

## Sun Solutions for Rich Media

Radically simplify Web storage for video, music, and photographs

Video. Music. Photographs. Serving up this kind of rich media is big business on the Web, and it's growing every year. Whether you're an established enterprise or a Web service that's just taking off, being able to provide rich media on the Web at little or no cost to the user, while offering premium services for a fee, is a proven business model — and a powerful way to acquire customers.

But serving up rich media online brings enormous challenges — you have to stream vast amounts of unstructured data in real time, and cope with

at a price that's 75% less than the competition. And it provides the data safety you need, because building a base of users who can count on your service and reliability is key to growing your business.

### Massive scale, total flexibility

Sun Storage 7000 Unified Storage Systems provide the performance and economics you need to offer rich media online, and the flexibility to grow as your traffic grows — without breaking your budget.

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**Deliver higher availability and faster online access to rich media Web applications at up to 75% savings.**

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### Highlights

- Scale to handle vast amounts of data required to deliver rich media online
- Boost performance up to 3.2x with Hybrid Storage Pools technology featuring integrated Flash memory-based solid-state drive (SSD) disks
- Simplify management of your data with powerful analytics and an intuitive GUI
- Save up to 75% versus the cost of closed, proprietary storage
- Reduce power consumption up to 4x

unpredictable spikes in usage. A single file might be receiving 50% of your traffic, while many thousands of other files account for the rest of the user activity. You have to be able to store and access data seamlessly for multiprotocol environments, and to deliver the content users want when they want it, or they'll go elsewhere. And given the realities of today's economic climate, you need to do it while keeping costs in line.

[Sun Systems for MySQL™ Rich Media](#) is a powerful solution that leverages [Sun™ Storage 7000 Unified Storage Systems](#) to simplify management of digital media and boost performance, so you can keep your customers engaged with higher availability and faster online access. It provides radically simple administration, unprecedented storage analytics, and breakthrough speed and scalability

This family of products enables you to create an open infrastructure that integrates easily with your existing environment, and to migrate to new storage devices or accommodate new management tools simply and quickly — just swap out or upgrade individual components as necessary.

Because of its open architecture, the Sun Storage 7000 Unified Storage System series can take advantage of the latest hardware and software components, to deliver more performance and scalability for today's demanding rich media applications. And it can transparently share files for Apple, Windows, and UNIX® clients. That means you have total flexibility to grow as needs change, can adapt as technology evolves, and never have to be locked in with a single vendor.

### **A better file system means better data management**

[Solaris ZFS™ File System](#) is the file system for the Solaris™ Operating System (OS) and OpenSolaris™ OS — a free, open-source, 128-bit file system that provides 16 billion billion times the capacity of a 64-bit file system — enough capacity to handle all the files you can expect to store for decades to come. It offers an innovative approach to data integrity, tremendous performance improvements, and a welcome integration of file system and volume management capabilities.

With Solaris ZFS File System running transparently as your file system, you can reduce the time required to perform many functions by orders of magnitude — from hours to just seconds. And you can automate administrative tasks, saving time and money. What's more, its data corruption features set it apart. It automatically performs error checking and, if it detects an error in a mirrored storage pool, it repairs the corrupted data, preventing costly and time-consuming data loss — reducing the chance of administrator error while performing file system-related tasks.

### **Hybrid Storage Pools: getting the most from Flash SSDs**

[Hybrid Storage Pools](#) — which combine traditional spinning hard disks, unbeaten for high-capacity storage, and Flash SSDs, with much faster access times and reduced power needs — help the Sun Storage 7210, 7310, and 7410 Unified Storage Systems outperform comparable storage devices. But that alone isn't necessarily different — some competitors' storage devices also feature Flash memory.

The difference is in how our systems use it. Competitors offer the Flash SSDs

as just another disk on the system. It's up to you to store appropriate data that will be accessed often, in order to take advantage of the performance benefits of SSDs.

But by using Solaris ZFS File System, you can take advantage of the Hybrid Storage Pools functionality built into the software. Solaris ZFS File System breaks the Flash memory into read and write caches and intelligently decides what information to stage in the appropriate cache depending on the functions you're performing. It's a seamless, integrated approach that can boost I/O performance up to 3.2x, with no intervention required by an administrator, and boost capacity up to 2x, while reducing floor space and using up to 4x less power. When capacity is no longer required by one file system in the pool, Solaris ZFS File System makes it available for others. And it all appears transparent to the administrator as a single data pool. It's a major breakthrough in the use of Flash storage, and it's only available on Sun Storage systems running Solaris ZFS File System.

### **Powerful analytics give real-time views of storage, network, and systems performance**

To be able to manage your data for maximal effectiveness, you need to be able to see how your storage is performing, what files are being accessed, and how much. Up until now, that kind of view of your system has been nearly impossible to achieve. But [powerful new analytic capabilities](#) that are integrated parts of Sun Storage 7000 Unified Storage Systems now make that kind of analysis not only possible but easy — available in real time, so decisions can be made actively to improve performance.

The secret is Dynamic Tracing (DTrace), the comprehensive framework for the Solaris OS operating environment. DTrace provides a powerful infrastructure to enable administrators, developers, and service personnel to get a global overview of your system as it runs, including the amount of memory, CPU time, filesystem, and network resources used by the active processes.

With the analytics tools, you get real-time visibility through the entire data path, so you can drill down on many issues. It's also intuitive, providing real-time statistical graphs to help locate problems. For example, you can see how much bandwidth is being taken up and by which files — not only how many times they're accessed (i.e., hits), but how much of the file is being watched or listened to. The end result is pervasive observability, so you can accelerate optimization.

This not only provides the view into your system, but it also offers pointers on how to increase performance on the system. So if you notice that your read/write ratio is less than optimal, you can add more read- or write-biased SSD devices to improve performance.

Where before you were forced to guess at what might be hampering performance, and to find a solution through trial and error, the analytics capabilities of the Sun Storage 7000 Unified Storage System series give you the information to solve the problem quickly, saving administration time — and with no unneeded purchases. And the appliance automatically saves and analyzes performance data for the life of the product, so you can recall the arrangements you had at any point in the past, compare and contrast, adjust your caches, and align your system for maximal performance.

### Case study: streaming music on OurStage.com

“For a startup, data integrity and fault recovery are special problems, as the staff and budgets are small. The manageability and fault management of the S7000 series meet this challenge in a small, dense package. The result for us has been a better solution with less investment in time and technical training.”

— Mark Niedzielski,  
infrastructure manager at OurStage

### Case study: photo sharing on SmugMug.com

[SmugMug.com](http://SmugMug.com) is a photo-sharing site that differentiates itself on quality — photos look better on SmugMug than they do on other sites, and SmugMug provides viewing options that others don't. But to pull this off, they need to serve up extreme quantities of both low-quality images for browsing, and high-resolution images for downloading or viewing. And as with all rich media sites, usage can be unpredictable.

They chose to build their infrastructure around the Sun Storage 7410 Unified Storage System, which Don MacAskill, SmugMug's CEO, calls “blazing fast.” “Even with NFS latencies,” MacAskill continues, “we're able to do obscene write workloads to these boxes (let alone reads). 10,000 write IOPS to 10 TB of mirrored, durable storage is a dream come true. Once you mix in snapshots, clones, replication, and analytics, it just doesn't get much better than this.”

### Easy to set up, easy to manage

Sun Storage 7000 Unified Storage Systems radically simplify data management. You can set up the unit in five minutes — connect three cables, click a few screens, and you're done. A preinstalled installation wizard takes the guesswork out of tuning, and preloaded storage configuration profiles match the hardware configuration to your workload. The system's GUI makes managing your storage intuitive. You can see your system easily and clearly, and modify things with click-and-drag administration.

Sun Unified Storage also has the most comprehensive self-healing capabilities available. It automatically detects, diagnoses, and sends errors to Sun's support centers. It also provides diagnostic messages linked to articles in Sun's Knowledge Base, where you'll find step-by-step instructions for making corrections. And it's easy to take faulty components offline if necessary.

That all adds up to reduced administration costs for you. You'll need less time and fewer administrators to manage the same amount of data, reducing the costs of providing your rich media service.

### A breakthrough in storage economics

Traditionally, storage has been one of the most expensive parts of any Web infrastructure, and also one of the last domains of proprietary solutions. But Sun Unified Storage is changing all that. Based on an open-network system philosophy that combines open technology, software, and community development, Sun Storage 7000 Unified Storage Systems can save you up to 75% versus the cost of proprietary storage, and reduce your power consumption by up to 4x compared to any system in its class. And its ease of management decreases administration costs and the need for personnel.

What's more, it comes with a full complement of storage software at no extra cost. Analytics, monitoring, remote replication, snapshots, clones, and data compression software are all included. And workflow automation scripts are managed by the appliance, enabling administrators to formally encode best practices for their organization. And because the software is open source, there is broad support from the ISV community, ensuring that there continues to be robust development and innovation.

### MySQL Enterprise™

[MySQL Enterprise™](#) is a comprehensive and flexible subscription offering that helps you get the most from your MySQL software investment. It provides production support, monitoring tools, and MySQL database software so you can achieve optimal performance and reliability, as well as maximal uptime — and the highest integrity for your data.

It includes:

- Monthly rapid updates and quarterly service updates, so you always have the latest version of MySQL Enterprise™ server software
- MySQL Enterprise™ Monitor to oversee database applications, minimize security vulnerabilities, and optimize performance
- Remote troubleshooting to diagnose and solve problems as they arise
- Problem resolution for an unlimited number of incidents, including 24x7 phone consultations, Web-based case management, and emergency hot fixes if you discover a business-critical bug for which no known patch exists
- Best practices, straight from the engineering source, that enable you to configure for performance and high availability on Sun systems

### Driving costs down

To drive down costs even further, consider the Sun Fire X4540 storage server. When you need extreme data access speeds, especially in a compact package, at a very low price, the [Sun Fire X4540](#) storage server is your best choice. Where else can you get eight cores of AMD Opteron processor performance and 48 TB of storage in a 4U server? And at \$1.20/GB? By comparison, it gives you twice the capacity in half the space at half the cost of the competition.

### Take it for a test drive

You can see for yourself how easy it is to run a [Sun Storage 7000 Unified Storage System appliance](#) by downloading the [Unified Storage Simulator](#) virtual machine from the sun.com Web site. By installing the simulator on your laptop or desktop, you'll be able to see how simple it is to set up and manage storage. You can test drive the GUI, and use it to look at your own hard drive, set up your own file system, then use the analytics and management tools to tune it up and reconfigure your system. To download the simulator, go to: [sun.com/storage/disk\\_systems/unified\\_storage/resources.jsp](http://sun.com/storage/disk_systems/unified_storage/resources.jsp).

### Try it risk-free

Try a Sun Storage 7000 Unified Storage System in your datacenter risk-free for [60 days with our Try and Buy Program](#). If you're not satisfied for any reason, we'll pay to ship it back. And if you choose to keep the system, you'll find significant discounts available on both a MySQL Enterprise subscription and the Sun hardware.

### Services and support for a better deployment

Sun Professional Services<sup>SM</sup> also provides a comprehensive set of services to help you get the most from your MySQL software deployment and your storage infrastructure, mitigating the risk of downtime, delay, and data loss.

- **Implementation and Assessment Services** for the Sun Storage 7000 Unified Storage System family help you go beyond standard setup and the basic diagnostics of standard installation to provide select configuration and validation, and to ensure that your systems are running at an optimal level right from the start.
- **Sun<sup>SM</sup> Unified Storage Data Migration Service** helps you minimize disruption and achieve full functionality of new technology investments. Sun's deep technical expertise and proven implementation and migration tools help you to speed ROI by securely migrating your data, utilizing MD5 hashing for file and security validation.
- **Sun<sup>SM</sup> Single Point of Contact (SPOC) API Service** provides comprehensive management of IT needs on an ongoing basis, including case creation for all incidents, dispatches to the appropriate support vendor, and case monitoring according to the responsible vendor's contract terms.
- **SunSpectrum<sup>SM</sup> Service Plan** simplifies and reduces the cost of managing an IT infrastructure, while delivering proven ROI.
- **Sun Learning Services** to help administrators gain a deep knowledge of Sun Storage 7000 Unified Storage Systems and enable staff to be more productive.

With the Sun Systems for MySQL Rich Media solution, you can carve your niche, create your own community of users, and thrive in the new digital economy.

[sun.com/richmedia](http://sun.com/richmedia)

### A better way to serve up rich media

Increasingly, users are turning to the Web for their rich media. They want to watch it, hear it, interact with it, and create their own — and they want it on demand, not on a schedule. It's the birth of a new democratic era of media, powered by a new generation of rich media Web sites.

You can only make it in this new online environment if you can meet the challenges of handling that much data. The Sun Systems for MySQL Rich Media solution, featuring Sun Storage 7000 Unified Storage Systems, provides the breakthrough speed and scalability, simplified administration, unprecedented analytics, and reduced cost you need to compete effectively, giving your service a fighting chance. It means you can do more with less staff and a lower budget. It means you can differentiate yourself on your site's performance without breaking the bank. And it means you can scale to meet the unpredictable demands that are the standard of this new media world.

