

Sun Storage 7000 Unified Storage System

External Overview and Frequently Asked Questions

Overview

The Sun Storage 7000 Systems is a family of unified storage systems that deliver enterprise-class data services, file and block level support, scale, and performance, and a set of new storage innovations, at significant cost savings. All Sun Storage 7000 products feature a common, built-in, easy-to-use management interface that requires no additional training. These systems have the industry's most comprehensive analytics environment including innovative new tools to help isolate and resolve issues to minimize impact to your business. These systems are the only storage systems with Hybrid Storage Pools that automatically optimize performance while lowering your power and cooling requirements. The Sun Storage 7000 family delivers breakthrough performance while radically simplifying the way you manage your storage with breakthrough cost savings, speed and scale.

Sun Storage 7110 Unified Storage Solution

The Sun Storage 7110 is an entry level unified storage appliance that offers simplified installation, administration and problem solving with the standard Analytics tool. It is ideal for companies who simply want enterprise features at entry level pricing, with no need for high availability clustering, and who require simple ways to manage their storage. The Storage 7110 is offered in 2TB or 4TB capacity. This model does not support expansion units for additional capacity, currently the maximum capacity of 4TB.

Sun Storage 7310 Unified Storage Solution

The Sun Storage 7310 redefines mission-critical entry storage for the Enterprise, with simplified management, performance, efficiency and seamless expansion to meet your growing needs. It provides a high-availability cluster option with scalability up to 96TB raw capacity, and supports the hybrid storage pool that can be configured with up to 600GB of read-cache and optional write-optimized cache for enhanced application performance.

Sun Storage 7410 Unified Storage Solution

The Sun Storage 7410 is an enterprise-class unified storage system that radically simplifies storage management, from simple installation and administration to capacity scaling and problem solving capabilities with the integrated Analytics tool. It is ideal for enterprises requiring mission-critical and high performance storage, with dramatically easier and faster way to manage and scale their storage. The Storage 7410 scales up to 576TB with 2TB drives, and supports a hybrid storage architecture, combining Read and Write optimized Flash Accelerators (SSDs) with high-capacity 7200 RPM drives to deliver superior performance and capacity at lower cost and energy consumption.

Software

All the different models of the Sun Storage 7000 family of products use the same operating system, providing simplified storage management, comprehensive analytics environment, and data services that are common across all the member of the family, simplifying an administrator's job of managing different appliances. The Storage 7000 software consists of a storage-optimized distribution of Solaris, and a web UI management application with specialized data services such as replication and clustering (based on Fishworks technology), that are only available for these unified storage systems. With the exception of some features (such as clustering which is only available for the 7310 and 7410 models), all other features are available in all the models of the Sun Storage 7000 family of products.

Customer Benefits

Easy to deploy, analyze, and optimize

Provisioning and management is dramatically simplified in Sun Storage 7000 series systems through the easy-to-use management interface, that requires no additional training and

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takes the guess work out of system installation, configuration, and tuning. DTrace Analytics is the industry's only and intuitive analytics environment that provides storage administrators with the tools to optimize the configuration of their storage system and maximize performance to address their application requirements.

Rapidly diagnose, troubleshoot and resolve issues

DTrace Analytics provides real-time analysis of the Storage 7000 System and of the enterprise network, from the storage system to the clients accessing the data. This unprecedented tool permits administrators to quickly find and troubleshoot issues affecting the system performance, minimizing impact to business productivity. The data can be saved for further analysis to better understand the network, application and system behavior.

Breakthrough Economics

The Sun Storage 7000 family are the only storage systems with a Hybrid Storage Pool that combines DRAM, write-optimized SSD, read-optimized SSD with high-capacity and low cost enterprise class drives. This new storage design uses the low latency of SSDs to increase performance for both write and read oriented applications, rendering the use of 15K rpm drives unnecessary, while using high capacity SAS drives to deliver not only superior performance but also high capacity at lower cost and lower energy consumption. In addition, all software features are included with the price of the product, which combined with the benefits that the Hybrid Storage Pool provides, enables the Sun Storage 7410 achieve a price advantage of up to 60% less than equivalent competitive solutions.

Most comprehensive self-healing storage system

The Sun Storage 7000 systems include FMA (Failure Management Architecture) which provides the capability to

detect and take faulty hardware components offline in order to prevent system disruption. In addition, to avoid accidental data corruption, the ZFS file system provides memory-based end-to-end data and metadata checksumming with self-healing capabilities to fix potential issues. FMA combined with ZFS data integrity facilities, make the sun Storage 7000 the most comprehensive self-healing unified storage system.

Frequently Asked Questions

What's new in the latest update to the Sun Storage 7000 Unified Storage System?

This is a significant update to the Sun Storage 7000 product line that includes built-in in-line Deduplication, Fibre Channel protocol support, and 1TB and 2TB SAS disk drives - doubling the maximum capacity to 576TB (on the 7410). This announcement dramatically lowers our customer's cost of storing and managing data (with deduplication) and expands the usage of the Sun Storage 7000 into Fibre Channel Storage Area Networks, allowing these customers to take advantage of the Sun Storage 7000's advanced Analytics, data protection features like Snapshots and Replication, and unprecedented Flash accelerated Hybrid Storage Pool driven performance. The 7000's combination of analytics, data services and data protection features, performance and low cost were previously inaccessible by this customer base. The 1TB and 2TB SAS drives provide double the capacity, use higher bandwidth technology - from 3Gb/s to 6Gb/s, and deliver improvements for added high availability for improved business uptime. In summary, dramatically reduced costs, expanded deployment options, improved capacity, and availability.

What else is new in this latest update?

The following additional software features are part of the latest Sun Storage 7000 release:

- iSER/SRP, two InfiniBand block protocols.

- Kerberized NFS for enhanced security.

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-VSS block target provider for Windows VSS Service allowing snapshots to be coordinated with applications to assure data consistency.

-CIFS access-based enumeration that permits users to see only those CIFS files to which they have access, allowing users in many-client environments with shallow directory hierarchies to not be overwhelmed with files that they cannot access.

-Multi-interface iSCSI targets, allowing for better integration with some multipath initiators.

-Multiple pool support to better support large, multi-tenancy environments.

-Additional replication features to enhance the user experience and management of replicated data.

-Oracle Enterprise Manager Grid Control application-plug in provides an integrated database to Sun Storage 7000 storage view allowing for simple diagnosis of application delivery problems (performance, downtime, capacity) and determining storage impact on application development.

Are these extra cost features?

No, all these features come standard with every Sun Storage 7000. What's more, the software features are available for free down-load to all current Sun Storage 7000 customers under support contract. (Oracle Enterprise Manager Grid control is an extra cost option to Oracle 11g Database.)

Do the Software Features for Sun Storage 7000 need to be ordered separately?

No. All software features are included with the standard pricing of the appliance.

What is the Oracle Enterprise Manager Grid Controller, and what does the S7000 Plug in allow me to do?

Oracle Enterprise Manager Grid Controller is an enterprise class monitoring and management tool for Oracle Databases

and their associated applications. It provides a central dashboard or a "Single Pane of Glass" view of all instances of the Oracle Relational Database Management System(RDBMS) within an entire IT architecture locally as well as geographically.

The OEMGC Plug In for the SS7000 is a software component that installs as a Plug In to the Oracle RDBMS which gives visibility to all SS7000 systems that host Oracle RDBMS databases and their associated componentry such as Indexes and other related subsystem files.

More information on OEMGC:

<http://www.oracle.com/us/products/enterprise-manager/index.html>

What's different about the 7000's deduplication compared to other Unified Storage Systems offering deduplication?

Unlike other Unified Storage Systems, deduplication occurs in-line on Sun Storage 7000. This means data is deduplicated as its being created. On other systems, the deduplication process is run as a daily scheduled process, at night for example, to limit system performance degradation. The Sun Storage 7000 can run dedup inline because it has far more processors available in the system and an efficient multithreading operating system (Solaris) that can take advantage of them. In addition, ZFS's large, 256-bit checksum compared to 16-bit checksums on other systems also allows for much more efficient deduplication. The Sun Storage 7000 can also deduplicate across much larger pools (up to 576TB on current systems) compared to 16TB pools on competitive systems – meaning more data can be deduplicated.

What's significant about the 7000's new Fibre Channel capabilities?

With this update, the Sun Storage 7000 can now provide its Analytics and data protection capabilities, in addition its comparative performance and cost advantages to an FC SAN

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environment for the first time. The 7000 supports both 4Gb and 8Gb per second speeds.

With the addition of Fibre Channel, how does the Sun Storage 7000 overall protocol coverage stack up?

The Sun Storage 7000 has one of the widest coverage of file and block access protocols for a Unified Storage System: NFS, RDMA, ISER and SRP over Infiniband, FCP over Fibre Channel, and iSCSI, NFS and CIFS over 10GbE and 1Gbit Ethernet.

What is the Microsoft Volume Shadow Copy (VSS) Plug-In, and what does the S7000 Plug-in allow me to do?

The Microsoft Volume Shadow Copy facility or VSS is a technology included in Microsoft Windows that allows taking manual or automatic backup copies or snapshots of data. The Microsoft Volume Shadow Copy facility or VSS facility is implemented within the Microsoft Windows operating system using the Microsoft Volume Shadow Copy Service. Snapshots have two primary purposes: they allow the creation of consistent backups of a volume, ensuring that the contents cannot change while the backup is being made; and they avoid problems with file locking. By creating a read-only copy of the volume, backup programs are able to access every file without interfering with other programs writing to those same files.

The Sun Storage 7000 Provider for VSS Software 1.0 is a Hardware Provider that plugs into the Microsoft VSS Framework on Microsoft Windows 2003 and 2008, 64-bit or 32-bit variations. Using the provider, backup applications and other requestors can make snapshots and clones directly on Sun Storage 7000 Appliances for iSCSI LUNs consumed by the Microsoft Windows Client on the system that the Hardware Provider is installed on. The VSS service is a framework within the Microsoft Windows architecture that facilitates creating fast and consistent snapshots of volumes through the coordination of those applications doing backup-type

operations (readers) and the applications that are writing to volumes (writers).

How does the snapshot capability work within the Sun Storage 7000?

A snapshot is a read-only copy of a file system or volume. Snapshots can be created almost instantly, and initially consume no additional disk space within the pool. However, as data within the active dataset changes, the snapshot consumes disk space by continuing to reference the old data and so prevents the space from being freed.

ZFS snapshots include the following features:

- Persist across system reboots.
- The theoretical maximum number of snapshots is 2^{64} .
- Use no separate backing store.
- Snapshots consume disk space directly from the same storage pool as the file system from which they were created.
- Recursive snapshots are created quickly as one atomic operation. The snapshots are created together (all at once) or not created at all. The benefit of atomic snapshots operations is that the snapshot data is always taken at one consistent time, even across descendent file systems.
- Snapshots of volumes cannot be accessed directly, but they can be cloned, backed up, rolledback to, and so on.

What RAID levels are supported on the Sun Storage 7000?

The Sun Storage 7000 supports RAID 0 (striping), and RAID 1+0 (striped mirrors), RAID-Z (similar to RAID 5), RAID-Z2 (similar to RAID 6 or RAID-DP) and Triple parity RAID.

Is there any limit to the size of a storage pool?

There is no limit to the size of a pool, other than the disk capacity in the system.

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Does the Sun Storage 7000 provide per user quotas?

Yes, user quotas are supported.

Does adding additional disk arrays require downtime?

No downtime is required to add a disk array to an existing SAS HBA in the controller.

How fast is the Sun Storage 7000?

Sun Storage 7000 performance is described at these two sites:

http://blogs.sun.com/brendan/entry/my_sun_storage_7410_perf

http://blogs.sun.com/roch/entry/compared_performance_of_sun_7000

How do I purchase this product?

Contact your Oracle sales representative or Oracle's authorized partner.

What is the standard warranty?

The Sun Storage 7000 features a standard 1 year warranty with a variety of cost effective service optioned designed to meet your specific business requirements.

Is there a trade-in program for older Sun Storage 7000 configurations?

A UAP (upgrade allowance program) is in place for trade-ins on Sun Storage 7000 Unified Storage Systems. Not only Sun qualified products, but also competitive Unified Storage Products can be traded-in. You can contact your Oracle sales representative directly or call 1-800-Oracle1 for more information on this service.

Are there data migration services and tools available to assist customers in moving to the SS7000 platform?

Yes, the Sun Unified Storage Data Migration Service migrates customer's source data (EMC, NetApp, Sun 5320) to the Sun Storage 7000 Unified Storage System. You can contact your

Oracle sales representative directly or call 1-800-Oracle1 for more information on this service.

Are there any customer training courses available?

Yes, NWS-6425 Sun Storage 7000 Unified Storage System Administration training is available. Contact your Oracle sales representative directly or call 1-800-Oracle1 for information.

Is there a way to try out the Sun Storage 7000 System features without having to buy one?

Yes, you can work with a fully functional Sun Storage 7000 by downloading the Sun Storage 7000 simulator at

<http://www.oracle.com/us/products/servers-storage/storage/open-storage/>

Where can I find more information about the Sun Storage 7000 Unified Storage System?

You can contact your Oracle sales representative directly or call 1-800-Oracle1. For more information about the Sun Storage 7000 Unified Storage System or visit the following URL on the web:

<http://www.oracle.com/us/products/servers-storage/storage/open-storage/>

The data sheet for the Sun Storage 7000 Unified Storage System can be found at:

<http://www.oracle.com/us/products/servers-storage/039224.pdf>

Where can I find the Data Sheet for the Oracle Enterprise Manager Grid Controller Plug In for the Sun Storage 7000?

[< Need URL Link here >](#)



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