

# The Continuous Archive

Providing the right information at the right cost with the Sun™ Customer Ready Infinite Archive system



## Highlights

- Dramatically reduces the risk, complexity, and cost of implementing an archive solution
- Integrated, tested, configured solutions reduce time to deployment
- Eliminates the need for traditional external backup including administration, backup licenses etc.
- Open standards help ensure data formats can be understood for years to come
- Non-disruptive scalability



The massive explosion of data that companies need to provide, coupled with the increasing life of that data, places unprecedented demands on traditional data management techniques. Whether storing data for compliance regulations, business intelligence, or to protect against potential liability risks, businesses are maintaining increasing amounts of application-accessible data online. The data must appear to be stored on the name-space where it was originally written, and be accessible quickly regardless of the physical media on which it is stored. That's the power of the Sun™ Customer Ready Infinite Archive system.

### The continuous storage archive

Businesses succeed by the quality of information they create and share about products, customers, and business practices. Accessibility to data is a critical factor in the ability to make the right decision at the right time. Yet the value of information at the stages in its lifecycle is dynamic, and cost savings can be achieved by storing information in an archive solution that continuously manages its availability at the appropriate storage tier. To deliver the benefits of a continuous archive, the solution must decrease the cost, risk, complexity, and administration of the multi-tiered storage archive environment.

### Sun™ Customer Ready Infinite Archive system

Continuously working to create standards that bridge the digital divide, Sun developed an innovative design to integrate an archive platform that combines scalable and open components from its systems portfolio.

The ready-to-deploy Infinite Archive system dramatically decreases the cost, risk, complexity, and administration of a multitiered storage archive environment by providing a completely integrated, tested, and configured solution that can be quickly and easily deployed and maintained.

The Infinite Archive system integrates Sun's innovative and proven Sun StorageTek™ SAM and QFS softwares with dual archive manager servers, infrastructure components, and first, second, and third tier storage. The integrated and pre-tested solution takes the guesswork out of selecting, configuring, and testing data management components to help enterprises deploy robust solutions in far less time.

### Design innovation

The Infinite Archive system is designed with the proper amount of CPU bandwidth to handle huge data loads and provide a continuous, self-protecting archive. A Web-based graphical user interface abstracts the infrastructure from the administrator, making the solution easy to operate and grow because administrators do not have to manage underlying hardware configurations.

### Scalability

A common problem with competitive solutions is the inability to scale without a fork-lift upgrade. Through its innovative approach to problems, Sun designed the Infinite Archive system for massive scalability. It can be easily expanded by adding more storage to any of the tiers, upgrading the server with faster processors, and adding more nodes.

All of the nodes in the solution see all data on all storage tiers. The solution currently supports two nodes with plans to support many more in the future.

### Openness

As one of the largest contributors of code to the open source community, Sun inherently understands the importance of open standards. The Infinite Archive system uses open standards to help protect data for years to come. Data is stored in an open, documented data format, providing the ability to migrate data to newer generations of hardware and software. Open protocols such as NFS, CIFS, HTTP, FTP, and open application programming interfaces (APIs) enable the solution to be integrated with nearly any application – completely transparent to applications and users.

### Breakthrough economics

Businesses and organizations are storing more and more data everyday, yet few can afford the expense of housing it permanently on fast disks, especially when regulatory mandates stipulate long-term data retention. Traditional methods manually back up the data and remove it from fast storage after a certain amount of time. However, if the information is needed, it can take quite some time and effort to find the right tape and restore the files.

The Infinite Archive system offers a way to dramatically reduce storage costs as well as the expense of data management. The solution provides the ability to automatically move data to less expensive storage and tape according to specific policies, yet the data is still quickly accessible by applications and users, with the benefit that the data is stored at the right cost.

### Sun Customer Ready Infinite Archive system

With the Infinite Archive system, the concept of backup and restore is eliminated – along with associated administration and licensing expenses – as at least one up-to-date copy of the data is always accessible through the solution's continuous archiving feature.

Finally, with rising energy costs, every datacenter is seeking ways to reduce power, cooling, and floor space requirements. Although second tier disks are less expensive, they still consume power to spin the platter and they take up space. The Infinite Archive system helps reduce power, cooling, and space requirements by migrating data with low access frequency to low-cost, low-energy, smaller footprint tape systems. According to Clipper Notes<sup>1</sup>, SATA disk systems occupy 6.2 times more floor space than tape systems and cost 25 times more to power and cool.

### Tier 3 – Tape Archive

### Storage Archive Manager

### Tier 1 – High-Performance Disk

### Tier 2 – Capacity Disk

In addition, many datacenters replace disks every two to three years, which increases acquisition costs, but replace tape systems only about every five years. The net result is that storing data on tape and the Infinite Archive System can result in years of savings.

### Continuous archive software

StorageTek SAM and QFS softwares are the heart and brains of the Infinite Archive system. The software helps reduce storage costs and unlocks the value of previously untapped archived corporate data by providing rapid access and a consistent view of data across tiered storage. All data in the system is stored, tracked, and retrieved based on user requirements. Information is seamlessly and transparently available to users and applications regardless of where it is stored.

1. Clipper Notes, Tape and Disk Costs – What It Really Costs to Power the Devices, February 2007

StorageTek SAM and QFS softwares reduce operating costs by providing data classification and policy driven automated data movement across tiers of storage based on watermarks or *length of retention* specified criteria. This significantly reduces the need to add more tier 1 disk storage and reduces management tasks by moving data to the proper storage tier device at the right time, in an automated fashion.

StorageTek SAM and QFS softwares' self-protecting file system offers continuous archive, backup, and fast recovery features to help enhance productivity and improve resource utilization. Files are automatically copied to tier 2 or tier 3 tape when they are created or modified, providing nearly instantaneous backups.

By integrating disk and tape into a seamless storage solution, StorageTek SAM and QFS softwares help simplify storage management and dramatically increases data availability.

This feature delivers an additional benefit – it can be used to migrate data to new tapes, disks, or servers automatically without disrupting applications. StorageTek SAM and QFS softwares also enable IT governance and compliance with access logging and WORM support. Up to four copies of data can be saved simultaneously to local or remote disk, tape, or optical storage, according to user supplied policies. In this way, data is protected *and* easily accessible.

### Core infrastructure

The Infinite Archive system is available in two core infrastructures, both of which are readily scalable. The Value model includes Sun Fire x4200 servers in clustered configuration for powerful, yet economical data management coupled with SATA disk plus options for additional disk and library integration. The Midrange model steps up the performance/ scalability ladder with SPARC T5220 servers and both SAS and SATA disk plus options for additional library integration including SL8500. In both cases, IAS includes the

required network and storage switches along with SAM-QFS software. The servers provide record-breaking price /performance, unequaled energy efficiency, and space saving compute density, making them ideal data management platforms for department to enterprise level solutions.

### Storage tiers

Storage for the Infinite Archive system is available with variable options for tier 1, tier 2, and tier 3 storage, providing more choice to configure the solution to specific needs.

### Tier 1 disk cache

Tier 1 disk cache houses the online data set on fast SAS storage. The Infinite Archive system utilizes the Sun StorageTek 2540 arrays. Each array supports dual Fibre Channel (FC) RAID controllers, up to 36 TB of raw capacity, up to four 4 Gb/sec. host interfaces, and up to 15 global hot spares, snapshot, and storage domains, providing both the performance and data protection necessary for business-critical data.

Configuration	Functionality	Core Infrastructure	Specifications
IAS Value Single rack (Dual rack configurations available.)	The Value configuration is a complete rack system providing a cost-effective, low-power entry point for a tiered, managed storage solution, perfect for small to medium sized businesses as well as departmental level use.	<ul style="list-style-type: none"> <li>• Two Sun Fire X4200 M2 servers</li> <li>• 16 SAN switch ports</li> <li>• Sun StorageTek 2540 SATA disk arrays</li> <li>• SAM and QFS software</li> <li>• Optional SAS and SATA disk expansion</li> <li>• Optional SL500 expansion</li> </ul>	<ul style="list-style-type: none"> <li>• Total raw capacity: 12 TB to 184 TB in single rack</li> <li>• Tier 1 storage: 12 TB SATA</li> <li>• Optional SAS and SATA disk expansion</li> <li>• Tier 2 storage: Optional SL500 (in rack) over 100 TB</li> </ul>
IAS Midrange Single rack (Dual rack configurations available.)	The Midrange configuration of the system provides the ideal solution for company-wide archive and tiered data management storage.	<ul style="list-style-type: none"> <li>• Two Sun SPARC Enterprise T5220 servers (4 core)</li> <li>• 32 SAN switch ports</li> <li>• Sun StorageTek 2540 SAS disk arrays</li> <li>• Sun StorageTek 2540 SATA disk arrays</li> <li>• StorageTek SAM and QFS software</li> <li>• Optional SAS and SATA disk expansion</li> <li>• Optional library expansions</li> </ul>	<ul style="list-style-type: none"> <li>• Total raw capacity: 21.6 TB to 100+ PB in externally attached libraries</li> <li>• Tier 1 storage: 9.6 TB SAS</li> <li>• Tier 2 storage: 12 TB SATA</li> <li>• Optional SAS and SATA disk expansion</li> <li>• Tier 3 storage: Optional SL500 (in rack) up to SL8500 (external)</li> </ul>

### Tier 2 disk archive

The first level archive is stored on fast access, high density SATA disks. The Sun StorageTek 2540 array features the ability to mix and match SAS and SATA disks in a tiered storage environment, enabling the solution to quickly migrate data from tier 1 to tier 2 storage.

### Tier 3 tape archive

Long term archive in tape is the most cost effective storage media. The Infinite Archive system stores the second level archive on the optionally attached, high-performance Sun StorageTek SL500 modular tape library. In the IAS configuration, it scales from 30 to 100 LTO slots within a single rack configuration providing up to 120 TB of additional uncompressed archive capacity. The expansion and use of the latest LTO tape drive technology make it an excellent choice for the Infinite Archive system.

The system also integrates with Sun StorageTek SL8500, and SL3000 tape libraries for tremendous archive scalability, as well as Sun StorageTek encryption drives and the Sun StorageTek Crypto Key Management System 2.0 for added protection of digital assets. The innovative design of the Infinite Archive system makes accessing data from the tape archive transparent to applications and users.

### Disaster recovery options

Important attributes of the continuous archive are its resiliency to withstand a disaster and the speed with which the information is available after an unplanned outage. The Infinite Archive system can be configured to provide disaster recovery capabilities with two options. The first option copies only data to a remote server and tape system. This option is the most cost-effective and makes data accessible after a disaster, but the trade-off is time to restore data to disk.

The second option copies data and metadata to a complete Infinite Archive system at a remote site, where the data is immediately accessible to applications and users.

### Key applications

The Infinite Archive system is designed to support a wide range of data-intensive applications including:

- Document management
- Medical records
- Seismic and other geophysical data sets
- Multimedia data – photo libraries and videos
- Enterprise content management (Web, email, digital data)
- Open archiving for Oracle, SAP, and Siebel
- Security, CCTV, or other surveillance records
- Personal and corporate finance

Learn More

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### Conclusion

Data can be a competitive weapon, but it becomes less so if it is not accessible or costs too much to store. Sun innovation and design produces products and services that save time and money for those seeking to use technology to find opportunity. The Sun Customer Ready Infinite Archive system is another fine example of this commitment. By offering a pre-configured, pre-tested, complete solution to manage the entire lifecycle of data, Sun helps enterprises reduce the risk, cost, complexity, and deployment time of multitiered storage environments – all while providing the right data at the right time at the right cost.