SOLIX®
Empowering Data Management

A SOLIX WHITEPAPER

SOLIX EDMS AND ORACLE EXADATA : TRANSITIONING TO THE PRIVATE CLOUD

SEPTEMBER 2012

Mark Lee
Senior Vice President, Services
Solix Technologies, Inc.
http://www.solix.com

SOLIX®
Empowering Data Management

Contents

Introduction..... 1

The Challenge.....1

The Solix EDMS Platform..... 3

Solix and the Transition of Oracle Applications to Oracle Exadata 4

Preparing the Application 4

Maintaining the Application on Oracle Exadata..... 6

Conclusion:..... 7

Footnotes:..... 8

Introduction

Many companies have reached a critical point where their dependence on information technology and the internal IT organization's ability to rapidly deliver new IT services are no longer in alignment.

Cloud computing provides a new vision for companies who are hoping to improve their IT level of service at what they hope is a lower cost. Even though many associate cloud computing with remote data centers and third-party providers, many large rganizations have recognized the advantages of developing their own private cloud infrastructure to deliver the same cost effective economies of scale that third party cloud service roviders are achieving. To meet this need, Oracle introduced the Oracle Exadata Database Machine and the Oracle Exalogic Elastic Cloud Server.

Oracle Exadata provides a natural platform for application database consolidation; many companies will want to migrate applications, including their Oracle applications (e.g. E-Business Suite, Siebel, PeopleSoft) to the new platform. Despite the obvious value proposition of Oracle's "Exa" stack, it does not eliminate the need for strong data management before, during and after consolidation. The Solix Enterprise Data Management Suite (Solix EDMS) data governance platform can assist organizations with their data management needs as they transition to the private cloud. This paper will discuss how Solix EDMS has been adapted for the cloud computing model and how it can assist organizations to make the transition to a private cloud such as Oracle Exadata and maintain efficient utilization of the cloud infrastructure over the long term.

The Challenge

Private clouds deliver lower TCO and improved service levels by simplifying the infrastructure. The entire economies-of-scale value proposition of the cloud is predicated on the notion that the infrastructure is standardized and that configuration is then shared to support many workloads. In the traditional model, the IT organization would have supported whatever combination of software and hardware required to create an infrastructure for a particular vendor's application. With cloud computing, business users have to divorce themselves from thinking about specific applications and begin to think in terms of services. They may require a service that manages inventory or a service that handles credit card reconciliation but in order for private cloud computing to be a success, users have to consume the services offered on the private cloud. If a service is not available on the private cloud, the IT organization needs to develop or acquire a package that both provides the required service but also runs on the private cloud infrastructure. While this change appears to be subtle, the implications for "business as usual" within the IT organization are huge.

Oracle Exadata is an engineered system that combines a cluster of hardware compute servers and a cluster of hardware storage servers together with database software optimized to run a variety of workloads by fully utilizing the hardware cluster. By definition, the Oracle Exadata Database Machine is a standardized, complete, database infrastructure. Much of its value proposition is based on this notion of standardization.

It's what enables Oracle to optimize the configuration, streamline patching and upgrading and significantly reduce the risk of change for thousands of customers who have bought Oracle Exadata. While standardization delivers huge benefits for many organizations, it can
seem painful because while they are eliminating complexity, they have to embrace limited software options.

Currently Oracle Exadata supports only a single version of its database, Oracle Database 11g R2. It runs a single version of the Oracle Unbreakable Linux operating system and a single version of Oracles Exadata Storage software. While this simplifies things for the administrator of the Oracle Exadata platform (and Oracle Support), it provides a challenge for companies that want to consolidate both their existing Oracle applications and any other applications onto Oracle Exadata. These are just a few of the bigger questions:

- Do we need to upgrade the application before the consolidation to Oracle Exadata?
- Which applications should be retired in favor of functionality contained in newer applications?
- Do we move all the data?
- What is our test data plan for the new shared infrastructure?
- What do we do with data as it ages on the private cloud?

All of these issues are data management problems.

Solix EDMS and the transition to the Cloud

The need for effective data management is not new but the transition to cloud based infrastructures afford enterprises the opportunity to emphasize strong data management practices. Unfortunately, strong data management often took a back seat to the constant need to sustain the complex hardware/software infrastructure. The imposed simplicity of the cloud enables IT organizations to shift their focus to the much higher value task of true data management.

In today's business climate, effective data management has become a vital business issue, debated not just in the CIO's office but in the CFO's, legal counsel's and, in some cases, state and federal courts, and corporate boardrooms. Effective data management is a key to controlling CapEx investments in the Data Center, increasing IT effectiveness, and responding in a timely manner to compliance and litigation requirements.

Solix cloud enabling solutions speed the transition to the cloud through rationalization of your application portfolio and consolidation of legacy data onto private, public and hybrid cloud infrastructures. Solix EDMS can transition only the relevant application data to the cloud, while other legacy applications can be immediately retired leading to significant cost elimination and enabling the simplified cloud based infrastructure. While the Solix EDMS helps organizations transition to, and maintain data in their cloud infrastructure of choice, the platform itself has been adapted for use based on the cloud model.

- Allowing enterprises to adopt a pay-as-you-go pricing model for the data management services such as database archiving and application retirement

- Allowing enterprises to rapidly provision and share Solix platform in private cloud infrastructure using either software or virtual appliance models

The Solix EDMS Platform

Solix EDMS is an unified and integrated data governance platform to address the need to manage data holistically to ensure compliance, manage cost, improve performance and operational efficiencies, and maximize data security. It gives IT and the business control over its vital structured data through consistent enforcement of business rules across the enterprise.

Its leading edge components include:

- **Solix EDMS Database Archiving,** Solix EDMS Database Archiving enforces business policies for classifying, tiering, archiving and managing the lifecycle of structured data for prepackaged applications such as Oracle E-Business Suite, PeopleSoft Enterprise Applications, Siebel, JD Edwards, Oracle Transportation Management, BaaN , custom applications or data warehouses. Often used just prior to an application upgrade as it eliminates the processing time to read and convert older data that is no longer active. Solix can handle upgrade changes to the archived data asynchronously from the actual upgrade, thus freeing valuable cycles and limiting the downtime to complete the upgrade.

- **Solix EDMS Application Retirement**, which empowers application portfolio management by automating the process of retirement of obsolete applications while archiving vital data, thereby allowing companies to reassign expensive IT staff and shut down or recycle servers and storage systems while guaranteeing integrity of all data archived. Any transition to a cloud infrastructure must include portfolio management to both reduce costs and rationalize individual services in order to gain the economies-of-scale associated with cloud computing.

- **Solix EDMS Data Discovery,** addresses the key issue of identification of confidential and sensitive information such Personally Identifiable Information (PII), Payment Card Industry (PCI), and Personal Health Information (PHI) data elements before they can be masked. With simple-to-use process-driven user interaction, Solix EDMS Data Discovery guides users from connecting to heterogeneous databases to identifying sensitive data and taking specific actions of masking the selected data elements. Solix EDMS Data Discovery comes with pre-built search patterns that can search against metadata or the data for standard PII data elements. It can be further customized to meet enterprise or industry specific requirements.

- **Solix EDMS Test Data Management,** which manages database cloning and subsetting for automated creation of databases for testing, development, QA, and other non-production applications while reducing infrastructure costs and improving development cycles. With obvious use cases for populating test environments, subsetting and cloning are also powerful tools to quickly instantiate data marts in the cloud for analytic exploration.

- **Solix EDMS Data Masking,** which ensures data security and compliance by masking sensitive data in test databases using several masking algorithms and at the same time aintaining referential integrity of the data to keep the application testing process seamless. Such a tool provides the extra security necessary when the testing infrastructure is a shared environment either on a public or private cloud.

Solix and the Transition of Oracle Applications to Oracle Exadata

For many companies, their basic business operations are dependent upon Oracle applications such as Oracle E-Business Suite, PeopleSoft and others. As a certified Oracle partner, Solix has deep support for the specific data management needs of companies using these applications. These applications can be a complex combination of hundreds of database objects and business rules. Solix EDMS platform comes with pre-packaged metadata for Oracle applications to simplify data management processes and lower the TCO for managing the growth of the data.

Preparing the Application

Let's take the consolidation of Oracle E-Business Suite modules onto an Oracle Exadata private cloud infrastructure as an example. A transition to a new platform like Oracle Exadata might be relatively straight forward or could be a significant change. For example, Oracle Exadata hosts an Oracle database on a clustered configuration. For many customers, this might be their first exposure to supporting a database using the Oracle Real Application Cluster option. It is never a best practice to combine too many major changes at one time, so if an organization was running an older release of Oracle E-Business Suite and was planning to upgrade to the latest release as part of the transition to the private cloud, it might be necessary to complete that application upgrade before the migrating to Oracle Exadata. Based on Oracle's own best practices users should consider archiving data out of the mainline application prior to the upgrade. Oracle strongly urges this as it minimizes the amount of data that needs to be upgraded, therefore speeding the time of the upgrade and limiting downtime. Indeed, Oracle states that if such a strategy is not in place prior to the upgrade, your organization should "strongly consider implementing one."

Solix EDMS provides data archiving capabilities specifically designed for Oracle E-Business Suite and other Oracle applications. Since a number of business rules often must be applied prior to deciding which classification (keep, archive, purge) a particular business object in a network of large table might have, applying simple timestamp logic is not sufficient. In fact even if the database could determine when the last access to a row was made and base

archiving decisions on that criterion (not a feature of Oracle Database 11g) it would not take into account all the business rules surrounding a transaction. Determination of a complete transactional business object (meaning a transaction that can be spread across tables, tablespaces, and partitions) is key to making sure that data classification and archiving are done appropriately without breaking the application and data and application integrity.

As an example, determining if an Accounts Receivable (AR) module transaction is eligible for archiving might be based on complex set of business rules such as:

- All transactions must be closed
- All transactions must be posted to the General Ledger, because AR considers a transaction as posted only if the record with respect to a transaction has a valid date of posting in GL
- Transactions applied to a commitment are not eligible for purge until the commitment is closed
- If the transaction is a receipt, it must be either fully applied, or unapplied and reversed
- If the GL Date Type parameter is Invoice/Receipts/All GL Date then all
- Invoice/Receipts/All GL dates must be prior to the end date of the period specified
- On top of this the transaction to be considered as closed will have to follow nested rules depending on whether it is an Invoice, Debit Memo, Credit Memo, Charge back, Deposit, Guarantee, Cash Receipt, or Adjustment

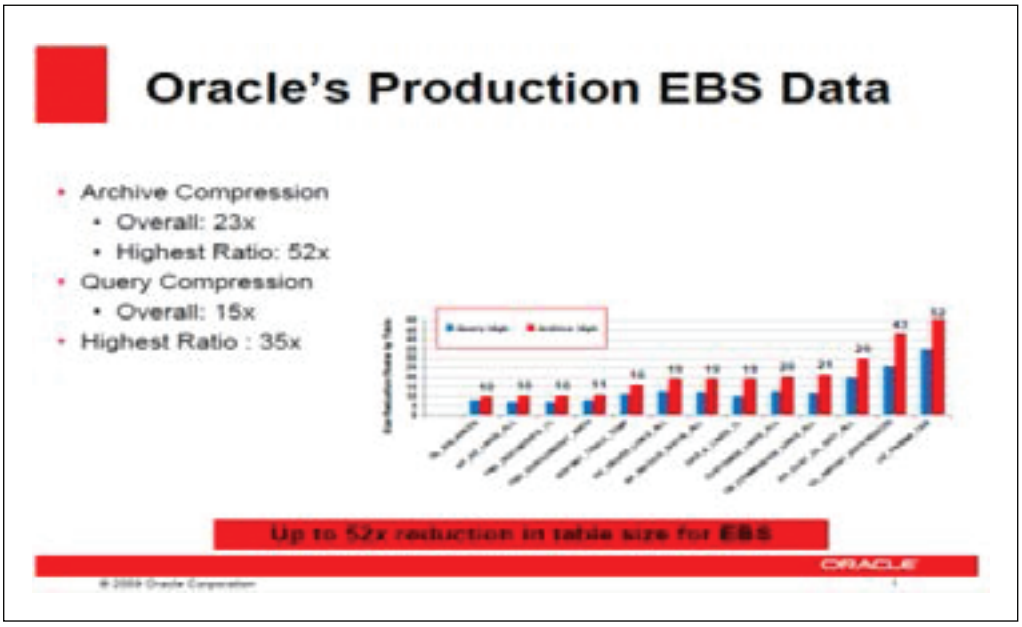
Solix EDMS helps organizations determine the eligibility of data with out-of-box business criteria for Oracle applications such as Oracle E-Business Suite that can be easily customized.

Test data for use in testing the upgraded application is also an upgrade best practice when upgrading Oracle E-Business Suite. Many companies might want to use the fast cloning capabilities of Solix EDMS to create a test bed for the upgraded application. Others may have a separate test environment and require a much smaller yet consistent copy of the production Oracle E-Business Suite environment. Solix EDMS delivers database subsetting capabilities that enable organizations to do just that, saving significantly on testing time and infrastructure costs. Of course exposing sensitive production data such as social security and credit card numbers to a test environment is a huge security exposure. Solix EDMS enables your IT organization to discover and mask sensitive data without impacting the consistency of the data itself so that testing can be conducted accurately and with complete security.

Maintaining the Application on Oracle Exadata

With respect to preparing your Oracle E-Business Suite for transition to Oracle Exadata, we discussed how Solix EDMS assists with data archiving and purge, test data creation and data masking. All of these data management tasks are still important after you re-platform onto Oracle Exadata. Oracle Exadata is designed to be a shared infrastructure just as one would expect for a private cloud.

As more and more applications are consolidated to Oracle Exadata even the considerable amount of storage offered in the quarter rack, half-rack and full-rack configurations can become fully utilized. In addition, while Oracle Exadata promises 10X average performance gains, those types of service level objectives can become harder to meet over time without buying either additional Oracle Exadata machines or buying Oracle Exadata Storage Expansion racks. Unlike older, more traditional infrastructures that you may have run an Oracle database on, Oracle Exadata storage is databaseaware, meaning it has an expensive software component that must be purchased every time you expand your Oracle Exadata storage capacity. To make storage on Oracle Exadata more efficient, Oracle has included some nice compression options such as their Advanced Compression Option (ACO) for use in compressing transactional data and the Oracle Exadata exclusive feature known as Hybrid Columnar Compression (HCC). Unlike the ACO the HCC feature is used to compress older data that is no longer actively accessed. This option would seem to be perfect for storing data in your company's Oracle E-Business Suite instance. Oracle itself touted the use of such an approach in one of the presentations. Below is a slide from Oracle that shows the potential savings.



As explained earlier, Solix EDMS provides out-of-box support for archiving Oracle E-Business Suite data. Most organizations archive older data but do not purge it completely. This makes older data available in the future if there is a need. Users can choose where their Oracle E-Business Suite data archive will reside and most prefer it to reside within the same database instance as production but in a separate table and tablespace. Solix EDMS can easily comply with this setup and because of its tight integration with Oracle E-Business Suite and use of Oracle database features it can enable the storage of an Oracle E-Business Suite data archive in a table that has HCC turned on. Queries that include both active and archive data run seemlessly, if perhaps better due to the efficiency of accessing data so highly compressed. Solix EDMS solves the data upgrade issue that prevents Oracle from natively supporting its own database feature by managing the upgrade of the archive asynchronously from the actual Oracle E-Business Suite upgrade process. In this way, Oracle E-Business Suite customers can get full value from their Oracle Exadata investment.

Conclusion:

Cloud computing provides a new vision for companies who are hoping to improve their IT level of service at what they hope is a lower cost. Oracle Exadata is the world's first IT solution to provide the ability to purchase an entire infrastructure from a single vendor designed and optimized to work together. This engineered approach breaks the traditional model of IT infrastructure provisioning and delivers a simplified path to developing a company's private cloud.

Oracle Exadata provides a natural platform for application database consolidation. Many companies will want to migrate applications, including their Oracle applications (e.g. E-Business Suite, Siebel, PeopleSoft, JD Edwards) to the new platform. The Solix Enterprise Data Management Suite (EDMS) platform assists organizations with their data management needs as they transition to the private cloud. Included is specific knowledge of Oracle's applications to help companies adhere to Oracle's own best practices by providing data archiving and test management for Oracle applications and others. Solix EDMS helps to both prepare the application to be consolidated to the private cloud but also delivers the tools to efficiently manage the data application lifecycle once it is consolidated to the private cloud, be it on Oracle Exadata or some other standardized infrastructure. Indeed, Solix EDMS unlocks the some of the unique features of Oracle Exadata by enabling Oracle E-Business Suite customers to utilize advanced features such as hybrid columnar compression that without Solix EDMS would go unused.

Cloud computing holds the potential for organizations to get out of the business of building and maintaining IT infrastructure or at least spending less to do so. It does not eliminate the need for strong data management over the lifetime of the production application and in maintaining valid test environments with secure and valid data. Solix EDMS is the tool to help your organization manage this transition.

Footnotes:

1. Best Practices for Upgrading Oracle E-Business Suite, Tip #23, Oracle Corporation, July 2011

2. Best Practices for Upgrading Oracle E-Business Suite, Tip #24, Oracle Corporation, July 2011

Solix Technologies, Inc.
4701 Patrick Henry Dr.,
Building 20
Santa Clara, CA 95054
Phone: 1.888.GO.SOLIX (1.888.467.6549)
1.408.654.6400
Fax: 1.408.562.0048
URL: http://www.solix.com