Enterprise Strategy Group

IT Knowledge • Business Results

White Paper

Facilitating Compliance and Intelligent Information Management with Effective Database Management

A Review of Solix Technologies Enterprise Data Management Suite

By Brian Babineau, Senior Analyst & Mark Bowker, Analyst
Enterprise Strategy Group
Intelligent Information Management

March 2007

Table of Contents

Introduction

Databases are the underpinning of the digital economy. Organizations store massive amounts of data ranging from credit card transactions to product inventories inside database tables and the various rows and columns feed enterprise applications. Without this information, supply chains would not operate, payrolls would not be met, and many web sites would be empty. In essence, databases store the information that run businesses, and they are also essential in helping us organize the vast amount of digital data that is created on a regular basis. Now, more than ever, databases and associated applications should cause senior IT leaders to invest in technology that can help control peripheral costs and reduce risks created by inefficient and sometimes risky database information management processes.

Right now, information security, information privacy regulations and compliance are top of mind for worldwide organizations. One high profile data breach will result in, at the very least, a public relations nightmare and loss of customer confidence. Where are all credit card numbers, unique individual identifiers (i.e., social security or medical record numbers), bank account balances and home addresses retained? Not surprisingly, the answer is – in databases. Properly securing data is leading to long term data management issues. Most senior executives have no idea how many times databases are copied to create test and development environments nor do they understand how many people, including internal IT staff and contractors, have access to extra copies of the database. These extra copies, whether they are created for backup, reporting or testing purposes, also create the second issue -- aside from raising the security risk, they also raise storage costs.

The good news for IT is that there are ways to address compliance while improving database management, resulting in more secure information and lower overall storage costs. One solution, Solix Technologies Enterprise Data Management Suite (EDMS), provides customers with products and services to efficiently secure and manage databases, applications and other content. All of the Solix Technologies products leverage a centralized metadata repository enabling customers to manage information in context of the business application. As a result, organizations can gain control over test and development environments, upgrade legacy applications and databases, secure sensitive information and provide summarized reports on the activity of critical business applications.

Emerging Database Management Challenges

Securing Confidential Information

On average, 54%[1] of all data within corporate databases is considered confidential. As organizations capture information from many sources, such as supermarket coupon cards, frequent flyer programs and cell phone call detail records, there is an inherent risk in retaining all of this information. There are several states (US) and countries (Europe and Asia) that dictate what a company must do if any of this information is breached by an external or internal party. In 2006 alone, ESG estimates that there were over three hundred breaches that involved millions of personal records. Most recently, TJX, Inc., a major retailer, had several of its customers' credit and debit card information stolen. The result is significant public scrutiny as breach laws require companies to publicly disclose the event, which quickly drives unwanted press coverage. Worse, as customers become aware of the breach, the company is at risk of losing revenue as these constituents may take their business elsewhere, probably to a company that can adequately protect its IT systems.

Enterprises are usually subject to multiple regulations to which they need to demonstrate compliance. For example, a major bank with commercial and retail operations may need to comply with Sarbanes-Oxley if it is publicly traded within the United States, the Payment Card Industry (PCI) data security standard if it

[1] ESG Research Report: *Protecting Confidential Data*, March, 2006.

processes or clears credit card transactions and stores consumer credit data and the Gramm-Leach-Bliley Act which pertains to all financial institutions. These are a few examples of national and industry-specific regulations. If this financial services organization conducted business in California, it would also be subject to that state's breach laws, specifically SB 1386. The regulations become more complicated if the company had operations in Europe or Asia as many countries have their own requirements. As a result, an organization faces the difficult challenge of defining security controls, mapping these controls to policy statements, enforcing the policies with the appropriate technology and then managing and auditing their effectiveness.

Every organization has deployed its share of firewalls, intrusion detection and preventive systems as well as directory services controlling access to certain applications. However, often overlooked are the applications and database systems that actually house the confidential information, namely databases. As discussed previously, IT frequently makes several copies of databases to conduct testing and reporting. These operations require additional IT and business staff to access the databases. If IT does not control who has access to certain database data, there may be increased risk of an employee stealing information. As the amount of information stored within databases increases, coupled with new database application rollouts, securing confidential information during test and development poses a significant challenge to IT and a significant risk to the business if the issue is not addressed.

IT Resource Optimization

Databases consume several tangible IT resources including processing power and storage capacity. In addition, database administrators often spend much of their time trying to improve application performance by optimizing database structure or its layout on a storage system. In addition to their day-to-day responsibilities, database administrators must also support upgrade projects. With the market consolidation of enterprise application vendors and new versions of database software consistently being released, IT may be forced to deal with several scenarios. Aged applications may need to be sunsetted because the vendor will no longer support it, or there are new features in the latest release of a database that are a 'must have' for the business.

Application and database upgrades are difficult, mundane tasks dreaded by IT. These processes typically involve network, system, database, application and storage administrators with the addition of outside consultants. Weeks of planning, developing and testing scripts, as well as modeling workloads, lead up to a weekend of planned application downtime that many companies simply cannot afford. Sunsetting applications creates unique issues for IT because, while an application may no longer be live, IT still needs to maintain access to the associated information. IT must find ways to ensure that historical information is accessible by new versions of application and database software.

While application and other infrastructure upgrades as well as application sunsetting are often forced upon IT, there are other areas where database and storage administrators can improve resource management. Currently, database data, including recent and aged information, is stored on the same primary storage systems. Large databases pose data protection problems for IT as it is difficult to complete backups. Also, when a storage system fills up, another device is bought. Database storage environments are typically composed of expensive, high performance systems that keep growing. Soon, storage capital and operation costs are out of control.

IT must find ways to save historical information online at lower costs while reducing the stress on backup operations. Introducing lower cost storage systems with the appropriate database management systems can free valuable primary storage capacity for new data leaving historical transaction records easily accessible. Freeing up primary storage maintains performance without purchasing additional systems and continues to enable backup applications to protect all data within the backup window.

Upgrades and out of control storage costs create unique challenges and opportunities for database administrators. The key is to understand what the priorities are for the business and what projects will lead to the biggest benefits and then invest in technology solutions that are best suited to support the selected initiatives. In some cases, the same technology can address many of the challenges as many IT

organizations do not have a standard set of processes or products used for ongoing database management systems.

Enterprise Database Management with Solix Technologies Solutions

Introduction to Solix Technologies Enterprise Data Management Suite

Based in Sunnyvale, CA, Solix Technologies provides enterprise software to help customers manage and secure information for compliance purposes and to increase IT resource utilization. After quietly building a reputable customer base, Solix Technologies is announcing its fourth generation of products and services – the Enterprise Data Management Suite -- which leverages a common metadata repository to organize, retain and manage enterprise data through its entire lifecycle in an optimized and secure manner. Solix Technologies Enterprise Metadata Manager captures metadata from packaged enterprise applications, custom applications, several databases and e-mail. Solix Technologies' unified platform and single metadata repository provide organizations with the necessary foundation to manage information, especially databases and associated applications, more effectively, because it provides a central location to establish retention policies and quickly locate content that has been archived and secured.

The core Enterprise Metadata Manager offers a variety of functionalities that facilitate database archiving, auditing, search, and secure subsetting for testing and development. A central knowledgebase repository is created by analyzing the environment of the customer. As an example, Solix enables Oracle customers to see the various data growth rates of all application modules such as General Ledger or Accounts Payable. After this initial assessment, customers can determine specific classification policies and templates that need to be created to manage the information more effectively. Solix has a pre-populated knowledgebase for Oracle E-Business Suite and other business applications allowing customers to select tables for more effective management.

The Solix Enterprise Data Management Suite of products can be categorized into two solution sets, for compliance and information lifecycle management, both of which help customers discover, classify, archive and secure their enterprise information. ESG believes that many of the biggest opportunities IT has to reduce costs and improve business process efficiencies surrounding information privacy are achievable with a rich database management tool set. The Enterprise Metadata Manager allows companies to take several actions with enterprise data that have concrete, measurable benefits for customers.

Compliance Solutions

Solix Secure Test and Development offers a comprehensive solution masking production data as it is copied for non-production use. Since Solix Technologies transforms the non-production data into anonymous data, it renders itself useless for criminal intent but remains usable for testing and development.

The first step in acting on subset data is to create a clone of the production data. However, creating a clone provides additional responsibility and elevated risk for the organization as it must protect and secure the data. However, Solix Technologies is able to automatically replicate and mask the data before releasing it to database administrators for testing. Once the data is securely cloned, it can be further subsetted as developers may only need a few rows and columns to complete testing.

Solix Data Auditor functionality enables organizations to log any delete, update and insert activity performed on a particular table in the database by any user (authorized or unauthorized). Solix Technologies again leverages a central metadata knowledgebase and audits data for changes by logging unprivileged access to specific parts of the data. This ensures database security and creates an audit trail for internal use or to support compliance initiatives.

The production database is audited for any data value or metadata change and unprivileged access of sensitive data is logged, providing a method to capture and track unauthorized usage. The audit logs are archived to a central repository that enables administrators to run reports on data access activities. Notifications can be configured to send alerts based upon unwarranted events. Auditing provides the ability to know what happened to a database and who performed the action – knowledge that is critical in preventing further destruction and swift problem resolution minimizing the risk of downtime. Building best practices that combine the masking of data for test and development, auditing the masking process and auditing any changes to the production data enables businesses to build cost effective controls.

Information Lifecycle Management Solutions

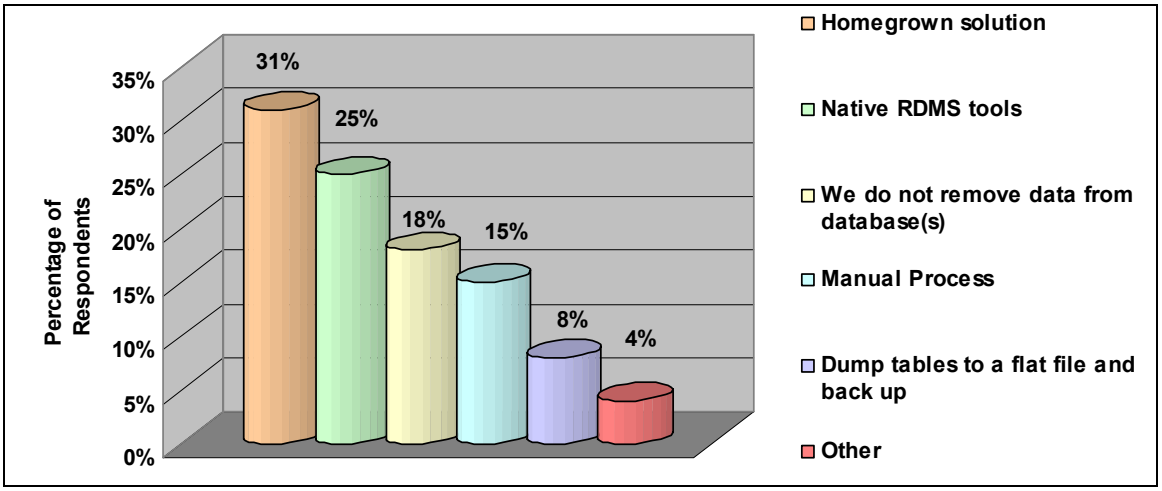
Solix Enterprise Archiving includes retention solutions for database, e-mail, documents and reports. Solix Technologies supports database archiving for Oracle eBusiness Suite, Oracle Peoplesoft, Oracle JD Edwards and custom applications, enabling seamless extraction and movement of database information onto all tiers of data storage while ensuring the data can be accessed for query or reporting purposes by the various applications. Solix Technologies enables organizations to free valuable primary storage capacity for new data while leaving historical transaction records easily accessible.

Solix Application Sunsetting and Migration provides solutions as part of an overall application implementation or migration project. The Enterprise Metadata Manager lays the foundation, enabling database administrators to map metadata between applications and define conversion rules for migrating production data off legacy applications. During the migration process, aged data can also be archived.

Achieveable Benefits of One Database Management Suite

The simple answer to enable IT to manage structured data is to extract information from production databases in order to take some action with it, including migration to lower cost storage systems, creation of a test and development environment or instantiation of a copy for backup. These processes are often done via a plethora of homegrown or native database tools, as shown in Figure One[2], leading to inconsistent data management practices. The result is the creation of more copies of the same data that then forces IT to buy more storage and increases the chance that sensitive data can be accessed by unauthorized parties.

Figure One – Current Methods Organizations Use to Remove Inactive Data from Production Databases



When deploying Solix Technologies Enterprise Data Management Suite, the immediate benefit to customers is more control. Customers have the ability to manage their databases in line with their business requirements and IT objectives. For example, if IT storage costs are exponentially increasing,

[2] ESG Research Report: *Digital Archiving: End-User Survey & Market Forecast 2006-2010*, March, 2006.

then Solix Technologies solutions can help customers deploy multiple tiers of storage, allowing for more data to be retained online at a lower cost.

Solix Technologies Enterprise Data Management Suite enables seamless extraction and movement of database information facilitating sunsetting or application upgrades. Archiving data before migrations and upgrades takes an enormous burden off the already tedious task and can potentially save substantial time and cost. Historical data is archived and production data remains available both for the upgrade and new applications that are implemented in the future. Solix Technologies' ability to efficiently reduce the production data set enables organizations to automate data migrations and perform upgrades seamlessly with minimal impact to the application. The downstream impact of archiving data before upgrades can include faster upgrade cycles and reduced reliance on expensive consultants.

The same solution from Solix Technologies masks sensitive information based on policies by altering the proprietary original data so that users performing test and development routines on the data are not able to determine the actual original values. Solix Technologies also tracks any changes to the database and logs these changes to provide a comprehensive audit trail.

A single data management platform can also help an organization when it is engaged in legal matters involving electronic discovery. While many believe that electronic discovery pertains only to e-mail, organizations have had to produce a myriad of business records as part of ongoing legal processes, including financial statements and employment files, many of which are created and retained within databases. Solix Enterprise Metadata Manager provides a central repository, allowing for searches to be conducted across all of the different archive silos, if certain database or other information is requested as part of an e-discovery inquiry. Businesses can quickly cull through data significantly reducing the size of the data set and only producing pertinent information.

IT faces several challenges when trying to manage databases as there are tools on the market that perform data security functions, but they require lengthy development and a DBA to execute them as well as content archiving solutions. Solix Technologies is one solution suite with a centralized metadata model capability which extracts intelligence from the application, allowing users to subset, archive, sunset and audit database information.

Demonstrable Proof of the Benefits Delivered by Solix Technologies

(Editor's Note: ESG interviewed a Solix Technologies customer to obtain the following information. The customer, due to internal public relations policies, requested that the name of the company remain anonymous.)

This global logistics company, noted for its worldwide delivery services, utilized Oracle E-Business Suite for Human Resource Management and Financials. When the IT staff realized that its database server maintenance contracts were about to expire, they knew it was time for a major hardware upgrade. This issue kicked off a series of other database related projects as they wanted to migrate from Solaris to Linux-based servers and deploy a fibre channel storage area network. As a result of all these changes, the company needed to quickly create several secure database test and development environments for application development and quality assurance.

This particular company ran Oracle E-Business Suite that accessed information from a 320 gigabyte (approximate size) database. This database housed employee's salaries, financial transactions and other sensitive information. Because many of the database administrators have 'administrator' privileges to development systems, creating subsets of database for testing posed a security risk. The final requirements for the company were to create multiple subsets of the production database where the sensitive information could be masked and scrambled for test and development purposes.

This company's objectives are closely aligned with broader market trends. ESG conducted research[3] with IT, business and records management professionals in North America regarding digital archiving

[3] ESG Research Report: *Protecting Confidential Data*, March, 2006.

processes and technologies. Controlling and securing the information in both the company's production and development is a top priority. ESG Research also found that the majority of organizations are utilizing homegrown solutions to remove inactive data from databases which proves to be an inefficient method and does not scale to meet enterprise-level requirements.

The global logistics company implemented Solix Technologies EDMS to create seven subsets of its production database for test and development. With a series of database infrastructure projects ongoing, the IT staff needed to instantiate these environments quickly. Solix Technologies was able to meet the company's deadlines, turning a proof of concept into production implementation within eight weeks. The 320GB production database was reduced to 150GB subsets and all sensitive data was secured via masking and scrambling during the subsetting process. With Solix Technologies EDMS product flexibility, the company was able to define specific data types to hide or scramble in the subsets while the information within the production database remained unchanged. The new secure database subsets for test and development environments enabled them to continue to focus on development projects with confidence.

By subsetting smaller tables from the production database, the company reduced the total capacity needed for testing and development by 50% equating to a terabyte of storage savings. More importantly, they were able to mask sensitive data based on customized policies they configured using Solix Technologies EDMS. As a result, IT can extract the appropriate information, maintain its referential integrity, store it at reasonable cost without sacrificing accessibility and improve control for enhanced security.

In the future, the company plans to further leverage the centralized database repository created by the Solix Enterprise Metadata Manager to achieve additional storage savings by archiving aged data including older General Ledger entries. As a result, future test and development subsets will be smaller, and they expect that application performance will increase without adding servers because there will be less data to process after the older information is archived.

This global logistics company needed secure test and development database environments and Solix Technologies was able to deliver a solution that met these requirements. Now, the company will continue to expand their database improvement projects by archiving historical information to further reap the benefits of Solix Technologies Enterprise Database Management Suite of products.

Conclusion

As application and database information grows, the costs associated with managing, securing and storing the data exponentially increase. IT must also deal with ongoing challenges such as evolving information privacy regulations, more frequent electronic discovery events and constant application upgrade opportunities that exacerbate daily data management tasks and increase corporate risk.

ESG believes that many early adopters of database archiving software are just beginning to leverage the solution's full capabilities. Today, organizations use several approaches to manage databases in the hopes of improving performance. Solix Technologies' strength lies in the ability to manage data across all content types and provide consistent retention and security policy enforcement via its security policy enforcement via the Solix Enterprise Metadata Manager.

Solix Technologies' compliance (subsetting and auditing) and information lifecycle management (archiving and sunsetting) solutions addresses several of the issues facing IT departments, including data security, which mitigates the risk that personal information is stolen or breached during application testing, as well as the ability to subset databases with referential integrity by moving inactive data to less expensive storage systems. With several enterprise partnerships, including Oracle, IBM, EMC and Google, Solix ensures that its fourth generation EDMS Suite provides customers with an integrated platform of offerings that facilitates information management throughout the data lifecycle.

As an example, organizations must invest in solutions that improve database security because they cannot risk losing thousands of customers' personal information because IT failed to secure all copies of a

database within a test environment. While it is hard to determine the exact financial damage, consider that there were 1,100 new articles on the TJX breach indexed by Google's News Service during the four weeks after the event became public. The issues are far worse than the poor application performance and elongated backup windows that are commonplace occurrences when database information becomes unmanageable.

It is imperative for customers to understand their database management challenges and the external influences, such as security and privacy regulations, that further exacerbate ongoing operational processes. After determining the policies and processes to support compliance and information lifecycle management issues, customers should then evaluate several database management solutions to determine which best meets their requirements. As several of its enterprise customers, including the global logistics company that ESG interviewed, can attest to, Solix Technologies Enterprise Data Management Suite has excelled in many of these evaluations, alleviating many of today's challenges that impede efficient structured information management. Solix Technologies must continue to innovate and leverage the Solix Enterprise Metadata Manager in order to stay on top of market trends where the ever-changing database management requirements demand more from their solution providers.