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Informatica Data Archive with Oracle ZS3 Storage Appliance

An Oracle Informatica Solution Brief
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EXECUTIVE OVERVIEW

The recent explosion in the amount of data that your company stores greatly impacts your production environments and challenges your administrators. How to keep your applications performing at their highest level, how to manage the ever increasing amount of data while respecting maintenance windows and SLA's? How to handle all this data without impacting the business? These are questions that IT management and personnel have to answer daily. Informatica Data Archive with Smart Partitioning and Oracle ZS3 Storage Appliance features complement each other in a unique way and offer you a best of breed solution in terms of performance, cost-savings and manageability to answer these questions.

INTRODUCTION

Today most companies are witnessing an explosion in the amount of data that they store. It has recently been estimated that large databases grow by 65% year after year, and that 85% of the data contained in these large databases is inactive. This often out-of-control data growth stems from a variety of sources: business growth, acquisitions, multiplication of silo applications, maintenance of legacy applications and of course legal compliance requirements.

Too often this situation negatively affects your IT department. Applications run too slow, users complain of queries and reports taking too long, soon your SLA's are impossible to keep. DBA's and system administrators spend their time reacting to events instead of pro-actively ensuring the health of your systems. Database backups go over their allotted window, instantiation of Dev/Test environments are slow to deploy and often nearly impossible to do so with any kind of fine granularity, resulting in more wasted storage space. Requirements for more hardware and poor operational efficiency keep I.T. costs climbing.

This solution brief provides an outline of Informatica Data Archive with Oracle ZS3 Storage Appliance architecture and illustrates the superiority of the joint solution in terms of performance, scalability, resource utilization, manageability, availability, and cost savings. The Informatica Data Archive, Smart Partitioning and Oracle ZS3 storage appliance tiering joint solution is a comprehensive solution for solving database performance issues as well as accompanying data management challenges.

INFORMATICA DATA ARCHIVE FEATURES AND BENEFITS

Informatica Data Archive allows for Complete Data Lifecycle Management. It has visibility into the database through two features: Data Growth Analyzer to identify the fastest growing areas in your databases and ILM Performance Monitor, to monitor database performance in order to identify data trends and conduct what-if scenarios to improve application performance. Informatica Data Archive's unique Smart Partitioning feature leverages Oracle Partitioning. Smart Partitioning combines complete transaction data models with business and operation policies to ensure that the resulting segments form a single logical schema insuring total transparency for the application. The fact that these segments can be managed and accessed independently from each other, while respecting referential integrity, allows for significant improvement in performance and manageability. Smart Partitioning complemented by such features as Access Layer policies allows business users to selectively access only data that is useful to them, dramatically improving the application performance without addition of hardware. Consistency in application response time and processing further helps administrators meet their SLA's. Retention policies as well as automatic tiering and archiving processes can further improve application performance and database manageability by reducing the overall size of your production database. Smart Partitioning and Tiering are performed without breaking the application data's referential and business integrity and retains appropriate levels of access to data. Smart partitioning has been shown to improve performance by up to 80%.

Informatica Data Archive Accelerators validated for Oracle E-Business Suite help administrators take quick advantage of Smart Partitioning and guarantees the integrity of their Oracle Application during and after data segmentation and archiving cycles.

Informatica Data Archive with Smart Partitioning automates ongoing segmentation tasks making this offering eliminate hours of manual scripting.

From Date 01-May-2011   To Date 30-Jun-2012   Exclude Weekends ☐

Event Buffer Gets Per Exec ▼   Instance Number All ▼   Exclude Dates (use comma ',' as delimiter)

Sql Id fw7vqqn136k3z

Buffer Gets Per Exec Trending Graph for SQL_ID fw7vqqn136k3z
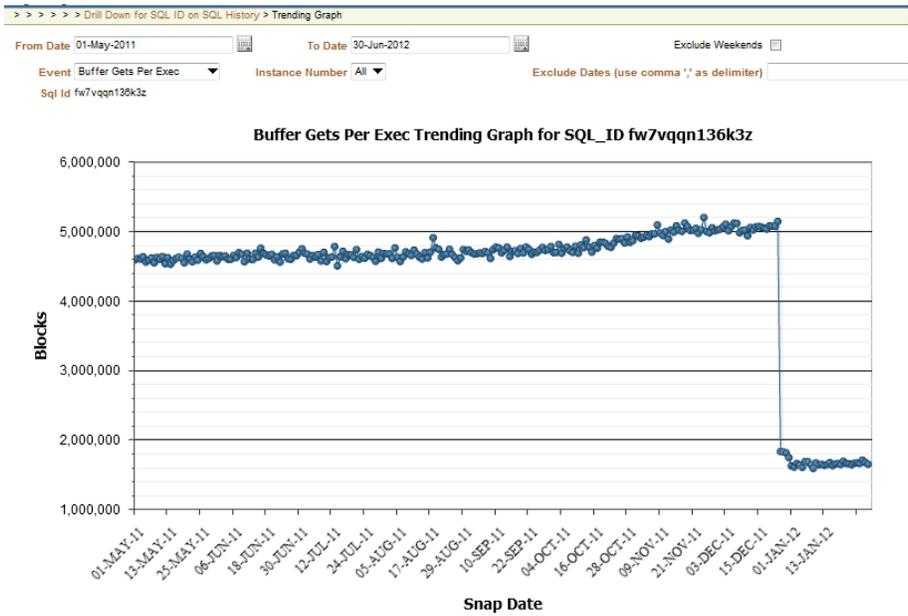
The above graph shows the impact on using smart partitioning. By only accessing the data necessary to solve the query the amount of data blocks accessed is reduced by approximately 65%, allowing for a much improved response time and resource utilization.

On top of partitioned data Informatica Data Archive allows you to use its intelligent storage tiering features to optimize storage across multiple storage tiers. In a typical implementation, business data matching the current business quarter is placed on lightning-fast storage (DRAM or Flash technology), less accessed data, like the last three business quarters for example, resides on HDD, and less frequently accessed data resides in highly compressed relational archive store. Oracle ZS3 Storage Appliance is the perfect storage platform to implement this model. You get to choose amongst multiple compression options that allow you to further optimize for greater performance, data management and availability.

ORACLE ZS3 STORAGE APPLIANCE FEATURES AND BENEFITS

The Oracle SUN ZS3 storage appliance is a high-performance NAS storage appliance with Unified Storage capabilities. It provides a platform to run your applications faster and more efficiently, and increase business and IT productivity thanks to its advanced software and hardware architecture. Amongst its many ground-breaking features, are

- Unique set of management and analytics tools which reduces time and complexity, simplifies management and lowers operating costs.

- Optimized storage hierarchy with Hybrid Storage Pool architecture: automatically caches hot data on DRAM or flash, while keeping a copy on HDD for safety.

- High availability with clustering of active-active controllers.

- Enterprise-class Data services like snapshots, clones, thin provisioning, replication, and four compression algorithms.

Oracle Integration key features

Oracle ZS3 Storage appliance integrates seamlessly with Oracle Database to reduce risk and increase efficiency. The key features are:

- Oracle Snap Management Utility for Oracle DBAs

- Oracle Intelligent Storage Protocol - an advanced communication path between ZS3 and RDBMS 12c, for greater insight and granularity. The database sends metadata to ZS3 about each IO, allowing ZS3 to intelligently process IO's and tune itself for optimal performance. This feature enables over 65% savings in manual admin time.

- Reduced storage footprint , energy use, and cost with Hybrid Columnar Compression for Oracle Database .

Hybrid Columnar Compression

In addition to the standard compression methods, Hybrid Columnar Compression technology organizes data within a database block by using a combination of both row and columnar methods for storing data. This approach achieves the compression benefits of columnar storage, while avoiding the performance shortfalls of a pure columnar format.

Hybrid Columnar Compression is enabled when Oracle Database detects that the Oracle ZS3 Storage Appliance is attached to the database server. FC and iSCSI connectivity are supported as well as NFS via Oracle Database Direct NFS Client.

Enterprises running archival Oracle Database workloads for data warehousing or mixed workloads can achieve 10x to 50x reductions in their data volumes and they can accelerate queries by 3x to 8x by using Oracle Hybrid Columnar Compression on the Oracle ZS3 Storage Appliance. This capability helps you achieve 3x to 5x reductions in your storage footprint and associated data center costs as well as

ORACLE ZS3 STORAGE APPLIANCE KEY FEATURES

Hybrid Columnar Compression which delivers 10 x to 50x compression ratios

Advanced, intuitive management tools

Data compression and inline deduplication

Optimized storage hierarchy with Hybrid Storage Pool architecture

High-performance NAS storage appliance

Extensive SAN storage capabilities (unified storage)

Reduced complexity and simplified storage management

Integration with Oracle database technology

significant performance gains because data is accessed and moved in compressed format.

| Table Compression Method	Create/Alter Table Syntax	Direct-Path Insert	Notes
Basic compression	COMPRESS [BASIC]	Rows are compressed with basic compression.	Does not maintain compression for Data Manipulation Language (DML) INSERT/UPDATE operations after bulk load.
OLTP compression	COMPRESS FOR OLTP	Rows are compressed with OLTP compression.	Maintains compression for DML operations.
Warehouse compression (Hybrid Columnar Compression)	COMPRESS FOR QUERY [LOW|HIGH]	Rows are compressed with warehouse compression.	Ideal for active data warehouses.
Archive compression (Hybrid Columnar Compression)	COMPRESS FOR ARCHIVE [LOW|HIGH]	Rows are compressed with archive compression.	Ideal for archive/historic data.

Above is a table of the different compression technologies available on ZS3 Storage Appliance storing one or several Oracle databases.

HOW THE JOINT SOLUTION INCREASES APPLICATION PERFORMANCE AND EASE OF DATA MANAGEMENT

The multiple levels of compression offered by Oracle ZS3 Storage Appliance are the perfect complement to the intelligent Storage tiering solution provided by Informatica.

The solution provides a unique level of granularity in storing Tier2 data segments in ZS3 for maximum performance, scalability and storage efficiency. Thanks to multiple compressions options offered by ZS3, you can extend the notion of Tier2 by mapping the different segments and their business value to a fine-grained compression strategy, practically eliminating the need for a Tier3 environment. Oracle ZS3 Storage Appliance's very competitive price point makes it perfectly

adapted for this role. The inactive data is always online on the ZS3 platform and can be accessed, when needed, from your application interface.
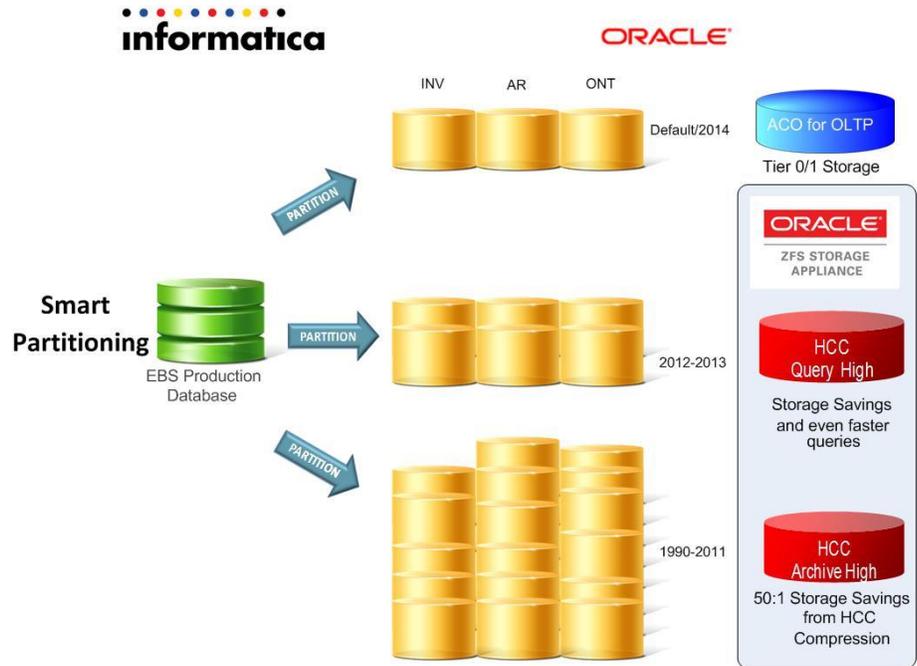
Above is an example of how the Informatica Tiering strategy can be mapped to Oracle ZS3 different compression levels.

The performance and space savings demonstrated by Oracle ZS3 storage appliance, as well as its extremely competitive TCO blurs the line between Tier 1 and Tier2, allowing you to release more space on your Tier 1 system and thus compounding the savings. Intelligent Storage tiering combined on Oracle ZS3 Storage Appliance not only provides unparalleled Tier2 performance it also enables an intelligent 'divide and conquer' approach to data management that ensures the referential and business integrity of your data once the data management operation is completed.

The application-aware segmentation of your data provided by Smart Partitioning with the advanced data management and visualization interface, when combined with the Oracle ZS3 storage appliance, becomes the foundation of a complete and robust data management strategy. This strategy can be applied to the following data management operations:

- Active data only backup – Segmented and archived inactive data is read-only.

- Company divestiture - Segment the data along subsidiary dimensions, replicate the data and drop the irrelevant partitions.

- Dev Test deployment - Only select relevant business data. Optionally use Oracle Snap Management feature of ZS3 to easily create as many clones as needed. Refresh is driven by same business logic used in partitioning.

- Routine maintenance – When performed independently on different segments of the same objects will shorten maintenance windows and decrease risks.

CONCLUSION

With increasing amounts of data that greatly impact application performance and make data management and acceptable service levels all but an impossible task, Informatica Data Archive with Smart Partitioning and Oracle ZS3 Storage Appliance's combined unique strengths offer you a joint solution that addresses your data performance and management challenges.

Data Archive provides the logic and the tools to successfully implement intelligent tiering, while Oracle ZS3 storage appliance provides unique compression and performance features. Application performance improvement and consistency give you the upper-hand on your service levels. Data management tasks are faster and simplified not only because of the reduced amount of data they have to handle but also because they can take advantage of the Smart Partitioning built-in intelligence.

This joint solution benefits your entire business by enabling storage cost savings, reallocation of IT resources, increased ROI, higher end-user satisfaction as well as process automation and simplification.

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