

## Solution Pack for Microsoft Windows Server SAN/iQ VSS Provider, SAN/iQ VDS Provider and SAN/iQ DSM for MPIO

### AT A GLANCE:

Dramatically improve data storage integration, simplify data protection, enhance performance and reduce restore time with the SAN/iQ® Solution Pack for Microsoft® Windows Server® based on the storage frameworks within the Microsoft Windows Server 2003 & 2008 operating systems. The Solution Pack includes the SAN/iQ VSS Provider, SAN/iQ VDS Provider and SAN/iQ DSM for MPIO; making the LeftHand Networks® SAN a powerful choice for Windows administrators looking to simplify the move to a storage area network.

### MICROSOFT VSS FRAMEWORK

Microsoft's Volume Shadow Copy Service® (VSS) framework is comprised of three components including a VSS requestor, a VSS writer and a VSS provider. The VSS requestor is usually a third-party backup application that requests a snapshot of specific Microsoft application data. The VSS writer, an application-aware function such as the Microsoft Exchange writer, is invoked to effectively "freeze" (or dismount) the storage group data being copied and then "thaw" (mount) the storage group after the snapshot is taken. This ensures data integrity of the snapshot. The final VSS component, the VSS provider, then performs the snapshot or shadow copy of the storage volume in question.

### SAN/iQ VSS PROVIDER

LeftHand's SAN/iQ VSS Provider simplifies the process of using LeftHand snapshots with Windows applications and backup software. This technology allows SAN/iQ Snap to create consistent point-in-time copies of critical application data that can easily be used to recover any compatible Microsoft application such as Exchange Server, SQL Server, Active Directory, or SharePoint Server. Utilizing the VSS technology, customers avoid the obstacles of the legacy backup process, including problems that are not obvious until the data is restored and turns out to be unusable, such as:

- Locked data files
- Inconsistent backup images
- Lengthy, difficult restores
- Degraded application performance

The SAN/iQ VSS Provider easily integrates with leading backup software and Windows applications to avoid these legacy backup problems and provides:

- Instant backups
- Consistent backup images
- Server free backups
- Quick, easy restores
- Integration with the existing backup investment

Adding the SAN/iQ VSS Provider to a legacy backup process is an easy and inexpensive way to avoid common backup problems and effectively protect the ever-growing data stored for Windows servers.

### MICROSOFT VDS FRAMEWORK

Microsoft's Virtual Disk Service (VDS) framework is a standard set of interfaces for Windows servers to manage SAN hardware. The VDS framework greatly reduces the time required to set up volumes on a SAN and attach them to a server. This component of the Solution Pack gives administrators a common, cross vendor method for most common SAN management functions, including:

- Volume creation
- Volume mapping to server(s)
- Logging on the volume via the iSCSI initiator
- Volume growth

Provision storage on the SAN directly to an application server, create SAN volumes, attach them to servers and even grow them on the fly without any knowledge or training on the specific SAN from a single interface (Storage Manager for SANs or DISKRAID).

### SAN/iQ VDS PROVIDER

The LeftHand VDS Provider installs on any Windows Server 2003 R2 or higher server connected to the LeftHand SAN. It uses a standard set of interfaces between the SAN and the Microsoft Storage Manager for SANs application on the Windows Server, enabling the user to easily provision SAN volumes directly to a Windows Server 2003 R2 host. The VDS Provider offers:

- Seamless point-and-click storage provisioning to Windows servers
- A standard way for provisioning storage across vendors
- A common, programmable (scriptable) Command Line Interface (CLI) for volume creation and assignment within the SAN

## MICROSOFT MPIO FRAMEWORK

Network connectivity is a critical component of making SAN volumes available to servers. Without a fault-tolerant SAN, disconnected services can result from a single network connection failure.

Microsoft's Multi-Path I/O (MPIO) framework enables fault tolerant connections between servers and SAN devices. Multiple network paths are built for instant failover in the event that a network link is compromised.

## SAN/IQ DSM FOR MPIO

LeftHand's Device Specific Module (DSM) is automatically aware of all storage modules in the storage cluster and has the unique ability to store data locality maps of all arrays at the application server so that every I/O operation is sent directly to the storage module where the data physically resides, thus eliminating the possibility of an extra transfer. When integrated with Microsoft's MPIO framework, the DSM software driver enables fault-tolerant network paths to the SAN modules while also increasing throughput and I/Os per second.

The SAN/iQ DSM for MPIO enables an application server to communicate continually with the storage module that is hosting the data the server is requesting. Using this unique LeftHand capability, SAN/iQ software is able to aggregate the Ethernet connections, processing power and storage capacity of all nodes, increasing performance and capacity as storage modules are added to the network. Optimized for performance and failover, this is an ideal choice for customers that require high performance and high availability.

## SYSTEM REQUIREMENTS

VSS and DSM for MPIO are enabled with SAN/iQ version 6.5 or higher.

Product	Operating System Requirements
VSS Provider	Windows 2003 Server SP1 or higher w/ Microsoft iSCSI Initiator 2.06 or higher Microsoft Patch 913648 enables transportable snapshots on W2k3 Standard+
VDS Provider	Windows 2003 Server R2 or higher w/ Microsoft iSCSI Initiator 2.06 or higher
DSM for MPI	Windows 2003 Server SP1 or higher w/ Microsoft iSCSI Initiator 2.06 or higher



OEM Hardware Solutions



### ABOUT LEFTHAND NETWORKS

At LeftHand Networks, we deliver physical and virtual SANs that are easy-to-install, easy-to-manage and designed to perform optimally in today's global data centers. LeftHand Networks pioneered IP-based SANs in 2001, and its innovative SAN products are engineered to deliver the highest availability and scalable performance, with integrated enterprise-class features.

**Corporate Headquarters**  
2580 55th Street  
Boulder, CO 80301  
United States  
303.449.4100

**European Headquarters**  
10 Fenchurch Avenue  
London, EC3M5BN  
United Kingdom  
+44 (0) 203.178.3904