

Sun Storage 7000 Unified Storage Systems: Open Storage for High Performance Trading and Real-Time Financial Analysis

A family of appliances that radically simplifies storage with breakthrough price/performance.

The challenge

In order to instantaneously develop trading strategies, real time shared access and processing of stock trading and market data is a primary requirement in Financial Services. Typically, this is a highly parallel application, requiring shared access to the same data and filesystem by several hundred compute nodes simultaneously. To date, no storage vendor has been able to meet this requirement to the industry's satisfaction. Series 7000 Unified Storage application benchmarking and profiling by leading financial institutions has led to extremely positive results.

Next-generation trading architectures have to respond to the increased demands for speed, volume, and efficiency. Sun Storage 7000 Unified Storage Systems meet these needs by reducing latencies across different trading components deployed in a cluster, while also significantly lowering costs of acquisition and operation compared to conventional storage architectures.

Closing the critical processor-storage latency gap with the Sun Storage 7000 Series

Today's high performance multi core

Highlights

- Superior performance and lower energy consumption at up to 75% less the cost of competitive solutions
- Active-active architecture option enables high performance and high availability
- Optimized storage hierarchy with Hybrid Storage Pools containing DRAM, SSD, and HDD drives
- Scalability in multiple dimensions to adapt to your changing business needs by increasing compute power, storage capacity, or performance independently
- Eco-efficiency due to reduced power consumption of SSD and HDD disk drives rather than high RPM drives

Financial Trading Analysis application performance has doubled with Series 7000 Unified Storage compared to incumbent, expensive, proprietary solutions.

The financial industry today faces an unprecedented number of market wrenching challenges due to growing volumes of market data, algorithmic trading, enactment of trading regulations, higher demands of real time processing, and ultra low latency requirements. Financial institutions are under tremendous pressure to constantly re-architect their systems, find innovative ways to stay ahead of competition and deal with the highly volatile market dynamics. Today's financial institutions require a new type of IT solution that can adapt immediately, deliver high performance, high availability, and ensure data integrity with lower total cost-of-ownership (TCO) and faster deployment speeds.

processors are capable of accessing and consuming data far in excess of what conventional disk-based storage architectures can provide. Modern CPUs are capable of processing nearly one million Input/Output Operations Per Second (IOPS), far outstripping today's fastest disk drives which are only capable of 300-400 IOPS—creating a gaping latency gap.

Sun has developed an innovative storage architecture specifically optimized to keep up with today's data hungry processors—the Sun Storage 7000 Unified Storage System with groundbreaking Hybrid Storage Pool technology. The Sun Storage 7000 Hybrid Storage

Pool (available on 7210 and 7410 models) deftly combines strategically positioned lightning-fast flash-based Solid State Drives (SSD) with the advanced data placement capabilities of the Zettabyte File system (ZFS) to dramatically improve application performance and operating efficiency at substantially reduced cost compared to conventional storage systems. The ZFS file system transparently manages data placement, directing frequently used data to fast SSDs and less-frequently used data to slower, mechanical disks. The application data set can now be completely isolated from slower mechanical disk drives, unlocking new levels of performance and cost effectiveness. Requiring no administrator intervention, ZFS transparently caches data on SSDs, dramatically reducing latency and I/O performance bottleneck. Deploying the Series 7000 in a Trading Cluster results in lower latency for trading applications requiring shared access to data — combined with extremely high bandwidth for all nodes in the cluster that need to access the same data simultaneously. The Sun Storage 7000 Unified Storage System utilizing Storage Analytics, Hybrid Storage Pool technology and the ZFS filesystem provide high performance NFS storage and throughput for Financial Trading applications with extremely positive results.

Sun's Open Storage architecture spurs innovation and lowers costs

Traditional storage architectures have been closed and proprietary, creating vendor “lock-in” to a slowly innovating technology platform and creating a huge barrier to exit when attempting respond quickly to market forces with alternative solutions. Sun Open Storage combines open-source software with industry

standard hardware, enabling you to reduce your reliance on high-priced systems and save up to 90% on storage costs.

Sun Storage 7000 Series

The Sun Storage 7000 series is a family of unified storage systems that offers new innovations in storage, including enterprise-class data services, massive scale, and superior performance while delivering significant cost savings. The family ranges from the extremely cost effective 7110 Unified Storage Appliance scaling to 2 TB to the extremely densely packaged, Hybrid Storage Pool Architecture enabled, 7210 Unified Storage Appliance scalable to 48 TB, up to the high performance, high capacity, Hybrid Storage Pool Architecture enabled 7410 Unified Storage Appliance scalable to 288 TB capacity.

Breakthrough speed, simplicity and cost savings

The Sun Storage 7000 Unified Storage Systems family has radically simplified management, costs up to 75% less, and requires minimal training to configure and administer. These systems include the industry's simplest and most comprehensive analytics environment and innovative new tools to help isolate and resolve issues to minimize impact to your business. The Sun Storage 7000 series is based on cost efficient industry standard components and a robust open source software stack built from the enterprise hardened OpenSolaris™ OS, and supported by a passionate, global community of developers and ISVs.

Real-time visibility radically simplifies the way you manage data

Sun Storage 7000 Unified Storage provides an intuitive environment for administration tasks, visualizing concepts and

analyzing performance data. DTrace analytics capabilities include real time statistical graphs to help locate and isolate problems, and optimize storage performance and capacity utilization. DTrace drill down analytics quickly narrow the focus to the most likely troubled areas (network bytes/sec, NFS ops/sec, disc ops/sec, CPU utilization) while an easy to read dashboard summarizes the status of the appliance software and hardware and displays status for disk usage, main memory usage, appliances services (NFS, CIFS, http, etc.), hardware, activities statistics, and recent appliance alerts.

Capacity performance

Sun Storage 7110

- 8 GB RAM
- Up to 2 TB

Sun Storage 7210

- 32 GB and 64 GB RAM options
- Up to 48 TB
- Extremely high density

Sun Storage 7410

- 16 GB, 64 GB, and 128 GB RAM options
- Up to 288 TB*
- Cluster high availability option
- Hybrid Storage Pool I/O Acceleration

* Up to 576 TB coming soon

Services and support

Sun's deep technical expertise and proven implementation and migration tools makes it easy to deploy the Sun Storage 7000 Unified Storage System and help you architect, implement, manage and support your entire network infrastructure. Sun Services mitigate the risk of downtime, data loss, and costly delays and provide the expertise to help ensure that your systems are running at an optimal level right from the start.