

Customer experiences with Oracle 9iRAC on ProLiant

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AGENDA

- Marketing messages
- Customer conclusions
- Customer experiences
 - eCommerce success story
 - Fortune 500 manufacturing company assessment
 - ISV Partner experience
 - System Integrator partnerships
- The HP Parallel Database Cluster (PDC) program
- Conclusion and recommendations

HP and Oracle address customer needs with Real Application Clusters

Oracle RAC addresses:

- Ever increasing demand for availability
- Data center consolidation for efficiency and security
- Maximum resource utilization
- Modular scalability of resources
- Lower total cost of ownership

HP Parallel Database Clusters delivers:

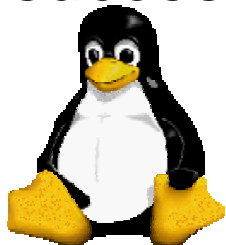
- Fully integrated all-HP platforms for RAC
- Tested and proven in real world implementations to reduce risk
- Processes, tools and services to speed deployment
- RAC Support specialists

Benefits of “scale out” clustering vs. scale up

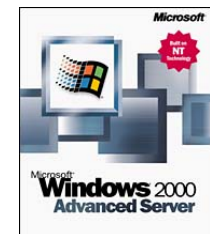
- More server nodes = greater availability (n-1 capacity from loss of node)
- Dynamic, incremental capacity expansion
 - 2, 4, or 8 processor building blocks
 - Shared storage scales independent of processor scale
- Investment protection – nothing is “replaced”
- Planned maintenance does not require down time
- Lower TCO of IA32 architecture

HP RAC - Executive summary

- Oracle9i Real Application Clusters (RAC) provide the highest levels of availability for Oracle environments
- RAC enables clusters of industry standard servers to achieve performance previously limited to UNIX
- These industry standard platforms running Windows or Linux offer compelling TCO
- HP delivers tested and proven solutions for RAC backed by support specialists to ensure customer success:



HP Parallel Database Clusters



Larry Ellison message

"The single worst problem with a single computer strategy is a single point of failure..everything stops."¹

"Nobody does clustering today...but we expect 50 % of our customers to move to clustering with 9i RAC"²

"It will be several years before the big machine dies, but inevitably, the big machine will die."³

"There are two ways you make Linux more reliable: first you provide much better support, which we're doing, and second is with a cluster to provide fault tolerance,"⁴

Larry Ellison
Oracle Corporation

1. OOW Berlin 06/01/01
2. Comdex 11/01/01
3. IDG News Service 01/21/02
4. Unbreakable Ann. 06/02

HP's commitment to customer choice

HP's Multi-Operating System strategy



HP is #1:

- In Linux server revenue
- With Linux and Oracle
- In high performance technical computing

*"The question for us isn't, 'Will Linux dominate the world?'
But, 'What part of the world will Linux dominate?'"*

Carly Fiorina, Linux World 2003

Customer conclusions:

- Standards-based computing and Oracle RAC compared to mid-range Unix:
 - Advantages
 - Immediate savings
 - Flexibility
 - Performance
 - Comparable
 - Availability
 - Staffing cost
 - Scale

An SMB eCommerce Example

AutoTradeCenter (ATC)

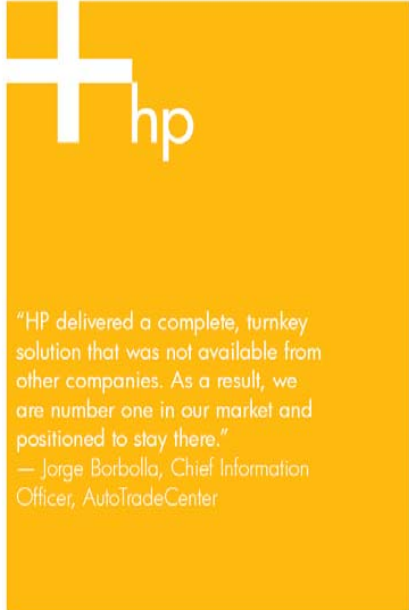



An eCommerce example


AutoTradeCenter (ATC) provides industry leading e-Business automobile remarketing programs for such companies as Audi, American Honda Finance, Hyundai, Isuzu, American Suzuki Motors, Volvo Finance North America, Volkswagen, Chrysler Financial Services, Subaru of America, Enterprise Rent-a-Car, and several other banks and financial institutions.



AutoTradeCenter revs up its e-commerce capabilities with HP, Oracle and Red Hat

"HP delivered a complete, turnkey solution that was not available from other companies. As a result, we are number one in our market and positioned to stay there."
— Jorge Borbolla, Chief Information Officer, AutoTradeCenter




Instilling confidence and trust in ATC's Fortune 500 customers



■ Challenge

- To solidify its status, ATC turned to HP for help constructing a reliable, stable and responsive eCommerce site (99.99% availability)

■ Solution

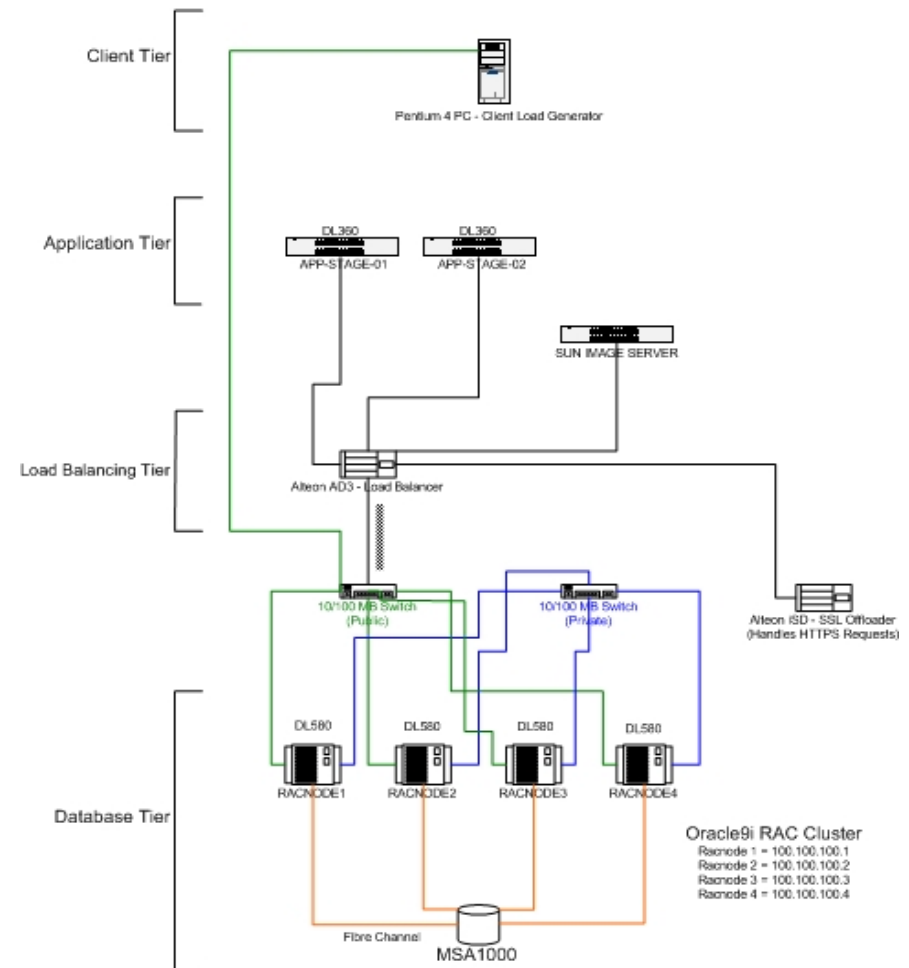
- HP Services leveraged the HP-Oracle Competency Center to implement a ProLiant Parallel Database Cluster for Oracle9i RAC database to validate the business-critical AutoTradeCenter application on the Red Hat Enterprise Linux AS 2.1 operating system.

■ Results

- ATC is positioned to quickly boost capacity and add new customers.
- The comparatively low cost of the HP StorageWorks MSA1000 SAN solution allowed ATC to purchase two systems, versus one from Dell, resulting in superior quality assurance, enhanced troubleshooting, and more responsive customer service.
- HP and ATC implemented a complex e-commerce platform in half the time it would have taken ATC to do it on its own — resulting in significant savings.

“It all comes down to a very attractive ROI proposition”

- According to Borbolla, ATC CIO, the ProLiant PDC
 - Is less expensive than comparable UNIX systems — but every bit as reliable
 - gives us the flexibility we need to grow our business quickly, yet stay nimble.
 - Oracle9i RAC makes it easy to add more servers to the cluster so we can support escalating demands from our customers
- With our HP-Oracle solution, we can sign up new customers and have them selling cars the same day.”
- HP Services offers single-call support for all hardware and software issues
- “It all comes down to a very attractive ROI proposition. Customers pay us by the transaction, and our whole business is predicated on speed and availability. By maintaining an extremely reliable site based on HP solutions, we established an impeccable reputation with our Fortune 500 customers. We’ve seen a marked increase in revenue due to our robust HP e-commerce platform, and we’re solidifying our reputation as a technology leader. Our customers are impressed with the dramatic savings we offer them.”



A Fortune 25 example - Manufacturing



A Fortune 25 example - Manufacturing

- Customer requirement:
 - Assess financial, performance, and operational aspects of in-house applications and database on HP/Oracle/RedHat vs. existing SUN/Oracle/Solaris
 - Benchmark in-house, using production data, and matching existing environment
- Conservative testing approach:
 - Systems tuned for Solaris, not Linux
 - Customer's IT group installed all hardware and software and preformed testing with HP support
 - Hyperthreading disabled on Linux
- Results
 - HP/RedHat/Oracle App servers handled twice the user load with $\frac{1}{2}$ the CPU utilization achieving a 38% cost savings.
 - HP/RedHat/Oracle 9iRAC database servers achieved 2x to 5x performance with less than $\frac{1}{3}$ the CPU's at an 86% cost savings

Fortune 25 company - Manufacturing Objectives and Roles



Objective

- Assess the financial, performance, and operational aspects of running Oracle Database on HP/RedHat versus SUN/Solaris

Roles

- Customer provided executive sponsorship, hosted and supported with DBA and UNIX administrative resources
- HP sponsored and led
- Oracle contributed technical expertise, benchmarking experience and project management
- RedHat performed Total Cost of Ownership analysis and provided technical expertise

Fortune 25 company - Manufacturing Workload and Environment



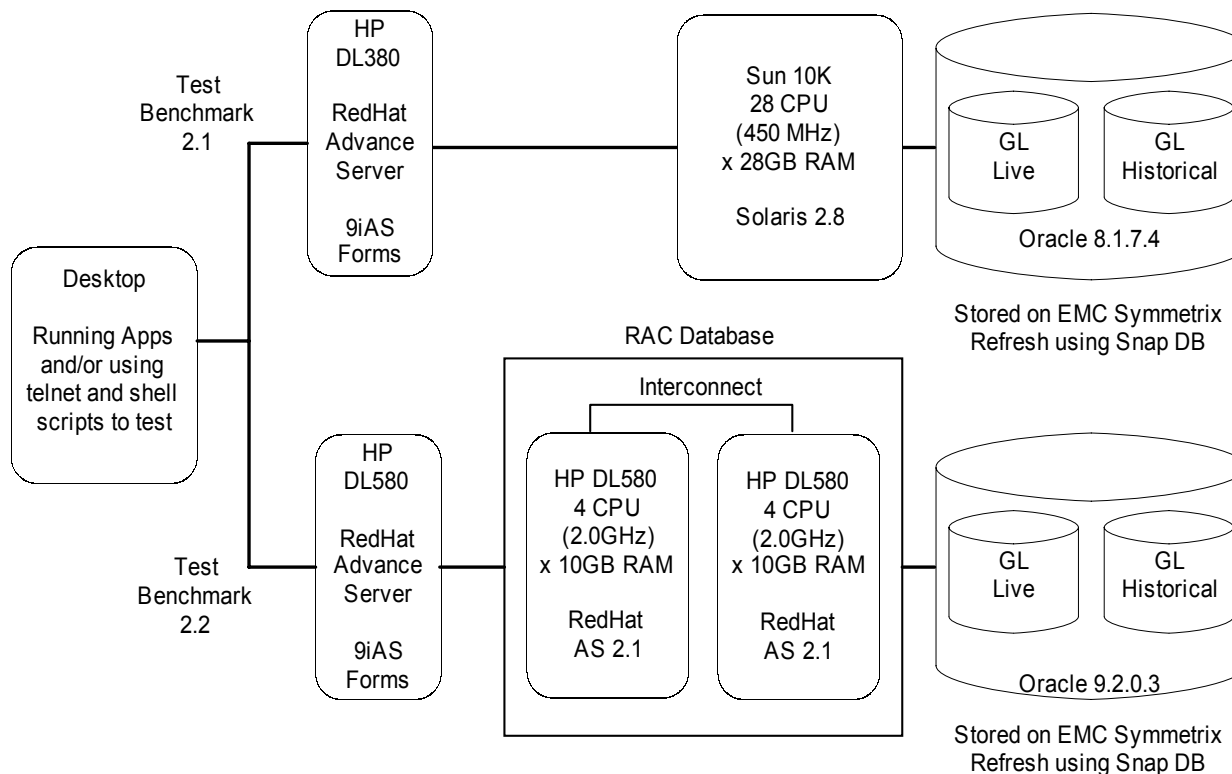
Workload

- Customer Interfaces: the customer Interfaces are specific code executed at the end-of-month to send data to the corporate “parking lot.”
- “Top” SQL Statements from Production and QA: several of the most costly SQL statements were taken from production and QA environments to simulate user workload. The SQL statements were then compared to make sure they were appropriate for scaled testing and were actual business processes. Explain plans were checked to ensure similar execution in different database versions.
- All tests were run at least twice to ensure data validity.

Environment

- Production: Oracle 8i/Solaris/EMC
- Oracle RAC installed on HP servers/EMC storage using HP kit

Fortune 25 company - Manufacturing Architecture



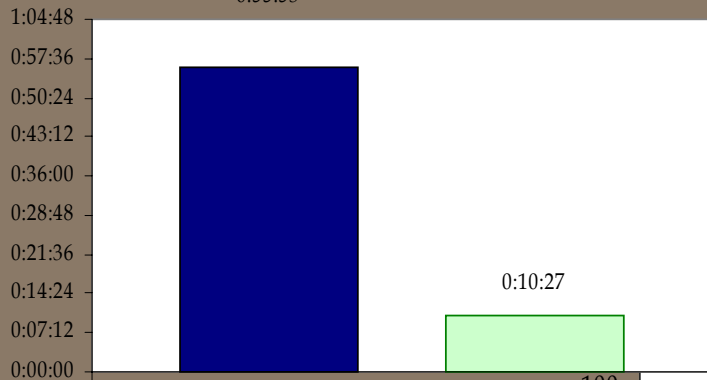
Production System
Db Servers: 28 x 400MHz CPU w 28.0GB Sun E10K w/ Solaris 2.8
App Servers: HP DL380 2 CPU

POC System
Db Servers: 8 x 2.0GHz CPU w 10.0GB (2)HP DL580 w/ Red hat AS 2.1
App Servers: HP DL580 4 CPU

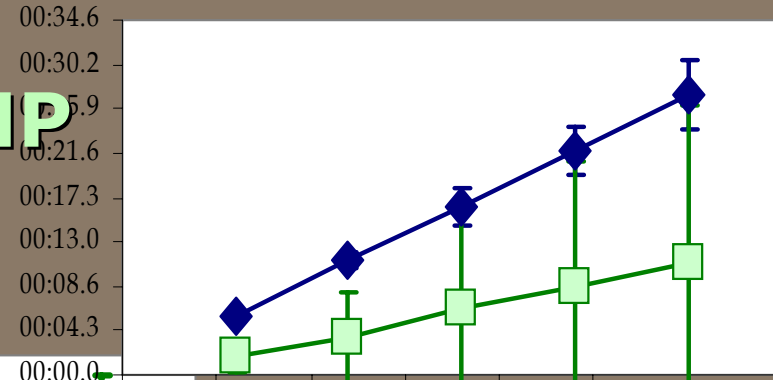
Common Components:

- Oracle Apps: 11.5.8 with customer data and customizations
- Testing Tool: Oracle forms and shell scripts to simulate users
- EMC Symmetrix Storage

Fortune 25 company - Manufacturing Comparative results

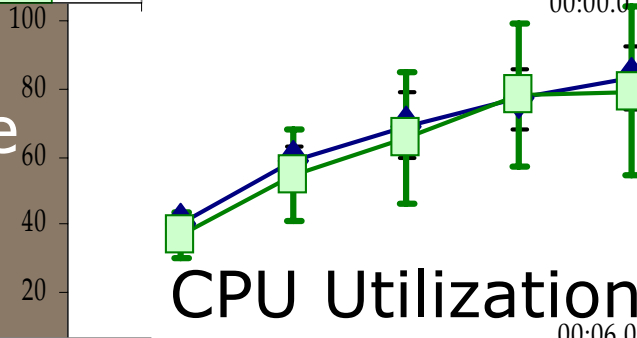


9iRAC/HP
8i/SUN

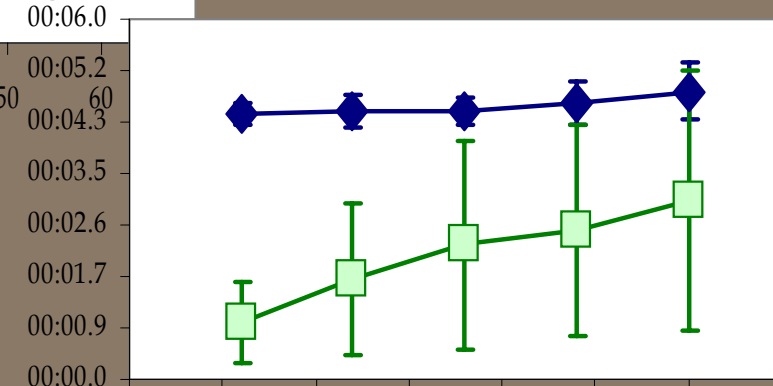
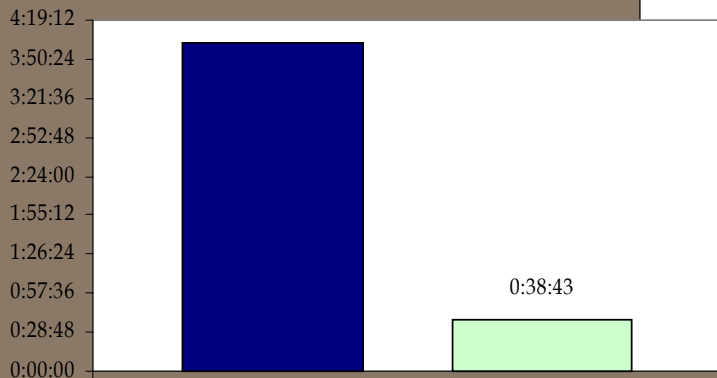


Processing Time Comparisons

Response Time Comparisons



CPU Utilization



Fortune 25 company - Manufacturing 5 x faster at 1/8 the cost



Same Scalability

With better transaction response time, 2x DL580 can the process the same amount of work as the Sun E10K.

Annual cost HP/Linux Costs Reduced 86%

SUN/Solaris	\$273,560
HP/Linux	<u>\$ 35,721</u>
<i>Savings</i>	\$237,839

Better Performance HP/Linux

- Average **556%** improvement on Custom Processes.
- Scaled test improved 200% - 500%

Comparable Skill Sets

Customer DBAs, UNIX administrators, and operations built environments on Linux - with same operational functionality as Solaris!

Different Software

Oracle 8i vs. 9i RAC
But DB differences minimized by making sure the SQL explain plans are consistent.

Conservative Approach

- Configuration tuned for Sun / Solaris.
- Hyper-threading disabled on HP/Linux

Other Misc Examples



An ISV Partner Example

■ Challenge

- A Business Applications software provider in a niche market looking for a high availability solution for mid sized (50 to 200 users) customers

■ Solution

- HP Services leveraged the HP-Oracle Competency Center to implement a ProLiant Parallel Database Cluster for Oracle9i RAC database to validate compatibility of the vendors application in a 9i RAC environment and demonstrate the HA features of RAC and the PDC on Red Hat Linux

■ Customer Conclusions

- RAC migration of existing database is nearly seamless
- To take full advantage of RAC there is work to be done at app layer
- RAC provides the HA features their customers are looking for
- RAC on Linux is less costly than Windows or UNIX options
- Minimal retraining is required
- HP PDC support model ensures them success
- HP PDC deliver model ensure consistency of platform
- ISV Partner has implemented at two Beta customer sites
- New customers are waiting to implement on Linux solution stack

A Systems Integrator Example

■ Challenge

- An HP Systems Integration Partner is contracted to implement RAC on ProLiant Linux but elects not to utilize the PDC Cluster Kit model. After 8 days of research and integration they run into a problem and need assistance debugging.

■ Solution

- Partner contacts HP PDC Team via e-mail. We provide PDC Cluster Kit to set and establish support linkage with our team.

■ Partner Conclusions

- Cluster Kit test scripts would have identified incorrect configuration settings that caused them all the problems
- Including a PDC Cluster kit in the sale would provided more direct support linkage to PDC Specialists and saved days of trouble shooting
- Customer relationship is weakened because of the delays in implementation
- Use of PDC Cluster Kit from the beginning would have saved them close to a week and improved their customer relationship
- They plan to start promoting their capability to implement RAC on Linux or Windows by leveraging the PDC Cluster Kit

HP Industry Standard Server Group Approach





HP Parallel Database Clusters for Oracle RAC

» ProLiant home

- » new products
- » retired products
- » special promotions

» ProLiant high availability home

- » products
- » solutions
- » information center

» PDC for Oracle home

- » site map



» Real Application Cluster

- highest availability
- auto client reconnect
- scale-out cluster
- load balancing
- lower TCO
- cluster file system

» Parallel Database Cluster

- all-HP optimized platforms
- tested and proven
- reliable and repeatable
- simplified deployment
- PDC support specialists

PDC for Windows solutions

- » MSA1000 config
- » EVA config
- redundant FC SAN
- 2, 4 and 8 way servers
- dual gigabit interconnect
- cluster file system option

PDC for Linux solutions

- » MSA1000 config
- redundant FC SAN
- 2, 4 and 8 way servers
- dual gigabit interconnect
- cluster file system option

» custom RAC solutions

- » ProLiant with EMC
- » PDC with PolyServe
- » PDC with United Linux
- IA64 solutions
- other HP solutions

» information center

- » whitepapers
- » related news
- » supported server and storage matrix

PDC implementation options

PDC Cluster Kit enables both

Parallel Database Clusters

'Do-it-yourself'
PDC cluster kit options



- Range of supported servers, 2-, 4-, and 8-way
- 2 to 6 nodes supported
- MSA1000 or EVA storage in full SAN configurations
- Available on Windows and Linux
- Available direct from HP or through HP resellers

'Pre-installed'
PDC ready to run solutions



- MSA1000 based solutions
- HP installation options
 - HW rack and cable only
 - OS & Oracle RAC loaded
 - At factory or on-site
- Windows or Linux



Custom solutions from
HP global service



- For other RAC options and solutions contact HP service
- ProLiant with EMC RAC
 - PDC with PolyServe
 - Etc.



Driving Factors

- Primarily existing Oracle customers
- Linux expansion – Oracle in forefront
- Overall IT cost pressure
 - CIO or higher direction – “find a way”
 - Technology driven – evaluation and fit
- Existing UNIX platform is aging
- Approaching capacity ceiling

Conclusion / Recommendation

- Long term TCO proof points won't come soon – reasonable to assume no worse than UNIX – be first
- Many customers are willing to sacrifice some functionality for lower costs – don't procrastinate
- It's not about absolute performance – i.e. new RISC versus new IA32 – it's about replacing existing systems with comparable performance at a lower cost - test
- Do not underestimate the effort and complexity but know that experienced partners implement RAC more routinely every day – don't hesitate, partner
- Include your partners early when considering RAC





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