Sun StorEdge™ T3 Array Multi-Platform Support

Just the Facts

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Positioning

Introduction

Figure 1. The Sun StorEdge™ T3 Array (T3WG Model Shown)

Simple. Scalable. Flexible. To help meet the growing demands for storage caused by the "Net Effect," Sun developed the Sun StorEdge™ T3 array.

With the dramatic growth in storage requirements, customers are changing the way they view, evaluate, and purchase storage. In the past, customers purchased data storage based upon its associated host system type. Today, storage purchases are based upon application and business needs, which are independent of the type of host system platform. Increasingly, a storage system originally purchased for one host platform is re-purposed to a different host platform within the enterprise; or, as storage is purchased, it is attached to more than one disparate host platform. Some users simply prefer to purchase storage for use across all their host platforms from a single-source vendor.

As a result, to be suitable for an IT environment with different open systems host platforms, a storage system must be compatible with the various host platform types found in a typical enterprise. The high-quality Sun StorEdge T3 array storage system supports multiple host platforms while providing versatile three-way scalability across capacity expansion, increases in performance, and enterprise-class availability features. The Sun StorEdge T3 array helps fulfill the need for a simple, scalable, flexible storage system which can accommodate a variety of open systems platforms.

Initially offered for direct connections into an open systems host, the Sun StorEdge T3 array for the enterprise (T3ES) provides heightened availability by utilizing a Sun-supplied failover driver. Available as a completely redundant, fault-tolerant failover storage system, this partner-pair approach helps provide enterprise-class availability through such advanced features as:

- Hot-swap redundant hardware RAID controllers with fully duplexed write cache (T3ES models only)
- 256-MB (per RAID controller) cache is battery-backed with fully redundant hot-swap UPS batteries which provide immediate destaging of write data to disk upon power loss
- Four hot-swap redundant power supply-independent cooling fans
- Dual hot-swap redundant load-sharing, load-balancing power supplies
- Dual hot-swap redundant interconnect cards
- Nine hot-swap, RAID-capable 10000-rpm (18.2, 36.4, or 73.4-GB) dual-ported FC-AL disk drives
- Non-floating hot-sparing drive capability
- Dynamic cache policy redirection upon sense of power loss on either AC circuit

- Operating system-independent out-of-band management ports

The Sun StorEdge T3 array is available in tabletop, rack-ready, or rack-installed configurations and ships as either a single controller unit drive tray or as a pair of partnered controller unit drive trays. The Sun StorEdge T3 array is scalable from 327 GB to 5.2 TB per rack cabinet; up to 32 racks (32 racks x 8 controller units per rack = 256 controller units) can be connected to a single server for approximately 169 TB of raw storage capacity.

New Features

The Sun StorEdge T3 array now supports the Microsoft Windows NT (4.0, SP6), HP-UX (11.0), Linux (kernel 2.215), and IBM AIX (4.3.3) host operating systems and their relevant host server platforms. Support is provided either through a native driver for the Sun StorEdge T3 array for the workgroup (T3WG) or through a failover driver for the Sun StorEdge T3 array for the enterprise (T3ES). New features include the following:

- Platform-specific alternate path failover drivers (T3ES models only)
- Native full-path testing diagnostics derived from StorTools™ software
- Sun StorEdge T3 array configuration/management through Sun StorEdge Component Manager software running on a remote workstation console connected via Ethernet
- Documentation and installation services
- Compatibility testing and inclusion on OS compatibility lists

The Sun StorEdge T3 array supports the host operating systems and platforms shown in the table below.

Host OS	**Host Server Platform**	**Sun StorEdge Component Manager Station**	**HBA Model**	**HBA Driver Version**	**HBA Firmware Version**
Sun Solaris™ 2.6, 7, 8 Operating Environment	Sun Enterprise™ 10000, 3X00, 4X00, 5X00, 6X00, 220R, 250, 420R, 450 servers; Sun Ultra™ 60, 80 workstations	Ultra 5 workstation or higher on Solaris Operating Environment	6729A PCI FC-AL adapter (optical); 6730A SBus FC-AL adapter (optical GBIC)	6729A: 107280-06* (Solaris 2.6, 107292-06* (Solaris 7), 109189-02* (Solaris 8); 6730A: 105375-22* (Solaris 2.6), 107469-02* (Solaris 7), 1094600-02* (Solaris 8) ---------- * or later	6729A: 10399-02 or later; 6730A: 109400-02 or later
Microsoft Windows NT v4.0 SP6	Intel Pentium	Ultra 5 workstation or higher on Solaris Operating Environment	Qlogic QLA2200F/66; Emulex LP8000-F1/N1	v7.05 v4.31	v1.61 v3.03x10/1.51a1

Host OS	Host Server Platform	Sun StorEdge Component Manager Station	HBA Model	HBA Driver Version	HBA Firmware Version
HP-UX v11.0	HP N- or L-class	Ultra 5 workstation or higher on Solaris Operating Environment	HP A3740A NOTE: Do not use with HP A5158A* ---------- Sun StorEdge T3 array firmware v1.14 is only compatible with the HP A3740A host bus adapter (HBA)	B.11.00.03 Tachyon FC	v3.0
IBM AIX v4.3.3	IBM RS/6000	Ultra 5 workstation or higher on Solaris Operating Environment	IBM FC#6227	devices.pci.df1000f7.rte.v4.3.3.25	SF320.A9
Linux Versions: GNU/Debian; Caldera Open Linux; E-Server v2.3; Red Hat v6.2; SuSe v6.4; Turbo Linux Server v6.0	Intel Pentium	Ultra 5 workstation or higher on Solaris Operating Environment	Qlogic QLA2200F/66	2.2.15 kernel with UNH patch for failover *Note: Use the driver version embedded in the kernel, not the one posted on the Qlogic web site.*	v1.61

Note: *This support matrix applies **only** to Sun StorEdge T3 arrays running v1.14 firmware.*

Key Messages

The top three high-level messages are:

- Scalable—Three-way scalability (predictable, consistent, linear scalability across the metrics of capacity, performance, and availability).
- Simple—Common components and out-of-band management ports make the Sun StorEdge T3 array easy to configure, manage, and grow.
- Flexible—The Sun StorEdge T3 array is highly adaptable and reconfigurable to help meet the ever-changing demands of even the most challenging IT environments.

Key Messaging

- Optimal resource utilization—Customers can allocate storage based upon need rather than system type.
- High-performance storage for the enterprise—93 MB/sec. reads from disk per controller (RAID 5); 77 MB/sec. writes to disk per controller with (RAID 5); 264 MB/sec. sustained internal throughput per controller unit.
- Multiplatform failover support (T3ES models only)—The Sun StorEdge T3 array for the enterprise is supported in dual-path/HBA Sun's Solaris Operating Environment, Microsoft Windows NT, HP-UX,

Linux, or IBM AIX environments incorporating failover for high-availability applications with Sun-supplied failover drivers.

- True flexibility—Customers can allocate storage based upon need, rather than system type; they buy exactly what they need when they need it—no more being forced to pay for more than what is needed or being forced to settle for less than what is needed—there is no waste.
- One-stop shop—Sun can now be the one-stop storage shop for mixed platform environments comprised of the Solaris Operating Environment, Microsoft Windows NT, Linux, HP-UX, and IBM AIX host operating systems.
- Scalable growth—The Sun StorEdge T3 array adapts to changing business IT requirements by providing flexible, scalable, predictable, linear, high-speed I/O performance across the enterprise as users add capacity.
- Uptime—The Sun StorEdge T3 array provides redundant, fault tolerant support for the Solaris Operating Environment, Microsoft Windows NT, Linux, HP-UX, and IBM AIX host operating systems.
- Convenient, easy management—Just a single console is all that is needed to locally or remotely monitor, control, and diagnose all Sun StorEdge T3 arrays on the Solaris Operating Environment, Microsoft Windows NT, Linux, HP-UX, and IBM AIX host operating systems.
- Storage made simpler—The Sun StorEdge T3 array helps make life easier with only four basic FRU types and by utilizing consistent modular building blocks.
- Storage does not have to be expensive—The Sun StorEdge T3 array has excellent price/performance point and is an exceptional value.
- Every bottleneck is costly—The Sun StorEdge T3 array has predictable and linear scalable performance so it can easily keep up with the demands of businesses without bogging down.

Key Features, Functions, and Benefits

The introduction of multiplatform support helps enable customers to take advantage of the three-way scalability (capacity, performance, and availability) of the Sun StorEdge T3 array in operating environments other than the Solaris Operating Environment.

Customers can now purchase their storage to help satisfy their own unique business needs, while protecting their investment because the storage they purchase today can be expanded, reused, or reconfigured for use with other applications or in other environments as their business requirements change over time.

Feature	Function	Benefit
Scalable capacity	System can be non-disruptively expanded by adding drive trays; up to 256 drive trays can be connected to a single server via hubs or switches running in quick-loop mode	Minimal expense and time to add capacity
Scalable performance	As each controller unit tray is added to the original system, bandwidth is increased	The level of performance per tray remains constant, so the level of performance for the system increases linearly

Feature	Function	Benefit
Scalable availability	Each set of 18 HDDs within a self-contained drive tray is powered by hot-swap/redundant power and cooling, and is contained on its own loop path	As drive trays are multiplied, the level of availability remains constant
Configurations support 36-GB and 73-GB, 1.0-inch and 1.6 inch HDDs	Flexible enough to support new drives and to support varying application workloads	Saves money because users do not have to buy all new equipment if application requirements change
Scalable partner pair	Consistent levels of fault tolerant redundancy remain constant as the system is expanded	Predictable uptime
Failover device driver support (T3ES)	Alternate path for I/O in case one path fails	Helps increase uptime
Mirrored cache backed with redundant, hot-swap batteries (T3ES); immediate destage to HDDs upon sense of power loss	Data not yet written to disk is protected	Peace of mind knowing data in cache is protected
Hot-swap, redundant HDDs, interconnect cards, power, cooling, built-in UPS batteries, and RAID controllers (T3ES)	Very short mean time to repair (MTTR)	Helps save time and money
Full Fibre Channel architecture	Efficiently manages overhead	Helps save time and money because users can be more productive and efficient
Configurable for bandwidth-hungry or latency-driven applications	Configure for transaction-intensive or transfer-intensive applications	Helps save time and money because users have only one type of storage array to buy and learn
Advanced caching and RAID algorithms	Dynamic adaptability to adjust to read- or write-heavy random or sequential workloads	Helps save money because Sun StorEdge T3 array adapts to changing workloads, which helps to minimize storage purchases
Solaris Operating Environment, Microsoft Windows NT, Linux, HP-UX, and IBM AIX support	Connects to open systems host platforms	Storage can be purchased for multiple systems, centrally managed from the same console, and allocated on an as-needed basis
Only four basic FRU types	All Sun StorEdge T3 arrays use the same components for compatibility	Helps save money (parts are amortized); helps save time as there are only four FRUs to deal with
Out-of-band manageability with intelligent circuitry	Remotely or locally monitor, control, diagnose/fix from a single console independent of any OS which may be attached to the Sun StorEdge T3 array	Helps save both time and money
Hot-sparing capability	Provides 24 x 7 monitoring with SRS system	Users get peace of mind knowing Sun is there to help keep their storage up and running

Target Users and Markets

Multiplatform support for the Sun StorEdge T3 array is intended for enterprise IT environments with Sun servers, as well as environments with Microsoft Windows NT, Linux, HP-UX, and/or AIX servers. This product is ideal for enterprise customers with failover requirements (T3ES) on any of these host platforms. Also, customers who have complex storage requirements for applications which are not platform dependent will benefit from the Sun StorEdge T3 array.

Obtaining the Failover Drivers for the Sun StorEdge T3 Array for the Enterprise

The URL for linking to each download site for each Sun-supplied non-Solaris fail-over driver is:

http://www.sun.com/storage/t3es/multi_platform.html

Selling Highlights

Customers are beginning to look at storage for use in various host systems for various applications. This change in the view of storage is changing the way that customers are selecting and implementing storage solutions in their enterprise.

Multiplatform attach of the Sun StorEdge™ T3 array can help satisfy the enterprise needs of customers by providing a single source for the following:

- High-performance storage
- Centrally managed storage
- High-quality, high-reliability storage
- Highly flexible, adaptable, reconfigurable storage
- Investment protection
- World-class, global Sun service and support
- Supports the Solaris Operating Environment, Microsoft Windows NT, Linux kernel, HP-UX, and IBM AIX host operating systems

Applications

The Sun StorEdge™ T3 array is well suited for customers who desire scalable hardware RAID FC-AL storage. Target applications include the following:

- Service (e-mail, web servers, e-commerce)
- Workgroup (NFS, e-mail, file and print services)
- Enterprise (OLTP, data warehouse, e-commerce)
- Technical and scientific applications (high-performance computing)
- Computer generated animation (CGA)
- Image capture and retrieval applications such as medical imaging, high-performance data acquisition, or video streaming

Applications of all types—including, but not limited to, messaging, OLTP, DSS, HPC, print/file, network client, static web, and dynamic web content—which are certified for use with their relevant host platform should be compatible with the Sun StorEdge T3 array. Use the Sun StorEdge T3 array for the workgroup (T3WG) models for workgroup applications and the Sun StorEdge T3 array for the enterprise (T3ES) models for enterprise-level applications.

Supported Configurations

Sun provides a failover device driver support for the Sun StorEdge T3 array for the enterprise (T3ES models running firmware version 1.14) for the hosts, operating systems, and host bus adapters shown in the table below.

Note: *This support matrix applies **only** to those Sun StorEdge T3 arrays running v1.14 firmware.*

Host OS	**Host Server Platform**	**Sun StorEdge Component Manager Station**	**HBA Model**	**HBA Driver Version**	**HBA Firmware Version**
Sun Solaris™ 2.6, 7, 8 Operating Environment	Sun Enterprise™ 10000, 3X00, 4X00, 5X00, 6X00, 220R, 250, 420R, 450 servers; Sun Ultra™ 60, 80 workstations	Ultra 5 workstation or higher on Solaris Operating Environment	6729A PCI FC-AL adapter (optical); 6730A SBus FC-AL adapter (optical GBIC)	6729A: 107280-06* (Solaris 2.6, 107292-06* (Solaris 7), 109189-02* (Solaris 8); 6730A: 105375-22* (Solaris 2.6), 107469-02* (Solaris 7), 1094600-02* (Solaris 8) ---------- * or later	6729A: 10399-02 or later; 6730A: 109400-02 or later

Host OS	Host Server Platform	Sun StorEdge Component Manager Station	HBA Model	HBA Driver Version	HBA Firmware Version
Microsoft Windows NT v4.0 SP6	Intel Pentium	Ultra 5 workstation or higher on Solaris Operating Environment	Qlogic QLA2200F/66; Emulex LP8000-F1/N1	v7.05 v4.31	v1.61 v3.03x10/1.51a1
HP-UX v11.0	HP N- or L- class	Ultra 5 workstation or higher on Solaris Operating Environment	HP A3740A NOTE: Do not use with HP A5158A* ---------- Sun StorEdge T3 array firmware v1.14 is only compatible with the HP A3740A host bus adapter (HBA)	B.11.00.03 Tachyon FC	v3.0
IBM AIX v4.3.3	IBM RS/6000	Ultra 5 workstation or higher on Solaris Operating Environment	IBM FC#6227	devices.pci.df1000f7.rte.v4.3.3.25	SF320.A9
Linux Vers: GNU/Debian; Caldera Open Linux; E-Server v2.3; Red Hat v6.2; SuSe v6.4; Turbo Linux Server v6.0	Intel Pentium	Ultra 5 workstation or higher on Solaris Operating Environment	Qlogic QLA2200F/66	2.2.15 kernel with UNH patch for failover (Note: Use the driver version embedded in the kernel, not the one posted on the Qlogic web site.	v1.61

Licensing/Usage

Multiplatform host support for Sun StorEdge T3 arrays is free under the Sun Binary Code License Agreement.

Ordering Information

Sun StorEdge™ T3 Array Multiplatform Support Ordering

Sun-supplied fail-over drivers for non-Sun/Solaris host platforms are free. The URL for linking to each download site for each Sun-supplied non-Solaris fail-over driver is:

http:/www.sun.com/storage/t3es/multi_platform.html

Service and Support

The SunSpectrum℠ program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission-critical support for maximum solution availability to backup assistance for self-support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris™ Operating Environment software, and telephone support for Sun™ software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value that it represents. Customers should check with their local Sun Enterprise Services representatives for program and feature availability in their areas.

SunSpectrum program support contracts are available both during and after the warranty program. Customers may choose to uplift the service and support agreement to meet their business needs by purchasing a SunSpectrum contract. For more information on the SunSpectrum program offerings refer to the following URL:
`http://service.central/TS/ESP/SunSpectrum/Feature_Matrix/index.html`.

The four levels of SunSpectrum support contracts are outlined below.

Program	Description
Mission-Critical SunSpectrum Platinum℠ Support	Designed to support client-server, mission-critical solutions by focusing on failure prevention, rapid recovery, and year round technical services planning. Support is provided 24 x 7.
Business-Critical SunSpectrum Gold℠ Support	Includes a complete package of proactive and responsive services for customers who require maximum uptime for their strategic business critical systems. Support is provided 24 x 7.
System Coverage SunSpectrum Silver℠ Support	Combines the service expertise, responsive on-site support, technical support by telephone, and SunSolve™ CD/on-line services. Support is provided 8 a.m. to 8 p.m. Mon. through Fri.
Self-Directed SunSpectrum Bronze℠ Support	Provided for customers who rely primarily upon their own in-house service capabilities. Enables customers to deliver high-quality service by giving them access to UNIX® expertise, Sun-certified replacement parts, software releases, and technical tools. Support is provided 8 a.m. to 5 p.m. Mon. through Fri.

Glossary

Block	An overly used term. Often used to describe the amount of data sent or received by the host per I/O operation. Also used to describe the size of an atomic read/write operation to/from a disk. In the context of the Sun StorEdge™ T3 array, represents the size of each cache buffer, and also the disk interleave factor (also known as stripe unit, chunk, interlace factor). Sun StorEdge T3 array block size can be 16, 32, or 64 KB.
Bus	A point-to-point network component. Used by Sun™ Management Center software to represent a network link to which many other hosts may be connected.
Channel	An interface directed toward high-speed transfer of large amounts of information.
Chunk	A quantity of information that is handled as a unit by the host and disk device.
Controller unit	The standalone controller unit is the smallest possible array configuration. The architecture integrates disks, data cache, hardware RAID, power, cooling, uninterrupted power supply (UPS), diagnostic capabilities, and administration into a versatile, standalone component. The controller unit includes external connections to a data host (or hub or switch), and to a management network.
Disk array	A subsystem that contains multiple disk drives, designed to provide performance, high availability, serviceability, or other benefits.
Disk group	A grouping of disk drives and the data on them that facilitates organization and the movement of disks between systems.
Event	A change in the state of a managed object.
Fabric	A group of interconnections between ports that includes a fabric element.
FC-AL	Fibre Channel arbitrated loop, a loop topology used with Fibre Channel.
Fiber	A wire or optical strand. Spelled *fibre* in the context of Fibre Channel.
Fiber-optic cable	Jacketed cable made from thin strands of glass, through which pulses of light transmit data. Used for high-speed transmission over medium to long distances.
Frame	An indivisible unit for transfer of information in Fibre Channel.
FRU	Field replaceable unit.
Full duplex	A communications protocol that permits simultaneous transmission in both directions, usually with flow control.
GBIC	Gigabit interface converter.

GUI	Graphical user interface. The GUI provides the user with a method of interacting with the computer and its special applications, usually via a mouse or other selection device. The GUI usually includes such things as windows, an intuitive method of manipulating directories and files, and icons.
Heterogeneous hosts	Various application servers that run the Solaris™ Operating Environment or Microsoft Windows NT Server operating environment and are attached to the same storage.
Hot-plug	A hot-plug component means that it is electrically safe to remove or add that component while the machine is still running. Typically, the system must be rebooted before the hot-plug component is configured into the system.
Hot spare	A drive in an array that is held in reserve to replace any other drive that fails. Hot spares are continuously powered up and spinning. This allows the array processor to have immediate access to a functioning drive for possible reconstruction of lost data.
Hot-swap	A hot-swap component can be installed or removed by simply pulling the component out and putting the new one in. The system will either automatically recognize the component change and configure itself as necessary or will require user interaction to configure the system; however, in neither case is a reboot required. All hot-swappable components are hot pluggable, but not all hot-pluggable components are hot-swappable.
Hub	A device for connecting fiber cables.
Interleaved memory	Helps reduce memory access time by permitting multiple memory components to operate in parallel. Memory is divided into *n* banks arranged so that every *n*th byte is supplied by a different memory bank. In a two-way interleaved system, the first double word is supplied by bank 0 while the second is supplied by bank 1. Normally, the size and extent of interleave is arranged so that a single typical request is satisfied by as many banks as possible. This arrangement permits a single memory request to be fulfilled without waiting for memory recycle time.
I/O rate	A measure of a device's capacity to transfer data to and from another device within a given time period, typically as I/O operations per second.
IOPS	Input/output operations per second. A measure of I/O performance, this is commonly used to quote random I/O performance.
IP	Internet protocol. A set of protocols developed by the United States Department of Defense to communicate between dissimilar computers across networks.
Link	One inbound fiber and one outbound fiber connected to a port.
LRC	Loop redundancy circuit

MIA	Media interface adapter. A small electronic device that converts electrical signals to optical signals. It performs that same function as a gigabit interface converter (GBIC) but is installed on the outside of the storage array. Sun selected the MIA so the installed base of PCI and SBus host bus adapters could be used with this new generation of storage arrays.
Micron	One millionth of a meter. Also called *micrometer*.
Mirror synchronization	The process by which VERITAS Volume Manager software keeps two or more copies of data identical.
Mirroring	In RAID terminology, refers to the redundant storage of data, either by duplicating the exact data or generating parity data bit-for-bit.
Module	A software component that may be loaded dynamically to monitor data resources of systems, applications, and network devices.
Multimode fiber	An optical wave guide which allows more than one mode (rays of light) to be guided.
Network	An arrangement of nodes and connecting branches, or a configuration of data processing devices and software connected for information exchange.
N_Port	A port attached to a node for use with point-to-point or fabric topology.
NL_Port	A port attached to a node for use in all three topologies (point-to-point, arbitrated loop, or fabric.
Node	A device that has at least one N_Port or NL_Port.
NVRAM cache	A non-volatile (battery-backed) random access memory area used as an intermediate store for data between a host computer system and disk drives.
Optical fiber	Any filament of fiber, made of dielectric material, that guides light.
Packet-switched bus	A bus in which information is transmitted in fixed-sized units. This type of bus is often associated with the use of split transactions. Gigaplane™ and UPA are packet-switched buses.
Parity	In an array environment, data that is generated from user data and is used to regenerate user data lost due to a drive failure. Used in RAID 5.
Partner group	Two controller units may be paired in a *partner group* to create a configuration with redundant controllers, redundant data, and management paths, allowing for cache mirroring, controller failover, and path failover capability. The partner group is thus the minimum storage configuration for enterprise environments that call for high availability. As with standalone controller units, partner groups may be configured with additional units to double capacity and/or spindle count.
Point-to-point	A topology where exactly two ports communicate.
RAID	Redundant array of independent disks. A set of disk drives that appear to be a single logical disk drive to an application such as a database or file system. Different RAID levels provide different capacity, performance, high availability, and cost characteristics.

Read-ahead	Sequential data that has been read from disk into cache without having actually been requested by the application host, in anticipation that it will be requested by the host. When the request occurs, it can be serviced as a low latency cache hit, thus improving host application performance.
Receiver	The circuitry that receives signals on a fiber, and the ultimate destination of data transmission.
Reconstruction	The process of rebuilding lost data on a replacement drive after a drive failure.
Redundancy	Duplication for the purpose of achieving fault tolerance. Refers to duplication or addition of components, data and functions within the array.
Responder	The logical function in an N_Port responsible for supporting the exchange initiated by the originator in another N_Port.
SAN	Storage area network. SAN architecture uses high-performance, high-capacity Fibre Channel switches to connect storage islands. This approach provides physical connectivity, but does facilitate information sharing or simplify management across servers.
Segment	Another overly used term; in the context of the Sun StorEdge T3 array, 1/8 of a cache buffer. In the Sun StorEdge T3 array, a segment is the smallest size of I/O possible between cache and disk. Segment size is 2, 4, or 8 KB, depending on block size.
Serial transmission	Data communication mode where bits are sent in sequence in a single fiber.
Single-mode fiber	A step index fiber wave guide in which only one mode (ray of light) will propagate above the cutoff wavelength.
Stripe size	Total amount of data in a disk stripe; i.e. block size multiplied by number of data disks in the stripe.
Stripe width	Total number of disks in a disk stripe.
Striping	Spreading or interleaving logical contiguous blocks of data across multiple independent disk spindles. Striping allows multiple disk controllers to simultaneously access data, improving performance.
Switch	The name of an implementation of the fabric topology.
Switched-loop architecture	Splits the drive interface into multiple, independent loops so that the RAID controller has its own drive loop, plus access to other drive loops. Improves performance and expansion flexibility for enterprise networks.
Topology	The components used to connect two or more ports together. Also, a specific way of connecting those components, as in point-to-point, fabric, or arbitrated loop.
Transceiver	A transmitter/receiver module.
Transfer rate	The rate at which bytes or bits are transferred, usually measured in megabytes per second.

Volume	A volume is a virtual disk into which a file system, DBMS, or other application can place data. A volume can physically be a single disk partition or multiple disk partitions on one or more physical disk drives. Applications that use volumes do not need to be aware of their underlying physical structure. Software handles the mapping of virtual partition addresses to physical addresses.
Write-behind mode	A data write is acknowledged to the application host as soon as it is in (mirrored) cache, without having yet been committed to disk, in order to reduce write latency. Also known as write-back or fast-write mode.
Write-through mode	A data write is acknowledged only when data is fully committed to disk.

Materials Abstract

All materials will be available on SunWIN except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
PowerPack				
– *Sun StorEdge™ T3 Array Multiplatform Support, Just the Facts*	Reference Guide (this document)	Sales Tool, Training	SunWIN, Reseller Web	127758
– *Sun StorEdge T3 Array, Just the Facts*	Reference Guide	Sales Tool, Training	SunWIN, Reseller Web	112864
– *Sun StorEdge T3 Array Customer Presentation*	Presentation Overview; Slide Notes for Presentation	Sales Tool	SunWIN, Reseller Web	120838
– *Sun StorEdge T3 Array Technical Presentation*	Presentation with Slide Notes	Sales Tool	SunWIN, Reseller Web	120839
– *Sun StorEdge T3 Array Multi-Platform Presentation*	Presentation with Slide Notes	Sales Tool	SunWIN, Reseller Web	125114
Product Literature				
– *Sun StorEdge T3 Array Quick Reference Card*	Quick Reference Card	Sales Tool	SunWIN, Reseller Web	73691
– *Literature: Sun StorEdge T3 for the Workgroup Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web, COMAC	DE1074-0 108576
– *Literature: Sun StorEdge T3 for the Enterprise Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web, COMAC	DE1165-0 117451
– *Sun StorEdge T3 Array Elevator Pitch*	Presentation with Notes	Sales Tool	SunWIN, Reseller Web	120363
– *Sun StorEdge T3 Array FastFacts*	Fast Facts	Sales Tool	SunWIN, Reseller Web	120364
White Papers				
– *Sun StorEdge T3 Array Performance Tuning White Paper*	Technical Brief	Sales Tool, Training	SunWIN, Reseller Web	119879
– *Sun StorEdge T3 Architecture White Paper*	Technical Brief	Sales Tool, Training	SunWIN, Reseller Web	120366
– *Fibre Channel Technology from Sun Microsystems*	Technical Brief	Sales Tool, Training	SunWIN, Reseller Web	65659
– *Fibre Channel versus Alternative Storage Interfaces: An Overview*	Technical Brief	Sales Tool, Training	SunWIN, Reseller Web	65663

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Quote Sheets				
– *Customer Quote Sheet for Sun StorEdge T3 Array*	Quote Sheet	Sales Tool	SunWIN, Reseller Web	119896, FE1270-0
– *T3 partner Quote Sheet for the Sun StorEdge T3 Array*	Quote Sheet	Sales Tool	SunWIN, Reseller Web	119934
Success Stories				
– *AB Watley Success Story*	Success Story	Sales Tool	SunWIN, Reseller Web	120147
– *Network Commerce Inc. Success Story*	Success Story	Sales Tool	SunWIN, Reseller Web	120005
– *Bluelight Success Story*	Success Story	Sales Tool	SunWIN, Reseller Web	120003
Competitive				
– *CLARiiON Beat Sheet Competitive White Paper*	Competitive White Paper	Training	SunWIN	112069
– *EMC Beat Sheet Competitive White Paper*	Competitive White Paper	Training	SunWIN	109825
– *Sun StorEdge T3 Array Competitive Presentation*	Competitive Presentation	Sales Tool	SunWIN, Reseller Web	120840
– *Sun StorEdge v. EMC Pocketfacts*	Pocket Facts	Training	SunWIN	117277, BE962-0
– *Competitive Edge Sun StorEdge T3 Solution vs. CLARiiON FC4500*	Competitive White Paper	Training	SunWIN	120367
– *Competitive Edge Sun StorEdge T3 Solution vs. Compaq RA8000*	Competitive White Paper	Training	SunWIN	120368
– *Competitive Edge Sun StorEdge T3 Solution vs. EMC 8430*	Competitive White Paper	Training	SunWIN	120369
External Web Sites				
– *Link to Download Site for Multi-Platform Support*	`http://www.sun.com/storage/t3es/multi_platform.html`			
– *Sun StorEdge Array Main Page*	`http://www.sun.com/storage/disk.html`			
– *Fibre Channel Association*	`http://www.fibrechannel.com`			
– *Fibre Channel Loop Community*	`http://www.fcloop.org`			