Solutions on IBM @server

IBM @server BladeCenter & Oracle9*i*™ Database with Real Application Clusters

Highlights

- *Innovative, flexible modular technology integrates both Intel® processor-based and IBM POWER processor-based blade servers into the IBM @server® BladeCenter™ architecture.*

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

- *Flexibility to easily grow and run multiple applications within a single chassis.*

- *Compact 7U chassis saves space, helps lower costs and packs database-serving power for data centers.*

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

IBM eServer BladeCenter

Your priorities are clear: contain costs, deal with a critical shortage of skilled people and keep up with the demands of innovation. In short, manage the components of your IT organization to contribute to your business's success.

BladeCenter's modular design gathers computing resources into cost-effective, high-density enclosures that support hot-swappable, high-performance 2-way and 4-way Intel processor-based and 2-way POWER processor-based blade servers.

BladeCenter extends the high performance and manageability of IBM rack-optimized platforms. The result is an effectively managed infrastructure that helps maximize resource productivity while minimizing IT administration costs. BladeCenter gives control back to the IT manager.

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. BladeCenter is an ideal answer for customers choosing to run their Oracle implementations on Microsoft® Windows® or Linux® operating system environments. Through exceptional performance and numerous high availability features, BladeCenter is helping set a new standard for 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 can provide benefits for years to come.

Oracle9*i* Real Application Clusters

Oracle9*i* Database with Real Application Clusters offers virtual 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.

Performance Density

BladeCenter provides an efficient use of data center floor space with up to 84 2-way blades or up to 42 4-way blades in an industry standard (42U) rack. The efficient design integrates networking and fibre channel switch options into the chassis – thus simplifying your IT architecture.

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 @server BladeCenter
Performance
- Intel® Xeon™ Processors
- IBM PowerPC 970 Processors

Scalability
- Up to 14 (2-way) or 7 (4-way) blades
- Up to 16GB Memory (4-way blade)
- 4 Switch Module Bays

Availability
- Predictive Failure Analysis
- Chipkill™ Memory
- High Availability Midplane
- Light Path Diagnostics™
- Failover Between Blades/Nodes

Systems Management
- IBM Director
- Integrated Systems Management Processor

BladeCenter 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 growth requirements should consider BladeCenter. Integrating both Intel and IBM POWER processor-based blade servers, BladeCenter collapses the data center by integrating functions such as Layer 2-7 Ethernet and your Storage Area Network fabric into the efficient 7U chassis. Adding additional blade servers is simple, affordable and not only maintains prior investments but also allows IT managers to better plan and maintain their IT budgets.

Blade Server Options

Gigabit Ethernet Expansion Card
Allows for the expansion of the Ethernet subsystem to enable additional bandwidth. It works in conjunction with the Optical Pass-thru Module, the Nortel Networks® Layer 2-7 Gigabit Ethernet Switch Module, and the IBM eServer BladeCenter™ 4-port Gigabit Ethernet Switch Module.

Fibre Channel (FC) Expansion Card
This I/O option adds dual-port FC connectivity at up to 2Gbps to each blade server. It works in conjunction with the IBM eServer BladeCenter 2-port Fibre Channel Switch Module.

40GB Hard Disk Drive
The BladeCenter HS20 and JS20 servers support two HDDs for up to 80GB capacity. Many Oracle customers utilize these drives to mirror the operating system for the blade.

SCSI Storage Expansion Unit
Enable the use of Ultra320 SCSI disk drives in your blades environment provides the ability to mirror the data on these drives.

IBM HS20 2-way Blade

Blade Chassis Options
Optical Pass-thru Module
This option features an unswitched, unblocked network connection to each blade serverbay. It must be used with the Gigabit Ethernet Expansion Card, the FC Expansion card, or the integrated Gigabit Ethernet on the blade server.

4-port Gigabit Ethernet Switch Module

Featuring Layer 2 switching technology, this option provides high-speed Ethernet connections between each blade server and the outside network environment.

Nortel Networks Layer 2-7 Gigabit Ethernet Switch Module

Featuring Layer 2-7 switching technology, this module integrates Ethernet functionality into the chassis, decreasing complexity and increasing manageability.

2-Port Fibre Channel Switch Module

This contains two FC uplinks capable of transmissions up to 2Gbps.

BladeCenter 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.

BladeCenter 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.

BladeCenter also provides component redundancy and hot-plug replacement capabilities of fans, power supplies, blades 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.

BladeCenter 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 is a greater chance of devastating impacts on the bottom line.

Oracle customers are able to take advantage of the award winning systems management capabilities of @server in part through IBM Director. With IBM Director as the systems management tool, BladeCenter 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, 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-1.ibm.com/servers/eserver/bladecenter/