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Achieving a Virtual Financial Close with Oracle Exalytics In-Memory Machine
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Executive Overview

For most companies the month or quarter end financial close process consumes an enormous amount of time and resources all designed to generate a “report card” of their financial performance. The complexities of multi-GAAP reporting, especially for customers with multiple ERP systems, combined with management reporting requirements has made the month end reporting process an overly complex and cumbersome exercise.

Finance organizations have always desired a faster and more efficient close, but the ever changing regulatory environment have made this goal very difficult to achieve. US GAAP, IFRS, SOX, XBRL are just a few of the challenges they have faced and more are likely to come. Organizations were faced with a daunting task – close the books faster while providing more detailed information in new and different formats and reports. In the end accuracy overrode speed when it came to meeting the regulatory requirements as finance focused on getting the data “right” and not “right away”.

The tradeoff from this complexity is that more time spent closing the books means less time spent actually analyzing the results and making strategic go-forward business decisions. The key to being successful, especially in difficult and volatile economic times, is to have the best possible insight into what is actually happening within the business on an ongoing basis.

And this leads to the concept of the virtual close. Instead of closing the books once per month with a cumbersome, complex, manual process, virtual close promotes a deeply integrated, automated and simplified process where the books can be closed at any point in time. Organizations that have pursued the virtual close point to information availability and resulting improvements in visibility as the key benefits.
Introduction to Engineered Systems

Oracle’s Engineered Systems combine best-of-breed hardware and software components with game-changing technical innovations. Designed, engineered, and tested to work best together, Oracle’s Engineered Systems can power the cloud or streamline data center operations to make traditional deployments even more efficient. The components of Oracle’s engineered systems are preassembled for targeted functionality and then—as a complete system—optimized for extreme performance. By taking the guesswork out of these highly available, purpose-built solutions, Oracle delivers a solution that is integrated across every layer of the technology stack—a simplicity that translates into less risk and lower costs for your business. Only Oracle can innovate and optimize at every layer of the stack to simplify data center operations, drive down costs, and accelerate business innovation.

Oracle Exadata

The Oracle Exadata Database Machine is purpose built to run the Oracle Database. It is engineered to be the highest performance and most available platform for running the Oracle Database. Built using industry-standard hardware from Sun, and intelligent database and storage software from Oracle, the Exadata Database Machine delivers extreme performance for all types of database workloads including Online Transaction Processing (OLTP), Data Warehousing (DW) and consolidation of mixed workloads. The Exadata Database Machine is an easy to deploy system that includes all the hardware needed for running the Oracle Database. The database servers, storage servers and network are pre-configured, pre-tuned, and pre-tested by Oracle. All Exadata Database Machines are identically configured so customers benefit from the experience of thousands of other users that have deployed the Exadata Database Machine for their mission critical applications. The Oracle Exadata Database Machine runs the standard Oracle Database. Therefore, any application that runs with the Oracle Database today can be seamlessly migrated to the Exadata Database Machine with no changes to the application.

Oracle Exalogic Elastic Cloud

Oracle Exalogic Elastic Cloud is a datacenter building block designed to allow enterprises to rapidly deploy and provision mission-critical, high performance private and public clouds. Exalogic is an Engineered System, integrating compute, networking and storage hardware with virtualization, operating system and management software. Exalogic provides breakthrough performance, reliability, availability, scalability and investment protection for the widest possible range of business application workloads, from middleware and custom applications to packaged applications from Oracle and hundreds of 3rd party vendors.

Oracle SPARC SuperCluster

Oracle’s SPARC SuperCluster is the world’s most efficient multi-purpose engineered system, delivering extreme efficiency, cost savings, and performance for consolidating mission critical applications and rapidly deploying cloud services. Oracle’s SPARC SuperCluster represents a complete, pre-engineered, and pre-tested high-performance enterprise infrastructure solution that is faster and easier to deploy than a collection of individual database and application servers. The system combines innovative Oracle technology—the computing power of Oracle’s SPARC servers, the performance and scalability of Oracle Solaris, the Sun ZFS Storage Appliance, the optimized database performance of Oracle Database
accelerated by Oracle Exadata Storage Servers, and a high-bandwidth, low-latency InfiniBand network fabric—into a scalable, engineered system that is optimized and tuned for consolidating mission-critical enterprise applications.

Oracle’s SPARC SuperCluster provides both the capacity for growth, as well as the fine-grained server virtualization needed to isolate individual application components. With multiple layers of enterprise application infrastructure consolidated onto a high-performance, highly available SPARC SuperCluster system, deployment speed, application performance, and availability can all be optimized. Designed as a pre-configured, pre-tested, and ready-to-deploy SPARC SuperCluster engineered system, the solution provides a complete and optimized infrastructure solution for applications, built around robust compute, networking, storage, virtualization, and management resources. The result is a system that is orders of magnitude easier to manage, and up to five times faster to deploy than alternatives, all while occupying considerably less real estate requiring less power. Furthermore, the SPARC SuperCluster system provides full built-in redundancy resulting in a highly reliable infrastructure without single point of failure. An issue with one component will not impact other components of the system offering true isolation. Customers can consolidate multiple environments with minimum disruption, without fear of performance degradation, and the ability to achieve required service levels.

Oracle Exalytics

Oracle Exalytics is an engineered system for analytics delivering speed of thought performance and best visual analysis with no limits. It consists of a combination of a powerful hardware platform, Oracle BI Foundation Suite (OBI EE & Essbase) and In-memory Analytics software (Times Ten for Exalytics and Adaptive In-memory Tools). OBI EE, Essbase and Times Ten for Exalytics have all been adapted from their standalone state, and enhanced to run faster, more effectively and more efficiently upon the Exalytics platform.

As analytic applications become more sophisticated and calculation-intensive, the use of mobile BI expands, user adoption increases, and data volumes explode making the need for speed and efficiency more important than ever. In-memory technology can dramatically accelerate analytic performance. Oracle Exalytics In-Memory Machine is the industry’s first Engineered System for analytics that combines market leading BI foundation, in-memory analytics software, and best-in class hardware engineered and optimized to work together to deliver extreme performance for Business Intelligence and Enterprise Performance Management applications. As a result, users can visually navigate and drill into information at the speed of thought, without limits on the complexity of their questions or the volume of the underlying data. Exalytics drives a new class of smarter and more powerful analytic applications that simply weren’t possible using conventional BI software and generic hardware configurations.

Oracle Business Intelligence Foundation running on Oracle Exalytics has been specially enhanced to take advantage of large memory, processors, concurrency, storage, networking, operating system, kernel, and system configuration afforded by the Oracle Exalytics hardware. Oracle TimesTen for Exalytics has been specially enhanced for analytical processing at in-memory speeds. With lightning fast scan speeds of up to 100 million rows/second and up to 10x columnar compression, TimesTen for in-memory analytics delivers faster reports & dashboards for departmental as well as enterprise wide consumption.
Achieving Virtual Close

This document will outline Oracle’s vision for achieving the virtual close. It is intended to outline a vision and is not a reflection of current functionality.

The closing of the books at any point in time instead of the once-a-month paradigm is a shift where the close process goes from a purely external focus to a balanced internal and external focused process. With access to more timely and relevant information, business and finance users can now utilize this information as part of their daily decision making. Having the right information at their fingertips can only strengthen the decision making process and yield even more value from the close process.

The first step is defining what data should be available on-demand and what can be left for traditional month end close cycles. While the value of making information available quicker to more users is a powerful concept, there is a practical reality that some of the close work is simply done for Accounting and Reporting purposes and will have little to no relevance for the decisions that we are striving to impact. Intercompany eliminations, accruals and reclassifications, and investment eliminations should be seriously evaluated for any material impacts. Often times these items can be skipped or limited in scope as their omission will have minimal impact on the end user. Different companies have different reporting needs so a critical step is to evaluate and prioritize the type of data that is needed as part of the virtual close.

The benefits of a virtual close make this a sought after goal for many companies; however the actual achievement is still rare. This is primarily due to technology constraints across many of the steps in the process. The Oracle Exalytics platform is a key new enabling technology that will help companies solve these technology constraints and achieve the virtual close. With never before seen advancements in processing capabilities and user scalability, the Oracle Exalytics platform helps move the process from theory to reality.

The key steps in the close process can be broken down into three areas: Data Integration and Cleansing, Consolidation Processing, and Creation and Delivery of Reports.

Data Integration and Cleansing

There is no shortage of source data needed to create a reporting package from which meaningful actions can be taken. The prevalence of multiple ERPs and ERP instances in typical organizations means the data integration task can be one of the biggest when implementing a virtual close. A very careful and thorough review of data sources, timing, access needs, etc. is required in order to map out the origination of the base level data. The time needed to extract, map/cleanse and load this data can be significant and is a significant barrier when trying to move to real-time decision making.

Purpose built solutions can greatly facilitate the data gathering and mapping process. With direct integrations to the leading ERP systems and an open framework for building connections to any other systems, Oracle Hyperion Financial Data Quality Management is designed to solve just this type of problem. However, the technology hurdles of processing this information in real-time and on-demand still remain. The addition of the Oracle Exalytics platform with its massive processing power can
transform a multi-hour process to bare minutes. This type of change now opens up the possibility of virtual close as the time windows for data loading and mapping are now compressed and performed in near real-time.

Consolidation Processing

Acquiring base level data is only step one in the close process. There are many required calculations and much processing that is needed to achieve the most accurate summary level results. Calculations such as minority interest calculations, ownership adjustments, journal adjustments, key performance indicator (KPI) calculations, as well as aggregations and consolidations are all required on a very large scale for typical multi-national companies. The sheer time needed to process these calculations on a large data scale can take days for most companies, which does not lend itself to a virtual or near real-time close cycle. Once again this is an area where the power of the Oracle Exalytics platform can help solve what to date has been a blocking factor for most organizations. Without exceptional technology the solution in the past has been to scale back the calculation requirements and simply do more aggregations. While this can yield benefits to an organization it surely does not allow for the true benefits of a virtual close. The Oracle Exalytics platform can allow for substantial improvements in processing over current systems.

Creation and Delivery of Reports

The main goal for implementing a virtual close is to provide sensitive and relevant actual data “on demand”. This information, traditionally only available at month end, can then be used to validate forecasts, review trends, and help determine if corrective actions are required. Any solution that allows an organization to be more nimble and responsive in its strategic actions relative to the competition is a solution worth pursuing. Having pre-defined reports is important but allowing for true ad-hoc reporting only advances the value of the process.

Typical reporting solutions used for the close process offer powerful pixel perfect reporting, but are limited when it comes to user scalability. Moving to a virtual close hits a bottleneck due to the user loads. Once again the Oracle Exalytics platform can help companies overcome this obstacle through its ability to scale to thousands of users helping deliver real time results outside of just Finance.

Traditional reporting such as Balance Sheets, Income Statements, etc. will be required in a mass distribution method but allowing for true ad-hoc access using Oracle’s Business Intelligence suite on the Exalytics platform will greatly enhance the productivity all users. Accessing what was once available monthly and only via a report distribution framework on a real-time ad-hoc basis should yield significant gains as the business can make better decisions quicker.

Other Benefits

While the functional and operational benefits of the virtual close are often the most obvious there are others which can yield savings to any company. Due to the sensitive nature of the data maintained in close systems most businesses will traditionally manage the infrastructure in house. There is a higher cost for this data security – namely in hardware cost and utilization and the related manpower to manage these complex systems.
Typical close systems require combinations of web, application and database servers. Many of the tasks involved in the close are resource intensive and thus significant consumers of available processing power making dedicated hardware much more common for typical deployments. Users do not want to wait while source data is accessed, loaded and consolidated. One of the values of the Oracle Exalytics platform is around hardware rationalization and the ability to greatly simplify the necessary infrastructure. This will yield not only cost savings, but also time savings, due to less maintenance, problems between tiers and other related issues common to multi-tier systems.

Oracle Exalytics software components have been optimized tightly to match the hardware – all the way to specific hardware parts, their firmware, drivers and the operating system – a customized Oracle Enterprise Linux release with Unbreakable Enterprise Kernel. These low level optimizations have shown 3X better scalability and performance on benchmarks compared to similarly configured commodity servers. Some of the notable features that are available only on Oracle Exalytics are – columnar compression and OBIEE specific analytic functions for TimesTen, aggressive memory and concurrency optimizations in Essbase and OBIEE. These functions enable Oracle Exalytics to store more data, process queries faster, load and export data faster, and handle more users and concurrent workloads than identically configured commodity servers running commodity operating systems.

Apart from performance, the unified lifecycle experience – from install, administration, and patching are optimized throughout the stack to provide the lowest total cost of ownership for deploying analytic applications – that cannot be achieved by building the entire solution stack piecemeal from multiple vendors.

In addition there are Oracle Exalytics-specific optimizations which provide benefits to the entire process:

- Optimizations to match system architecture resulting in higher query throughput, lower latencies in query processing. There is enhanced memory usage for cache.

- Optimized default configuration to use large footprint memory to speed up page rendering and caching.

- Memory usage optimizations for loading entire data into memory, concurrency improvements to match Oracle Exalytics architecture enabling efficient distribution of processing.
Conclusion

The goal for companies implementing a Virtual Close is to shift the close process from a pure external focus (i.e. compliance & statutory reporting) to a balanced internal (visibility and decision making) and external focus. This shift will dramatically expand the business value and benefit many more finance and Line of Business executives and managers, and not just the Controller’s team. Expanding the access to valuable data can only benefit an organization as it moves to empower end users for quicker and better decision making. With information available more readily, users can more quickly evaluate how the business is doing, spot and highlight trends, and take corrective actions more quickly. Having the right processes and technology in place are key requirements for achieving virtual close. Oracle’s Exalytics platform helps overcome the technology constraints with the current process and opens up capabilities previously not possible for most companies.