

# Troika SAN Volume Suite

## Fabric-based Storage Management and Data Protection

### Customer Benefits

- **Reduced Cost of Managing Heterogeneous Storage**  
Manage heterogeneous storage resources as a single storage pool, maximizing capacity usage and alleviating need for multiple management approaches
- **Enhanced Business Continuity**  
Instant virtual and physical copies of data enables zero-downtime backup, online data restores, data warehouse updates and application testing
- **Cost-effective Disaster Recovery**  
Any-to-any mirroring continuously replicates data from any storage, to any storage, at any location
- **Seamless Data Migration**  
Non-disruptive data migration from any device, to any device, at any location while production applications remain online
- **Avoid Expensive Infrastructure Upgrades**  
Seamless deployment of new storage services into any existing storage network environment, avoiding expensive upgrades of infrastructure

### Solution Overview

Troika SAN Volume Suite (SVS), a StoreAge™ enabled solution, delivers fabric-based high performance storage services such as volume management, snapshot, and mirroring, allowing enterprise customers to affordably deploy and scale storage management and data protection capabilities across heterogeneous storage resources. With SVS, new capabilities can be implemented independent of server and storage resources, providing greater performance, functionality and choice of both storage services and devices.

### Non-Disruptive, High Performance Data Protection

SAN Volume Suite offers comprehensive data protection capabilities for both local and remote protection needs. Whether the goal is to eliminate backup windows, restore from backups more quickly, mirror local arrays, or replicate data remotely, SVS provides these capabilities non-disruptive to existing operations. In addition, SVS leverages high performance hardware acceleration engines to optimize performance. SVS data protection features include:

- Full and incremental snapshot
- Local and remote mirroring
- Asynchronous replication
- Non-disruptive migration

### Centralized, Any-to-Any Storage Management

SAN Volume Suite allows customers to aggregate multi-vendor storage resources into virtualized storage pools, enabling faster and more accurate provisioning of capacity resulting in higher storage utilization and increased availability of data. With SVS, overall storage costs can be significantly lowered and tiered storage becomes practical to implement.

### Scale Storage Services Independent of SAN Resources

Unlike array-based approaches where services are tied to the physical device, SVS's fabric-based approach allows customers to implement and expand whatever services they desire, whenever they desire. New capabilities can be added non-disruptively without performance degradation regardless of what storage, server, and SAN vendor product is in use.

- Greater choice of storage and server options
- Lower TCO by leveraging existing storage and SAN infrastructure
- Easier scaling of storage services independent of resources

## Solution Usage and Benefits

### Any-to-Any Data Mirroring and DR

**Business Challenge:** Finding affordable and yet robust solutions for local and remote data protection is a difficult challenge. Clearly, enterprises strive to avoid becoming dependent upon storage vendor proprietary solutions which raise overall TCO of the storage infrastructure and reduce IT flexibility.

**Solution Benefits:**

- Non-disruptive data replication between any local or remote SAN-based storage devices
- Lower storage acquisition costs by breaking vendor lock-in
- Lower TCO with a tiered storage approach
- Protection against planned and unplanned downtime with rapid failover and fail-back between sites

**Customers Find Network-based Approach Compelling**

Reported annual benefits from companies who have deployed network-based services:

• Reduced hardware spending	79%
• Reduced software spending	72%
• Reduced storage administration costs	72%
• Average savings on storage hardware spending	20%

ESG Network-based Storage Intelligence Report 2004

### Non-Disruptive Migration

**Business Challenge:** Maintaining ongoing production operations without disruption is a significant concern with data migration projects. This issue is a concern during all phases including initial deployment and testing, and throughout actual migration. A non-disruptive approach in all phases is critical.

**Solution Benefits:**

- Non-disruptive installation and data migration within any SAN environment
- Lower deployment cost by leveraging existing infrastructure, avoiding expensive add-ons
- Seamless migration of data while production environment remains online
- Simplified migration using a centralized high-performance approach that requires no host agents

### Zero-Window Backup with Rapid Online Restore

**Business Challenge:** Backup remains the single largest pain point for many IT organizations. Relying only on tape backup solutions can jeopardize 24x7 business operations, because of the natural planned and unplanned downtime associated with tape-based backup.

**Solution Benefits:**

- Increase availability of online applications
- Eliminate backup windows through snapshot technology and disk-based backup techniques
- Recover to any point-in-time snapshot instantly
- Reduce backup management costs
- Restore quickly in the event of downtime
- Create server-free and LAN-free backup environments

### Heterogeneous Storage Consolidation

**Business Challenge:** Due to regulatory, data protection, and access needs, data naturally becomes distributed over time, driving up storage, server, and data management costs. The value of data also changes over time. To reduce costs and ensure effective access to information, consolidating and relocating data have become a continuous effort.

**Solution Benefits:**

- Lower costs dramatically by reducing the number of storage devices and storage capacity needed.
- Create affordable remote DR sites, where duplicating the production environment without the physical assets is easily accomplished.
- Leverage multiple classes of data storage, based on value and access needs with tiered storage
- Improve manageability and availability of data by avoiding multiple unnecessary duplications

### Simplified Storage Provisioning and Management

**Business Challenge:** Provisioning and managing storage is a time-consuming task, especially in dynamic environments with many servers. A common practice is to over-allocate disk resources to ensure an ample supply of capacity, resulting in poor storage utilization and an increase in overall management effort.

**Solution Benefits:**

- Centralize management into the network and off of servers
- Improve efficiency by increasing the amount of storage managed per administrator
- Simplify provisioning of capacity, including VMware ESX™ virtualized server environments
- Improve application availability via dynamically expanding volumes on a just-in-time basis
- Optimize utilization of existing storage resources by pooling unused capacity

## SAN Volume Suite Elements

SAN Volume Suite is a highly integrated solution comprised of multiple application software elements combined with a network-based platform specifically designed for application acceleration. The solution features storage management software from StoreAge Networking Technologies integrated within Troika's Accelera™ Network Storage Services Platform. Accelera is a high-performance, highly-scalable application hosting platform, providing easy and reliable deployment into any SAN environment.

Key SVS Elements	
<b>multiView™</b>	Provides non-disruptive and instantaneous low-capacity snapshots of SAN data, allowing for enhanced data protection capabilities such as zero-window backup and rapid restore.
<b>multiMirror™</b>	Allows any-to-any data mirroring, both local and remote for disaster recovery and data migration applications.
<b>multiCopy™</b>	Creates instantly available physical copies of data which can be replicated or moved from any storage device to any storage device.
<b>SVM™</b>	Hosts metadata and provides IP network connectivity
<b>Accelera™ NSS Platform</b>	Purpose-built high-performance application hosting platform that provides wire-speed processing of data-intensive operations such as virtualization mappings, incremental snapshots, and path failover

## Solution Features and Benefits

Deployment Features	Benefits
Fabric-based, Yet SAN Independent	Allows storage services to scale independent of storage, server, and SAN switch devices, resulting in a single common approach to storage management and data protection.
Any-to-any Storage	Greater control over what brand and types of storage used, which drives down storage acquisition costs by avoiding vendor lock-in and allowing an enterprise to leverage existing assets.
Non-disruptive	Installs non-disruptively into any SAN without fabric interoperability issues common with fabric switches.
Agent-less	Simplifies deployment and bolsters security by centralizing all functionality into the network and off of hosts and storage.
Split Path (SPAID) Hardware Acceleration	Accelerates data-intensive application functions in hardware and separates the data path from the control path. Ensures wire-speed performance of application and optimal scalability.

Data Protection Features	Benefits
Incremental Point-in-time Snapshots	Produces thousands of instant point-in-time copies for supporting continuous replication and BLI (Block-Level Incremental) backup applications.
Rapid Full Copy Snapshots	Enables real-time data movement, while production application remains online and fully available.
One-to-many Mirroring	Allows IT Administrator to create multiple independent copies of the same source volume for data protection and access.
Snapshot-enhanced Mirroring	Supports numerous activities at local and remote sites without interrupting ongoing mirroring process between sites.

Storage Management Features	Benefits
Heterogeneous Storage Virtualization	Reduces management costs substantially through improved asset utilization. Allows new services to be added across all resources.
VMware ESX™ Support	Combines the power of server and storage virtualization technologies together for extremely efficient consolidation, such as desired when architecting an affordable DR site.

## Technical Specification Highlights

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### Supported Operating Systems:

- Windows 2000
- Solaris
- HP-UX
- AIX
- Netware
- VMware ESX™ Server

### Supported Interfaces:

- Fibre Channel
- Gigabit Ethernet  
(for Remote Mirroring and Replication)

### Supported Multi-Pathing and HA Software:

- Windows/Veritas Foundation Suite
- Solaris/Veritas Foundation Suite
- VMware ESX Server/native multi-pathing
- HPUX/PVLINKS
- AIX/MPIO
- Novell/native multi-pathing
- VMware ESX Server/VMotion and VirtualCenter

### Supported Storage Devices:

- FC-based RAID
- JBOD
- Tape devices/libraries

### Supported SAN Devices:

- Interoperable with any FC-based SAN

### Snapshot Capabilities:

- 1000s of instant concurring point in time copies
- Physical and virtual copies
- Continual snapshots
- Block level incremental and full copies
- Cascaded snapshots of single volume
- Read/write snapshot capability
- Instantly available point-in-time snapshots
- Multiple views of a single snapshot
- Application snapshot integration capability

### Copy Capabilities:

- Prioritization between copies
- Access R/W copies instantly
- Cascading of point-in-time copies
- Pause/resume of copy operations
- One to many copies

### Mirroring Capabilities:

- Instant point-in-time read/write copies
- Local and remote mirroring
- Snapshot-enhanced mirroring
- One-to-one and one-to-many mirroring
- Integrated FC/IP Routing
- Asynchronous replication with pause and resume
- Supports application consistency groups
- Native mirroring over any IP connection

### Accelera Network Storage Services Platform Capabilities:

- Interoperable with any FC SAN environment
- Hardware accelerated snapshot, mirroring, and virtualization services
- Split-path (SPAID architecture)
- Redundant power and cooling
- HA redundant configuration
- Clustered multiple NSS platforms

For more information, consult individual product datasheets or visit:

[www.troikanetworks.com](http://www.troikanetworks.com)

**T R O I K A**™



Troika Networks, Inc.  
2555 Townsgate Road  
Westlake Village, CA 91361-2650 USA  
Telephone +1.805.371.1377  
Fax +1.805.371.1344  
[info@troikanetworks.com](mailto:info@troikanetworks.com)  
[www.troikanetworks.com](http://www.troikanetworks.com)

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