Solutions on IBM ~ xSeries

IBM ~ xSeries 360 & Oracle9*i*™ Database with Real Application Clusters

Highlights

- *IBM's first Intel® Xeon™ MP processor server to utilize elements of Enterprise X-Architecture™*

- *Provides Oracle ® customers with exceptional performance for Oracle9i™Real Application Cluster (RAC)solutions.*

- *Flexibility to easily grow from a single-node to a multi-node configuration*

- *Compact 3U 4-way server saves space, lowers costs and packs database-serving power for data centers.*

- *Predictive and proactive systems management features help increase manageability of servers powering Oracle solutions.*

IBM eServer xSeries 360

The IBM® eServer xSeries model 360 featuring the Intel Xeon Processor MP at up to 2.0GHz packs computing power in a rack-optimized 3U design – ideal for space constrained data centers. The x360 is the first implementation of groundbreaking IBM Enterprise X-Architecture™ technologies that provide outstanding advances in performance, scalability and availability.

The x360 offers great reliability, availability, and performance with its quad-pumped 400MHz front side bus, Chipkill™ memory, Active™ PCI-X card slots. When service is required the design of the x360 allows most components to be replaced without the use of tools. This translates into reduced downtime for access to your critical data

The challenge that Oracle® Database customers are facing today is to build an infrastructure that is highly available, yet scalable enough to meet the demands of a dynamic business environment. The x360 is an ideal answer for customers choosing a 4-way Intel® processor-based platform for their Oracle implementations on Microsoft® Windows® or Linux® operating system environments. Through exceptional performance and numerous OnForever™ availability features, the x360 is helping set a new standard for Intel processor based servers powering Oracle Databases.

IBM and Oracle Relationship

IBM and Oracle have maintained an extremely strong technology relationship since 1986. Oracle solutions today are available across the breath of the IBM eServer product brand. IBM engineers are located on site at Oracle to work directly with Oracle engineers on testing and optimizing Oracle products on IBM. This association has resulted in a large worldwide install base running mission critical solutions in leading Fortune 500 corporations.

IBM's commitment to providing accurate solution sizing/configuration assistance is realized through three International Competency Centers based in San Mateo, California; Montpellier, France; and Tokyo, Japan. These centers provide configuration assistance, sizing tools, education, hands-on workshops, customer briefings, and develop sales related technical documentation. The scope of these centers covers the range of Oracle products from applications to databases over a number of releases. The continued investment by IBM in these centers continues to demonstrate that a decision to run your Oracle products on IBM will provide benefits for years to come.

Oracle9*i* Real Application Clusters

Oracle9*i* Database with Real Application Clusters offers 24X7 availability and the ability to scale out as your company grows.

Businesses no longer have to invest in expensive headroom for spikes in performance or unforeseen future requirements. Instead, customers can purchase what they presently need, then scale as needs evolve.

Oracle's newest version offers many advantages including:

Incremental Scalability
Nodes can be added to a cluster with minimal disruption.

Outstanding Availability
Clustered solutions provide greater availability compared to single-node architectures, without the need for redundant stand-by servers.

Efficient Management
Administration is performed using standard Oracle9*i*™ tools and interfaces, which incorporate a high degree of automation to simplify tuning and improve performance.

Mixed Workload Support
Unlike a large SMP-based platform, a clustered database architecture can be used to run mixed workloads efficiently including both OLTP (Online Transaction Processing) and DSS (Decision Support System) queries.

X360 Performance

Several innovations help to bring excellent performance to Oracle applications. The x360 takes advantage of the newest Intel® Xeon MP Processors that are controlled by IBM's XA-32 chipset - exploiting the latest in copper technology developed by the IBM Microelectronics Division. The XA-32 chipset contains advanced core logic that is the heart of the computer system.

Oracle and IBM are perfectly aligned to enable you to make a small initial investment then grow as the needs of the business grows.

Oracle 9*i* Real Application Clusters
Performance
- Data shared between nodes
- Workload partitioned across nodes
- Capacity on Demand

Scalability
- Shared Database across servers

Availability
- Precision Database Repair
- More operations running with minimum downtime
- Oracle Data Guard
- Transparent Application Failover
- Automatic Node Discovery

Systems Management
- Centralized Management Console

IBM x360 Server
Performance
- Intell® Xeon™ MP Processors
- Enterprise X-Architecture™

Scalability
- XA-32 chipset technology
- Compact 3U Design
- IBM RXE-100

Availability
- Real Time Diagnostics
- Chipkill™ Memory
- Active PCI-X™
- Light Path Diagnostics™
- OnForever™ Initiative

Systems Management
- IBM Director

This logic determines how the various key components (microprocessors, main memory, system cache, I/O, etc.) interact. Various industry benchmarks demonstrate how well the x360 performs with various applications.

X360 Scale-up, Scale-out

Scalability is critical to Oracle customers. Regular modifications to the server and storage infrastructure are required to address changing business needs and meet the increased workload requirements driven by database solutions.

Customers who have uncertain growth requirements should consider the x360. Oracle provides an economically priced Oracle9*i* database Standard License for single node 4-way Intel-based servers. One can start with a 2-way x360, then add additional processors (4 total) and memory (8GB maximum) as their requirements grow - thus maintaining their initial investment.

When growth or availability requirements require a muti-node configuration, however, the customer can add additional x360's to their configuration and upgrade their Oracle license to an Enterprise License and add the RAC component to allow their database to expand

across multiple servers. Adding additional servers in the future as requirements dictate, not only maintains prior investments but also allows IT managers to better plan and maintain their IT budgets.

Numerous adapter slots are important for Oracle implementations because of the external connections required of the database server(s). The Server Backbone Network, Local Area Networks and Storage Area Networks require multiple connections for each network to ensure throughput and help minimize the risk of downtime due to adapter failure.

The RXE-100 Remote Expansion Enclosure gives the x360 12 additional Active PCI-X slots connected via a high-speed interconnect. This unit provides the capability to add I/O slots accommodating additional growth requirements without paying for a new system.

IBM eServer xSeries 360

X360 Availability

Cluster solutions provide a reliable technique to help avoid server downtime. However, best practice strategies dictate that the server hardware supporting a database must be equipped with advanced high availability features that include redundant components, failure sustaining memory and predictive failure analysis.

The x360 brings customers closer to OnForever™ availability through an impressive array of features designed to help minimize the risk of unexpected failures. These high-availability features are designed to help keep your servers running with outstanding uptime. This is a requirement of many global enterprises whose mission critical environment runs around the clock.

The x360 also provides component redundancy and hot-plug replacement capabilities of fans, power supplies and disks. The risk of component failure is further reduced by Predictive Failure Analysis® (PFA) on processors, memory, fans, power supplies and disks, which warn administrators of problems before they occur. PFA is designed to allow corrective action can be taken before a hardware failure occurs.

When a server hardware malfunction occurs, Light Path Diagnostics minimizes downtime by isolating the failed component and illuminates an LED light path that leads directly to the part that needs replacing. This minimizes time-consuming diagnostic testing and costly downtime.

X360 Easy to Manage

A business' success can be dependent on how well their Oracle database application runs, whether it's supporting a traditional ERP deployment or an integrated e-business solution including CRM, it is critical that the server its running on supports proactive tools to manage this IT environment. Without these tools there can be devastating impacts on the bottom line.

xSeries systems management tools simplify—and in many cases, automate—performance planning, preventive maintenance, diagnostic monitoring and event responses to help maintain consistent, high levels of server productivity. As a result, xSeries servers help protect customers' businesses from the devastating effects of downtime, and help keep overall maintenance costs incredibly low – an important factor for Oracle database environments.

Oracle customers are able to take advantage of the award winning systems management capabilities of xSeries servers in part through IBM Director. With IBM Director as the core systems management tool, the x360 is easy to administer and manage in a mission-critical environment.

Key IBM Director extensions such as Capacity Manager, Software Rejuvenation, Real Time Diagnostics, Process Control brings new levels of manageability to an Oracle solution environment helping to reduce total cost of ownership with improved return on investment through increased uptime.

For More Information

To learn more about Oracle and IBM eServer xSeries, contact your IBM Marketing Representative, IBM Business Partner, or visit the following web sites:

http://www.pc.ibm.com/ww/eserver/xseries/clustering/index.html

http://www.pc.ibm.com/us/eserver/xseries/x360.html

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