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Powerful solutions, high-end functionality

HP Integrity Servers for Oracle Real Application Clusters (RAC)

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Designed to run Oracle Real
Application Clusters (RAC), the
HP Parallel Database Clusters (PDC)
combine tools, powerful
HP Integrity server standard architec-
ture, and services to provide high
availability, low-cost clustering.

HP Integrity rx4640-8 server

· 1 to 2 Intel® Itanium® 2 processors of 1.5GHz, 1.4GHz, or 1.3GHz; 6.4GB/s system bus bandwidth
· Up to 24GB DDR memory, 8.5GB/s memory bus bandwidth
· Up to 3 hot-plug SCSI hard disk drives
· 4 full-length, 64 bit/133MHz PCI-X slots

· 1 to 4 Intel Itanium 2 processors (1 to 4 modules); 6.4 GB/s system bus bandwidth
· Up to 64 GB DDR memory; 12.8 GB/s memory bus bandwidth
· Up to 2 hot-plug SCSI hard disk drives
· 6 open PCI-X expansion I/O slots - full length and hot-plug capable

HP Integrity servers power the HP Parallel Database Cluster solution

Fast-changing businesses require highly available, failure-resistant computing environments that scale seamlessly in response to demand. Long-time solution partners HP and Oracle® offer a powerful, cost-effective way to meet this need: the HP Parallel Database Cluster (PDC) running Oracle Real Application Clusters (RAC) on selected industry-standard HP Integrity® servers.

The HP Parallel Database Cluster

HP PDC are multi-node shared storage clusters, designed, tested and optimized for Oracle RAC databases. This flexible hardware/software architecture is designed for availability and optimized to leverage Oracle RAC scale-out performance. Other advantages include:

· Tested and proven in HP and Oracle labs and customer production environments around the globe

· Reliable and repeatable implementation processes, tools, management infrastructure and services

· PDC Cluster Kit includes detailed documentation, installation scripts, and configurations scripts (Linux only) that dramatically simplify start-up and test tools to verify cluster configuration

· HP expert services define, test, and document the HP Parallel Database Cluster

· Fixed price installation service available

Availability and performance at the lowest TCO

The HP Integrity servers, based on the Intel Itanium 2 processor, demonstrate breakthrough price/performance across the industry's most demanding and diverse workloads. Whether you have an HP-UX, Linux, or 64-bit Microsoft® Windows® environment, the new 64-bit HP Integrity servers offer the strongest industry standard-based servers lineup of any vendor.

For an Oracle RAC environment the ideal HP Integrity server models are the rx2600 2-processor server and the rx4640 4-processor server (shown above). These powerful building blocks fully leverage the scale-out functionality of RAC and yield the lowest total cost of ownership (TCO).

HP and Oracle demonstrated RAC scalability across multiple nodes with two independent TPC-C results on two different machines: a 64-processor SMP HP Superdome and a 64-processor, 16-node RAC cluster of 4-processor HP Integrity servers. The performance results are nearly identical at just over 1 million transactions per minute, with the cluster yielding a much better cost per transaction. For more details see TPC-C results section at: http://www.TCP.org
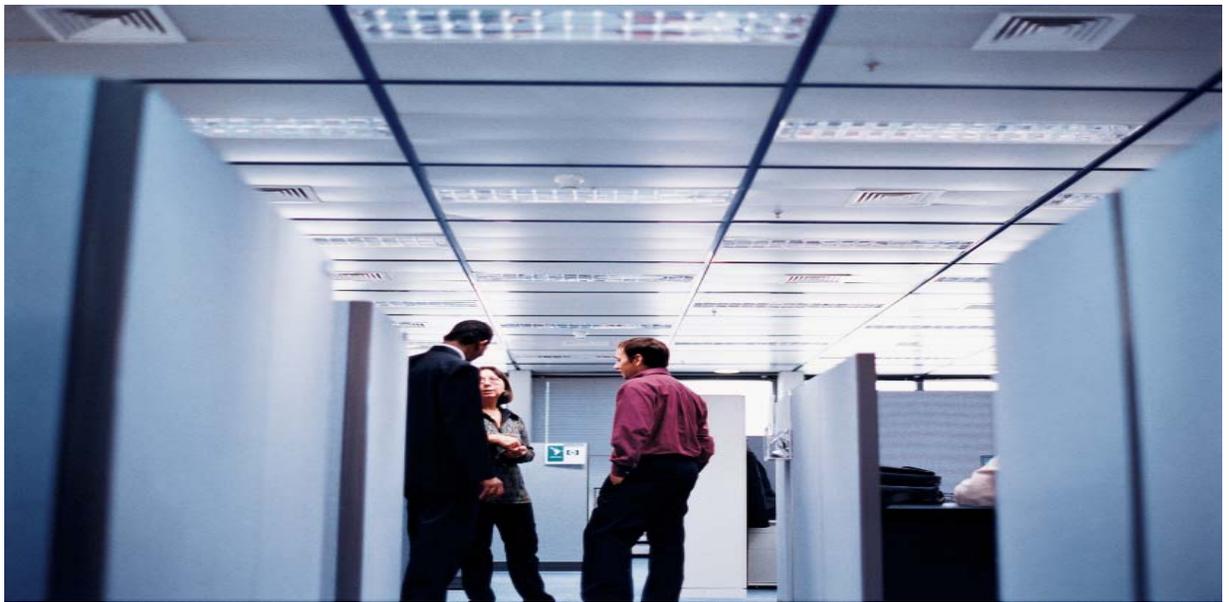
Industry-leading TPC-C performance on Linux

In a representative Transaction Processing Council TPC-C benchmark, Linux performance reached 1,184,893.38 tpmC @ $5.52/tpmC (immediate availability). The HP Parallel Database Cluster was powered by:

· HP Integrity rx5670 servers, each with 4 Intel Itanium 2 processors
· HP StorageWorks Modular Smart Array (MSA) 1000
· HP StorageWorks Fibre Channel SAN
· HP ProCurve gigabit Ethernet interconnect

The software stack included:

· Red Hat® Enterprise Linux® AS 3
· Oracle Database 10*g* Enterprise Edition with Partitioning
· Oracle10*g* Real Application Clusters

Oracle RAC advantages for mid-to-enterprise business

Oracle RAC distributes the total database workload across two or more servers rather than one large symmetrical multi-processing machine (SMP). Benefits include:

· Highest availability parallel processing shared storage design maximizes hardware investment - no standby components
· Seamless scale-out performance from 2 to 16 nodes has one architecture that scales from mid-range to enterprise computing
· Flexible Fibre Channel storage SAN options expand seamlessly to multiple terabytes with maximum availability
· Incremental cluster expansion based on smaller (2 and

4 processors) compute nodes helps to align IT investment with business needs
· Concurrent database access from all servers means availability increases with every additional cluster node

Oracle RAC incentive option

Oracle RAC has traditionally been deployed on Oracle Enterprise Edition for clusters of 2 to 4 nodes and as large as 16 servers. Oracle has now added an incentive for customers with smaller database environments, but with the same mission-critical availability requirements as the largest enterprise. Oracle10*g* will include RAC in its Standard Edition at no additional cost, limited to 2 nodes with 2 processors per node maximum. While at first glance these limitations seem crippling, factoring in the performance of four Intel Itanium processors allows many existing applications to become candidates.

With Oracle's licensing model based on the number of processors, the economic incentive is clear: maximize performance per processor. For a 2-node (2 processors each) cluster, Oracle10*g* Enterprise Edition with the RAC option is list priced through the Oracle on-line store at more than three times the cost of the same configuration running Oracle Standard Edition with RAC.

Regardless of which Oracle product fits your particular business needs it is clear that a scale-out architecture of multiple smaller servers running Windows Server 2003 Enterprise Edition or Linux has two key benefits:

· Significantly lower initial cost
· Greater flexibility and controlled growth

4
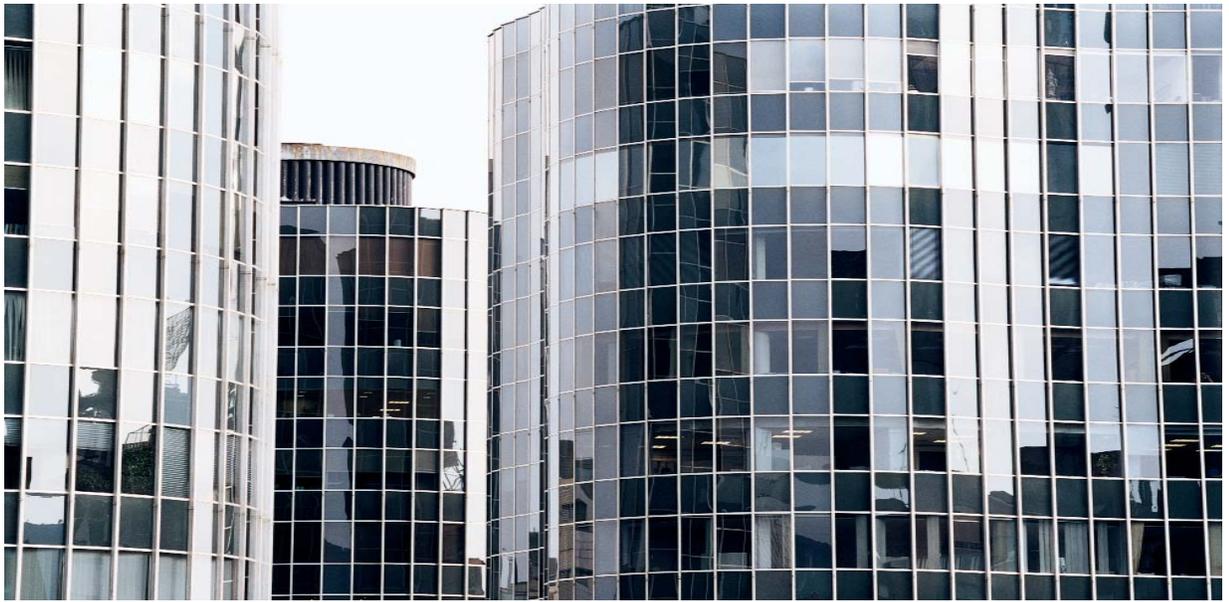
Leveraging the HP Integrity server line in your RAC strategy adds:

· Lower Oracle licensing cost per transaction

· Easier migration from existing 64-bit UNIX® applications

· Largest memory configurations for in-memory data manipulation

HP delivers more: performance, service, and lower TCO

HP Integrity Servers running Oracle Real Application Clusters provide the performance, flexibility, and scalability you need - all with lower total cost of ownership (TCO). It's a winning combination to meet your most demanding enterprise application requirements.

HP understands the need to minimize the risk and complexity of implementing a sophisticated clustering environment like RAC. The HP Parallel Database Cluster is a tested and proven solutions stack as well as a tool set of documentation, scripts, and test tools designed to simplify and accelerate initial RAC configuration.

Specific HP Service offerings based on the PDC specification and tools will have your system up and running in less than three days. Further, HP offers a complete spectrum of support services that includes basic reactive warranty support through mission-critical partnerships custom designed for each customer's service level requirements. Enhanced HP Support offerings mean solutions-specific expertise is applied to any support issues from initial contact, not as a result of step-by-step trouble shooting and escalation.

More information

For details on how the HP Parallel Database Cluster (PDC) program can help you create a more adaptive enterprise:

· Visit HP at:
   http://www.hp.com/solutions/highavailability/oracle

· Send an e-mail message to RAC_Contact@HP.com

For information on HP Linux indemnification,

· Visit: http://www.hp.com/go/linuxprotection

Take the lead in moving toward consolidation and standards

Now is the time to take the next step and find out how HP Integrity servers can help you make the move to 64-bit Windows or Linux, consolidate your Oracle environments, and significantly reduce on-going operations costs.

Contact your HP representative or reseller today, or visit: http://www.hp.com/linux

5

Fiat Auto endorses
HP cluster solution...

Renowned for its distinctive small cars that combine style and value, Fiat Auto is also creating an innovative solution that puts the inventories at thousands of dealerships within reach of the customer. Fiat Link, a Europe-wide sales support/customer relationship management (CRM) solution, enables customers to configure and buy their choice of Fiat through a wireless HP Tablet PC. Fiat Link will integrate and enhance sales and service across 5,800 retailers in Europe by 2005. HP Services consultants developed Fiat Link's three-tier infrastructure, powered by an Oracle9*i* RAC Real Application Clusters database running Red Hat Enterprise Linux AS on HP Integrity Servers.

"An efficient and effective sales network is crucial to our ongoing competitiveness. HP offered us the best possible Itanium-based infrastructure solution. And HP's relationships with Intel and Oracle are extremely important to us, ensuring the success of our application. We expect real return on this investment in terms of impact on profits."

Nunzio Cali
Director of Information Technology
Business Unit Fiat
Lancia & Light Commercial Vehicles

For the complete story see Fiat Auto Italy:
http://www.hp.com/products1/itanium/testimonials/fiat_linux.html

First Trust endorses
HP cluster solution…

As one of the nation's largest independent trust companies for self-directed retirement plans, First Trust Corporation handles transactions equaling tens of millions of dollars per day on behalf of investors. To create a state-of-the-art equity and mutual fund transaction processing system, First Trust deployed a cluster of 4 two-way HP integrity rx2600 servers running Oracle9i Real Application Clusters (RAC) and Red Hat Enterprise Linux AS. The result: 99.99% uptime and a three-fold performance improvement over the company's previous IBM® RISC-based transaction system running on AIX.

"We reduced the number of processors in our cluster and still achieved high availability and performance. Factoring in both hardware and software licensing costs, HP and Intel provided the best price-to-performance ratio. The HP Integrity server with Intel Itanium 2 processors provided us with substantial cost advantages and a cutting-edge transaction processing system that helps First Trust be competitive."

Jeff Knight
Vice President
Technology and Vendor Relations
First Trust

For the complete story see First Trust Corporation:
http://www.hp.com/products1/itanium/testimonials/first_trust_corp.html

To learn more, visit www.hp.com/go/integrity or
www.hp.com/solutions/highavailability/oracle

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