



BEARbytes

Sarbanes-Oxley and Storage Management

How does the law impact your company's storage needs?

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The SarbOx Act requires companies to store all business records, including electronic records and messages, for not less than five years.

Companies are feverishly upgrading software to keep not only financial but also electronic records safe and secure. This year, they'll spend up to \$1.7 billion each on technology and services.

When the Enron and WorldCom corporate scandals made headlines across the world, there was, predictably, a strong government reaction to their dubious accounting practices. It came in the form of the Sarbanes-Oxley Act of 2002, to protect shareholders and the public from accounting errors and frauds.

The Act, administered by the Securities and Exchange Commission (SEC), established a set of rules for accounting: What records to keep, how long to keep them and deadlines for compliance. Since 2002, corporate America has been scrambling to create and maintain a records archive that will not only satisfy these requirements but will also be cost effective.

The Act mandates that companies store all business records, including electronic records and messages, for "not less than five years." Section 404 of the Act, which went into effect in November 2003, demands not only retention of information but also proof of its adequate storage and management.

The financial disclosure deadline, however, has been relaxed for small- and medium-sized companies with a market capitalization of under \$75 million. These companies can now report their internal control processes for the fiscal year ending on or after July 15, 2006.

It doesn't come cheap

Compliance doesn't come cheap. This year, compliance spending will reach \$6.1 billion, according to AMR Research, with personnel costs topping the list at \$2.6 billion. Much of that is spent on consultants,

Multi-tiered Solutions

Experts recommend that business and IT managers work together to understand the requirements that affect them, identify the data and content types that are required to be retained, and develop auditable processes to ensure that data is protected.

New technologies such as ultra-dense optical and relatively low-cost, high-performance serial ATA-based disk drives can be used to create multiple tiers of storage. These technologies, along with policy-based storage management tools, allow

customers to tier applications and storage infrastructure by type, value, performance, availability needs and other criteria.

Fiber channel or SCSI can be tier 1; serial ATA-based storage can be tier 2; tape can be tier 3. Thus, each successive tier consists of less expensive but slower storage that allows companies to move data, according to its importance at the time, between different storage levels.

For example, a company may need to be able to retrieve financial statements quickly in the first 30 days after the end of a quarter. So that data would be assigned the first tier, to be moved to tier 2 after the first 30 days. At the end of the next quarter, when the need for quick retrieval becomes less likely, the statements could be moved to tier 3 tape.

Data integrity requirements stipulate use of storage technology that cannot be overwritten or altered in any way. These rules call for WORM (write-once read-many) devices, and companies will have to integrate their on-

line disk storage with the WORM media.

It all costs a lot of money. When the Sarbanes-Oxley Act was first passed into legislation, companies protested that corporate America could not bear its financial burden. Even now, surveys show that 94 percent of companies believe that the costs of compliance exceed the benefits.

But compliance costs are likely to drop this year as IT projects to meet financial requirements of Section 404 progress. In the final analysis, everybody will agree that a cleaner corporate America is an entirely desirable scenario – even if it comes at a price.

external auditors and internal labor. Technology and services account for \$1.7 billion each.

Corporations are also feverishly upgrading software to keep not only financial but also electronic records safe and secure. The big-ticket items in IT are infrastructure and hardware – servers, storage and networks – that typically cost over \$1 million for large companies.

Storage Requirements

Though Section 404 primarily deals with financial applications, IT storage experts are also feeling the impact. At the very least, storage groups must identify and document processes and establish reporting capabilities to demonstrate that storage management is in compliance. Companies must pay more heed to data protection, including backup and restore operations, and data availability, retrievability and recovery.

The SarbOx Act also requires that data integrity be maintained over the retention period. There is, thus, an obvious need to block inadvertent or malicious attempts to make changes and authenticate stored documents as original.



Although Section 404 primarily deals with financial applications, IT storage experts are also feeling the impact.

Letter from the CEO

Hello and welcome to the first issue of BEAR Bytes magazine. We sincerely thank you for reading our new publication. Our goal is to bring you a helpful series of interesting and informative articles related specifically to mission critical infrastructures.

As a valued IT decision maker, we'd also like to make you aware of related products, events and seminars each month. In doing so, we hope to build a solid bridge of communication between ourselves and your business. Our experienced and certified staff is ready to serve as a valuable resource to your team of IT professionals.

BEAR Data Systems is growing at an incredibly rapid pace. We now have three offices in California, plus a data-center application and systems testing facility. All of us at BEAR Data Systems are industry veterans that retain longstanding relationships with today's leading technology vendors. Most of us have been in the IT infrastructure arena for more than 10 years.

As you learn more about BEAR Data Systems, we hope you realize that we are a superior technology provider when it comes to experience, product knowledge and customer service.

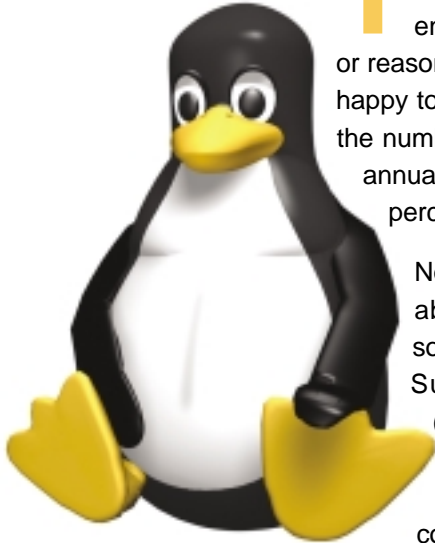
In the coming issues, stay tuned for more useful articles, announcements and upcoming events. If we can serve you better in any way through BEAR Bytes, please let us know.

Regards,

Don W. James
CEO, BEAR Data Systems, Inc.

Linux Adoption: Part 1

Why cost benefits are making the move from UNIX to Linux compelling



To switch or not to switch. Making that vital decision to move to Linux has daunted most CIOs. Now, Linux's enterprise-ready versions are giving them no room – or reason – to agonize. Indeed, more and more people are happy to cast their lot with Linux, a fact that is reflected in the numbers. From a modest 15 percent in mid-2001, the annual growth rate of Linux server units shot up to 40 percent by mid-2004.

No doubt there is increasing confidence about Linux's ability to handle the most critical and sensitive software. Linux 2.6, Red Hat Advanced Server and SuSE 9.0 Professional can run well on SMP (symmetric multiprocessing) boxes with 32 or 64 CPUs, traditionally a weak point for earlier versions. Instead of buying "big iron", companies can now field commodity SMP boxes in clusters and save a bundle.

For example, a 64-way UNIX system can be replaced with a 60-node Intel Linux cluster and get the same or better performance at a cheaper rate.

Replacing big iron (or even medium iron) with commodity Linux boxes requires clustering, a strong storage area network (SAN), and moving from UNIX to Linux, as opposed to Windows to Linux. SAN is important because it decouples the operating system from the data it crunches, giving CIOs the assurance that they are not gambling with their company's mission-critical elements. Moving from UNIX to Linux is also a cinch now. With only a little re-education, a company can have the in-house expertise to run Linux effectively, since Linux is based on UNIX. One company saved \$300,000 in hardware alone by moving from proprietary Hewlett-Packard UNIX boxes to commodity Intel hardware.

Today, porting programs over to Linux from UNIX isn't much trouble. There are many open source softwares that can handle enterprise needs. For a higher degree of comfort, one can also look for enterprise-class Linux certifications on enterprise software.

From a modest 15 percent in mid-2001, the annual growth rate of Linux server units shot up to 40 percent by mid-2004. No doubt, there is increasing confidence about Linux's ability to handle the most critical and sensitive software.

All Open Source Software Users Have Linux: Forrester Survey

Forrester Research Inc. recently surveyed 140 enterprises in North America about their open source software plans.

Sixty percent of those surveyed said that they were either using or planning to use open source software. Those already using open source software had Linux in-house in some capacity.

According to the survey, 94 percent of open source users "either run or plan to run on Intel or AMD-based hardware – where a \$5,000 Dell server runs workloads that a \$50,000 UNIX box ran just three years ago."

While open source components are often available for any operating system, Forrester concluded that the "ever-improving Intel price performance" was a key driver of open source adoption.

Ninety-four percent of respondents used Linux on Intel-based hardware; 52 percent were moving from Windows to Linux, with Solaris at 28 percent and HP-UX at 25 percent. Thirty-three percent considered Red Hat to be the most important vendor, followed by IBM (25 percent).

D2D2T: Is it for you?

In a survey, 32 percent of the respondents who had used some type of D2D2T technology reported better backup speeds, and 30 percent said data recoverability improved.

Disk-to-Disk-to-Tape (D2D2T) backup has been touted as a “data savior,” reducing the time needed to back up distributed systems – which previously required either direct-attached or large tape libraries. In addition to the speed advantage of caching to disk prior to moving data to tape or other removable media, there are several other inherent benefits that D2D2T delivers.

Unlike tape emulation, which replaces a tape drive with a virtual hard disk equivalent, D2D2T allows users to manage the storage of data closer to an Information Lifecycle Management (ILM) model. Users can specify the destination and duration of stored data and its replication and archive life. Also, D2D2T offers an excellent data recovery option, allowing instant retrieval of lost or corrupted data. D2D2T is also able to address compliance legislation-based storage requirements. Using an integrated D2D2T strategy increases the flexibility for both backup and archiving strategies.

How D2D2T affects SMBs

A recent InfoStor survey revealed that of the respondents who had implemented some type of D2D2T technology, 32 percent reported better backup speeds, 30 percent cited improved data recoverability, 19 percent said it helped consolidate backup environments, and 13 percent cited cost savings. Another benefit is that D2D2T's inherent storage software offloads work, makes regulatory compliance automatic and simplifies life for what is usually an understaffed, over-taxed IT department.



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Cutting Edge Technology

Blade server technology simplifies resource management and improves cost efficiency



Blade servers are no longer considered dense edge devices. Rather, they are seen as simplifying hardware footprints and physical cabling in data centers and offering a straightforward means of linking server hardware components to a centralized resource management system.



Until recently, blade servers were strictly the province of large data centers run by the likes of ASPs and ISPs, where a blade server installation supported applications like e-mail, Web and domain name serving. In the early stages, blades were thought of as dense edge devices, primarily targeted at consolidating sprawling racks of small servers used as Web servers, security, proxy, and other edge functions. In nearly three years since the introduction of the first blade products, the market has shifted significantly, vindicating the early outliers that targeted their blades at mid-tier application and database servers as well as the network edge.

Why Blade Servers?

Enterprises are beginning to appreciate blade servers because they reduce the complexity of hardware footprints and physical cabling in data centers. They offer a straightforward means of linking server hardware components to a centralized resource management system that makes effective use of IT staff resources. The six-foot-high server racks in corporate data centers can hold up to 42 servers, but each of the servers in the rack has a dedicated power supply, a fan, network cards, and cables. Blade server technology, on the other hand, shares these components between processors so that over 300 servers can now fit into the same size rack.

The blade servers are linked through high-speed communications fabrics. This allows for the rapid allocation and de-allocation of shared resources such as network cards, cables, power supplies, and so on. On the resource management side, the result is a kind of “hot swappable” data center in a rack that central IT can manage. In case of a failover event at one blade server on the rack, transactions can easily be re-routed to another without changing hardware or connections. Intelligent resource management software can actually re-provision servers so that there is no offline time or performance degradation that is experienced by system users.

Waves of the Future

A Gartner study showed that blade server shipments grew from 60,000 in the first quarter of 2004 to 107,000 in the final quarter, a growth of almost 100 percent. A projection for 2005 pegs shipments at 541,000, growing to 1.3 million by 2009. IDC saw the market as slightly bigger – 306,000 blade servers shipped in 2004, 510,000 this year, growing to 2.8 million in 2009. According to IDC, revenue from blade servers was \$1.2 billion last year and is expected to grow to \$2 billion this year and nearly \$9 billion in 2009. IBM was the top vendor, with 122,000 blades sold in 2004, followed by HP’s 106,000.

What next?

The increasing capabilities of blades and the resources focused on them by leading and emerging vendors will result in blades becoming the center of enterprise scale-out architectures. Blades will become part of a spectrum of modular server implementation choices that can coexist within a common management framework with other server design points. As interconnect technology improves, blades will eventually become another form-factor option for scale-up and scale-out architectures. They will be a stepping stone to completely flexible, interchangeable computer resource provisioning.

SMBs opt for low-cost SAN solutions

Many SMBs that are part of a larger supply chain and are linked to large enterprises are going in for networked storage in droves. The need to place a lot of information on the Web has also spurred interest in networked storage.



The way ahead for smart storage lies in low-cost SAN solutions that offer easy management and a scalable architecture

The mindset has changed, and many SMBs are migrating from DAS to networked storage, predominately low-cost SAN and a few NAS headers. Higher storage capacity and improved utilization are the primary drivers. Many SMBs that are part of a larger supply chain and are linked to large enterprises are going in for networked storage in droves. The need to place a lot of information on the Web has necessitated networked storage.

Drivers for Cheap SAN in SMBs

- SMBs want low-cost plug-and-play SAN solutions that can easily be integrated with servers.
- SANs are within the reach of SMBs and affordable as far as the pricing goes. If an SMB has two or more servers with multiple operating systems, low-cost integrated SAN boxes are an ideal solution.
- SMBs lack the skills to integrate the various elements of SAN architecture (designing and implementing a SAN). So an integrated SAN package that includes an FC switch with a number of ports, high-performance software and disk storage, and can connect to at least two servers, is ideal for an SMB.
- Low-cost SAN boxes are suited for applications such as messaging, web hosting, CAD/CAM, GIS and sharing of data across operating systems.
- A low-cost SAN offers a single point of management for databases, backup and recovery.

IBM introduces anti-spam FairUCE

IBM now offers its anti-spam technology through alphaWorks to help companies reduce the cost and security risks associated with spam, making existing spam filtering solutions more effective.

Spam costs businesses a significant amount of time, money and system resources. It has become a vehicle for identity theft and propagating viruses and worms that can devastate company reputations and IT systems.

Developed by IBM, FairUCE ("Fair use of Unsolicited Commercial Email") filters and blocks spam by analyzing the domain identity of an email using built-in identity management capabilities. FairUCE establishes an e-mail's legitimacy by linking it to its origin, establishing a relationship between an e-mail domain, e-mail address and the computer of origin. Since IP addresses are fixed, FairUCE can tell if e-mails originate from a zombie computer, boot device or legitimate email server. Unlike filters, which identify spam by scanning the content of every email, FairUCE blocks and eliminates spam from false identities.

This solution effectively minimizes the growing threats of phishing and spoofing. Content filtering also heavily taxes IT systems, siphoning off bandwidth used for business needs. FairUCE can help customers identify potentially harmful traffic before it affects their networks.

The concept is currently implemented as an SMTP proxy that runs between multiple instances of Postfix on Linux. QMail and Sendmail support are being considered. It should be possible to use existing mail servers on the inside of the proxy; Postfix is currently required on the outside (optionally on a separate boundary server, protecting one's regular servers from most spam). End-users cannot install FairUCE at this time.

FairUCE is available through alphaWorks, IBM's online community providing early adopters and innovators direct access to emerging technologies and resources created by IBM.

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WS-Security specification is almost ready

Web services security is a huge issue for IT. Many companies hold off implementing real-world Web services projects until there's a way to truly lock them. WS-Security is the specification they're waiting for.

WS-Security is an emerging standard for implementing message-level security in

Web services. Its development is being shepherded by OASIS Open. The goal of the emerging spec is to provide a standard interface between a Web service and a lower-level security provider, defining how authentication data is transferred.

The WS-Security specification was slated for an acceptance vote last June. The draft did not gain acceptance then. However, the changes remaining to be accomplished, as delineated in the WS-Security Issues List, are minimal and mostly involve cleaning up ambiguous language.

Several vendors - including IBM, Microsoft, and BEA - have already released, or are planning to release, products that

incorporate a draft PDF version of the WS-Security specification. These products should be compatible with the final 1.0 version of the WS-Security specification.

An appealing aspect of the spec is its positioning. The WS-Security Committee is not creating extra work for itself or unnecessary clutter for people implementing the specification.

The specification handles the space between existing security standards and Web services, offering an interface between them so you can use other available standards such as X.509, Kerberos, and SAML to secure Web services messages.

WS-Security is designed to work with several security standards like X.509, the XML-based SAML and the MIT-defined ticket-based Kerberos.

events

EMC TECHNOLOGY SUMMIT May 16-19, 2005, New Orleans, LA

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ORACLE OPEN WORLD SEPTEMBER 17-22, 2005, Moscone Center, San Francisco, CA

Oracle OpenWorld and the PeopleSoft Connect conference have merged into a single event. The conference will be held September 17 - 22 in San Francisco at the Moscone Center. This event promises to be bigger and better than either conference alone.

To learn more about these events, please contact your BEAR Data Systems account executive, or call 800-718-BEAR or email info@BEARdatasystems.com

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