



IBM Information On Demand Unlock The Business Value Of Information

**Why DB2 Is The Right Database For
New Intelligence**

New Intelligence Demands A High Efficiency Foundation

Data warehousing, business intelligence and content management all put demands on the underlying database.



**Service Oriented Finance
CIO**

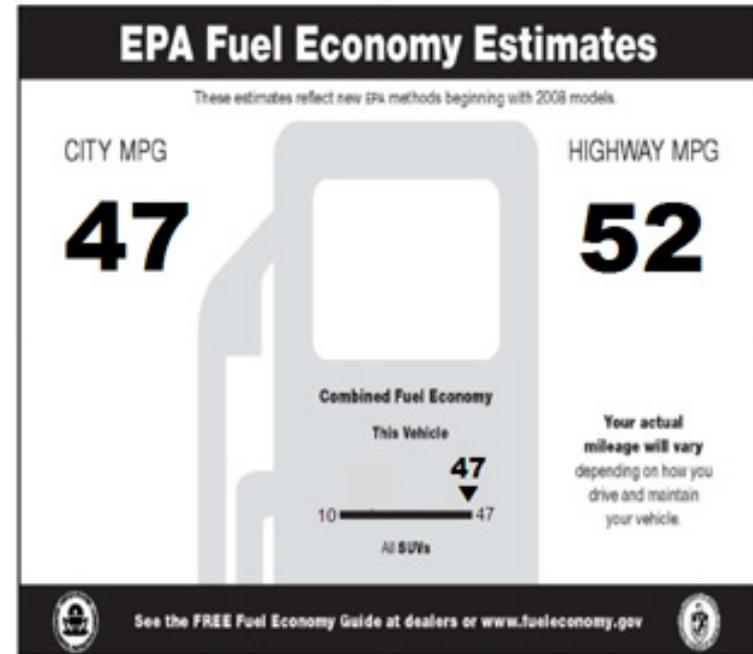
Your database software is the foundation for New Intelligence. DB2 is not only inexpensive but highly efficient.



IBM

DB2 Is A High-Efficiency Design

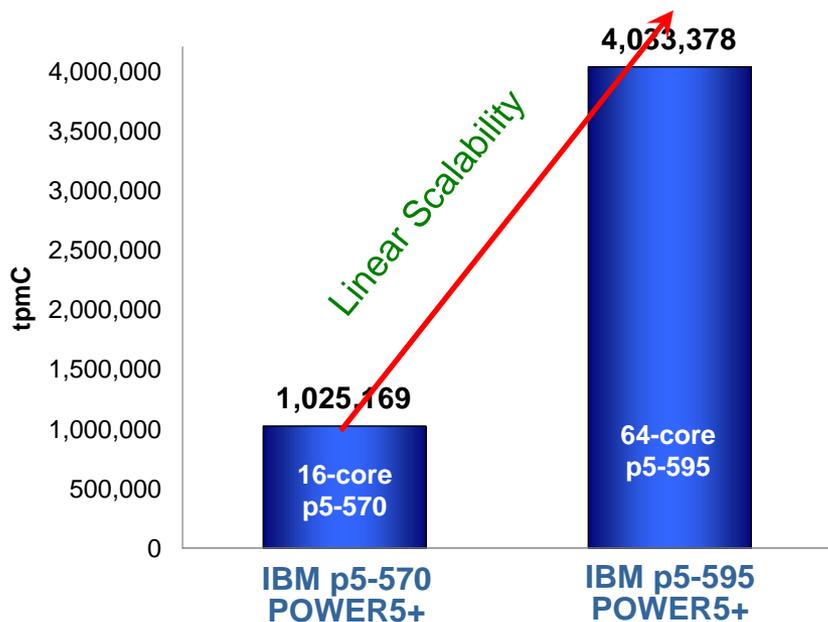
- **High Efficiency Scalability** keeps things simple and postpones scale-out
- DB2 has **High Efficiency Compression** that saves twice as much on storage
- DB2's **High Efficiency XML** storage takes less space and has much better performance
- New **High Efficiency tools** make developers and DBAs more productive
- **High Efficiency DB2 HADR** beats Oracle RAC
- DB2 exploits IBM hardware to improve performance and availability



Oracle 11g, Oracle RAC and Microsoft SQL Server require more resources to perform the same work!

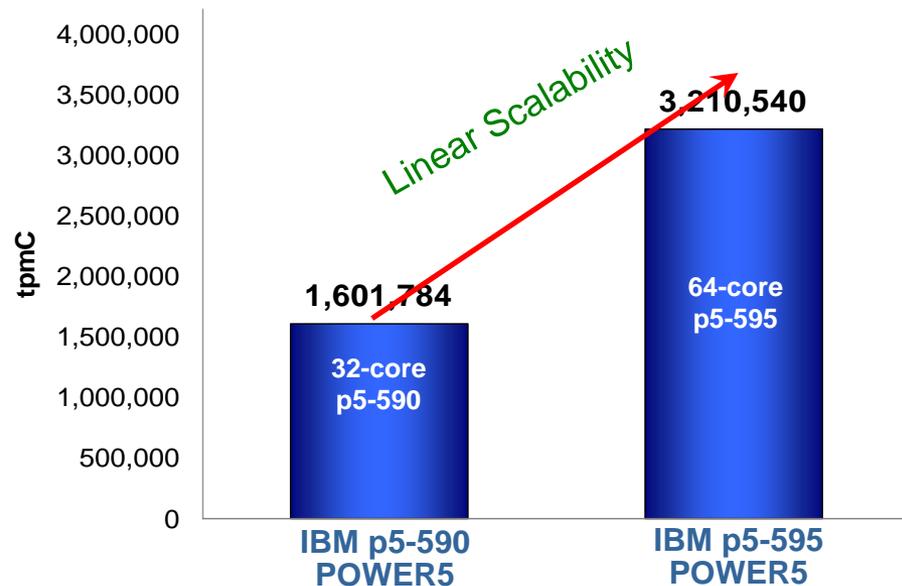
TPC-C Benchmarks Demonstrate DB2's High Efficiency Scaling On Power Systems

4x Cores, 3.93x Throughput



DB2 Benchmarks on Power Systems POWER5+

2x Cores, 2.00x Throughput



DB2 Benchmarks on Power Systems POWER5

System z With DB2 Scales Further Than Best Oracle On HP Superdome Banking Benchmark

Asian Bank

- ▶ IBM System z9 and DB2
- ▶ TCS BaNCS (Cobol)
- ▶ 15,353 Transactions/second
- ▶ 50 Million Accounts
- ▶ IBM benchmark for customer

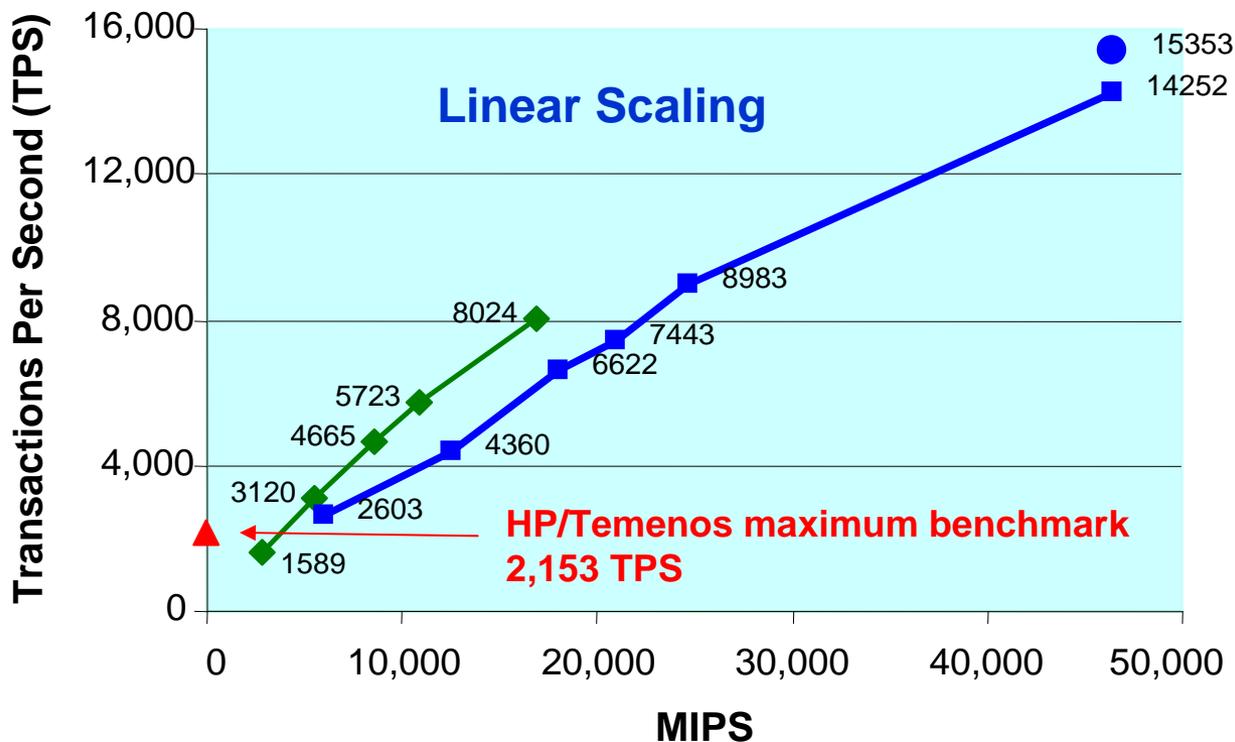
Bank of China **

- ▶ IBM System z9 and DB2
- ▶ TCS BaNCS (Cobol)
- ▶ 8024*** Transactions/second
- ▶ 380 Million Accounts
- ▶ IBM benchmark for customer

HP/Temenos *

- ▶ HP Itanium and Oracle
- ▶ Temenos T24 (Java)
- ▶ 2,153 Transactions/second
- ▶ 13 Million Accounts
- ▶ Largest banking benchmark performance claimed by HP

System z and BaNCS Online Banking Benchmarks



* SOURCE: TEMENOS BENCHMARKS; <http://h71028.www7.hp.com/enterprise/downloads/TemenosBenchmark.pdf>

** SOURCE: <http://www.enterprisenetworksandservers.com/monthly/art.php?2976> Source: InfoSizing FNS BANCS Scalability on IBM System z – Report Date: September 20, 2006

*** Standard benchmark configuration reached 8024 tps, a modified prototype reached 9445 tps

Demo: Side-By-Side Race Between Data Studio Developer And Visual Studio

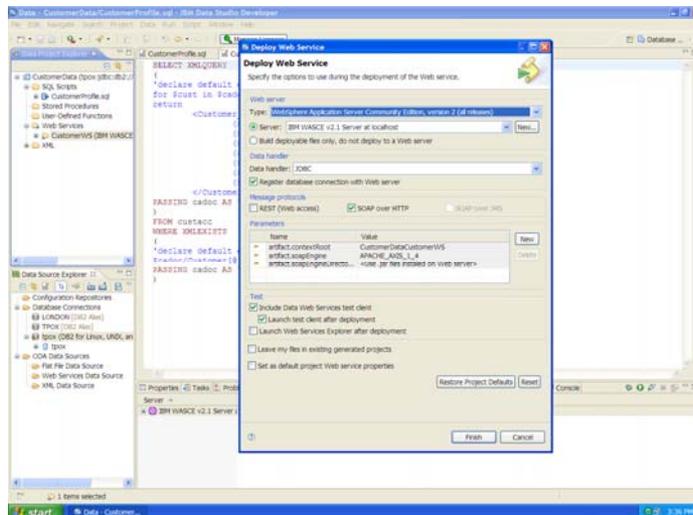
Project steps to expose XQuery data as a web service

1) Create Project, add database connection and test

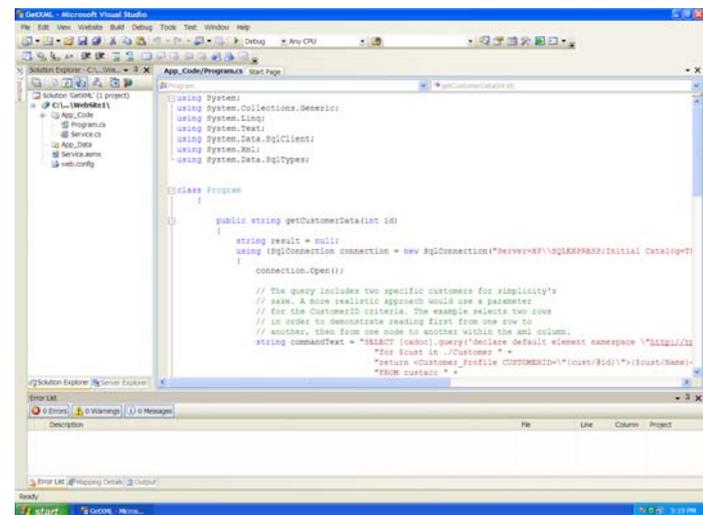
2) Import and test XQuery

3) Create Web Service from XQuery

4) Test Web Service and package it for installation



IBM Data Studio Developer 2.1



Microsoft SQL Server 2008

DB2 Has Autonomic Capabilities To Make Administrators More Productive

Everyday tasks are **simply automatic** with the DB2 Control Center!

- Automatic Configuration Parameters
- Automatic Statistics collection
- Automatic Backup
- Automatic Table reorganization

Number of asynchronous page cleaners	(AUTOMATIC)1	(AUTOMATIC)1 num_iocleaners
Number of I/O servers	(AUTOMATIC)3	(AUTOMATIC)5 num_ioservers
Package cache	(AUTOMATIC)320	(AUTOMATIC)1533 pckcachesz
Recovery range and Soft checkpoint inter...	520	1000 softmax
Sort heap size	(AUTOMATIC)83	(AUTOMATIC)304 sorheap

Database - TPOX

Alias name : TPOX	Status as of: 4/23/09 2:01 PM	Refresh
System : XP	DBM State: Started	Stop
Type : Local	Last Backup: None	Backup
Actions:	Size: 62 MB	View
Application	Capacity: 2668 MB	
Design	<input type="text" value="2%"/>	
Activity	Health: Normal	Monitor DB
Query	Maintenance: Partially automated	Maintenance
+ Create New		

Online maintenance window

Online automatic maintenance can occur during the following window

Time	00:00 - 05:00 (5 hours)
Days of the week	All
Days of the month	All
Activities using this window	Backup database (BACKUP), Optimize data access (RUNSTATS)

IBM Data Studio Administrator 2.1

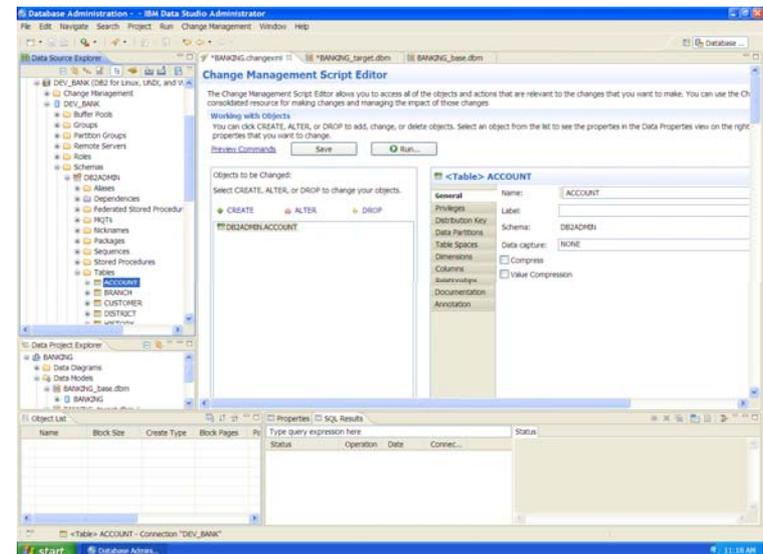
Improves Administrator Productivity

- Simplifies promoting changes from development to test or test to production
 - ▶ Compare, synchronize, copy, clone, or merge database schema definitions from the source to the target
 - ▶ Specify masks and ignores to simplify the comparison of tables
 - ▶ Migrate objects from physical data models, live database connections, or from scripts
 - ▶ Move objects and data with copy and paste, drag and drop, or directly from a comparison
 - ▶ Make changes-in-place or develop scripts for later use
- Eclipse-based
- Integrates with Rational ClearCase or other version control systems

DEMO: Easily Manage Changes With IBM Data Studio Administrator 2.1

DB2 Data Studio Administrator 2.1

- Enable new DB2 capabilities in Service Oriented Finance application environment
 - ▶ Automatically detect and synchronize changes between Development and Testing Banking Database
 - ▶ Enable compression
 - ▶ Add table for XML data



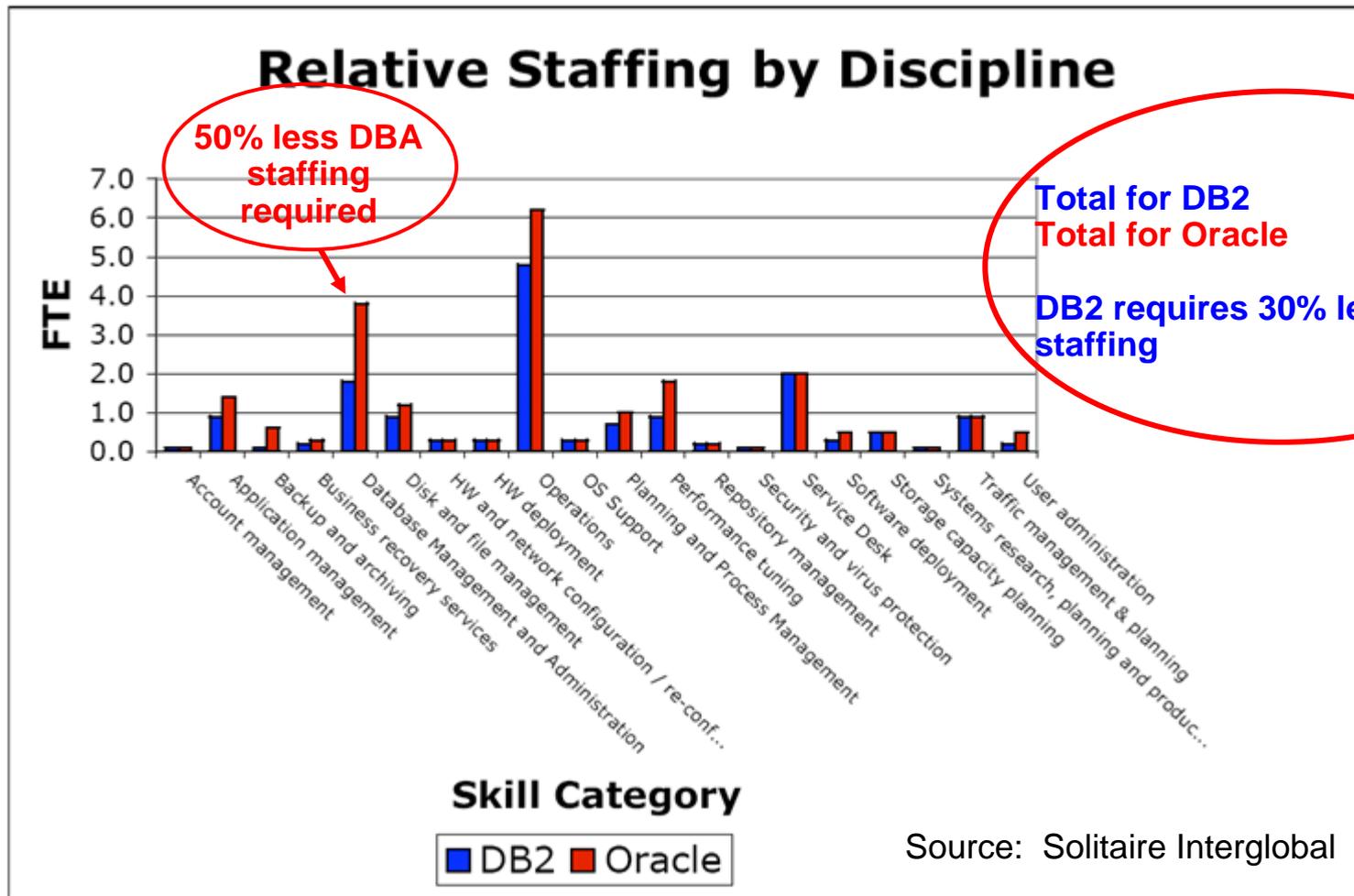
Customers See The Benefits of DB2's High Efficiency Administration

“There’s far less administration involved with DB2 than with Oracle.” **BOC runs “50-100 SAP systems,” supported by 12 people**
“That is really quite extraordinary.” - Sheila Moran at BOC in UK

“DB2 requires significantly less database administration than Oracle. **We can now deploy our IT staff for more productive and business-critical needs**” - Zdenek Vosahlo, Head of IT at Precheza

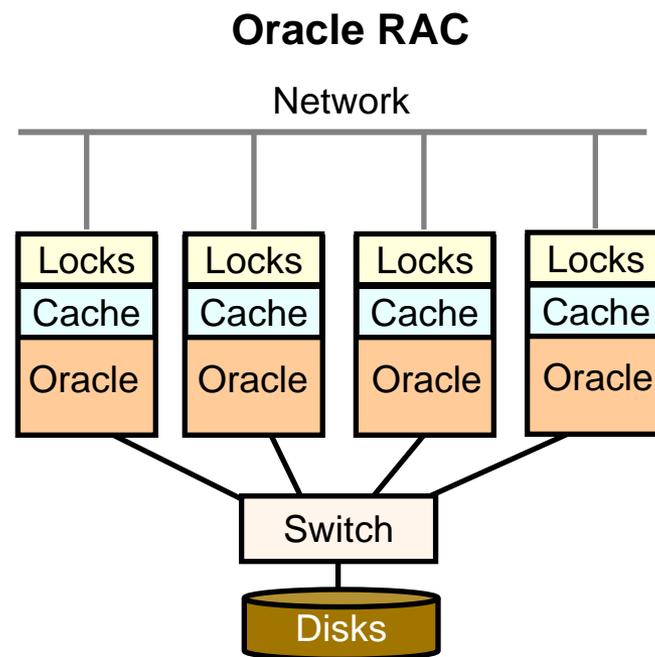
Ease Of Administration – Big Part Of TCO

Solitaire Interglobal Study - Staffing *Real world study of 250 sites*



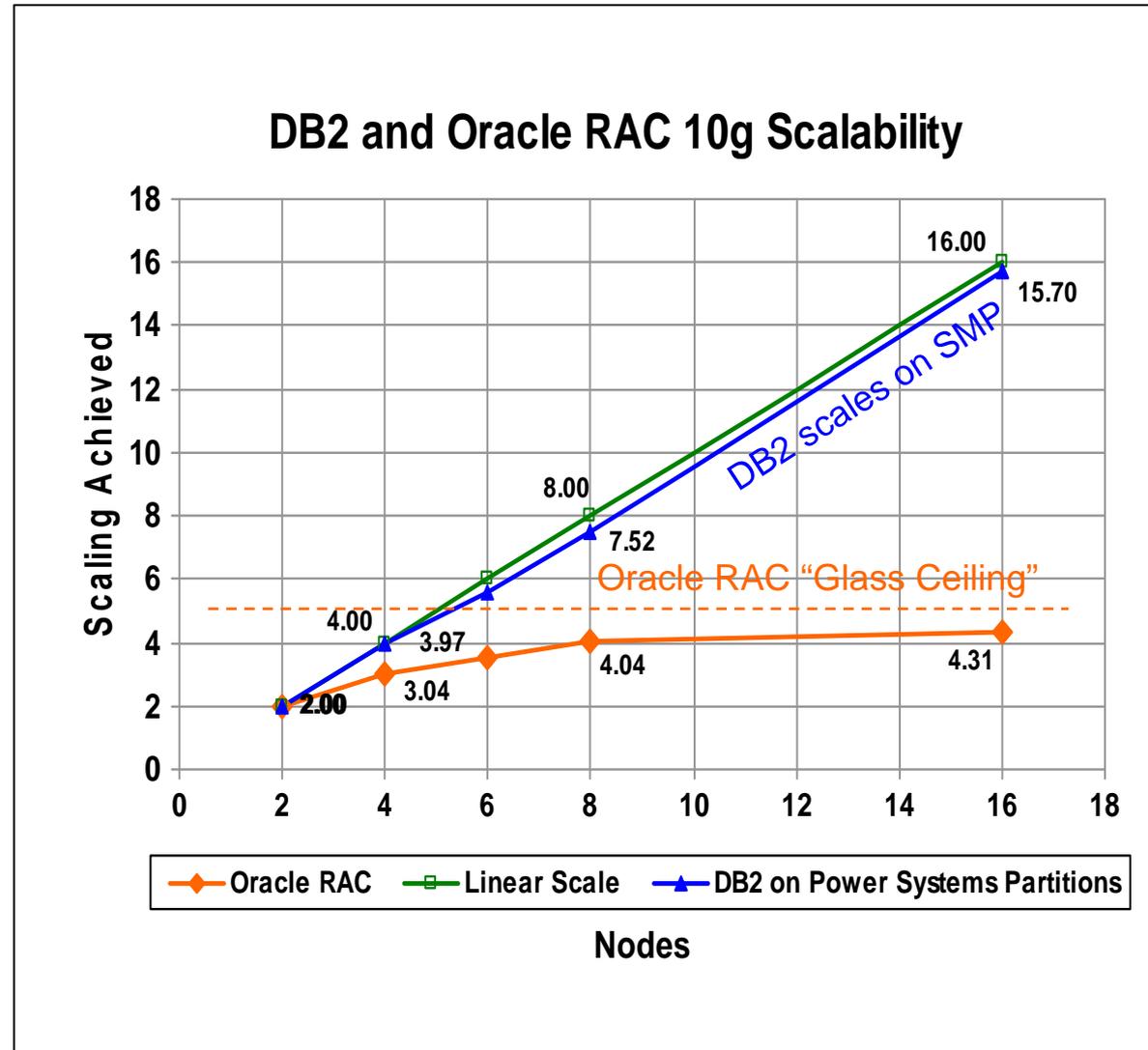
Oracle RAC Cluster Model Is An Inefficient Design

- Incoming requests are dispersed (sprayed) among the nodes
 - ▶ RAC maintains locks, cache per node
- Requires two separate networks
 - ▶ A private network for internal traffic between the nodes and the database
 - ▶ A public network for external communication and incoming requests
- Requires a single copy of the database in storage



HP Agrees! Oracle Scale-Out Glass Ceiling

- DB2 provides near-linear scalability on Power Systems
- With Oracle RAC, overhead increases rapidly as additional nodes are added, and performance degrades significantly after only 4 to 6 nodes



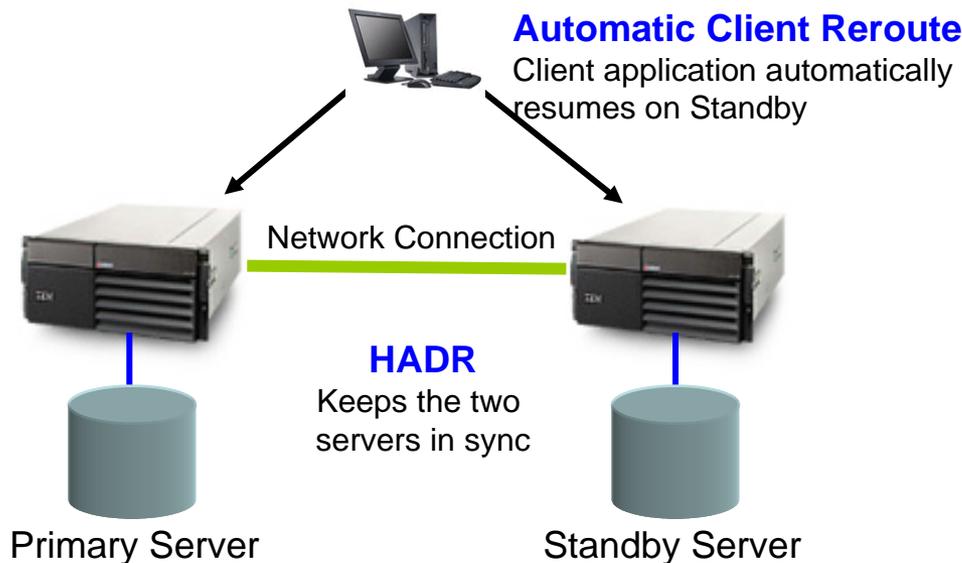
Sources: "Scale-up versus scale-out using Oracle 10g with HP StorageWorks", Hewlett-Packard, 2005;

"Enterprise Data Base Clustering Solutions" ITG, October 2003;

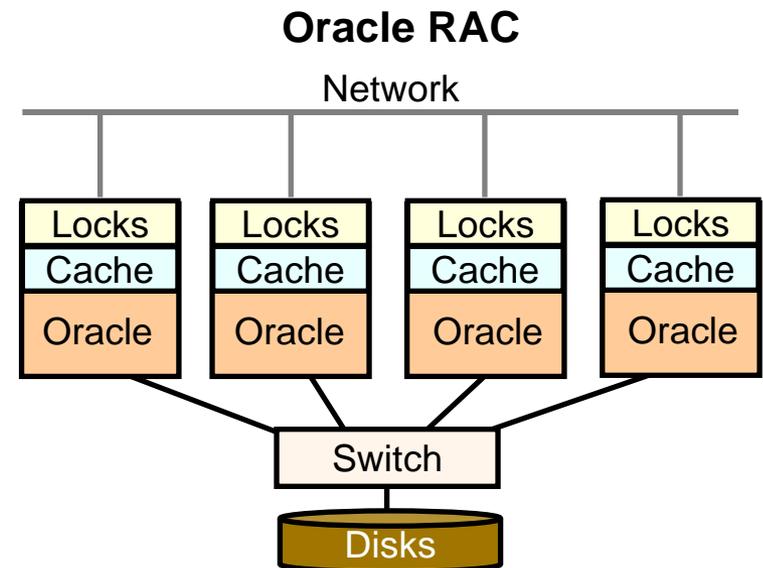
Benchmark tests, IBM Toronto Labs and Systems and Technology Group, using TPC-C-like workload, 2.2 GHz POWER5+, 2006 Power Systems TPC Benchmarks

DB2 High Availability And Disaster Recovery (HADR) Is Better Than Oracle RAC's

- DB2 HADR provides high availability and fast failover
- **Failover in less than 15 seconds**
- **Real SAP workload failover for 600 SAP users performed in 11 seconds**
- Storage mirror survives disaster
- Buffer pool primed on standby server with recent updates
- 100% performance after server failure
- Uses ordinary network and storage devices



- RAC failover is delayed due to remastering of distributed locks
- Only one copy of storage
- Degraded performance after server failure
- Pay for Oracle RAC for every node
- Specialized network and storage raises cost of ownership, erodes any savings from commodity servers



Data Security And Compliance: DB2 For z/OS Has A Proven Track Record

DB2 for z/OS Security

- 10 security related patches in the last 10 years
- Proven RACF and Multi Level Security
- End-to-end encryption via hardware assist
- Optim Test Data Management
 - ▶ Ensures anonymous access to data necessary for testing
- Optim Archiving Expert
 - ▶ Allows customers to easily archive and access data
- DB2 Audit Management Expert
 - ▶ Supports compliance requirements
 - ▶ Consul for enterprise wide audit

Oracle's Security Exposures

- **Oracle.com – April 2009**
43 security patches, including **16** for the database
- **eWeek.com – January 2009**
41 security patches, including **10** for the database
- **eWeek.com – October 2008**
23 security patches, including **7** for the database
- **Oracle.com – July 2008**
45 security patches, including **14** for the database

In the last year Oracle has issued 152 security patches, **47** for the database

DB2 Is Optimized To Take Full Advantage Of System z

- Coupling Facility enables unmatched scalability through centralized cache and lock management
- Hipersockets enable fast, secure communication between DB2 z/OS and zLinux applications
- Integrated with RACF and Multi Level Security
- Supports System z hardware encryption – Crypto Express 2
- DB2 Recovery Expert for automatic recovery and backup
- Offload up to 40% of workload onto zIIP processors to reduce licensing costs
- Hardware compression in addition to “Venom” deep compression can reduce storage up to 70%
- System z parallel sysplex supports rolling updates to running DB2

Oracle is Not !

DB2 Is Also Optimized To Take Full Advantage Of Power Systems And AIX

- Supports AIX 64KB, 16MB and 16GB large page sizes
- Optimized DB2 resource object alignment with Power Systems architecture
- DB2 takes advantage of AIX storage protection keys for security
- Deep integration between AIX workload management (WLM) and DB2 WLM
 - ▶ Helps meet service levels and maintain predictable performance via work priority settings and finer levels of monitoring
- Dynamic reconfiguration
 - ▶ Allows administrators to add and remove processors, memory and I/O adapters to and from LPARs, without disturbing operations or applications
- Recovery integration
 - ▶ DB2 recovery process with Power Systems autonomic computing technologies
- First Failure Data Capture (FFDC)
 - ▶ Provides failure analysis and automated recovery capabilities
- Oracle has a product philosophy of running on commodity servers

Oracle is Not !

DB2 v9.5 Costs 22% Less Than Oracle 11g

	DB2 v9.5 Enterprise Edition	Oracle 11g Enterprise Edition
Base CPU license (dual core Intel/AMD)	\$ 40 500	\$ 47 500

Popular Options		
XML	INCLUDED	INCLUDED
Compression	\$ 15 300	\$ 11 500
Advanced Security	\$ 11 100	\$ 11 500

SUPPORT (First year)	INCLUDED	\$ 15 510 (\$10450 + \$2530 + \$2530)
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TOTAL	\$ 66 900	\$ 86 010
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Prices for Dual Core Intel Server

High Efficiency DB2 Is The Winning Foundation For New Intelligence At Service Oriented Finance

I'm convinced!

We can leave our tired, old databases behind and move forward with DB2.



**Service Oriented Finance
CIO**

With DB2, Filenet, InfoSphere Cognos, and IBM Mashup Center, you have everything you need to make better business decisions and beat your competitors.



IBM

