sgi®

SGI® InfiniteStorage TP9500S Storage Array

Features
- Complete Serial ATA disk storage solution
- 2Gb Fibre Channel controllers
- Supports up to 224 drives with maximum capacity over 56TB
- Multi-OS support
- Comprehensive storage management

Complete Solution for Secondary Storage
SGI InfiniteStorage TP9500S storage system combines a high-performance 2Gb Fibre Channel architecture with affordable Serial ATA (SATA) drive technology to deliver a winning combination for secondary storage applications. The robust functionality of Fibre Channel leverages the low cost-per-terabyte SATA drives for high-bandwidth workflows involving sequential transfer of large amounts of data. Environments that will benefit from SATA solutions include rich media, management of seismic models, temporary storage of streaming media, and any other application requiring the regular movement of large amounts of data.

Data Lifecycle Management - Compelling Alternative to Legacy Tape Solutions
The cost of storing 100% of workgroup or data center data on the latest Fibre Channel disk can be prohibitive, which is why most businesses have elected to implement a data management model where a combination of disk and tape systems are used to store information. Customers no longer have to struggle with the manual process of storing business critical data on high-performance disk while everything else is relegated to being stored on a tape subsystem. TP9500S with SATA introduces a new alternative to applications looking for a unique blend of disk performance with the affordability of mass storage tape. While business critical data is stored on Fibre Channel disk, the TP9500S with SATA can be utilized to store operational data for which the highest level of performance is not critical, and then utilize a tape system for rarely accessed reference information. To improve the process of managing the value of data over time, SGI's InfiniteStorage Data Lifecycle Management Server (DLM Server) allows cost-conscious customers to transparently and completely automate data lifecycle management policies to maximize storage utilization.

Multi-OS Support for Heterogeneous Environments
TP9500S was designed to meet the data access requirements of technical and creative users in heterogeneous environments. In addition to the IRIX® operating environment, TP9500S also supports the Solaris™, Windows® 2000, and Linux® platforms. Expand the heterogeneity of your TP9500S even further and achieve instant data sharing with InfiniteStorage Shared Filesystem, CXFS™. In a CXFS SAN all systems instantly share data without data copies or network mounts across IRIX, Solaris, AIX®, Windows®, Mac OS® and Linux systems.

SATA - Key to a Data Protection Strategy
Point-in-time copy and remote replication features are available with the optional snapshot and mirroring features provided by SGI® InfiniteStorage Volume Manager, XVM. The capabilities these features provide complement the TP9500S and make it the ideal platform for data protection. Frequent snapshots of operational data are performed on the online system. By backing up the snapshot volumes located on the online storage to the TP9500S, the active volumes are not interrupted, therefore backups are easier to implement and done in less time and applications are left unencumbered by the backup process. XVM Snapshot also provides quick recovery of data that may have been lost since the last backup caused by operator or application error. When necessary, location and recovery of individual files on the TP9500S are easier and more rapid compared to a traditional tape-based backup implementation.

Enterprise-Class Management Tools
Included with the TP9500S is SGI® TPSSM—a powerful and intuitive GUI-based storage management tool that allows for centralized monitoring and management of one or multiple SGI InfiniteStorage disk arrays. TPSSM manages a TP9500S as a single system, or as many as 2,048 virtual systems using the optional TPSSM Partition feature, a key to increasing utility for storage consolidation applications. Optionally, the SGI® InfiniteStorage Resource Manager provides a single, comprehensive storage management tool, capable of managing all storage resources in your environment from the application through a fabric, even down to an individual disk drive.

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TP9500 Base Enclosure
- Dual active 2Gb Fibre Channel controllers
- RAID Levels 0, 1, 1+0, 3, 5
- 1.024GB cache per controller, 2.048 GB total per TP9500S
- Up to 7-day minimum cache backup
- Up to 256 LUNs per partition
- Up to 2,048 LUNs per TP9500S (requires optional partitioning SW)
- Up to 30 drives (29+1) for RAID 5 group
- RAID stripe depth configurable to 16, 32, 64, 128, or 256 per disk
- Up to 15 global hot spare disk drives
- Two ethernet ports for remote management
- Two RS-232 ports
- 3-Yr 5X9 parts and labor warranty, on-site, NBD response; upgradeable to multi-year, 7X24, 2-hour response

Host Interface
- Four 2Gb Fibre Channel host channels, FC-AL or FC-SW attachment, each capable of 200MB/s peak bandwidth
- Four optical host minihubs, one per host channel, each with two LC connectors, enables eight separate FC-AL (point-to-point) host connections or four redundant host connections per TP9500
- Command tag queuing with up to 256 tags
- Aggregate peak bandwidth of 800MB/s from cache

Media Interface
- Four redundant 2Gb Fibre Channel drive channels, each capable of 200MB/s peak bandwidth
- Four optical media minihubs, two per host controller, each with two LC connectors, provides eight loops or four redundant channels for drive expansion module
- Aggregate peak bandwidth of 800MB/s to media

Software Management
- SGI TPSSM included at no charge
- Same SW management as SGI® InfiniteStorage TP9300, TP9300S, TP9500
- Dynamic RAID level migration
- Dynamic segment size migration
- Dynamic defragmentation
- Immediate LUN availability
- Performance monitoring
- Nondisruptive firmware upgrades
- Enterprise management window provides comprehensive view of all TP9300, TP9300S and TP9500 storage systems in the management domain

Optional Array Software
- TPSSM Partitioning
  - Up to 64 partitions per TP9500S

Optional Host Software
- XVM
  - Volume Manager for SGI® systems, is a virtualization technology to organize logical data structures for high performance and ease of management
- XVM Plex
  - Provides disk striping, mirroring, concatenation and advanced recovery features
- XVM Snapshot
  - Creates point-in-time snapshots of data at the filesystem level; can create single snapshot of entire filesystem for customers with vast amounts of data
- XFS®
  - High-performance, 64-bit journaled filesystem for SGI IRIX and Linux system platforms
- CXFS
  - Heterogeneous shared filesystem for storage area networks; eliminates the need for replication data across a SAN by allowing multiple heterogeneous systems to share one scalable filesystem
- DMF
  - Data lifecycle management policy automation software. DMF automatically migrates data among storage devices to achieve maximum reduction of total cost of ownership while appropriately managing data based on its value over time

Dimensions (Approximate)
Controller Enclosure
- Height   6.9", 17.5cm, 4 EIA units
- Width   24.8", 61.0cm
- Depth   19.0", 48.2cm
- Weight   97 lb (44 kg)

Drive Enclosure
- Height   5.2", 13.1cm, 3 EIA units
- Width   22.8" 57.9cm
- Depth   19.0", 48.0cm
- Weight   88 lb (40 kg)

Rack
- Height   72.0", 182.9cm, 3 EIA units
- Width   36.0", 91.4cm
- Depth   22.0", 56cm
- Weight   1,020 lb (464 kg) full; 440 lb (215 kg) empty

Supported Hosts
- IRIX, Solaris, Windows 2000, and Linux
- With CXFS: IRIX, Solaris, Windows NT®, Windows 2000, AIX, 32-bit Linux, 64-bit Linux and Mac OS® X

Storage Capacity
- Disk drive   250GB, 7,200 RPM drives
- Min. drive capacity   4 per drive enclosure
- Max. drive capacity   Up to 224 drives per TP9500S
- Drive expansion   TP9500 SATA drive enclosure
- Max. expansion   16 SATA drive enclosures per TP9500S
- Drives per enclosure   4-14
- Max. drives per rack   154
- Max. enclosures per rack 11 drive enclosures and one controller enclosure per 38U rack

Power
(redundant power to each enclosure)
- Input power for rack
  - Dual power input lines, single phase, voltage 250VAC (180 min. to 257 max. VAC), frequency 50/60 Hz
- Power connections rack
  - AC distribution 250 VAC, 16A
  - US: NEMA L6-30P, 250 VAC, 30A
  - International: IEC 309, 230 VAC 32A

Environmental
- Operating temperature
  - Minimum 50 degrees F (10 degrees C)
  - Maximum 104 degrees F (40 degrees C)
- Operating relative humidity
  - 20% to 80% (noncondensing)
- Altitude
  - 30.5 m to 3,000 m (100 ft to 9,846 ft)
- Safety compliance
  - UL 1950
  - CSA 22.2 No. 950
  - IEC 950
  - EN 60950

Electromagnetic Compliance
- FCC Class A
- VCCI Class 1
- EN 55022 Class A
- EN 50082-1,
- IEC 801-2, IEC 801-3, IEC 801-4

Quality Standard
- Manufactured under an ISO 9000-registered quality system