

# Challenges of Data Retention Compliance

Simple solutions for cost-effective information management.

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## Chapter 1

# Executive Overview

This paper briefly describes the industry drivers for effective data management and explains why meeting the requirements for regulatory compliance, corporate governance, and litigation support has become critical in today's business environment. The paper lists the challenges of data retention compliance and keys to success, as well as the infrastructure and technology Sun offers that empower organizations to build effective, economical compliance solutions. While the focus of this paper is data retention (and storage is a critical element of the solution), it is important to note that compliance and data lifecycle management solutions involve storage and much more-- comprehensive strategies involve people, policies, and the entire IT infrastructure.

## Chapter 2

# Introduction

The network explosion has generated an unrelenting flow of data that must be managed. New laws and regulations have made it a business imperative to ensure electronic records of business activities are captured, retained, and managed in a way that will satisfy courts and regulators. While heavily regulated industries have faced these requirements for decades, now more types of enterprises are being affected.

Organizations around the world are looking for ways to reduce the risk associated with managing growing and disparate forms of data, while at the same time meeting the requirements for regulatory compliance, corporate governance, and litigation support — any of which can result in large fines and/or business losses if they are not met. During litigation, data management for legal purposes such as the process of legal discovery can be costly in and of itself, but if corporate records are subpoenaed and an organization either does not have the records or has destroyed them (either purposefully or unknowingly), hefty penalties can be imposed.

While today's focus is mostly on email and instant messaging, tomorrow's focus is predicted to be significantly wider, encompassing other messaging systems, voice, video, unstructured data, databases and more. With that in mind, simplifying the way organizations in regulated and non-regulated industries deal with information has never been more important.

## Chapter 3

# Challenges and Keys to Success

Some industry estimates suggest there are more than 35,000 global regulations affecting document retention. Organizations must comply with various regulations, depending on where, how and with whom they conduct their business. A few examples of U.S. and international regulations are listed below.

### Global Data Retention and Auditing Regulations

- Sarbanes-Oxley Act
- SEC Regulation 240.17-a-4
- Health Insurance Portability and Accountability Act (HIPAA)
- U.S.A. Patriot Act
- Gramm-Leach-Bliley Act
- Anti-Terrorism, Crime, and Security Act (U.K.)
- Personal Information Protection and Electronic Documents Act (Canada)
- Basel II

Compliance requirements come from many directions—companies are quickly recognizing the increasing risks and costs of not abiding by these and other laws that affect document protection, retention and security. The basic requirements of a compliance solution involve defining what data must be retained, determining how long it must be kept, ensuring that it can't be altered, producing the information in a timely manner while ensuring its authenticity, and ensuring it is securely destroyed at the end of its life (in accordance with business processes). By their very nature, compliance solutions require both IT and business units, including a company's compliance personnel, working together. Neither group alone can address all the needs. The business side and compliance personnel must determine the information and retention/destruction of each document or message type. The IT side must build and manage the solution.

This has resulted in an additional layer of complexity being added to many IT groups' responsibilities. Not only are they required to maintain service levels, support company initiatives, and keep costs down – they must do all this while also being pressured to comply with ever-increasing data retention requirements and looming deadlines. Specific industry laws and regulations as well as business practices mandate the amount of time that data must remain available for easy access. Also, certain laws or regulations may require a business to maintain data in its original business context. If historical data is moved to an alternate storage medium, IT departments must have the capability to restore data in its original business context, meaning that structured data must maintain its referential integrity (e.g. if an email refers to an attachment or mentions a contract in another document, those links must be maintained).

Consequently, to ensure compliance and easy access, many companies continue to keep historical, inactive data online in production databases. However, as database growth continues, a laundry list of problems emerge with this approach: slow application response time, batch performance issues, increased downtime for disaster recovery and upgrades, increased risk associated with application availability, and finally, frustrated users and poor customer service. Purging the data may not be a viable

option, and increasing storage or database capacity with expensive upgrades only delays the inevitable need for a long-term solution.

Better strategies can be found in data lifecycle management solutions. Data lifecycle management goes hand-in-hand with compliance because effective management of data throughout its lifecycle helps businesses meet legal requirements, better utilize storage resources, and maximize return on investment (ROI). Data lifecycle management isn't about a box. Fundamentally, effective data management strategies provide organizations with processes and technologies for managing data through the information lifecycle most efficiently and effectively—it's data creation to deletion, and everything in between. This involves aligning the IT infrastructure with business objectives and recognizing that the value of data changes as it ages. Data that may be critical to today's business decisions may be far less important tomorrow. In fact, it is estimated that 90 percent of stored data is seldom to never accessed after 90 days. Consequently, as data ages, it should be able to be shifted automatically to more cost-effective storage media and technologies, based upon its relevance, to save money and better utilize storage resources.

Data lifecycle management strategies can help automatically and transparently classify, manage and move information to the most cost-effective data repository based on the value of each piece of information (and the data retention requirements for that information) at that exact point in time. Data lifecycle management closes the gap between an organization's operational objectives to deliver better services to customers and their business objectives to meet data retention requirements and lower IT spending.

Once organizations understand and define the data retention requirements for their different types of data, they can establish their own set of compliance business rules that meet the applicable regulations as well as their internal business requirements.

#### **Five Keys To Success When Developing and Deploying Compliance Solutions**

- 1.** The process should be driven by the board/senior executives
- 2.** IT, compliance, legal, records management and business units must work closely to understand the specific types of information that must be retained, and drive this understanding down into the organization.
- 3.** The tools and infrastructure required to implement the business policies must be determined.
- 4.** The appropriate storage media for each class of records being retained must be determined.
- 5.** IT must ensure that the retained information can be easily and quickly retrieved in the future.

These keys to success highlight that the process requires both IT and Business Units working together. Neither group alone can address all the needs. The business side must determine the information and retention/destruction of each document or message type. The IT side must build and manage the solution.

## Chapter 4

# Compliance and Data Management Solutions from Sun Microsystems

With the depth of experience that comes with over twenty years as a systems vendor, Sun provides an extensive range of systems that are designed to reduce cost, complexity, risk, and time-to-deployment by integrating all the elements required to create secure, multi-tiered policy-managed compliance and data lifecycle management solutions. Sun's focus is on innovation in data management and a systems approach that delivers solutions to manage data at work, data in motion, and data at rest in a secure and trusted environment. Key compliance and content management solutions, storage systems, security offerings, and data retention services from Sun are described below.

### Integrated and Integratable Solutions

Sun's experience as a systems vendor enables the company to provide the seamless integration of systems and software to create end-to-end solutions. Sun experts can review an organization's needs regarding security, content management, and compliance requirements and provide the right infrastructure to support those needs, as well as the policy-based automation required to manage information transparently between different tiers of storage, based on relevance. Sun offers pre-built, ready-to-deploy systems that include everything from the operating system (OS) to servers, disk storage, tape libraries, software, desktop displays, identity and access management, and services. The reduced time to deployment afforded by these systems helps increase ROI. Sun's entire product line is supported by professional services and support teams with a depth of experience that enables them to customize storage solutions for every customer environment—from small organizations to global, large Fortune 500 enterprises. In addition, with a commitment to open standards and an extensive partner base, Sun can deliver integrated, customized solutions featuring best-in-class products and technologies to match any organization's business needs.

### Sun Compliance and Content Management Solution

The Sun Compliance and Content Management Solution was designed to help reduce the risk associated with managing exponentially growing data and disparate document and data types, while reducing operational overhead and retrieval costs associated with regulatory compliance, corporate governance, and legal discovery/litigation support requirements. It is an integrated solution that archives and manages virtually all types of electronic records—email, instant messages, Enterprise Resource Planning (ERP) documents and data, electronic print records, office documents, plus other corporate records—to address evolving global compliance and governance requirements and greatly simplify the way organizations in regulated and unregulated industries deal with content. At the IT infrastructure level as well as the compliance and oversight level, the content is presented with supporting contextual information within a robust application framework. A managed archive secures and stores records and is structured to conform to regulatory and data lifecycle management policies set by the organization. The solution offers different storage infrastructure options in order to address each customer's unique compliance requirements. The options include the Sun StorEdge™ 5310 Compliance Archiving system for non-eraseable, non-rewriteable write once, read many (WORM) capabilities, extendable per-file retention periods, and advanced security; and the Sun Content Infrastructure system for automated tiered archiving and other infrastructure components that may be required. A variety of other storage platforms are also

supported. Sun leverages the expertise of its Content and Compliance Client Solutions Practice to ensure speedy delivery of the optimal solution.

### **Sun StorEdge™ 5310 Compliance Archiving System**

The Sun StorEdge™ 5310 Compliance Archiving System addresses the challenges of compliance with cost effectiveness and operational efficiency. The system couples the Sun StorEdge™ 5310 NAS appliance with Sun StorEdge™ Compliance Archiving Software to provide compliance-enabling features for authenticity, integrity, ready access, and security. The system simplifies storage of sensitive documents and data with a “secure box” approach, combining the simplicity of network attached storage (NAS) with pre-installed software designed to help meet stringent industry regulations. Features include software-enforced non-erasable, non-rewritable “WORM” disk, extendable, per-file retention periods, and advanced security features to help safeguard data integrity. The system has been evaluated by Kahn Consulting, Inc. as meeting the Securities and Exchange Commission (SEC) requirements for electronic storage media, as articulated by 17 CFR § 240.17a-4 (“*An Evaluation of the Sun Microsystems, Inc. StorEdge Compliance Archiving System*,” Kahn Consulting, Inc. January 2005). Flexible configurations include options for Fibre Channel or high capacity Serial ATA (SATA) disk; single or dual NAS heads and RAID controller units; and the choice of cluster support, to match business needs for availability, capacity, performance, and cost.

### **Sun StorEdge™ SAM-FS and QFS Software**

The data explosion does not mean that organizations can afford to increase the number of people or practices needed to manage, protect, and recover the vast amounts of business data that must be easily accessed and retained for longer periods of time. Policy-driven data automation allows vast amounts of data to be managed using fewer resources—helping to reduce the total cost of ownership (TCO) of the data itself and allowing businesses to focus IT resources on other issues that need attention. The Sun StorEdge™ SAM-FS Storage Archive Manager software and QFS shared file system software enable organizations to do just that—share and manage data based on its value to the business to meet the access and performance requirements of its users. Sun StorEdge SAM-FS software supports Sun’s complete product line— from the high-end to the low-end— offering a choice of FC or SATA disk and a wide range of tape options. The software also integrates easily with widely utilized third party disk, tape, or optical offerings. File sharing and policy-based archiving automates data management and movement through tiers of storage, making it completely transparent to users. The software is integrated into a number of Sun’s solutions, including Sun’s Content Infrastructure System and the Sun StorEdge™ Compliance and Content Archiving solution, helping to reduce cost and complexity.

### **Sun Content Infrastructure System**

Based on Sun StorEdge™ SAM-FS and QFS software, the Sun Content Infrastructure system was created to help simplify and streamline the process of designing, developing, and deploying a comprehensive content management system. It is a cost-effective infrastructure system that addresses the full range of data management issues, including backup and restore, business continuity, media management, archive policies, asset management, and more. The system, which includes tiers of disk and tape, is a fully assembled, tested, configured, multi-tiered platform that enables organizations to reduce the cost and complexity of content management. The Sun Content Infrastructure System provides organizations with a highly available, fully redundant infrastructure that's easy to use, ready to deploy, and simple to manage.

### **Sun StorEdge™ 9990 System**

For enterprises with the most demanding data lifecycle needs, Sun offers the StorEdge 9990 system. This system provides unprecedented scalability, capacity and connectivity, allowing enterprises to consolidate massive amounts of data - up to 330 terabytes - onto one single system. The system also has the ability to attach and virtualize multiple classes of external storage - up to 32 petabytes - from multiple vendors such as IBM, EMC and HDS. The attached systems simply appear to the hosts as volumes on the Sun StorEdge™ 9990 system, while gaining all the performance benefits the Sun StorEdge™ 9990 system has to offer. This can help organizations add value while protecting existing storage investments. All of the internal and external capacity is managed from a single console, allowing organizations to manage their data more efficiently and effectively. The Sun StorEdge™ 9990 system can be divided into 32 Virtual Private storage machines (logical partitions) that align applications to the appropriate storage media to meet quality of service (QoS) requirements and to help ensure that service level agreements (SLA's) are met.

For example, mission-critical data can be stored on the system's internal fibre channel drives to meet stringent availability requirements. Over time, as the data diminishes in value, it can be seamlessly moved to a more economical storage system externally attached to the Sun StorEdge™ 9990 system, using Sun StorEdge™ 9990 ShadowImage™ In-system Replication software or Sun StorEdge SAM-FS software. In addition, data can be seamlessly moved from one externally attached system to another. This creates some compelling storage management options, such as providing storage for mainframe applications on low-cost SATA arrays.

The Sun StorEdge™ 9990 system provides a Data Retention Utility (DRU) that has the ability to lock a volume for a defined period - this is designed to prevent files from being erased or changed. This feature is important for regulations that require "write once, read many" (WORM) capability.

Finally, many compliance regulations require that organizations have a rigid disaster recovery plan. This often means replicating data from one data center to another. Sun StorEdge™ 9990 TrueCopy software provides synchronous replication and mirroring for metro area distances and asynchronous replication and mirroring for global area distances. Sun StorEdge™ Universal Replicator software (available in 2005) provides disk-based, journaled replication that the remote side "pulls" from the primary site, making distance replication faster because it takes the stress of the primary site, and more reliable since it can survive a break in the replication link. In addition, Sun StorEdge™ TrueCopy and Universal Replicator software can be combined to create a three data center replication scheme.

All of these features make the Sun StorEdge™ 9990 system a truly remarkable platform for compliance and data lifecycle management strategies.

### **Sun StorEdge™ 6920 System**

For companies facing rapid data growth and managing multiple, disparate applications, the Sun StorEdge™ 6920 system helps reduce costs and improve service levels through consolidated management of applications and segmented distribution of storage resources. This system is unique in that it offers data center functionality at mid-tier prices. An application-oriented interface simplifies management by pooling storage resources, enabling quick and precise

provisioning based on application workloads. This enables administrators to reduce cost and complexity and improve operational efficiencies. N-way scalability enables predictable, seamless scalability of performance, availability, capacity, and connectivity to maintain application performance and service levels as an organization's data environment grows. The Sun StorEdge™ 6920 system, using Sun StorEdge™ SAM-FS software, enables seamless data migration to help effectively manage data throughout its lifecycle. Purpose-built to host multiple applications, the system provides dedicated compute resources existing outside the data path and host server to deliver system-wide data services without disruption of application workload performance.

## Identity Management and Security

Sun has provided secure, trusted computing environments for over 20 years. The groundbreaking Solaris™ 10 operating system makes these features even easier to implement in any environment where security is becoming a critical requirement.

Solaris 10 brings to market identity security, data security, access security, application security and system security. Representing 3,000 engineering years and a \$500 USD million-plus R&D investment, Solaris 10 contains more than 600 innovative new features and is the most advanced UNIX(R) operating system ever. Security and identity tools are built in, offering a level of integration that creates a huge advantage for organizations running secure environments.

Specific security-based features include role-based access control, remote secure booting, Secure Shell, Ipsec with IKE, and much more. A cryptographic framework with process rights management can enable system administrators to achieve higher levels of utilization, performance and tighter controls for system and data security. As always, Solaris™ is backward compatible so as to minimize any risk of going to the next version of the operating system.

Identity management is also critical. Sun offers a unified portfolio for using, sharing and managing identity information. Identity management includes all aspects of obtaining, maintaining, securing, and controlling access privileges to, and the content of, personal data. This personal data can include contextual, enterprise-specific individual information, such as permissions and rules governing access to certain corporate resources, an individual's hire date, or a customer's purchase history, as well as global, non-enterprise personal data, such as birth date, home address, or emergency contact information. Both types of data present enterprise risks and must be managed according to accepted business practices and legislative mandates. Sun's comprehensive identity management solutions offer user provisioning, profile management and data synchronization, access management, password management, directory services, and audit and reporting.

## Data Retention Services

With deep technology expertise, broad service offerings and global experience serving enterprises of all types and sizes, Sun<sup>SM</sup> Services can help companies reduce the time, cost and risk of transforming their business with technology. Sun's expert consultants can help with every phase of developing and deploying innovative data retention services that give organizations sustained business advantages to help maximize ROI while minimizing total cost of ownership (TCO). From security to risk assessment services and more, Sun's experienced professionals help plan and architect complete lifecycle solutions to address specific business needs.

## Case Study

### **Data Lifecycle Management Helps Cleveland Clinic Maintain Outstanding Quality Care**

In the healthcare industry, reliable, efficient access to medical data can help a medical professional save lives. The Cleveland Clinic, recently named by U.S. News and World Report to be one of the top five hospitals in the nation, is one of the world's largest and busiest health centers. The organization is challenged with maintaining massive volumes of patient data— currently growing at 1.5 TB per week. Physicians at the clinic need to refer quickly to a patient's history to aid in diagnosis and treatment. Even after a death, patient data is kept for its research value. To maintain the data reliably, efficiently, and cost-effectively, the Cleveland Clinic chose to deploy Sun's Content Infrastructure System across their radiology and cardiology departments. The multi-tiered, policy-managed archiving system utilizes Sun StorEdge™ SAM-FS/QFS software to manage and store large amounts of data on different types of storage media based on how current the data is and how quickly it might be needed. The software automatically moves data that is less often accessed to lower cost media such as tape, while keeping data requiring quick access on high-performance disk storage. Sun's Content Infrastructure System is expected to reduce IT cost and complexity by providing continuous policy based data migration to application appropriate media over time, and self-service restore.

## Chapter 5

# Summary

The rapid growth of electronic data, along with emerging laws and regulations around the retention and protection of information, are forcing organizations to rethink the way they address long-term information management. Businesses are having to retain and quickly retrieve data, and demonstrate it has not been altered or accessed by anyone other than an authorized user, as may be required to comply with laws and regulations mandating records retention. On occasion, these records may be relevant in the event of an audit, investigation, or lawsuit. As a result, the ability to demonstrate the trustworthiness of the records is imperative.

For organizations seeking to better manage complex data environments and comply with numerous government and corporate regulations, Sun offers industry-leading systems, software and solutions. Sun's integrated, tiered storage solutions are designed to respond to the emerging regulatory environment and customer data requirements for information retention, identity management, and security, while at the same time reducing IT cost and complexity. From the desktop application to the back-end archive, Sun customers benefit from total systems leadership and the experience that comes with over 20 years as a systems vendor. Sun delivers an effective and economical infrastructure to enable customers to manage data from creation to deletion.