

Real World Business Results: Oracle Corporation's Mission Critical Systems Update

Oracle ensured near zero operational disruption during business critical year-end peak OLTP, ERP, and BPM workloads, even if by catastrophic event driven node failure of the GSI database.

- All thanks to the rapid deployment of enterprise class leading, mission critical architecture of Oracle SPARC Systems and Oracle Solaris 10

...And the entire installation took only 11 hours, 30 minutes



Oracle Corporation

Redwood Shores, CA
www.oracle.com

Company Overview

Oracle Corporation, an enterprise solutions company, develops, manufactures, markets, distributes, and services database and middleware software, applications software, and hardware systems worldwide.

Annual Revenue

US \$26.4 billion

Employees

120,000

Oracle Products & Services

Sun SPARC Enterprise M9000 Servers
 Oracle Solaris 10
 Oracle Database 11g
 Oracle RAC
 Oracle E-Business Suite
 Oracle Solaris Cluster
 Oracle Solaris Volume Manager
 Oracle DataGuard
 Oracle Enterprise Manager

Actual TCO & ROI (as of May 2011):

Key Benefits

- 2.5X Performance Increase for mission critical ERP and OLTP processes
- 50% less operational costs
- Over 20X acceleration in disaster recovery performance
- Near 75% savings in physical disk storage
- Near \$400K savings in 3rd party expenses and power costs
- Over 5X faster App deployment and patch implementation
- Achieved Future Agility

Key Facts

- Single instance ERP implementation completed by only 16 people, in just TWO months (100G of SGA, 200G of PGA)
- Possible 50% license savings, or more

Oracle Corporation streamlines several business critical applications and enhances mission critical global single instance (GSI) database and ERP environment

After the successful mission critical systems refresh of September 2010, and with unexpected business growth, Oracle PDIT needed to accelerate future consolidation and streamline several business critical applications while, simultaneously, enhancing mission critical global single instance database and ERP environment. With the agility, performance, and ease of deployment of Oracle SPARC M Series servers and the Oracle Solaris 10 Operating System, Oracle's PDIT team achieved it's multiple environment goals, which includes near zero business disruption during business year end peak workloads, even in the event of node failure. Even with these high availability requirements, Oracle reports increased efficiencies from the optimized Oracle on Oracle architecture, including: 2.5X in OLTP and ERP performance with elevated security, lower operational costs across the datacenter, and a highlight of 50% to 75% reduction in physical disk storage run rate growth. In conclusion, by consolidating systems and reducing complexity, has help ease Oracle's IT staff workloads by reducing management of multiple vendor servers and interfaces, streamlined management tools, resulting in benefits to the datacenter, Oracle's overall business performance, and the bottom line.

Oracle Corporation's own global datacenter, a highly referenced model of enterprise architecture the world over for mission critical Database and Oracle E-Business Suite infrastructure, runs upon new Oracle SPARC M9000 servers and the Solaris 10 Operating System, the class leader and best choice for Oracle's required reliability, availability, scalability, security, consolidation, and support.

Overview

Oracle provides the world's most complete, open, and integrated business software and hardware systems in more than 145 countries across the globe. With the acquisition of Sun Microsystems, and some additional 60+ acquisitions, over the last few years, Oracle has changed the market in being the only provider of complete enterprise solutions.

"When switching to our DR environment, the combination of SPARC, Solaris 10, and Oracle 11g allows us to dynamically reallocate CPU and Memory capacity from our Staging environments, running on the same M9000. Having the M9000 perform a dual role, Staging and DR, allows us to maximize our investment without impacting business operations"

– May Yuan, Director, AIA, Oracle

Achieved Goal for Disaster Recovery

- 20X acceleration in site-to-site failover for major disaster and transfer of operations

In February 2010, Oracle's drive for innovation officially added the nearly 30,000 former Sun employees, and all associated technologies, order processing systems, and data code. This influx has placed a huge demand on Oracle's own datacenter to rapidly scale and support its core business applications, integrating the considerable datacenter assets from its acquisitions, while requiring a new plan for future organic growth. This plan began with detailed assessments in full swing by March 2010.

Assessment Results For Oracle's Mission Critical Systems:

In September 2010, Oracle Corporation deployed the leader in mission critical enterprise class infrastructure solution: Oracle SPARC M Series Systems with Solaris 10 OS. (*Specific performance results are shown on page 1 left side column.*)

The Process

The Oracle internal IT organization tasked with solving for this rapid expansion is the Product Development IT Business Application Services team (PDIT). PDIT is responsible for the deployment and support of the mission critical global single instance (GSI) database and middle tier infrastructures that hosts Oracle's Financials, 24x7 Field Service, Supply Chain Management, Sales, Marketing, Partner Portals, Human Resource, and various employee applications. To meet the needs of Oracle's global customers, partners and employees, these critical business applications all have 24x7, 99.99% Service Level Availability requirements. Oracle's single instance 11g database deployment supports its own mission critical E-Business Suite, amongst other important database driven (RDBMS) applications.

The high service levels and technical nature of this environment, as well as large capital IT expenditures over the last 10 years, called for enterprise systems with zero targeted downtime supportability, with accelerated performance to keep up with Oracle's rapid growth needs.

Implementing Oracle software on Oracle hardware is the unique strategic differentiator unmatched by any enterprise technology provider in the world. Reducing multi-vendor complexity and streamlining IT management processes, eases IT staff workloads. Combine that with the increased performance, availability, TCO and ROI, and the results equate to a better overall business bottom line.

Oracle uses its own technology in its datacenter — from the database and middle tier layers up to the business applications themselves — and uses Oracle Enterprise Manager to manage the complete stack.

Hardware and Software
ORACLE
Engineered to Work Together

“Combining the skills of Oracle IT and Engineering... It took 16 people only 2 months to migrate our mission critical E-Business Suite application to a pair of SPARC M9000's running Solaris 10. This integrated solution yielded a 2x increase in OLTP performance and \$400k in savings.”

- Campbell Webb, Vice President, PDIT, Oracle

Delivering Mission Critical, Oracle Database Operations

Oracle's E-business Suite applications rely upon a global single instance mission critical database deployment. Throughout the lifespan of a database system, there are a number of reasons data access can be interrupted. Designing for high availability and failover will mitigate disruption from system failures but those represent only one category of outages. Planned outages for upgrades, maintenance, repairs, and system replacement also impact the ability to support continuous operations. Sun systems are designed to eliminate this second category of outages — as well as the first — by enabling these needs to be fulfilled during live operations without disrupting users or business operations.

Non-stop database operations as the goal

Leveraging the live service and upgrade capabilities, expansion and growth can not only be accommodated in the Oracle solution but can also be performed during live operations without shutting down the database or rebooting the systems. This on-the-fly system scalability was key factor as Oracle's GSI operations exceeded the system service levels, which had a 150% projected to growth rate.

Update: Success of Oracle Corporation's time as a combined hardware and software provider and the ease of non-stop, in line system capacity upgrades led to the decision

In addition, Oracle PDIT has Disaster Recovery being taken care of via DataGuard, Dynamic Domains, and Dynamic Reconfiguration sponsored by an off-site location through Oracle Solaris Cluster as another layer to provide access 7x24 for the Oracle Database. Oracle targeted and achieved 95% reduction in RTO fail-over for major disaster and transfer of operations from Austin, TX to the offsite disaster recover datacenter in Colorado.

The Choice: SPARC and Solaris

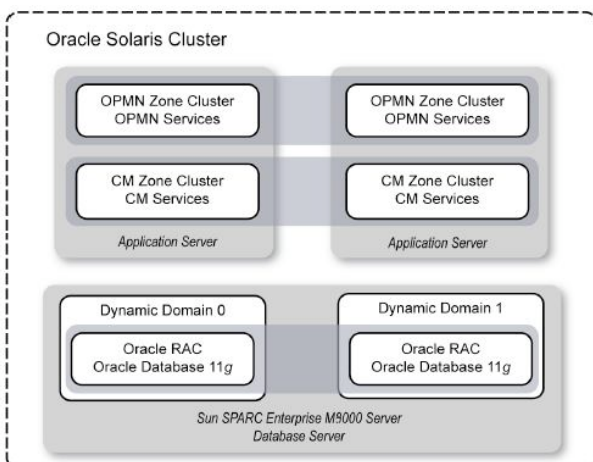
There is a long history of Oracle database implementations on Sun Microsystems servers and storage. Often into the world's most demanding, mission critical environments. The design goals and resulting capabilities for the Global Single Instance Oracle Database E-Business Suite environment requirements lead to Oracle's Sun SPARC Enterprise M-Series Servers, Oracle Solaris 10 operating system.

Upgraded to Solaris 10, And Everything “Just Works...”

Moving from Solaris 9 to Solaris 10 was key to how quickly this ERP System implementation was performed. Often the challenges in upgrading mission critical single instance database systems is from the long cycles needed to test and validate every application dependent upon this core system.

The Definition of Enterprise Risk – Volume Manager Migration

The greatest risks associated in this system implementation, was migrating from the old volume manager product. This was mission critical to Oracle due to the value of the company's high valuation of its data (which is, incidentally, of exponentially greater value than the hard costs of the volume manager software.)



The decision of Solaris 10 was easily validated via its application interoperability, and bullet proof Volume Manager functionality. Solaris's application binary compatibility from release to release, and integrated Solaris Volume Manager, are the reasons for PDIT's economy of resources and short time needed for "go live" launch (16 people in two months.)

March 2011 Update – 200% Additional Increase Operational Workload

Oracle's business success and the results of ongoing large investments engineering the evolution of enterprise computing via complete software and hardware solutions required Oracle's PDIT department to quickly and seamlessly increase and expand operational capacities of the mission critical systems responsible for ERP and BPM. With the live system expansion capabilities of the Oracle SPARC and Solaris infrastructure, a third M9000 server was added to the datacenter's core GSI architecture.

The Ease of Real-Time, Non-Stop System Capacity Upgrades and License Updates:

This real world deployment demonstrates the relative ease of a mission critical enhancement of mission critical Oracle database application environments, facilitated by SPARC/Solaris technology's feature functionality.

"The additional M9000 SPARC system installation began at midnight March 3rd, 2011, and was completed, in full, at 11:31am the next day, March 4th, 2011. There was no down time of the live GSI database/ERP systems during installation by the Oracle PDIT staff." -- Chris Armes, Sr. Director, Oracle Systems, Revenue Product Engineering

The entire project from assessment, to planning to deployment took a total of about two and a half weeks.

This is largely due to the assistance and documentation from Oracle Systems Engineering, including sizing, assessment scoping tools and best practice reference architecture guides. All of these resources are available for all Oracle customer engagements via the materials created and provided by the Oracle Optimized Solutions group, responsible for engineering hardware infrastructure solutions for Oracle Database, Applications, and Middleware.

For more information on Oracle Optimized Solutions please go to: www.oracle.com/goto/optimizedsolutions

Savings

Oracle's E-business Suite applications rely upon a Global Single Instance mission critical database architecture (Oracle 11g Version: RDBMS 11.1.0.7.2. Total size: 17TB, of which 14.5TB is data.)

This deployment was running on four total Sun Enterprise 25K servers, running with 11-CMUs each. Since these systems were installed in 2003, Oracle's ERP workloads were exceeding available server capacity by 1.3X. After assessing requirements, Oracle PDIT's Campbell Webb concluded that for the critical requirements, as well as the value of the previous capital investments spanning the last 10 years, refreshing the GSI systems would be the best option. Now deployed, Oracle's GSI systems are two Sun SPARC Enterprise M-Series Servers running the Oracle Solaris 10 operating system. (The SPARC M9000 has eight CMUs each.)

Operationally, the yearly savings in facilities expenses totals \$51,884.80, across both datacenters: space, power & cooling savings. This is due to system reduction of tile spaces. (The four E25Ks = eight tile spaces, the two M9000s = four tile spaces. Totals calculated based on the fully loaded data center space including white space, and power deduction of 16KW, per datacenter, per year.)

Another Oracle PDIT discovery was a significant budget line item: the licensing renewal and support costs of the 3rd party volume manager software totaling \$347,000 were documented. Together, the hard dollars saved by Oracle to date totals \$398,844.80.

Near 75% savings in run rate physical disk storage growth with the hardware system enhanced performance of Oracle Database 11g advanced compression features. Engineered to work together, only Oracle SPARC/Solaris systems batch processing capabilities holds the Benchmark council's world record performance title. Check out all the world record benchmarks of Oracle SPARC/Solaris systems here:

<http://www.oracle.com/us/solutions/benchmark/apps-benchmark/index.html>

Need to accelerate new Oracle infrastructure deployments, ask your local Oracle representative about...

Oracle Optimized Solutions

–Validated substantiation of the “Oracle on Oracle” vision and the evolution of Enterprise Technology.

Engineering level optimization based upon our customer centric value methodology for Oracle software/hardware environment solutions:

- Assessments of individual customer use cases
- Analysis of 7000+ REAL Oracle customer environments,
- Complete stack testing, sizing and certified configurations
- Validation via world record benchmarks

Oracle Corporation: Our Own Biggest Test Case Customer

Performance = IT Staff-Time Savings

The performance increases means the operational staff now has time to work on new projects. This new M9000 and Solaris 10 GSI systems deployment has already seen such performance improvements such as: 5x in systems startup, 12x acceleration in data masking, plus 10,000 concurrent database processes.

Built together, tested together a true engineering and IT collaboration will continue to expand our testing, and qualitative metrics that will demonstrate real world savings in Oracle’s year over year performance assessments.

Conclusion

As Oracle's own datacenter environments shows, database systems are vital to the success of business and government entities mission critical priorities. These systems must be highly available, and downtime must be minimized while cost-effectively optimizing performance and employee productivity. The union of Oracle and Sun has created one company responsible for all the hardware and software components of a highly available, high performance database system. Oracle provides the technology to keep the database system running through hardware and software errors. Oracle technology helps database administrators reallocate computing resources to bigger and smaller jobs, day and night or over months or years as requirements change. Oracle provides and enhances one suite of tools to manage all of the hardware and software in a database system, and Oracle is the one place to turn for ongoing service and support of the whole enterprise stack. One vendor for complete engineering level solutions.

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