Break Free with Power7 and IBM Software

Radovan Dršata
Competitive SW leader – Central & Eastern Europe
A Smarter Planet Demands Smarter Solutions

Smarter Solutions ensure flexibility, performance, and integrity while delivering greater cost efficiency.

**Flexibility**
System configurations that meet today’s needs, with rapid and easy growth to keep pace with business

**Performance**
Top speed and 24x365 availability to serve the globally integrated enterprise

**Integrity**
Confidence that every business transaction completes successfully and valuable data is protected

**Cost Efficiency**
Lowest cost of technology and natural resources required to deliver these qualities of service
Advantages of IBM Systems and Software Optimization

86% lower cost
for DB2 on IBM Power 780 than Oracle on Sun²

43% less staff
for DB2 on Power 780 than Oracle⁵

41% lower transaction cost
On POWER7 than the best Oracle/Sun TPC-C result⁴

73% faster JVM
using a single JVM of WebSphere on POWER7 vs. competitive application server on Nehalem¹

40% better utilization
Up to 40% better system utilization with the latest compilers, exploiting POWER7 architecture³

2.7x faster per core
On POWER7 than the best Oracle/Sun TPC-C result⁴

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¹ IBM CPO Internal Study
² As much as 40% improved throughput vs. Power6 for the identify duplicates process One example of performance improvement, TSM 6.2
³ CPO Study - DB2 on POWER7 Delivers The Most Efficient TPC-C Result EVER!
⁵ Solitaire Study
Smarter Hardware: Value of Power Systems

**Virtualization without Limits**
- Drive over 90% utilization
- Dynamically scale per demand

**Resiliency without Downtime**
- Roadmap to continuous availability
- High availability systems & scaling

**Dynamic Energy Optimization**
- 70-90% energy cost reduction
- EnergyScale™ technologies

**Management with Automation**
- VMControl to manage virtualization
- Automation to reduce task time

AIX - the future of UNIX
Total integration with i
Scalable Linux ready for x86 consolidation
POWER7 Also Delivers Competitive Advantage

780 delivers over 3X the performance per core of HP Superdome and Sun M9000
780 delivers over 5.8X the performance per watt of HP Superdome and Sun M9000

<table>
<thead>
<tr>
<th>System</th>
<th>Chip/Core/Thread</th>
<th>Date</th>
<th>SPECInt_rate2006</th>
<th>Per core</th>
<th>Maximum energy requirement (WATTs)</th>
<th>Per KWatt</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Power 780 (3.8 GHz POWER7)</td>
<td>8/64/256</td>
<td>February 2010</td>
<td>2530</td>
<td>39.5</td>
<td>6,400</td>
<td>395</td>
</tr>
<tr>
<td>IBM Power 570 (4.2 GHz POWER6)</td>
<td>16/32/64</td>
<td>October 2008</td>
<td>832</td>
<td>26</td>
<td>5,600</td>
<td>148</td>
</tr>
<tr>
<td>Sun SPARC Enterprise M9000</td>
<td>64/256/512</td>
<td>October 2009</td>
<td>2586</td>
<td>10.1</td>
<td>44,800</td>
<td>58</td>
</tr>
<tr>
<td>HP Integrity Superdome (1.6 GHz Itanium 2)</td>
<td>64/128/128</td>
<td>September 2006</td>
<td>1648</td>
<td>12.875</td>
<td>24,392</td>
<td>68</td>
</tr>
</tbody>
</table>

Source: IBM results available at announcement. All other results as of 01/27/10. Not all results listed. Performance per KWatt is calculated by dividing the performance by the recommended maximum power usage for site planning. This defines the requirement for the power infrastructure. Actual power used by the systems will be less than this value for all of the systems. For HP systems, this information is contained in the QuickSpecs available through www.hp.com. For Sun systems, this information is available through the respective Site Planning Guides available through www.sun.com.
IBM DB2 Delivers Price Performance Over Oracle

**DB2 has lower staffing costs**
- DB2 needs **43%** Less Staff on Power than Oracle Database – Solitaire Study
- **25%** to **35%** more DBA time is required for Oracle than for DB2 9 environments – ITG Report

**DB2 has better performance**
- **38%** better price/performance: DB2 pureScale on Power 780 vs. Oracle RAC on Nehalem
- Supports **3.3 times** more users on an SAP benchmark than Oracle running on Sun

**ITG Report - 3-year costs for DB2 and Oracle Database***

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Databases</th>
<th>Disk systems</th>
<th>Tape systems</th>
<th>Database servers</th>
<th>Personnel</th>
<th>Total Cost (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle 11g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.24</td>
</tr>
<tr>
<td>DB2 9.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.58</td>
</tr>
</tbody>
</table>

$ Millions

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* Source: Oracle technology global price list. Based on comparison of US Prices of single processor core, equivalent of 100 PVU’s.
** Source: IBM internal tests. Configuration detail: IBM WebSphere Application Server 7 - 1 JVM, AIX TL4, 64 bit, 16 threads. Competitive Application Server - 1 JVM, Windows 64 bit, 16 threads.
*** Source: ITG whitepaper: VALUE PROPOSITION FOR IBM DB2 9.7: Cost Savings Potential Compared to Oracle Database 11g
No naschvál... (new yorské metro 70. let)

If u cn rd ths
u cn gt a gd jb w hi pa!

Přčtš-li tt,
mžš zskt dbru prc s vskm pltm!
Oracle’s practices are not getting good reviews from clients

20% dissatisfied with Oracle
78% satisfied with IBM

Let’s see why...

Source: ITIC Reliability Survey, February 2011 (468 Businesses Worldwide)
Oracle has gradually built an “Oracle only” stack

<table>
<thead>
<tr>
<th>Component</th>
<th>5 Years Ago</th>
<th>Today (Pushing Strategically)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>Oracle E-Business Suite</td>
<td>Oracle Fusion Applications</td>
</tr>
<tr>
<td></td>
<td>PeopleSoft, Siebel, JD Edwards</td>
<td></td>
</tr>
<tr>
<td>Middleware</td>
<td>Mixture of Open Source and Oracle (OC4J)</td>
<td>Oracle Fusion (includes BEA)</td>
</tr>
<tr>
<td>Database</td>
<td>Oracle DB</td>
<td>Oracle DB</td>
</tr>
<tr>
<td>Operating System</td>
<td>Solaris</td>
<td>Oracle Enterprise Linux</td>
</tr>
<tr>
<td></td>
<td>Open Solaris</td>
<td>Oracle Solaris</td>
</tr>
<tr>
<td></td>
<td>Red Hat and Suse Linux</td>
<td>Oracle VM (Sun’s LDOM)</td>
</tr>
<tr>
<td>Virtual Machine</td>
<td>Third Party</td>
<td>Oracle Solaris Containers</td>
</tr>
<tr>
<td>Servers</td>
<td>AMD, Intel, UltraSPARC, SPARC64, HP, Itanium, Power</td>
<td>Intel Sunfire, UltraSPARC</td>
</tr>
<tr>
<td>Storage</td>
<td>Many third party solutions</td>
<td>Sun Disk, Sun Tape</td>
</tr>
</tbody>
</table>

= Oracle Only

= Choices
Oracle charges for software on unused CPU cores

- Oracle does not allow soft partitioning using VMware or any other virtual machines, except for Oracle’s own VM. You pay for all CPUs on the box, vs. CPUs that are assigned to the VM.

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WebSphere AS ND is licensed for 2 CPUs.
License cost = $36,800

WebLogic Server Enterprise is licensed for 8 CPUs. License cost = $200,000
The IBM Enterprise-Based License Option gives clients choices

<table>
<thead>
<tr>
<th></th>
<th>IBM EBLO</th>
<th>Oracle ULA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client chooses individual products to be included</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Support included for 1\textsuperscript{st} year</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Client chooses which products to continue with support at term end</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Client continues to receive patches on products no longer under support</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**EBLO:** Enterprise-Based License Option

Easily Move Your Applications To DB2 on POWER7

Break Free From High Database Costs

Kairos

Proven Results
DB2 9.7 Offers Native Support For Most Oracle DB Applications

IBM has developed database migration technologies with strategic partners to deliver ground-breaking solutions to port applications built for Oracle database

✔ Faster, easier migration from Oracle
✔ Lower Training Costs
✔ No Application Rewrites
✔ Better Performance

“The migration went without a hitch, thanks to the teamwork between IBM and Edwards and to the reliability of the DB2 database platform” - Mike Donnelly

<table>
<thead>
<tr>
<th>Compatibility features</th>
<th>In</th>
<th>DB2 9.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL/SQL applications</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Oracle SQL dialect</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Concurrency (locking) model</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Data types</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Built-in functions</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Built-in packages</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>SQLPlus scripts</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Oracle JDBC methods</td>
<td>→</td>
<td>Native support</td>
</tr>
<tr>
<td>Online schema changes</td>
<td>→</td>
<td>Native support</td>
</tr>
</tbody>
</table>

“IBM DB2 9.7 Shakes Up the DBMS Market With Oracle Compatibility”
Driving More Responsive Business Applications & Services

High performance application infrastructure on POWER7

IBM WebSphere Application on POWER7 vs. competitive application server on Nehalem

- WAS does 73% more work per JVM image
- WAS has 22% better price/performance when configured for optimum throughput

And WAS on POWER7 processes twice as many transactions as .NET on Nehalem

Improve customer support with more responsive applications leveraging WebSphere Application Server (WAS) and the increased threads available on POWER7

Configuration detail: IBM WebSphere Application Server 7 - 1 JVM, AIX TL4, 64 bit, 16 threads
Competitive Application Server - 1 JVM, Windows 64 bit, 16 threads
Application Infrastructure: Simplify Web Facing Application Deployment

**IBM WebSphere Application Server 7**
- 1 JVM
- AIX TL4
- 64 bit
- 16 threads
- IBM Power 750
  - 8 cores
- 3920 Transactions/sec

**Competitive application server**
- 1 JVM
- Solaris
- 64 bit
- 16 threads
- Sun T5140
  - 8 cores
- 570 Transactions/sec

**6.8x**
More work

Source: IBM CPO internal studies
Reliable and Scalable Business Collaboration Software

Smartest Lotus Domino Server
✓ Optimized resource footprint
✓ Minimized & automated administration

Accelerated Open Development
✓ Freely available development tools
✓ Open & extensible Eclipse framework

Collaborative Desktop
✓ Microsoft Windows, Apple Mac, and Linux desktop platforms
✓ iPhone, RIM, Nokia, Android access
✓ No charge Lotus Symphony software

40% lower cost over Microsoft Exchange on Nehalem supporting 40,000 users


2 Represents IBM plans and directions, subject to change without notice
Powering Innovation on POWER7

Design & Development: Rational Software Delivery Platform

The IBM Rational solutions for Power Systems

Rational Developer for Power Family
- New Eclipse-based development tools for AIX, IBM i and Linux
- Integrated search, edit, build, analysis, and debug
- Support for C/C++, COBOL, RPG, Java, and EGL
- Linux desktop support

Rational Team Concert for Power Systems Software
- Collaborative team development environment
- Consolidate siloed development teams onto single change management platform

Rational Compilers
- IBM XL C/C++, and XL Fortran compilers for AIX and Linux, and COBOL for AIX exploit POWER7 capabilities

20%

Up to 20% Improvement in developer productivity by leveraging Rational Developer for Power Systems ¹

Customer quote - Morris Wright, Senior Consultant, Cothern … "RDp is an outstanding development environment for AIX development. The LPEX editor and the debugger are far superior to other tools I have used for AIX development. As a user of other Eclipse based Rational development tools, RDp has been very easy to use and our team was able to be productive in only a week versus months. It also provides a consistent development experience across computing environments providing up to a 20% productivity improvement."

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Stop, Think and Save up to 50% on applicable IT costs with IBM Software and Systems

Complimentary Savings Assessment for:
- Oracle database or application server software used with SAP or other applications, and running on Sun, HP or previous generation POWER hardware

Complimentary detailed Migration Plan

Tailored bottom-line IBM offer includes:
- Migration services
- Training and education
- IBM Systems and maintenance
- IBM Software licenses, subscription & support

Available IBM financing may eliminate your cash outlay during the transition

IT cost savings reflect potential overall reductions in software and/or hardware maintenance charges and reduced costs of system and workload management that may be achieved over a period of 3-5 years, when consolidating workloads from other systems to IBM. Software migration is from Oracle database and/or application server to comparable IBM DB2 and IBM Web-Sphere products. Actual cost savings and performance characteristics will vary depending on individual client configurations. Complimentary services, training and education will vary by customer and may not be available in every country. Financing terms and availability vary by country. Contact IBM to see what we can do for you.
Stop, Think and Save: cash-flow illustration

<table>
<thead>
<tr>
<th>Oracle Status Quo on-going costs</th>
<th>IBM Software and Systems Alternative acquisition and on-going costs, using IBM financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle software + Sun, HP or prior generation Power systems</td>
<td></td>
</tr>
<tr>
<td>Oracle software + Sun, HP or prior generation Power systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Year</td>
<td>This Year</td>
</tr>
<tr>
<td>IBM software + IBM latest systems</td>
<td>IBM software + IBM latest systems</td>
</tr>
</tbody>
</table>
CUSTOMERS

…. Hic Rhodus, hic salta
100 Plus SAP Migrations To DB2, All With 100% Migration Success!
*Completed in hours or days, not months*

- Coca Cola Bottling
- PepsiCo
- Samsung Corporation
- Barilla
- Sony
- Carlsberg
- Dansk Supermarket
- Faurecia
- German Army
- Afrisam
- Deutscher Ring
- Ciba Specialty Chemicals
- Central Michigan University
- Borcelik
- Britannia Industries
- ASM
- Agrifood

**Lower maintenance costs**

**Lower storage costs**

**Increased performance**

**Decreased response time**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Avoidance vs. Oracle (1st Year)</td>
<td>$250K</td>
</tr>
<tr>
<td>Database Size Reduction</td>
<td>30%</td>
</tr>
<tr>
<td>Additional Storage &amp; Maint. Savings</td>
<td>$100K</td>
</tr>
<tr>
<td>Annual License, Storage &amp; Maint. Savings</td>
<td>$175K</td>
</tr>
<tr>
<td>Response Time Improvements</td>
<td>5-10%</td>
</tr>
<tr>
<td>ROI</td>
<td>205%</td>
</tr>
<tr>
<td>ROI Breakeven</td>
<td>8 Months</td>
</tr>
<tr>
<td>5 Year Internal Rate of Return</td>
<td>133%</td>
</tr>
</tbody>
</table>
200+ SAP customers migrated to DB2
More information

www.ibm.com/facts

www.ibm.com/breakfree

www.ibm.com/stopthinkandsave
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