

# STARWIND ENTERPRISE HA WITH ACTIVE-ACTIVE HIGH AVAILABILITY: True Active-Active High Availability with Automatic Failover and Failback with Fast Sync

## HIGH AVAILABILITY STORAGE

StarWind Enterprise HA ensures that your data is accessible and online in the event of a site failure. The Active-Active High Availability technology significantly increases your application and data availability and provides you with true business continuity. With High Availability, you will have real-time I/O mirroring and your storage can fail over to a second storage node so that your applications will be continuously up and running without any disruption.

## SYNCHRONOUS MIRRORING

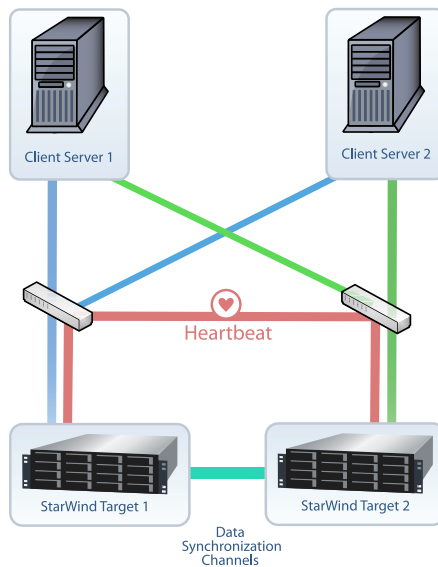
Synchronous data mirroring handles real-time mirroring of I/Os allowing for two redundant storage nodes to store data synchronously. With StarWind's Synchronous Data Mirroring, two distributed storage nodes are instantly updated.

## AUTOMATED FAILOVER AND FAILBACK WITH FAST SYNC

StarWind's Active-Active High Availability architecture uses Synchronous Data Mirroring with Automated Failover, which ensures that storage continues operating properly in the event of failure. This technology permits you to configure an Active-Active 2 Node storage cluster and ensures a highly reliable and fault tolerant storage system. Active-Active High Availability manages synchronous mirroring and automatic failover on a per-volume basis. Because the volume's identity never changes, even in the event when a node or a site fails, your server applications experience continuous data availability without a single point of failure. Additionally, StarWind has the Fast Synchronization technology, which allows copying only the difference between the volume instead of copying all the data from one volume to another after the system failure. Fast Synchronization is a proprietary technology that is unique to StarWind. This full solution offers customers enterprise-class fault tolerance and protection without the high price or complexity associated with traditional, proprietary vendor solutions.

## REMOTE REPLICATION

Remote or asynchronous replication is important for storage disaster recovery. It allows you to copy or backup your critical storage data over the WAN to a secure remote site. Replicating data to an offsite location allows you to be up and running during a disaster. Your data can be recovered within a short recovery point with minimal disruption as you fail over to a remote site with confidence that your data is intact.



## STARWIND ENTERPRISE HA ADVANTAGES

- Active-Active High Availability, reliability and fault-tolerant protection
- Synchronous Mirroring with Instant Automatic Failover
- Failback with Fast Synchronization (only in StarWind)
- Deduplication mechanism allows reducing needed Storage Space due to the process of eliminating duplicated data
- Integrates seamlessly with physical servers or virtual servers
- Protects your applications and eliminates a single point of failure
- Accelerates data migrations without sacrificing uptime

## LIVE, POINT-IN-TIME SNAPSHOTS

StarWind's Snapshots capture a volume's state at any point in time. You can perform the Snapshots manually or have them scheduled. These live, point-in-time Snapshots are instant and capture a consistent state of the data you have stored on the SAN. If you need to recover an entire volume, you can roll back to return the snapshot of that volume to any specific point-in-time. And if you want to restore individual files or folders, you can simply mount a snapshot and retrieve that data. Almost 90% of data is lost due to human error, but your storage will be 100% protected with StarWind's Snapshots.

## FASTER DISASTER RECOVERY

With asynchronous replication and snapshots, application downtime and data loss become things of the past. Synchronous and Asynchronous Data Mirroring and Remote Replication enables volume/site failover and recovery for uninterrupted storage operations and 24/7 business continuity. Continuous Data Protection provides automatic or manual Microsoft VSS compatible (Volume Shadow Copy Services) snapshots, volume cloning and incremental backups with an unlimited number of rollback points.

## HEARTBEAT

The "Heartbeat" feature in StarWind HA guarantees data integrity in case of synchronization channel failure. The Heartbeat eliminates a single point of failure with the SAN nodes by determining which storage node takes priority.

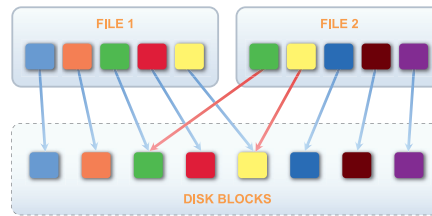
## DATA DEDUPLICATION

Data Deduplication is a specialized mechanism of data-compression that allows reducing needed storage capacity due to the process of eliminating duplicated data. Only unique data blocks are stored on the disk, what helps utilizing any storage with higher efficiency.

StarWind's Data Deduplication provides an 'on the fly' operation of redundant blocks' finding, and does not need time and storage to write them previously. In comparison to other similar solutions, that must previously locate data

blocks in a storage and then eliminate, if any, duplicated data. In this case, only unique data blocks can be written to the storage disk at once. Another apparent benefit of StarWind's online Data Deduplication is high running speed, which permits to process data block rapidly and in an effective way.

Use of Data Deduplication allows obtaining essential economy of the disk space while processing some data types. For example, it is extremely useful in case of the virtual machines deploying. If several VMs' images with the same OS are stored on such a disk, you can achieve storage saving that is not to be compared with a case when deduplication is not used.



## THIN PROVISIONING

The Thin Provisioning feature offers very efficient disk utilization. Administrators no longer need to predict how much space they will need or to purchase disks ahead of time. For maximum SAN efficiency, StarWind Thin Provisioning allocates only as much space as is required for data written on that volume.

## CENTRAL MANAGEMENT CONSOLE

StarWind 5 comes with a newly redesigned and enhanced management console with a simple point-and-click user interface built on the tree structure that users are accustomed to from VMware and Microsoft Windows Server applications. The centralized GUI allows you to manage all iSCSI storage servers with ease. A simple and intuitive interface offers system administrators a detailed and complete view, and improves storage administration. Tasks like provisioning storage to applications, CDP/Snapshots, Synchronous Mirroring and Remote Replication are all done from within this simple interface.

## ADVANCED 64-BIT HIGH SPEED CACHING

StarWind's 64-bit advanced caching significantly accelerates storage I/O performance. The cache uses the host system's memory to anticipate disk read and group writes. This feature is ideal for any I/O intensive server applications and especially databases like Microsoft SQL Server 2008 R2 or Microsoft Exchange Server 2010.

## MPIO

StarWind supports MPIO (Multi-Path I/O) through multiple sessions when used with any initiator.

## DISK CHOICES

StarWind can be used with SAS, SATA, SCSI, Fibre Channel, USB and FireWire drives. Export an entire disk, a single file or entire partition as an iSCSI disk.

## SECURITY

The Challenge Handshake Authentication Protocol (CHAP) is used to restrict which client machines have access to volumes on the SAN. Secure IPsec encryption ensures secure tunneling over IP connections. StarWind integrates seamlessly with Microsoft Windows NTFS compression and encryption.

## HIGHLY AVAILABLE STORAGE IN UNDER 30 MINUTES

StarWind can be installed in less than 30 minutes. There is no need to suffer from the complicated installation and administration that comes with traditional SAN solutions. When you buy StarWind, you're not locked into proprietary servers, storage or networking equipment. Instead, you can use standard hardware from HP, IBM or Dell that is easy to configure and manage.

## RECOMMENDED SYSTEM

### REQUIREMENTS:

- Windows Server 2008 (with Service Pack 1 installed)
- 2 GHz Intel Xeon class processor
- 4 GB of RAM
- 1 GB for application data and log files
- Dedicated disk volumes
- Gigabit Ethernet connection

## KEY BENEFITS OF STARWIND

### ENTERPRISE HIGH AVAILABILITY:

- Turn any 64-bit or 32-bit Windows server into a Fault-Tolerant SAN with Automatic Failover
- Supports dual-redundant Windows server clusters for High Availability
- Ideal SAN for virtualized environments: VMware, Hyper-V or XenServer
- Supports VMware features: VMware HA, VMotion, DRS and VCB

## STARWIND SOFTWARE IS

### COMPATIBLE WITH:

- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008
- Microsoft Windows Server 2003 R2

StarWind is tested for compatibility with the Microsoft iSCSI Initiator and it has also been tested for compatibility with various Linux and UNIX iSCSI initiators, iSCSI HBAs from Adaptec and QLogic and hardware iSCSI accelerators from Alacritech.



#1 Storage for Business Continuity  
in Virtual Environments

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### ABOUT STARWIND

Since 2003, StarWind has been a pioneer in the iSCSI storage industry and has been the solution of choice for thousands of global customers in over 50 countries, from SMBs, to governments, and to Fortune 1000 clients.

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