INCORPORATING EFFICIENCY WITH EASY AND COMPREHENSIVE STORAGE MANAGEMENT

KEY FEATURES AND BENEFITS

UNPRECEDENTED
OBSERVABILITY, COST-SAVING PERFORMANCE
ACCELERATION, AND
SUPERIOR DATA
PROTECTION

FEATURES

• Unprecedented observability with DTrace Analytics software
• Automated optimization across multiple storage tiers with Hybrid Storage Pools
• Greater capacity efficiency with both data compression and deduplication
• Support for triple mirroring to help increase random read performance for applications such as databases
• Protection from as many as three drive failures with triple parity RAID
• Seamless multiprotocol integration and secure data sharing between Microsoft Windows and UNIX® clients

BENEFITS

• Easy for administrators to find and fix issues as well as optimize performance
• Ability to deliver greater performance at less cost
• Reduced storage complexity and increased efficiency
• Up and running in minutes, not hours or days
• Increased data integrity and reduced risk of data loss

Storage management has become a key ingredient for success with today’s data-intensive application environments. From the workgroup to the enterprise, Sun™ Storage 7000 software simplifies storage management and enables you to increase application performance and reliability while also driving down costs. Its easy-to-use interface and comprehensive analytics gives you everything you need to increase storage efficiencies and quickly resolve issues.

Facing High Costs and Growing Complexity

High costs, demanding throughput requirements, and growing complexity are driving the need for a new approach to today’s storage solutions — one that can yield greater storage efficiency as well as simplified storage management. Storage administrators often have too little time or lack the proper tools to optimize performance and efficiency for their storage environments. As a result, application performance often suffers.

Sun Storage 7000 Software

Sun Storage 7000 software enables you to achieve unmatched simplicity and ease-of-use through revolutionary business analytics functionality, an easy-to-use graphical management interface and a rich set of data services. It also includes Hybrid Storage Pools to enable breakthrough performance and scalability at dramatically lower prices by transparently optimizing performance across multiple types of storage media.

Transparent Optimization with Hybrid Storage Pools

Hybrid Storage Pools provide the foundation that enables Sun Storage 7000 systems to deliver radically simplified storage and breakthrough economics. As shown in Figure 1, Hybrid Storage Pools provide transparent management across read and write cache areas based on high performance media as well as more cost-effective high capacity storage. The Hybrid Storage Pools have been designed to automatically recognize different I/O patterns and place data in the best storage media for optimal performance.

Your application simply interacts with the file system without requiring knowledge of Hybrid Storage Pools or the underlying storage media. Sun Storage 7000 software transparently manages the process of copying frequently accessed data into the read cache and then satisfying read requests from the most optimal path. This intelligent management of the read cache can deliver dramatic gains in random read performance when leveraging low latency media such as solid-state disks (SSDs).
“In 11 years of managing storage arrays, I’ve never had so much detailed information about exactly what is going on inside the storage system aside from how many IOPS. I’ve worked with almost all of the big names on some very high-end systems (EMC Symmetrix & Clarion, Hitachi 9900, NetApp & StorageTek) and DTrace Analytics is several orders of magnitude better than any other storage management software or debugging tool I’ve ever worked with. Good job!”

DAVID ROBILLARD
UNIX team leader & Oracle DBA, Notarius

WHAT CUSTOMERS ARE SAYING

Figure 1. Hybrid Storage Pools transparently manage data placement.

Writes to disk are also accelerated by using a temporary write cache, usually based on write-optimized SSDs. Writes are then be quickly acknowledged so that the application can continue processing without waiting until the data is written to the high capacity storage area as a background task.

Breakthrough Economics

Hybrid Storage Pools change the economics of storage by enabling you to achieve very high throughput without the need for expensive 15,000 RPM drives. They allow you to combine SSDs with high capacity drives (such as 1TB 7200 RPM drives) and achieve high performance at a cost that is dramatically lower than with a disk-only solution. Power and cooling costs can also be reduced because SSDs and high capacity drives require much less power and cooling than 15,000 RPM drives.

Sun Storage 7000 software, which is bundled with Sun Storage 7000 Systems at no extra charge, also contains a host of other software features. While many other vendors charge additional license fees for protocols and data services such as CIFS, NFS, HTTP, Deduplication and Replication, Sun includes these features at no extra charge.

Increased Storage Efficiency

Save datacenter floor space and reduce storage acquisition costs by improving storage efficiency. Sun's deduplication technology virtualizes your data to save space. One physical copy can represent many logical copies, eliminating the need for redundant copies of the same data. Sun Storage 7000 also offers a new alternative for compressing data files. Since the compression is handled by the storage platform, it helps conserve CPU resources in the server.

Unprecedented Observability

DTrace Analytics software provides the industry’s only comprehensive and intuitive analytics environment. Administrators have all of the tools they need to quickly identify and diagnose system performance issues, perform capacity planning, and
debug live storage and networking problems before they become challenging for the entire network. The real-time analysis and monitoring functionality utilizes built-in instrumentation to provide in-depth analysis of key storage subsystems, helping administrators quickly identify the source of performance bottlenecks.

Figure 2 shows an example of the kind of data that can be visualized with DTrace Analytics. The top part of the screen shows the CPU utilization across four CPUs and the bottom graph highlights NFS throughput in operations per second broken down by latency. This information can be used to identify CPU or I/O bottlenecks across the storage systems. You can then drill into the applications running on those systems to find out why. This level of observability is an industry first and enables you to identify application bottlenecks that might previously have gone undetected.

![Figure 2. DTrace Analytics enables you to quickly identify application bottlenecks.](image)

**Reduced Risk with Industry-leading Data Protection**

Sun Storage 7000 software is the only software that protects your data from as many as three drive failures with Triple parity RAID. With disk drives getting larger and many organizations implementing wider striping across more drives for increased performance, a third parity bit helps reduce the risk of data loss. Triple mirroring also offers a great way to increase random read performance for applications such as databases. Automatic data integrity checking and correction built into the software includes block level checksums and self-healing capabilities at the block level, providing additional protection for your data.

**Contact Us**

For more information about Sun Storage 7000 software, please visit oracle.com/sun or call +1.800.786.0404 to speak to an Oracle representative.
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<th>Benefit</th>
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<td>Hybrid Storage Pools for transparent optimization across multiple tiers of storage</td>
<td>Superior application performance and simplified storage management</td>
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<td>DTrace Analytics to identify the source of performance bottlenecks</td>
<td>Reduced downtime and faster application performance due to quick isolation of performance issues</td>
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<td>Increased Utilization</td>
<td>Built-in compression</td>
<td>Reduce storage costs without adding overhead to the server for compression and decompression processing</td>
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<td>Deduplication so that one physical copy can represent many logical copies of data</td>
<td>Reduce storage costs by eliminating the need for redundant data</td>
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<td>Thin provisioning, allowing physical space to be allocated on an as needed basis</td>
<td>Greater investment protection and more efficient utilization</td>
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<td>Data Protection</td>
<td>Automatic data integrity checking and correction</td>
<td>Increase data integrity</td>
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<td>Flexibility to choose different RAID architectures including triple parity RAID, which protects against up to three drive failures</td>
<td>Reduce risk of data loss and ability to meet performance and reliability needs for different applications</td>
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<td>Active-active clustering with transparent failover between nodes</td>
<td>Simplify management while delivering increased data availability</td>
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