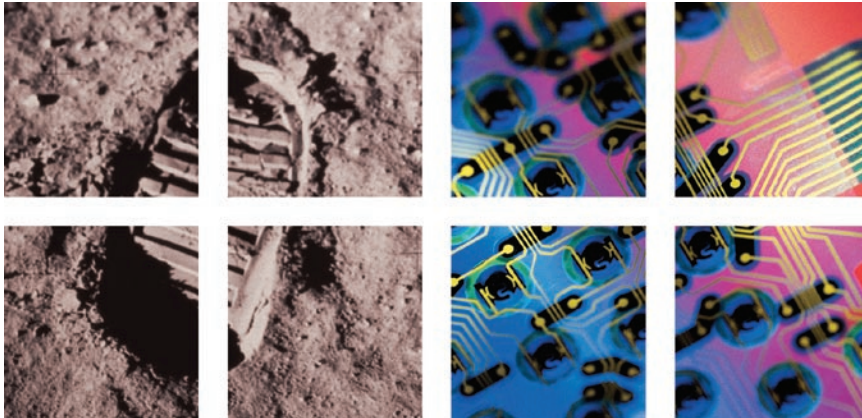


IBM TotalStorage SAN Volume Controller



Highlights

■ **Centralized point of control for volume management**

IBM TotalStorage™ SAN Volume Controller is designed to help IT administrators manage storage volumes from their storage area networks (SANs). It helps combine the capacity of multiple storage controllers, including storage controllers from other vendors, into a single resource, with a single view of the volumes.

■ **Avoidance of downtime for planned and unplanned outages, maintenance and backups**

With SAN Volume Controller, IT administrators will have the ability to migrate storage from one device to another without taking the storage offline. And they will be able to better reallocate, scale, upgrade and back up storage capacity without disrupting applications.

The storage management challenge

Storage area networks (SANs) enable companies to share homogeneous storage resources across the enterprise. But for many companies, information resources are spread over a variety of locations and storage environments, often with products from different vendors, who supply everything from mainframes to laptops. To achieve higher utilization of resources, companies now need to share their storage resources from all their environments, regardless of the vendor. While storage needs rise rapidly, and companies operate on lean budgets and staffing, the best solution is one that leverages the investment already made and that provides growth when needed. It is a solution that can help strengthen existing SANs by increasing storage capacity, efficiency, uptime, administrator productivity and functionality.

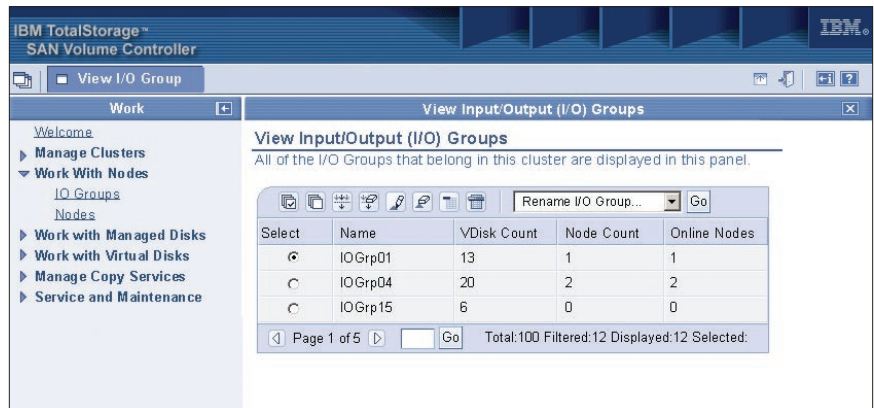
Highlights

■ **Improved resource utilization**

SAN Volume Controller is designed to help increase storage capacity and uptime, as well as administrator productivity and efficiency, while leveraging existing storage investments through virtualization and centralization of management.

■ **A single, cost-effective set of advanced copy services**

The SAN Volume Controller is designed to support advanced copy services across all attached storage, regardless of the intelligence of the underlying controllers.



IBM TotalStorage SAN Volume Controller

The IBM TotalStorage™ SAN Volume Controller can help address the storage management challenge. This solution is designed to help manage the complexity and costs of SAN-based storage. Based on virtualization technology, the SAN Volume Controller is designed to support a virtualized pool of storage from the storage subsystems attached to a SAN. This storage pool has the potential to help customers tap their unused storage capacity and make their businesses more efficient and resilient. The SAN Volume Controller can help simplify storage management by presenting a single view of storage volumes.

Similarly, the SAN Volume Controller is designed as an integrated solution supporting high performance and continuous availability in open-systems environments. The solution runs on clustered storage engines, based on IBM @server xSeries™ servers and open-standards-based technology. Industry-standard host bus adapters (HBAs) will interface

with the SAN fabric. The SAN Volume Controller is designed to represent storage to applications as virtual disks, created from the pool of managed disks residing behind the storage engines. Storage administrators can scale performance by adding storage engines and scale capacity by adding disks to the managed storage pool.

A centralized point of control for volume management

Through virtualization, SAN Volume Controller helps create pools of managed disks spanning multiple storage subsystems. These managed disks can then be mapped to virtual disks used by server applications. Utilizing these virtual disks can help businesses make better use of existing storage, and a comprehensive easy-to-use graphical interface can help ease management. This simple interface incorporates the Storage Management Initiative Specification (SMIS) application programming interface (API), and further demonstrates IBM's focus on open standards.

Avoidance of downtime for planned outages, maintenance and backups

The SAN Volume Controller includes a dynamic data-migration function that can help administrators migrate storage from one device to another, without taking it offline. This allows administrators to reallocate and scale storage capacity without disrupting applications.

And the solution supports both local area network (LAN) free and server-free backups while a clustered configuration designed to support high availability allows for nondisruptive software upgrades. SAN Volume Controller also leverages the IBM TotalStorage Enterprise Storage Server™ multipathing software.

Improved resource utilization

SAN Volume Controller is designed to enable more efficient use of personnel and technology resources. It can help increase administrator productivity by empowering central management of volumes under disparate storage controllers from a single user interface. It can also help increase the amount

IBM TotalStorage SAN Volume Controller, at a glance

SAN Volume Controller storage engine

- Two-node clustered pair, up to two pairs supported
 - IBM @server xSeries server
 - Onboard service processor
 - 18-GB SCSI hard disk drive
 - Two 2-port 2-Gb HBAs
 - PCI-based management card
 - Front bezel with display and keypad
 - 1U form factor
- PowerWare P33 uninterruptible power supply
 - Two per cluster
 - 2U form factor

Host software — multipathing software subsystem device driver (SDD)

- Nondisruptive software upgrades
- Failover
- Load balancing
- Operating system support:
 - Windows NT® V4.9 with Service Pack 6A
 - Windows® 2000 with SP3, MSCS
 - IBM AIX® V4.3.3, 5.1, 5.2, HACMP
 - Solaris Release 7 or later
 - HP-UX V11.i
 - Red Hat Adv. Server 2.1 with 2.4.9 kernel

Virtualization software

- LUN virtualization
 - Up to 1024 virtual disks on 64 hosts
 - Up to 4096 physical LUNs on 64 controllers
 - Up to 128 controller ports
 - Up to 2 TB virtual disk size
- Data migration
 - Transparent virtual disk to physical disk mapping
- Synchronous PPRC - optional
 - Up to 10 km (6.25 mi)
- FlashCopy - optional
 - One point-in-time (PIT) copy per volume
- Management
 - Out-of-band browser-based graphical user interface (GUI)
 - Command line interface (CLI)
 - Single management view for a cluster
 - Error logs
 - Fault isolation
 - Performance monitoring
 - Simple Network Management Protocol (SNMP) traps
 - SMIS compliant
- Security
 - SSH secure connection
- Backup and restore
 - Host-based backup and restore

Master console

- Windows 2000 operating system
- Virtual private network (VPN)
- IBM Director 4.1
- Tivoli® Bonus Pack for SAN Management
- Remote support
- Call home

Service

- Customer engineer (CE) install
- Hardware warranty, one year parts/labor
 - Storage engine
 - Uninterruptible power supply
 - Master console
- Software warranty
 - 90 days
- Software updates
 - Upgrades and fixpacks available through Web download, nondisruptively

IBM Global Services (IGS) storage services

- Consult and design
 - Backup and continuity planning
 - Performance utilization and capacity planning
- Integrate and deploy
 - Installation, cabling and site prep
 - Migration and consolidation
 - Education and training
- Operate and manage
 - System support and maintenance

of available storage capacity by pooling storage across multiple devices. The solution's virtualization of storage from non-IBM and IBM vendor devices allows less-complex, lower-cost storage to back up higher-function devices.

Designed to manage up to two petabytes (PB) of total usable storage capacity, SAN Volume Controller will support even higher performance by adding storage engine pairs to the initial configuration. All of the storage engines within a cluster will jointly manage the entire capacity of a storage pool.

A single, cost-effective set of advanced copy services

With conventional SAN disk arrays, copy operations are limited to in-box or like-box-to-like-box circumstances. But SAN Volume Controller moves copy services from individual storage controllers to the SAN. Administrators can apply copy services across disparate storage devices within the network. Advanced copy services—such as FlashCopy® and Peer-to-Peer Remote Copy (PPRC)—are supported across the managed storage.

Technology for an on demand era

In an era in which businesses are integrating processes across the enterprise, SAN Volume Controller is designed to help companies become on demand businesses, responding with flexibility and speed

to customer demands, market opportunities or competitive threats. With the solution's integration, support of open standards, virtualization and autonomic capabilities, companies will be better positioned to meet storage management challenges.

IBM services

IBM offers services designed to speed implementation and return on investment (ROI). IBM storage specialists are available to conduct storage solution and infrastructure reviews to help prepare and speed initial installation. And IBM Global Services (IGS) can examine existing infrastructures to determine sizing and performance needs. In addition, businesses can choose from a range of service and subscription offerings to keep their infrastructure up-to-date and running smoothly.

For more information

To find out more about SAN Volume Controller and other high-performance IBM Storage Networking products, contact your IBM representative, call IBM Direct at 1 800 IBM-CALL (1 800 426-2255) or go to **ibm.com/totalstorage/virtualization**



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