the highly accessed data to a HotZone cache for fast read access. As the access profile of the data changes and the frequency of accessing these blocks is reduced, the data is automatically deleted from the cache and referenced back to where it resides on the SAN. This allows data blocks with higher access patterns to be placed in the HotZone.

This intelligent, on-demand profiling of the data allows users to proactively predict application behavior and optimize the distribution of the data to maximize the performance of the entire SAN with minimal investment. HotZone technology improves the quality of service for existing and new storage arrays.

## Cost-effective global SAN acceleration

The FalconStor NSS SAN Accelerator provides cost-effective global SAN acceleration, improving the performance of existing storage infrastructures without requiring additional hardware investments. It can seamlessly integrate with any storage environment and provide exceptional performance enhancements to applications. It improves storage environment IOPS by 2 to 10 times, at less than one-third the cost of adding new spindles. This makes FalconStor NSS SAN Accelerator the ideal solution to easily exploit solid-state storage performance — out of the box — to substantially improve SAN performance without a huge expense or a forklift upgrade.

## Specifications

### With Solid-State Memory Array

### With SSD Array

Physical characteristics		
Usable capacity	500GB, expandable to 4TB	500GB, expandable to 8TB
Direct attachment: PCIe interfaces	Dual PCIe x 4 interfaces	Serial Attached SCSI (SAS 6Gb)
Dimensions	<ul style="list-style-type: none"> <li>• Height: 3U (5.25 inches/133.4 mm)</li> <li>• Width: 17.5 inches (420 mm)</li> <li>• Depth: 28.4 inches (725 mm)</li> <li>• Cable Mgmt.: 6 inches (150 mm)</li> <li>• Weight: 75 pounds (35 kg)</li> </ul>	<ul style="list-style-type: none"> <li>• Height: 2U (3.42 inches/8.68 cm)</li> <li>• Width: 17.57 inches (44.63 cm)</li> <li>• Depth: 20 inches (50.8 cm)</li> <li>• Weight: 53.35 pounds (24.2 kg) maximum</li> </ul>
Power	<ul style="list-style-type: none"> <li>• Dual AC inputs</li> <li>• 90 - 264V auto</li> <li>• 100W per TB</li> <li>• 960W max., 800W typical</li> </ul>	<ul style="list-style-type: none"> <li>• 600W peak output</li> </ul>
Reliability and data integrity		
Details	<ul style="list-style-type: none"> <li>• 24-bit error correction per 4K block (ECC)</li> <li>• RAID over multiple VIMMs (4+1P)</li> <li>• Additional 128-bit integrity check over 4K block</li> <li>• Uncorrectable Error Rate (SLC Goal): &lt; 1 in 10<sup>30</sup></li> <li>• VIMM MTBF: &gt; 1 million hours (114 years)</li> <li>• VIMM hot-swap with 4 spares</li> <li>• Redundant hot swap fan trays, power , PCIe</li> </ul>	<ul style="list-style-type: none"> <li>• RAID1, RAID5, or RAID6</li> <li>• DDR3; hot-plug SSD drives</li> <li>• Hot-plug redundant power supplies</li> <li>• Hot-plug redundant cooling</li> </ul>
Environmental		
Operating temperature (ambient)	41 - 95°F (5 - 35°C)	50 - 95°F (10 - 35°C)
Operating humidity	5 - 80% (non-condensing)	20 - 80% (non-condensing)
Regulatory	<ul style="list-style-type: none"> <li>• Emissions: FCC Part B Class A</li> <li>• Safety: UL</li> </ul>	

