

Delivering Information On Demand with DB2 9

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Director, WW Sales

IBM Information Management Software

IBM Software Live! October 2006



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Information On Demand

Moving From a Project-Based to a Flexible Architecture

Key Capabilities

- Accelerate Business Value**
 - Master Data Management
 - Enterprise Analytics
 - Information Warehousing
 - Industry Models
- Integrate Data Content**
 - Quality Services
 - Transformation Services
 - Federation Services
 - Metadata Services
- Manage Content**
 - Content Mgmt. & Integration
 - Discovery Services
- Optimize Data Services**
 - Data Services, Warehouses, Tools...

1,000+ Clients

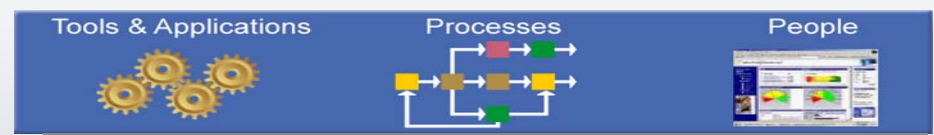
5,000+ Clients

13,000+ Clients

450,000+ Clients

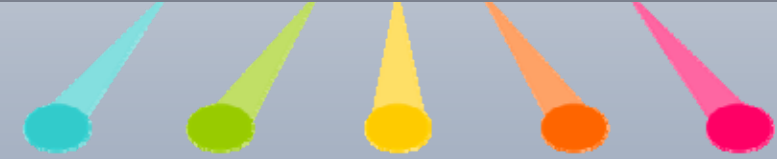
Customer Value

- Getting the right information to the right people or processes at the right time to take the proper action
- Integrating, analyzing and optimizing all information to manage risk and create new business insight



No Other Vendor Delivers the Breadth and Depth of Capabilities

Information On Demand
Optimize, Virtualize, Integrate, Accelerate

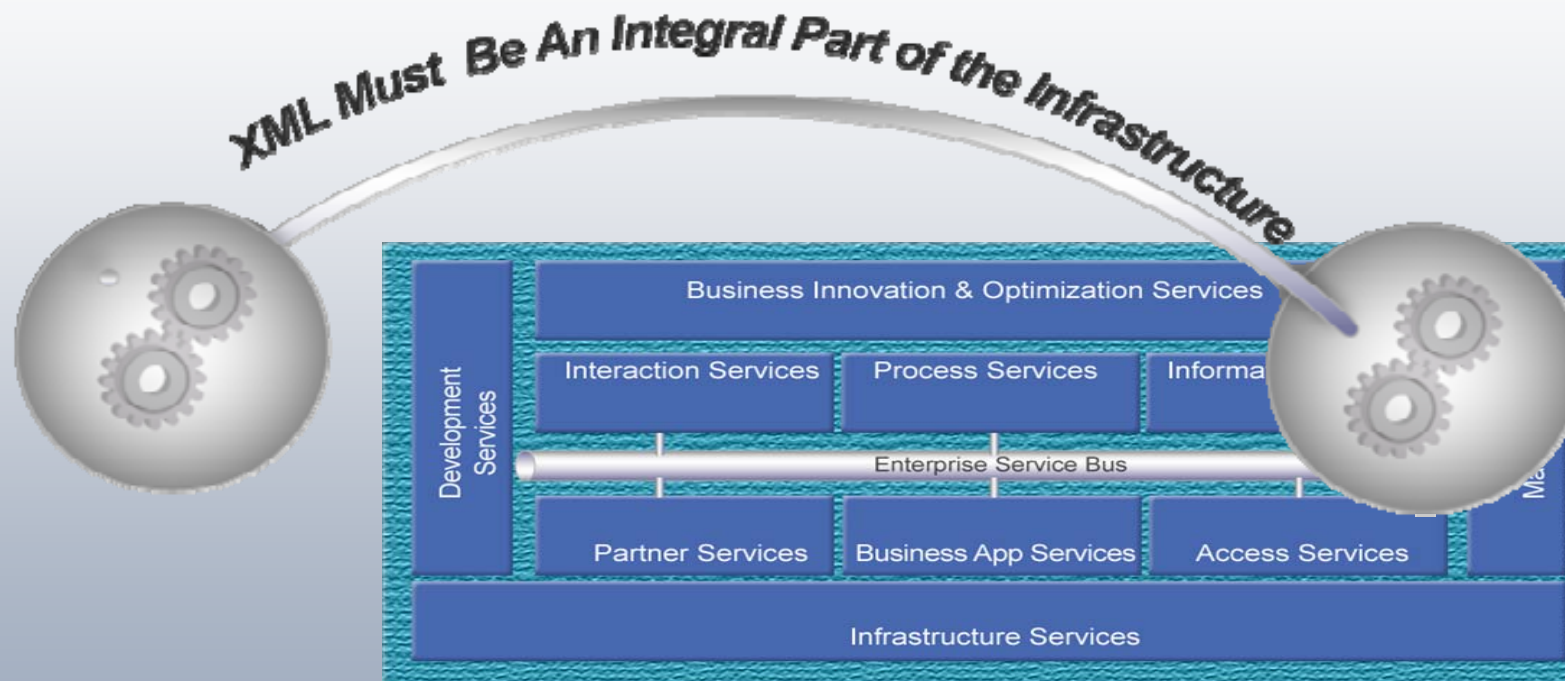


Data Servers & Content Repositories

XML - the Fabric of Services Oriented Architectures

Your business process platform needs an enterprise information management strategy.

Gartner, April 2006



You will waste your investment in SOA unless you have enterprise information that SOA can exploit.

Gartner, March 2005



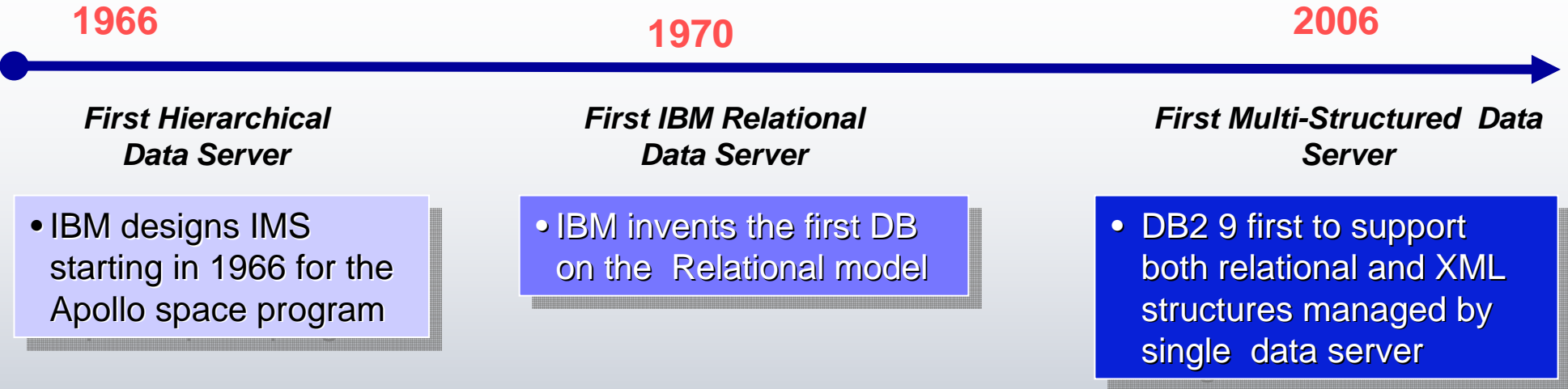
***“DB2 9 ...
the most significant
database technology
enhancements in over two
decades.”***



IBM Leads in Data Server Innovation

68 patents applied for in DB2 9 alone

Innovation Milestones



Continuous IBM innovation

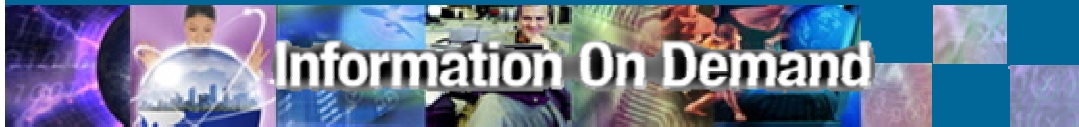
“...First, I think this leaves Oracle and Sybase well behind the curve, with Microsoft and the others more or less out of sight...”

Philip Howard, Bloor Research, The Register



The Business Value of DB2 9

- ***pureXML™ to fulfill a new generation of application needs***
- ***Deep compression to control skyrocketing storage costs***
- ***Higher performing SAP applications at lower cost***
- ***Autonomic Capabilities and Enhanced Granular Security***
- ***Optimized information warehousing for better, faster business insight***
- ***Faster and simpler application development***



PureXML™



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XML Market Projections

- *XML Data is HUGE growth area*

Figure VI.2: Market Size by XML Data Store Solution Type

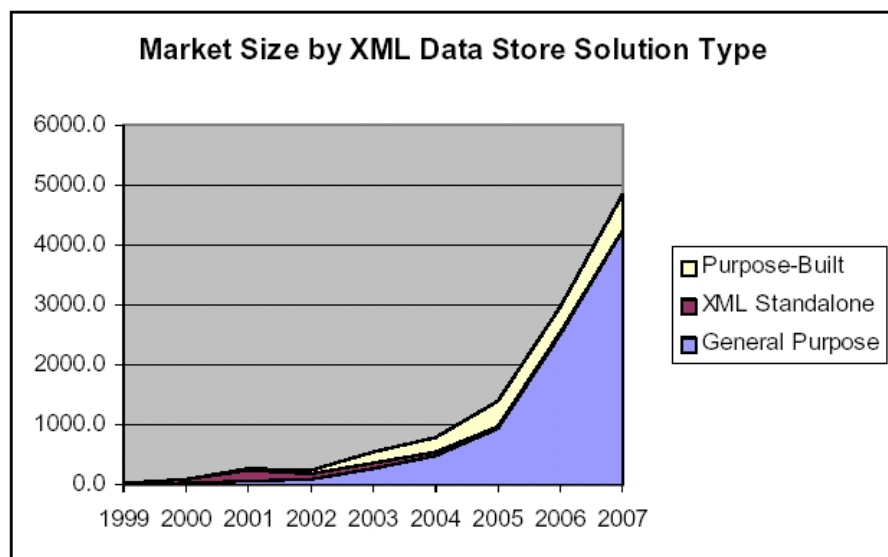
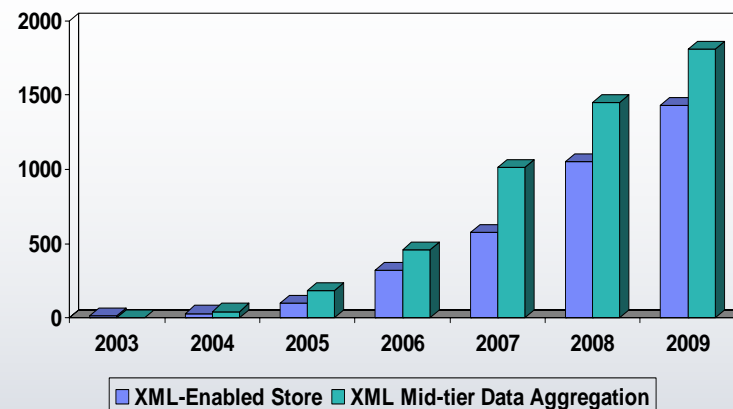


Chart Sources: XML Market Opportunities, Forecasts and Strategies, 2004-2009
 Wintergreen Research Inc. ZapThink

Worldwide XML Market Forecasts (in millions of \$)



- *XML database revenue to grow at twice the rate of the total database market - IDC*

Worldwide Enterprise Database Management Systems
 Software Forecast Update, 2003-2007

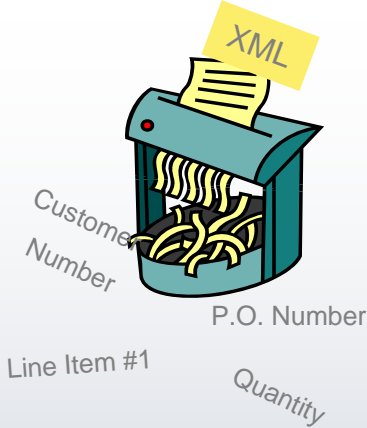


Today's Challenge: XML must be force fit into relational data model

2 Choices:

- 1. Shredding or decomposing
 - Loses hierarchical dependencies
 - Loses digital signature
 - Creation of several relational tables as pointers
 - Difficult to change original XML document

- 2. Large Object (BLOB, CLOB, Varchar)
 - SLOW performance
 - > Search performance is slow (must parse at search time)
 - > Retrieval of sub-documents is expensive
 - > Update inside the document is slow
 - Indexing is inefficient (based on relative position)
 - Difficult to join with relational
 - Costs get worse as document size increases



POid	Custid
987564331	A6789
....	...

POid	PartNo	Quantity
987564331	A54	12
987564331	985	1
....

Custid	Name	Street	City	State	Zip
A6789	John Smith Co	1234 W. Main St	Toledo	OH	95141
...

A New Model has Emerged

DB2 9

XML Developer

"I see a sophisticated XML repository that also supports SQL."



Familiar Programming Models



SQL Developer

"I see a sophisticated RDBMS that also supports XML."

Integrated Information

XQuery

SQL

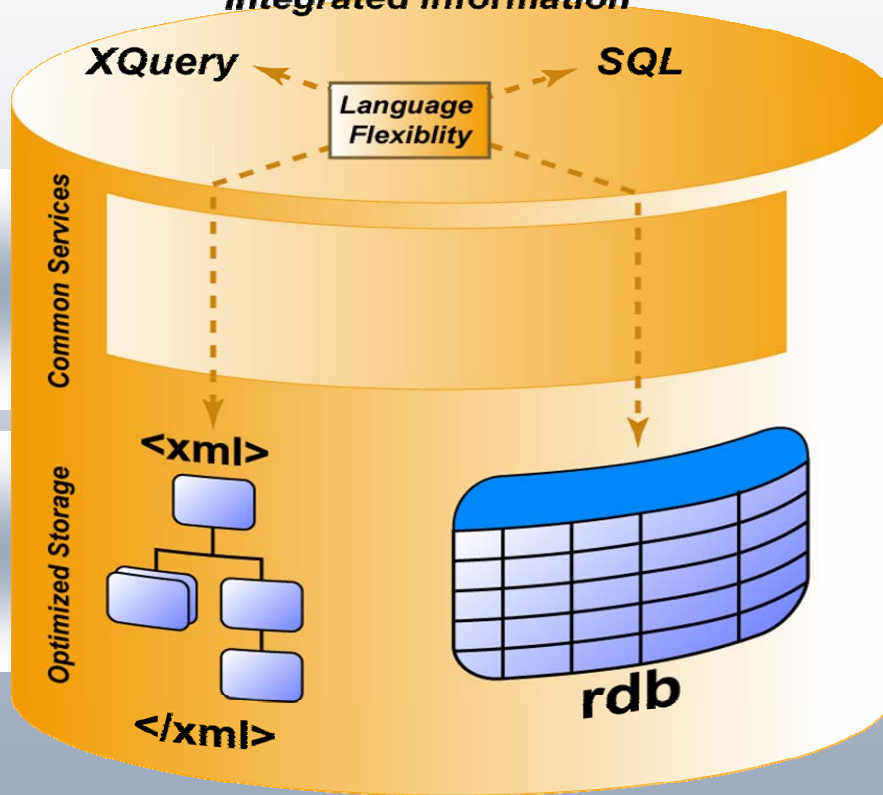
Language Flexibility

Mature Services

Familiar Tooling

Optimized Storage Models

Optimized Performance & Scale



XML is Driving Many Industry Segments Today

Banking

IFX, OFX, SWIFT, SPARCS,
MISMO +++

Life Sciences

MIAME, MAGE,
LSID, HL7, DICOM,
CDIS, LAB, ADaM +++

Retail

IXRetail, UCCNET, EAN-UCC
ePC Network +++

Healthcare

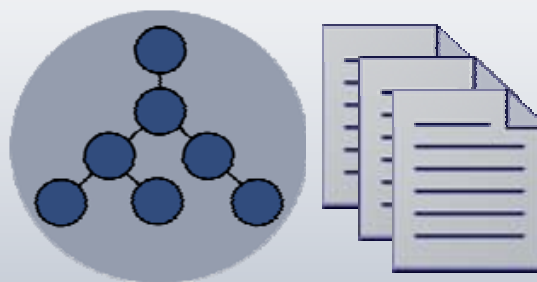
HL7, DICOM, SNOMED,
LOINC, SCRIPT +++

Electronics

PIPs, RNIF, Business Directory,
Open Access Standards +++

Insurance

ACORD
XML for P&C, Life +++



Telecommunications

eTOM, NGOSS, etc.
Parlay Specification +++

Financial Markets

FIX Protocol, FIXML, MDDL,
RIXML, FpML +++

Automotive

ebXML,
other B2B Stds.

Energy & Utilities

IEC Working Group 14
Multiple Standards
CIM, Multispeak

Cross Industry

PDES/STEPml
SMPI Standards
RFID, DOD XML+++

Chemical & Petroleum

Chemical eStandards
CyberSecurity
PDX Standard+++

Information as a Service

Integrate Management of XML & Relational Data



- ▶ *Needed integration across different products, IT infrastructures and business processes to respond flexibly to customer requests*
- ▶ *Needed to link products & processes to simplify and expedite orders, increase product customization and speed time-to-market*

Key to Success

- Separation of Process and Information
- Integrated Management of XML Information
- XML Interchange

Results

	<i>Relational</i>	<i>DB2 9</i>
Development Time	CLOB: 8 hrs Shred: 2 hrs	30 min.
Add field to schema	1 week	5 min.
Relative lines of I/O code	100	35
Query Performance	24 - 36 hrs	20 sec - 10 min
Query non-shredded XML	1 week	½ day



Deep Compression



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Deep Compression

Reduces the cost of data storage

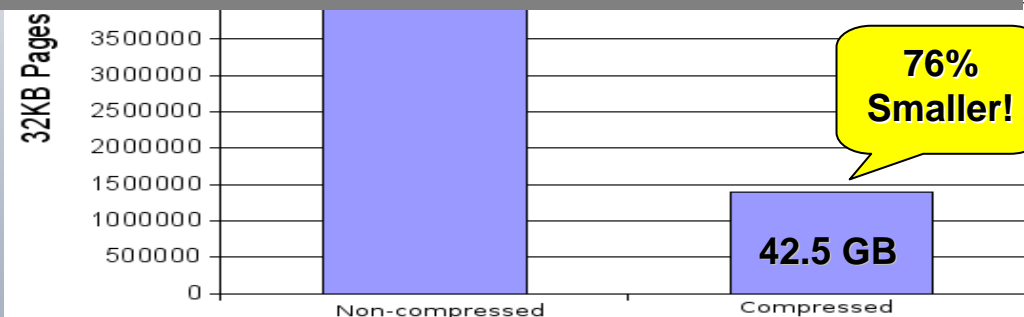
Fred, Dept 500, 10000, Plano, TX, 24355...

John, Dept 500, 20000, Plano, TX, 24355, Site 3

"With the new compression technology in DB2 Viper, we realized an 80 percent improvement in space savings for our most critical tables in our Data Warehouse. We were even more pleased with this technology when we found that Viper's compression capability helped us process queries to the database an average of 40 Percent faster than before. We're looking forward to seeing the same results with our Operational Data Store and OLTP systems." Donny Ledbetter, Sr. DBA, AutoZone



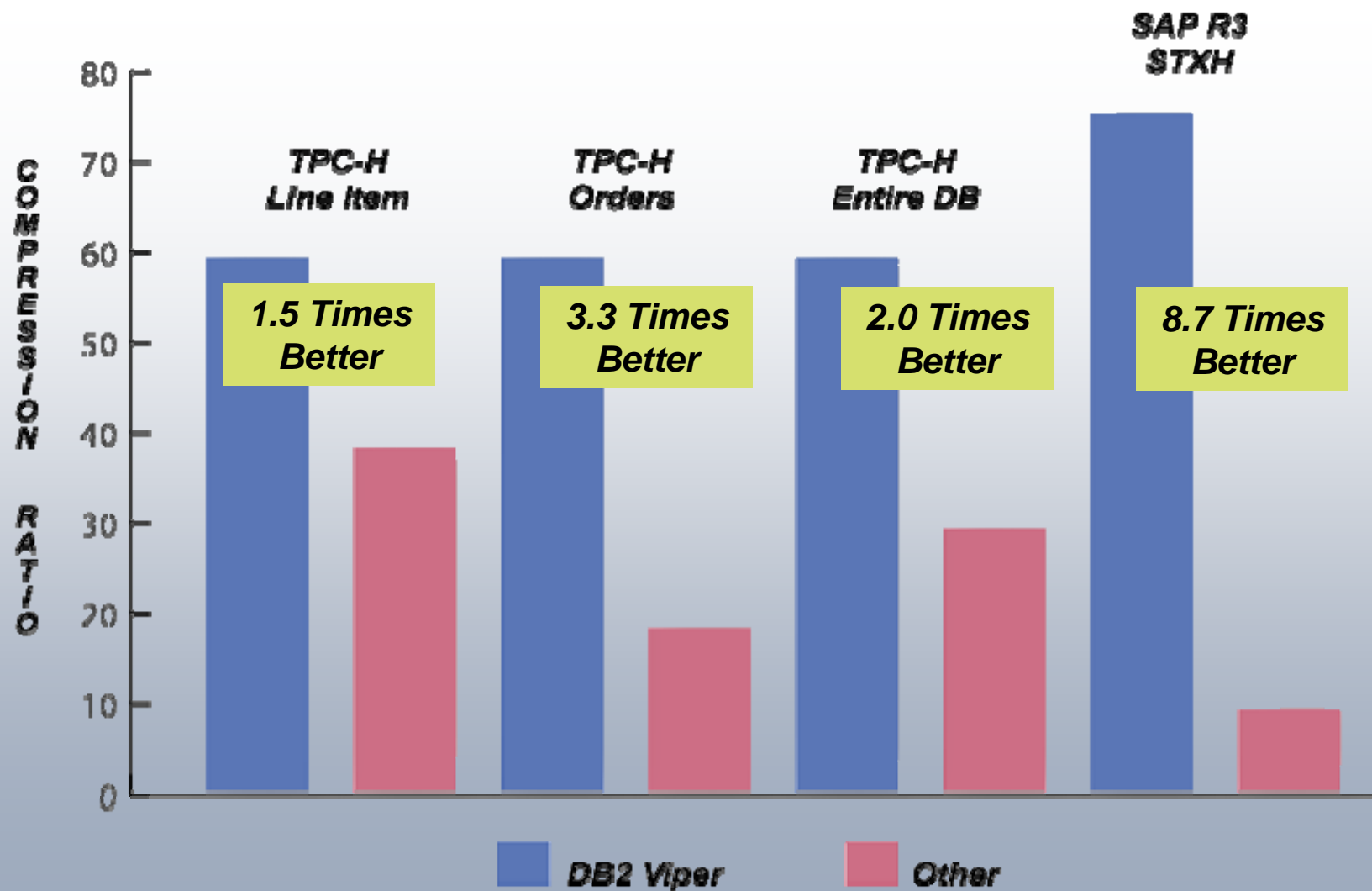
01	Dept 500
02	Plano, TX, 24355
...	...



Dictionary contains repeated information from the rows.

New Compression Capabilities

Lowers the Cost of Database Storage





DB2 Compression Ratio – Customer Data

<i>Table</i>	<i>Non-compressed (pages)</i>	<i>Compressed (pages)</i>	<i>% Pages Saved</i>
A	1632	603	63.1
B	1824	731	59.9
C	8928	4031	54.8
D	1088	484	55.5
E	10624	3412	67.9
F	992	332	66.5
G	5280	1504	71.5



SAP Integration



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DB2 Optimized for SAP

■ ***Partnership***

- Joint development and QA

■ ***Integration***

- One product, one service, one maintenance strategy

■ ***Product innovation***

- The SAP on DB2 Roadmap



DB2 9 – Optimized for SAP

Improves Ease of Use, Performance and Cost of Ownership

▪ **Ease-of-Use**

- Silent install as part of SAP installation
- SAP ‘Tuner’ - make DB2 SAP workload aware
- ‘On Demand’ storage
- SQL access to DBA functions



▪ **High Performance and Availability**

- SAP SD 3-Tier Benchmark*
- SAP BW performance gains thru data & index clustering (MDC)
- 24x7 Availability with HADR option
- Extend support for 64-bit



▪ **Enriched Diagnostics for Troubleshooting**

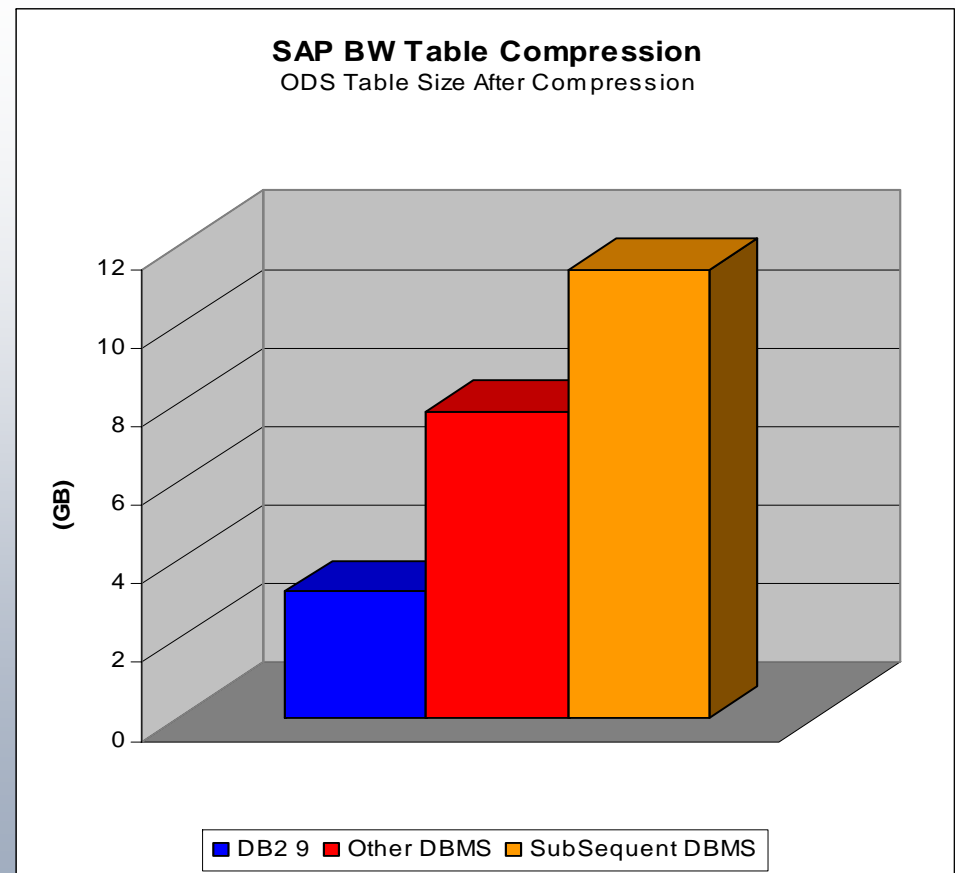
- Single click diagnostic data collection
- Consistent access paths regardless of workload or DB2 version









Reduce Administration Costs by 30% Improve Performance by 20%

DB2 V9 Deep Compression for SAP BW Tables

- ***Size of 19 Million row FACT table (in GB) after compression***
- ***DB2 9 delivers superior compression***
 - 2.4x smaller than Other DBMS 1
 - 3.5x smaller than Other DBMS 2



DB2 has Leadership in SAP application benchmarks

		#1	#2	#3
	3-tier SD	DB2.	ORACLE	ORACLE
	2-tier SD	DB2.	ORACLE	DB2.
	32 core 2-tier SD	DB2.	Microsoft	DB2.
	16 core 2-tier SD	DB2.	DB2.	ORACLE
	8 core 2-tier SD	DB2.	DB2.	Microsoft
	4 core 2-tier SD	DB2.	Microsoft	Microsoft

SAP DB2 Reference Customers





Autonomics



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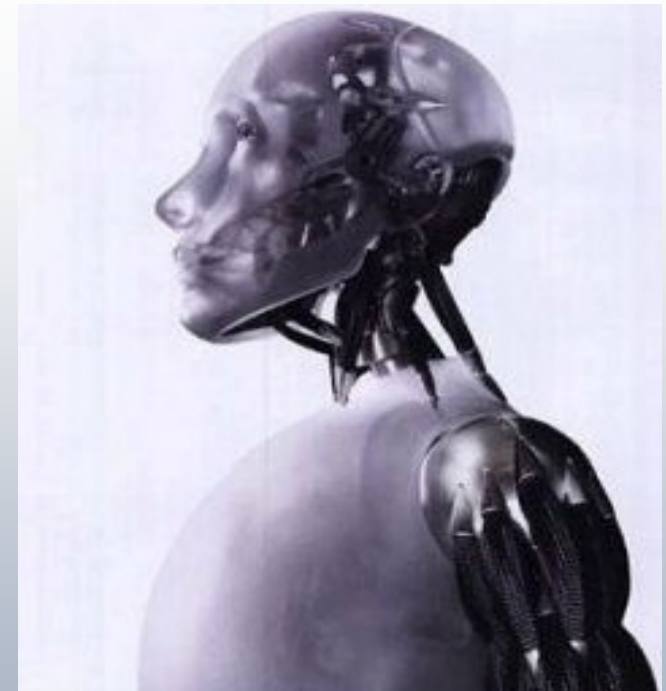


DB2 Simplifies Everyday Tasks

Increases Ease of Use and Reduces Cost

- ***Simplified ...***
 - Installation
 - Maintenance
 - Backup and Restore
 - Administration
 - Utility Scheduling
 - Tuning and Operation
 - Storage Administration

- ***Simple, Flexible Data Organization***





Adaptive Self-Tuning Memory

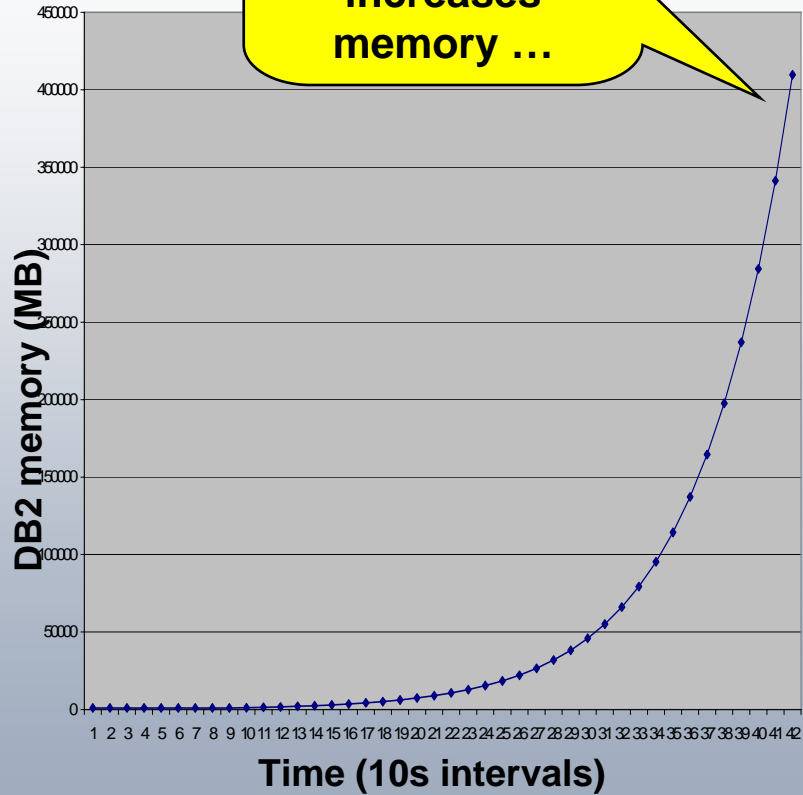
- ***DB2 9 introduces a patented memory tuning system called the Self Tuning Memory Manager (STMM)***
 - Works on main database memory parameters
 - Sort, locklist, package cache, buffer pools, and total database memory
 - Hands-off online memory tuning
 - Requires no DBA intervention
 - Senses the underlying workload and tunes the memory based on need
 - Can adapt quickly to workload shifts that require memory redistribution
 - Adapts tuning frequency based on workload



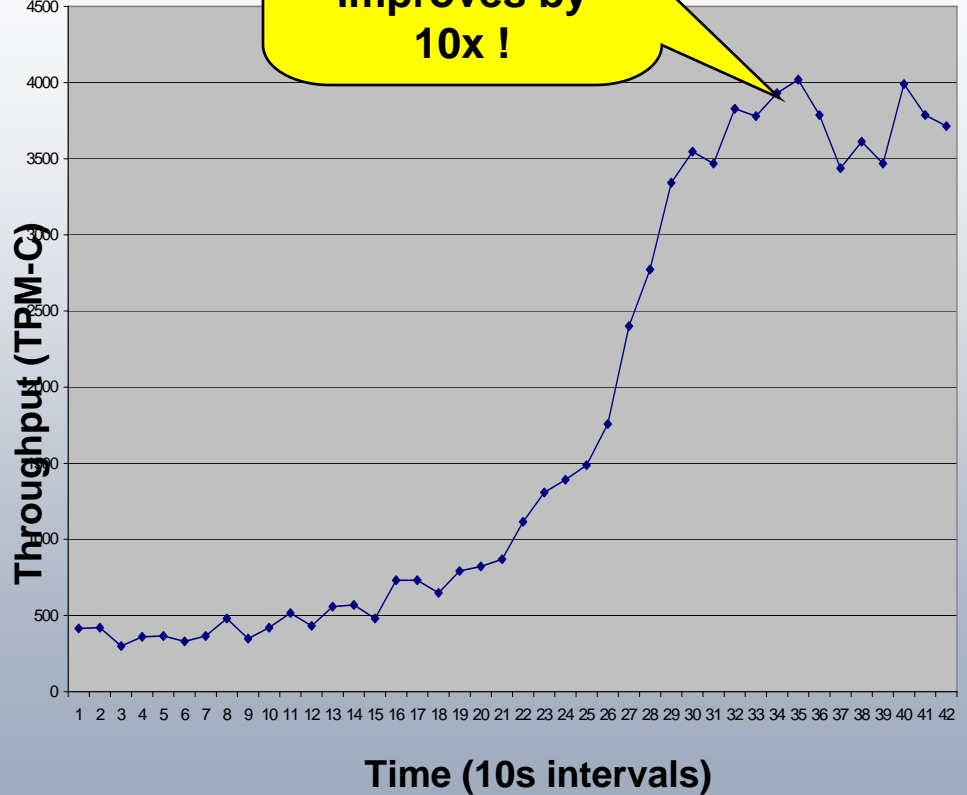
Adaptive Self Tuning Memory

Delivering business value through better performance

**As DB2
automatically
increases
memory ...**

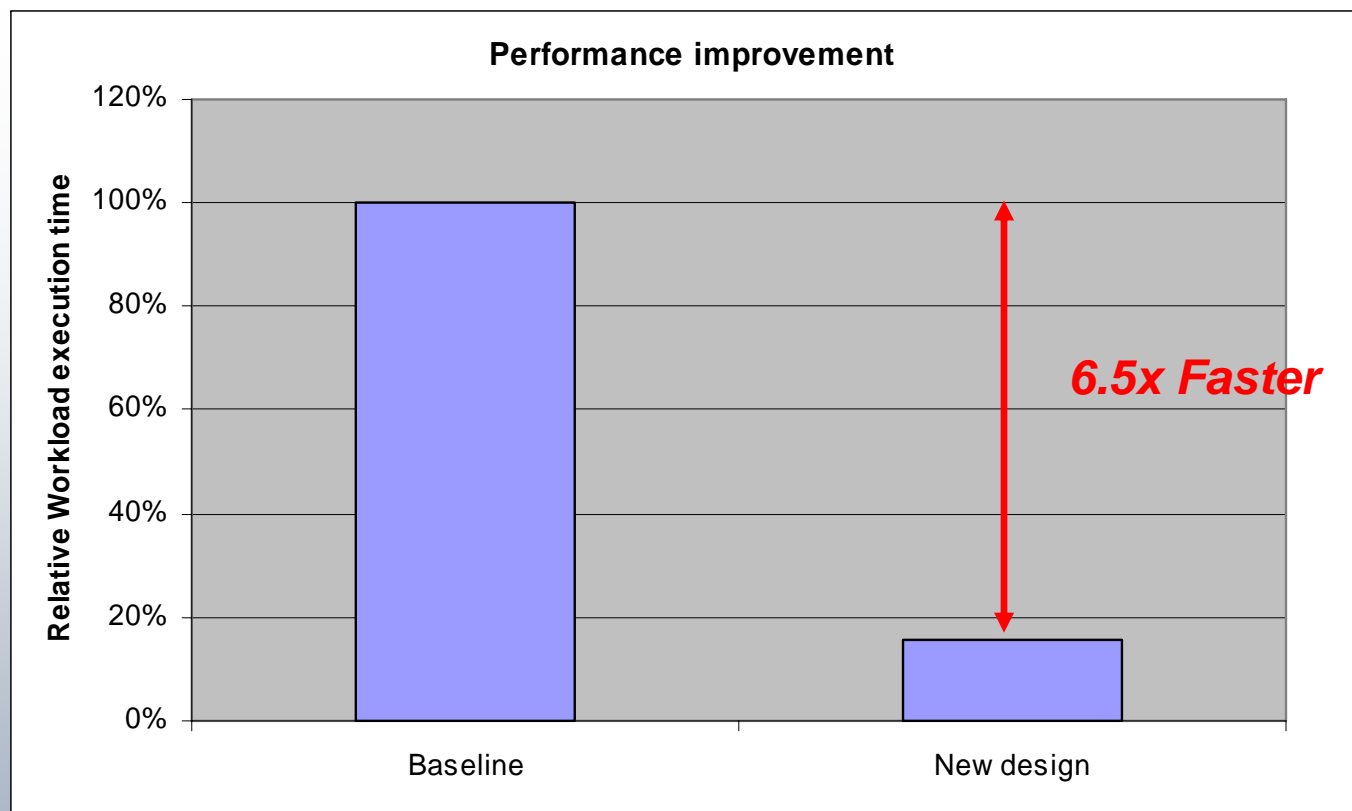


**... system
performance
improves by
10x !**



Autonomic Management

DB2 Design Advisor Results



DB2 Design Advisor
Recommendation summary:

- **20 new indexes**
- **6 new MDC dimensions**
- **4 new partitioning keys**
- **2 new MQTs**

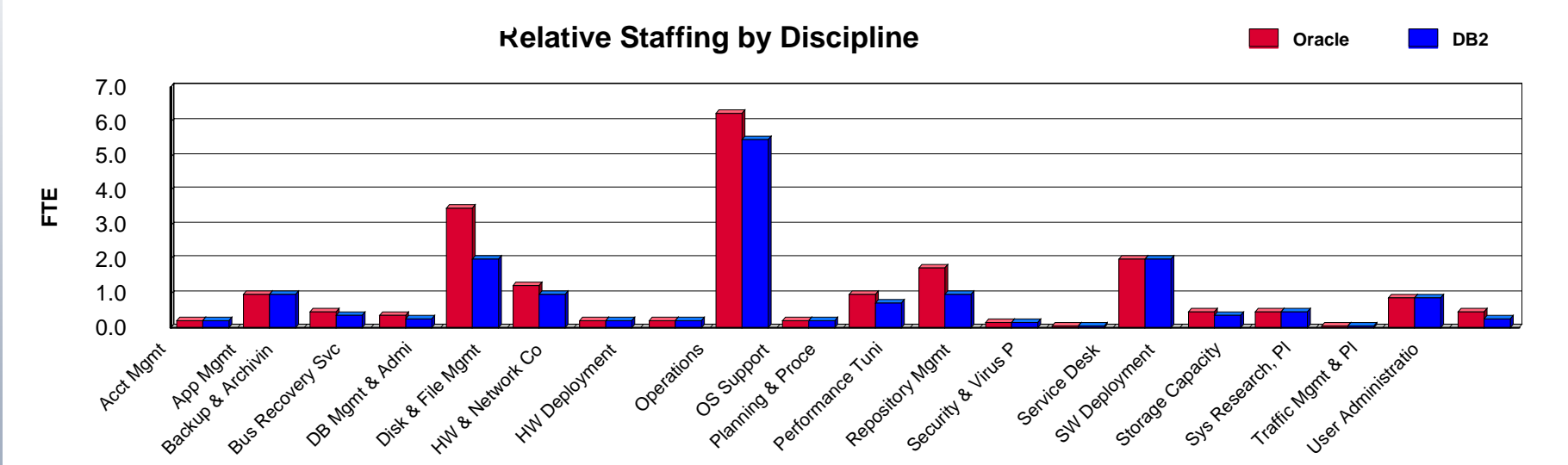
Environment: 1 TB complex query workload in 4 Logical Partitions
running on AIX in a 8 CPUs SMP



Ease of Administration – Big Part of TCO

“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



Oracle requires an average of 25% more staff to manage



Security



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Security - Label Based Access Control

Provides Fine Grain Access

Label Based Access Control (LBAC)

- A “label” is associated with both user sessions and data rows
- Rules for comparing users and data labels provide access control at the row level

Labels may consist of multiple components

- Hierarchical, group or tree types
- Row labels appear as a single additional column in a protected table
- User labels are granted by a security administrator





Data Warehousing



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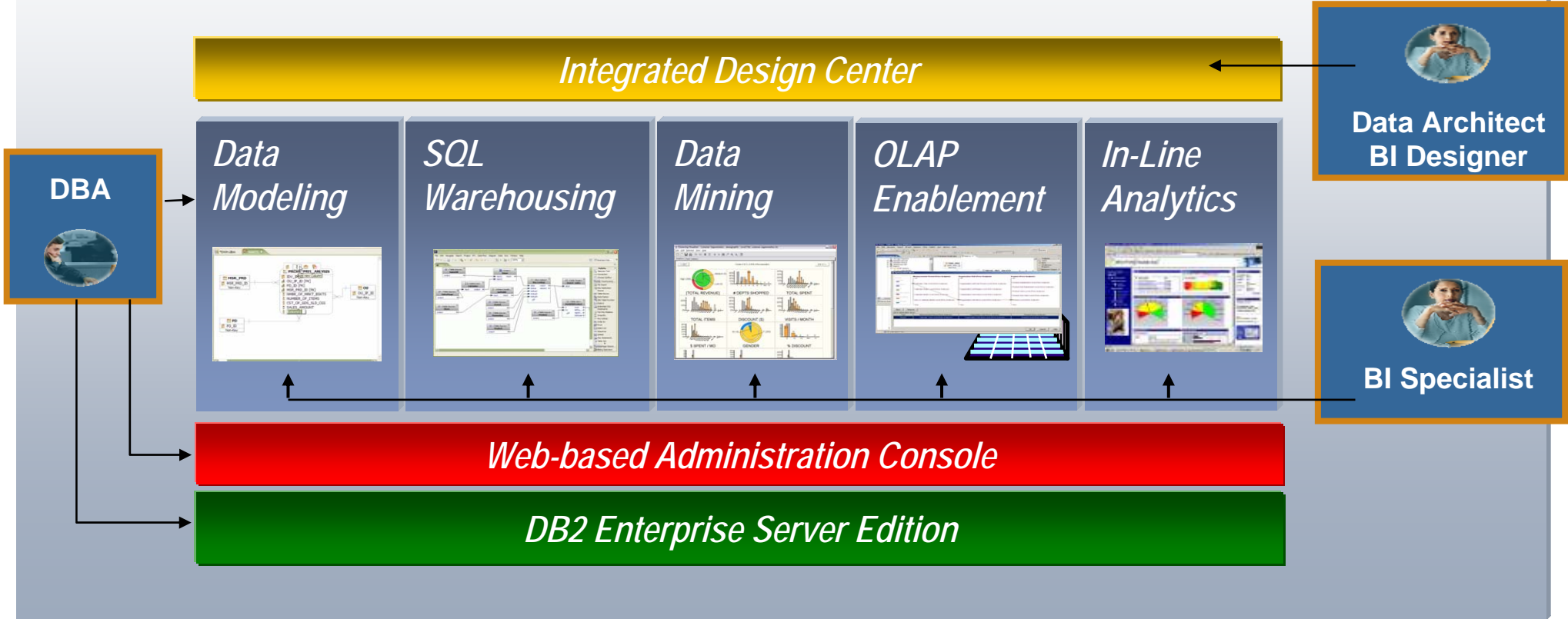
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DB2 Data Warehouse Edition

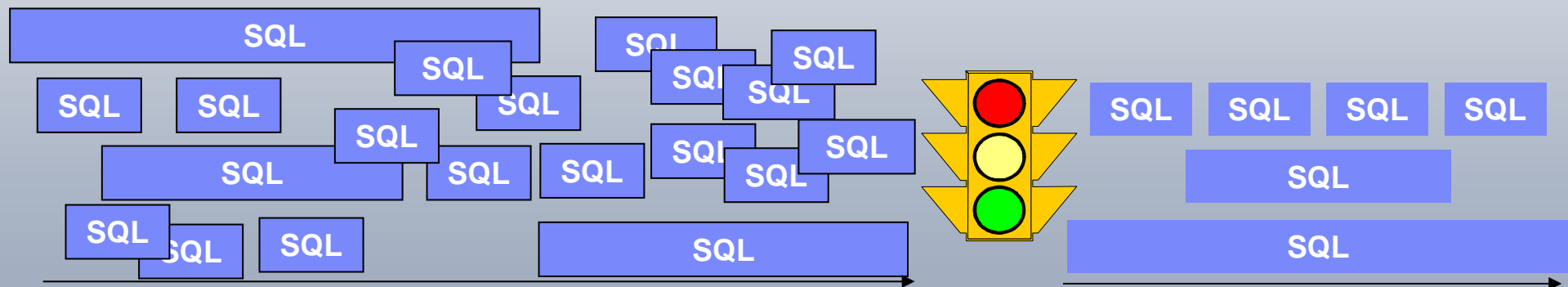
An integrated data warehouse for greater business insight

- Identify opportunities to pursue - before the competition does
- Identify risks to be minimized or eliminated - before they become public



DB2 Workload Management with Query Patroller

- *Proactively and dynamically control the flow of queries against DB2 :*
 - **Define separate query classes to share system resources, prevent small queries from getting stuck behind larger ones**
 - **Prioritize queued queries**
 - **Automatically put large queries on hold so that they can be canceled or scheduled to run during off peak hours**
 - **Track queries**
 - **Cancel runaway queries**



Balanced Configuration Unit (BCU) – AIX, Linux

The **speed** at which clients are able to access the right information, at the right time, and make informed decisions is critical to the overall success of their business.

The **IBM DB2 Data Warehouse Balanced Configuration Unit** is an infrastructure that “balances” IBM DB2[®], eServer[™] and TotalStorage[®] components to deliver the performance and scalability needed to reduce the time to market for implementing Business Intelligence (BI) solutions





Application Development



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Developers, Partners, Offerings

Embrace and Support Established and Emerging Communities



- *Visual Studio 2005 Support Shipped at Time of Release*



- *Over 10K DB2 Driver Downloads*
- *Over 3K IDS Driver Downloads*



- *DB2 9 Support*
- *DB2 for z/OS Support*
- *Over 27,000 Copies in '06...*



- *Bringing PHP, SOA & Information Together*
- *DB2 Express-C Now Included*



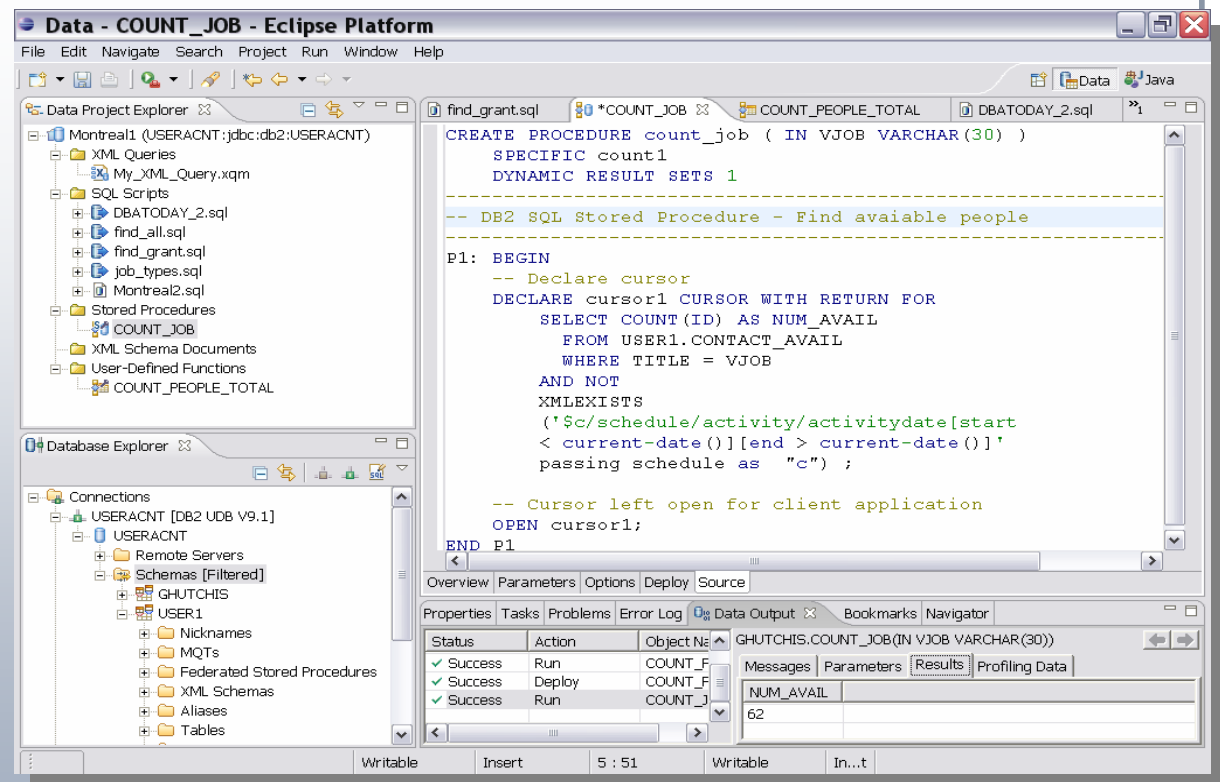
- *New alphaWorks Toolkit*
5/17/06



DB2 Developer Workbench

Multi-Platform development

- ***Eclipse based tool***
- ***Create a routine for DB2 on one platform, deploy it to another***
- ***Stored procedure debugger***
- ***Full XML Support***
- ***Many other features to enhance deployment, packaging and Java support***
- ***Support for Informix when Cheetah is released***



The screenshot displays the Eclipse IDE interface for DB2 Developer Workbench. The main editor shows the source code for a stored procedure named 'COUNT_JOB'. The code is as follows:

```

CREATE PROCEDURE count_job ( IN VJOB VARCHAR(30) )
    SPECIFIC count1
    DYNAMIC RESULT SETS 1
-- DB2 SQL Stored Procedure - Find available people
-----
P1: BEGIN
    -- Declare cursor
    DECLARE cursor1 CURSOR WITH RETURN FOR
        SELECT COUNT(ID) AS NUM_AVAIL
            FROM USER1.CONTACT_AVAIL
            WHERE TITLE = VJOB
            AND NOT
            XMLEXISTS
            ('$c/schedule/activity/activitydate[start
            < current-date()][end > current-date()]'
            passing schedule as "c" );

    -- Cursor left open for client application
    OPEN cursor1;
END P1
    
```

Below the editor, the 'Data Output' tab is active, showing the execution results of the stored procedure. The results are as follows:

Status	Action	Object Name	Messages
✓ Success	Run	COUNT_F	
✓ Success	Deploy	COUNT_F	
✓ Success	Run	COUNT_J	NUM_AVAIL 62

The interface also shows a 'Data Project Explorer' on the left with a tree view of the project structure, including folders for XML Queries, SQL Scripts, Stored Procedures, and User-Defined Functions. The 'Database Explorer' at the bottom left shows the database schema structure, including connections, schemas, and tables.



Developers, Partners, Offerings...

Strong Momentum with Over 100,000 Downloads Since January

- Encourage exponential growth of DB2
- DB2 9 capability now available for DB2 Express-C



10,000 Forum Visitors Weekly



High Performance

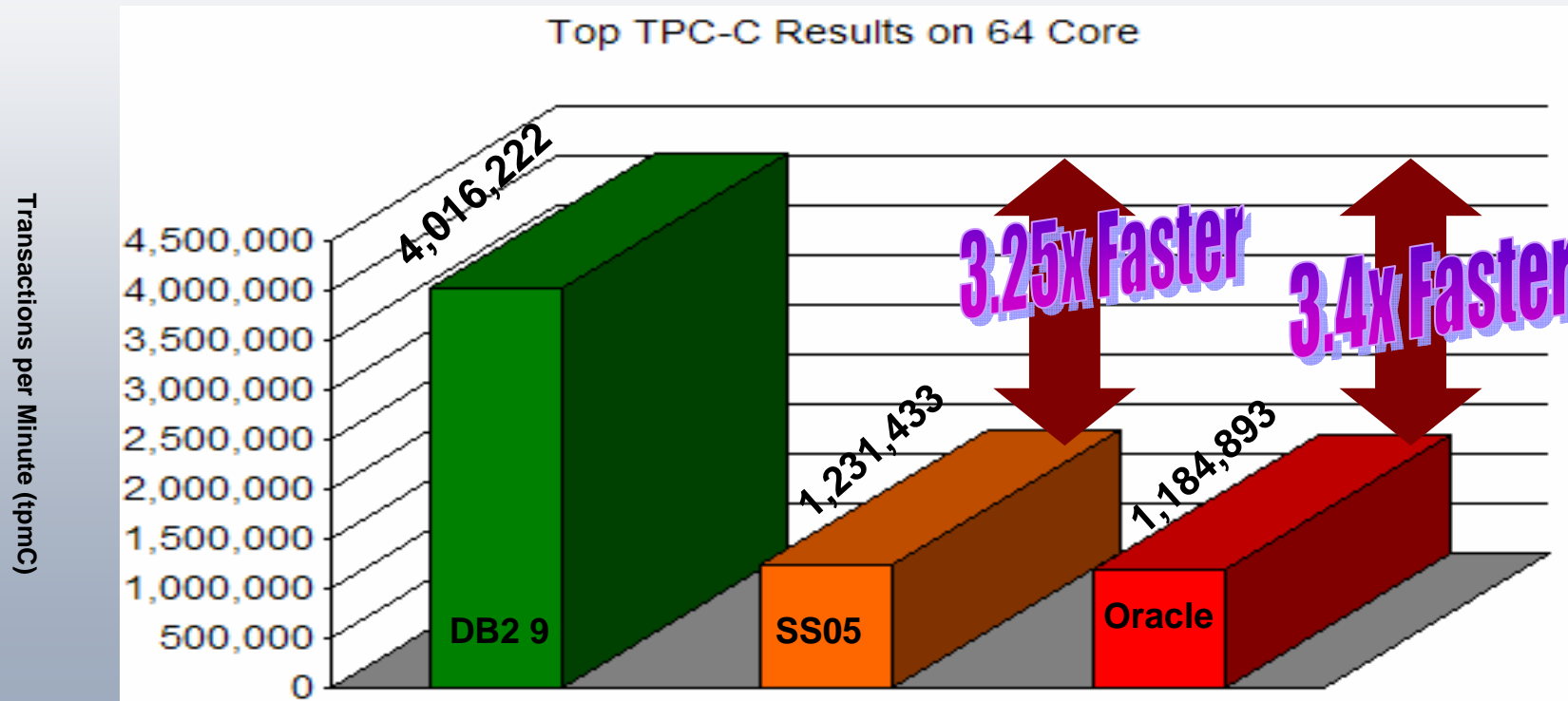


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DB2 is the World's *Fastest* Database...By Far

- **Simulated 3.2 million users with 159 billion rows in the database**
- **1.5 billion transactions completed in 2 ½ hours!**
- **DB2 scaling was 98% from 16-way to 64-way and \$/tpmC got better by 33%!!**



Results current as of 07/26/06

DB2 – Only RDBMS to Win Performance Triple Crown Not Once, Not Twice, but Three Times!

- **#1 in TPC-C Performance**

- DB2 9 leads Oracle overall by 3 times
- Price performance for DB2 is better than both Oracle 10g and Oracle 10g RAC

- **#1 in SAP SD 3-tier Standard Application Performance**

- Leading SAP SD R/3 performance benchmark by 68% over Oracle on 50% fewer CPUs

- **#1 in 10TB TPC-H Performance**

- Largest data warehousing benchmark leading Oracle by 66% using 11% fewer CPUs





CRN: "IBM To Unleash Cheetah" – Next version of IDS

IBM To Unleash Cheetah, The Next Informix IDS Release - Database - CRN

File Edit View Go Bookmarks Tools Help

http://www.crn.com/sections/breakingnews/breakingnews.jhtml;jsessionid=

IBM United States

Part of the CMP Channel Group

CRN

VITAL INFORMATION FOR VARs AND TECHNOLOGY INTEGRATORS

HOME AWARDS CONTACT ABOUT US SITE

ChannelWeb Network Careers NetSeminars Research

Tools and Services Newsletters Subscriptions Hot Topic

News Market Research Test Center Selling Small Business Fast Growth Special Reports FINDCHANNEL

Daily News | Security | Channel Business | Infrastructure | Custom Systems | Software | Hardware

DAILY NEWS

IBM To Unleash Cheetah, The Next Informix IDS Release

'Rock-solid' performance has gained the database a loyal following

By **Barbara Darrow**, CRN
12:01 AM EDT Mon. Sep. 25, 2006
From the September 25, 2006 CRN

Page 1 of 2

True to its word, IBM continues to update the Informix IDS database,

Done



More than 100 IBM Products Embed DB2

- Content Delivery Service
- DB2 Alphablox for Linux, Unix and Windows
- DB2 Content Manager Enterprise Edition for z/OS
- DB2 Content Manager Express
- DB2 DataPropagator for iSeries
- DB2 Everyplace Enterprise Edition
- DB2 Everyplace Express Edition
- DB2 Information Integrator
- DB2 Information Integrator OmniFind Edition
- DB2 Records Manager
- DB2 Warehouse Manager for z/OS
- Global Data Synchronization for WebSphere Product Center
- HPSS with IGS
- IBM Infoprint Next
- IBM Infoprint Workflow
- IBM Integrated Runtime
- IBM Integrated Runtime Express
- IBM OMEGAMON z/OS Management Console
- IBM Tivoli Change and Configuration Management Database
- IBM Tivoli Common Auditing and Reporting Service
- IBM Tivoli Composite Application Manager Basic for WebSphere
- IBM Tivoli Composite Application Manager for CICS Transactions
- IBM Tivoli Composite Application Manager for IMS Transactions
- IBM Tivoli Composite Application Manager for J2EE (Multiplatforms)
- IBM Tivoli Composite Application Manager for J2EE (z/OS) - Beta
- IBM Tivoli Composite Application Manager for WebSphere
- IBM Tivoli Composite Application Manager for Websphere (z/OS)
- IBM Tivoli NetView for z/OS V5R2
- IBM Tivoli OMEGAMON XE for CICS on z/OS
- IBM Tivoli OMEGAMON XE for IMS on z/OS
- IBM Tivoli OMEGAMON XE for Mainframe Networks
- IBM Tivoli OMEGAMON XE for Storage on z/OS
- IBM Tivoli OMEGAMON XE for z/OS
- IBM Virtualization Engine
- IBM WebSphere Application Server Network Deployment
- IBM WebSphere Application Server Express
- IT Service Management
- ITCAM for SOA
- Middleware Solution for Financial Services Real Time Market Data
- OpenPower
- Rational Application Developer for Linux and Windows
- Rational ClearQuest
- Rational Project Console (PJC)
- Rational ReqPro
- Rational TestManager
- Rational Web Developer for Linux and Windows
- Tivoli Composite Application Manager for Response Time Tracking
- Tivoli Configuration Manager
- Tivoli Directory Server
- Tivoli Identity Manager
- Tivoli Intelligent Orchestrator
- Tivoli Monitoring
- Tivoli Monitoring Express
- Tivoli Monitoring for Databases
- Tivoli Monitoring for Messaging and Collaboration
- Tivoli Monitoring for Virtual Servers
- Tivoli NetView
- Tivoli Omegamon XE for Messaging
- Tivoli OMEGAMON XE for Microsoft .NET
- Tivoli OMEGAMON XE for WebSphere Business Integration
- Tivoli Provisioning Manager
- Tivoli Service Level Advisor
- Tivoli System Automation for Multiplatforms
- Tivoli Workload Scheduler
- TotalStorage Productivity Center for Data
- TotalStorage Productivity Center for Disk
- TotalStorage Productivity Center for Fabric
- TotalStorage Productivity Center for Replication
- TotalStorage SAN Volume Controller
- TotalStorage Virtualization Engine for Tape
- WebSphere Application Server
- WebSphere Application Server - Express
- WebSphere Application Server - Express Developer
- WebSphere Application Server for Developers
- WebSphere Application Server Network Deployment
- WebSphere Business Integration Event Broker
- WebSphere Business Integration Message Broker
- WebSphere Business Integration Message Broker with Rules & Formatter
- WebSphere Business Integration Server Express
- WebSphere Business Monitor
- WebSphere Commerce - Express
- WebSphere Commerce - Express Developer Edition
- WebSphere Commerce Business Edition
- WebSphere Commerce Developer Business Edition
- WebSphere Commerce Developer Professional Edition
- WebSphere Commerce Professional Edition
- WebSphere Data Integration Suite
- WebSphere Developer for zSeries
- WebSphere Development Studio Client Advanced Edition for iSeries
- WebSphere Development Studio Client for iSeries
- WebSphere Enterprise Service Bus
- WebSphere Everyplace Device Manager
- WebSphere Information Integrator OmniFind Edition
- WebSphere MQ Workflow
- WebSphere Partner Gateway Advanced Edition
- WebSphere Partner Gateway Enterprise Edition
- WebSphere Process Server
- WebSphere Product Center
- WebSphere Remote Server
- WebSphere Voice Response
- WebSphere "Keel"
- WebSphere Everyplace Server for Telecom

...and in over 450,000 System i5 servers



What is Gartner's analysis on the DBMS market?

Gartner Study on DBMS Market Identifies Spending and Deployment Trends

“The biggest surprise is DB2 from IBM, with 19 percent planning to install DB2. This is nearly 50 percent higher than the number planning to install Oracle.”

“Even more interesting is that IBM DB2 is at 27 percent planned [deployments] in the A/P region, and Oracle is only at 10 percent.”

“The overall numbers so strongly in favor of DB2 indicate a pending increase in IBM's market share for DBMS during the next few years.”

Gartner Group - Colleen Graham, Donald Feinberg, March 29, 2006

Information On Demand

IBM

Thank
YOU