



iSCSI Storage Server for Windows

Easy to use Windows Server solution that delivers seamlessly integrated data protection services and intelligent storage management to ensure that critical database, messaging, and file-based data is easily managed, reliably protected, and highly available

Why FalconStor iSCSI Storage Server? Real business benefits...

iSCSI Storage Server is ideal for SMBs & enterprise remote offices/workgroups

Achieves Recovery Time and Recovery Point Objectives via Granular Rapid Recovery

Protects data from soft errors such as accidental deletions, corruptions, and viruses, and ensure transactional integrity/consistency of databases.

Provides Continuous Data Protection

Provides continuous replication of data from a remote or satellite office to a centralized iSCSI Storage Server over a LAN or WAN connection. This unique solution is perfect for centralized data protection and management.

Delivers Improved Disaster Recovery Capabilities via Replication Solution

Reliably replicates database or messaging system's mission-critical data from a primary site to a secondary site over IP, to ensure immediate, granular recovery from primary disk and site failures and achieve continuous business operations in the event of a disaster.

IT professionals have been searching for a cost-effective, easily deployable storage network infrastructure that can centralize the management and provisioning of both legacy as well as the latest storage devices, while also delivering advanced storage services for data protection and business continuity.

The solution is here: iSCSI Storage Server for Windows from FalconStor, the first Windows Server solution to deliver seamlessly integrated network storage services as well as aggregating and provisioning disk resources to application hosts over an existing IP network via iSCSI.

iSCSI Storage Server delivers sophisticated **storage pooling** functionality that aggregates disk capacity and allows administrators to provision disk via iSCSI to application hosts – including Microsoft Exchange, SQL Server and Oracle – with a few mouse clicks and no downtime. As a result, iSCSI Storage Server reduces operating costs by eliminating the need to purchase new servers when storage runs out and significantly simplifies storage management tasks.

Granular Rapid Recovery Achieves Recovery Time and Point Objectives

iSCSI Storage Server also offers a unique **Snapshot Service** that provides thirty-two (32) delta-based, point-in-time (PiT) recovery points per virtual disk and safeguards against soft-errors such as accidental deletions, file corruptions, and virus attacks. This effectively increases backup frequency, minimizing the risk window. Moreover, file-level recoveries can be performed quickly and efficiently without the need to restore from tape. In addition, the iSCSI Storage Server allows users or applications to request fast, space-efficient delta snapshots via its interface with **Microsoft Volume Shadow Copy Service (VSS)**, and performs policy-based, automatic delta snapshots of application hosts to significantly reduce potential data loss and ensure business continuity.

Key Benefit: *Increases backup frequency with 100% guaranteed data integrity and eliminates the need to perform time-consuming Checkdisk, FSCK, and database recovery procedures to achieve recovery point objectives (RPO).*

iSCSI Storage Server offers a wide variety of advanced storage services designed to rapidly restore your database or message system within minutes or even seconds. FalconStor **Database Aware Snapshot Agents** protect valuable data from soft errors such as accidental deletions, corruptions, and viruses if needed, you can elect to rollback to a database or mailbox status of minutes, hours, days, weeks, or months prior. Even individual mail messages accidentally deleted can be retrieved, quickly and fully intact.

Continuous Data Protection for Systems with Local Storage

iSCSI Storage Server provides continuous data protection for systems, including those with direct attached storage, with its **DiskSafe** feature.

DiskSafe integrates with the application-aware FalconStor **Snapshot Agents**, which ensure that replica data is copied and maintained in a consistent and transactionally accurate state for rapid recovery should the need arise.

Key Benefit: *Delivers superior data protection via continuous replication of data from direct attached storage to centralized network-based storage.*

In addition to continuous data replication for maximum data protection, DiskSafe enables user initiated backup and recovery operations and fully leverages iSCSI Storage Server Snapshot Agent technology to deliver point-in-time recovery of databases. To ensure full and rapid recovery, DiskSafe supports remote boot recovery via iSCSI HBA or PXE. And supports remote restore via recovery CD. With iSCSI Storage Server and DiskSafe, IT managers can easily achieve even the most stringent recovery point and recovery time objectives.

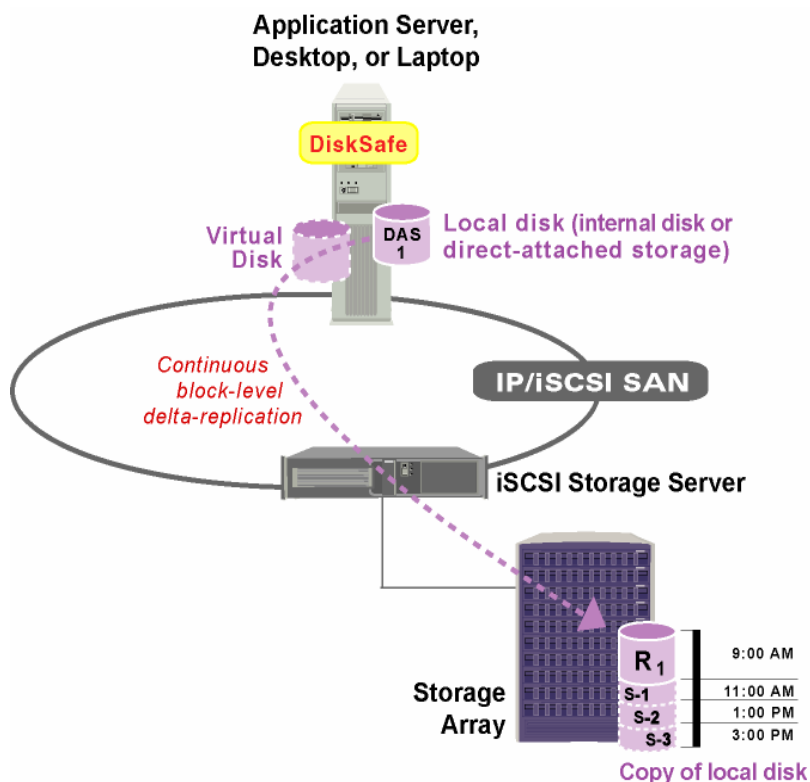


Figure 1. Continuous data protection (CDP) replicated data from systems with local storage to central iSCSI Storage Server-managed network storage

Superior Disaster Recovery Capabilities via Remote IP-based Replication

iSCSI Storage Server, an essential component of an effective disaster recovery plan, ensures business continuity in the event of a site failure or rolling disaster.

This unique solution offers an advanced delta **Replication Service** for policy-based replication of application hosts' mission-critical data from the primary site to a disaster recovery site over IP. Replication can occur in a peer-to-peer or many-to-one configuration.

Following a full recovery from a disaster, the convenient *reverse synchronization* feature enables the newer data from the remote site to be automatically moved back to the primary site. iSCSI Storage Server facilitates this "role reversal" by scanning for differences, minimizing the time and storage capacity necessary to re-establish the primary site.

iSCSI Storage Server leverages the application-specific FalconStor **Snapshot Agents** to ensure database and

Available FalconStor Snapshot Agents for iSCSI Storage Server

DATABASES

- Microsoft® SQL Server
- Oracle®

MESSAGING APPLICATIONS

- IBM Lotus Notes®/Domino
- Microsoft Exchange
- Microsoft VSS

FILE SYSTEMS

- Linux
- Microsoft Windows
- Novell® NetWare®

messaging system integrity throughout the replication process. This facilitates rapid recovery by eliminating the time needed to check or rebuild an application's database during data recovery. The iSCSI Storage Server **Consistency Group** feature allows virtual drives to be grouped for snapshot synchronization purposes; snapshots for all resources in a group in a group are thereby taken at the same point in time for **Snapshot, Replication, and Backup Services**. This feature, working in conjunction with the database-aware Snapshot Agents, ensures transactional integrity for database files that reside on multiple file systems.

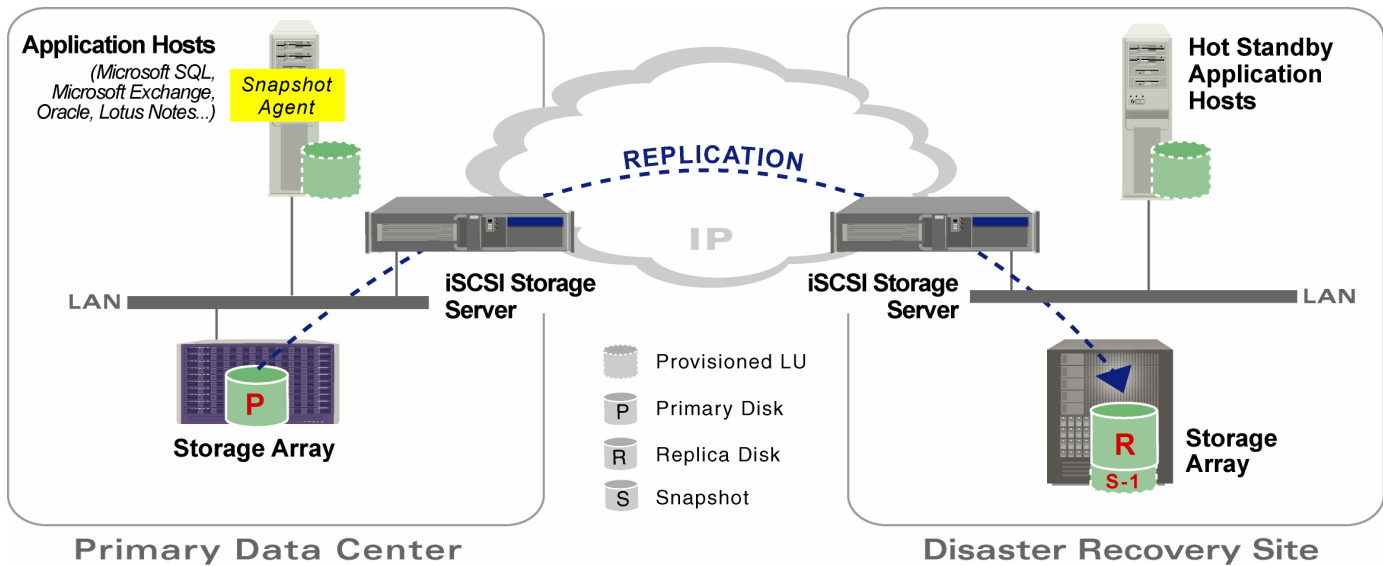
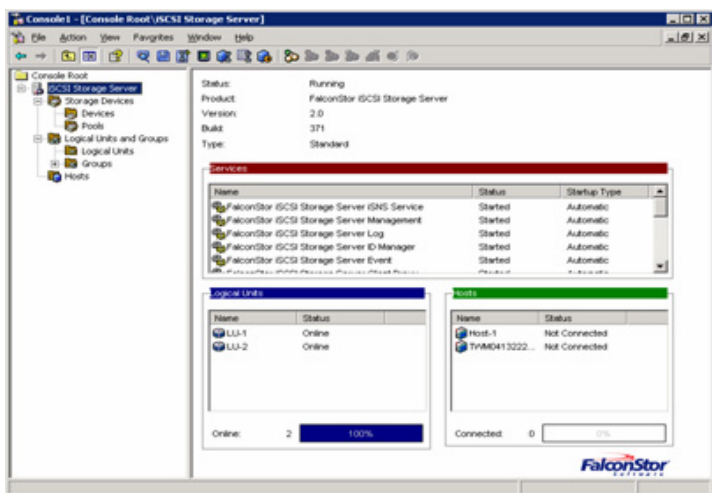


Figure 2. Example of an iSCSI Storage Server replication configuration for disaster protection. Snapshot Agents ensure transactional integrity and point-in-time consistency for fast recovery, and are available for a variety of popular databases, messaging systems, and file systems.

Key Benefit: *Maintains consistent, transactionally accurate copies of database or message system data at a remote site to ensure immediate, granular recovery from primary disk and site failures and achieve continuous business operations in case of disaster.*



Support for Microsoft Technology

FalconStor's iSCSI Storage Server offers enhanced support for Microsoft iSCSI Software Initiator version 2.0, and fully leverages the advanced management features inherent in Microsoft Windows Server 2003, including the **Microsoft Management Console** plug-in user interface, **Volume Shadow Copy Services (VSS)** and Microsoft's **MultiPath I/O (MPIO)**. As a result, iSCSI Storage Server delivers improved data manageability, reliability, and availability through fault tolerance against single points of failure, as well as load balancing of I/O data traffic for better application performance.

FalconStor iSCSI Storage Server Ensures System-Level Compatibility

To expedite deployment and ensure Storage Server system-level compatibility, FalconStor has qualified iSCSI Storage Server with iSCSI initiators from leading industry vendors. For a complete, current list of FalconStor Certified Devices please visit: http://www.falconstor.com/certification_matrix_active.asp.

Software Options Available for iSCSI Storage Server*

Snapshot Service	Offers quick recovery from application or human errors safeguard against “soft-errors” such as accidental deletions, file corruptions, and virus attacks by creating point-in-time images of data, and is triggered by the replication logic to quiesce application hosts running Microsoft Exchange, SQL Server, or Oracle applications to ensure that delta changes are replicated with 100% transactional integrity.
Synchronous Mirroring Service	Delivers high availability and fault tolerance by transparently recovering from storage controller, cable or disk failures.
ZerolImpact Backup Enabler	Facilitates centralized, zero impact backup and allows Administrators to leverage off-the-shelf, 3rd party backup software to centralize the backup and recovery of an application hosts' data at ultra high speed directly to iSCSI Storage Server.
Cluster Service	Increases application server availability by eliminating a single point of failure (SPOF) via a dual network connection to the IP network, as well as a dual I/O channel to each storage device.
Multipathing Service	Ensures constant data availability to any server or workstation on an Ethernet network (supports iSCSI servers/workstations running standard iSCSI initiator software) by intelligently identifying network faults and transparently rerouting data around those faults. In addition to fault tolerance, iSCSI Storage Server enhances peak network performance by providing load balancing, which is the automatic distribution of traffic among multiple network connections in the server or workstation.
Replication Service	Provides IP-based delta replication of an application host’s mission-critical data, from a primary site to a remote site.
Hardware Provider for Microsoft Volume Shadow Copy Service	Creates instant, space efficient snapshots of VSS-enabled volumes with full point-in-time consistency.
NIC Express Service	Ensures non-stop availability of the iSCSI Server storage (iSCSI and file-based) by pinpointing network bottlenecks and physical/logical faults and instantly rerouting network traffic around these faults. Peak performance is also enhanced by load balancing, the automatic distribution of iSCSI Server traffic among the server's storage paths.
FileSafe	Host-based replication software solution that provides <i>scheduled</i> replication of data from a host’s internal storage (direct-attached storage) over an IP/iSCSI network directly to any iSCSI disk, whether in a remote or satellite office, utilizing a LAN, WAN, or Fibre Channel (FC) connection, delivering centralized data protection and management at the file level.
DiskSafe	Host-based software solution that provides <i>continuous</i> replication of data from a host’s internal storage (direct-attached storage) over an IP/iSCSI network directly to any iSCSI disk, whether in a remote or satellite office, utilizing a LAN, WAN, or Fibre Channel (FC) connection, and delivering centralized data protection and management at the block level.
Snapshot Agents	Available for all popular data bases, messaging systems and file systems. Ensures database integrity and facilitates rapid recovery.

The following options are also available for use in conjunction with the iSCSI Storage Server *Replication Service*

Compression	Compresses the data stream to maximize bandwidth utilization.
Encryption	Encrypts the data stream to ensure end-to-end security/privacy.

*Software options require additional purchase

FalconStor has sales and support offices worldwide. Please contact us for more information about FalconStor and our IPStor solutions.

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