

Break Free From High Database Costs

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IBM Information
ON Demand 2010



INFORMATION-LED
TRANSFORMATION



LEAD
THE WAY



IBM

January 21 - SINGAPORE • January 26 – MALAYSIA • January 28 - THAILAND

Explosion in Data Volume & Velocity

New Data → New Information!

Volume of Digital Data

- 57% CAGR for enterprise data through 2010
- Machine generated data : Sensors, RFID, GPS..

Variety of Information

- 80% of new data growth is unstructured content
- Emails, images, audio, video..

Velocity of Decision Making

- Rapidly changing business climate
- Need to get ahead of the curve : predict issues and fix them



IBM Data Management Software

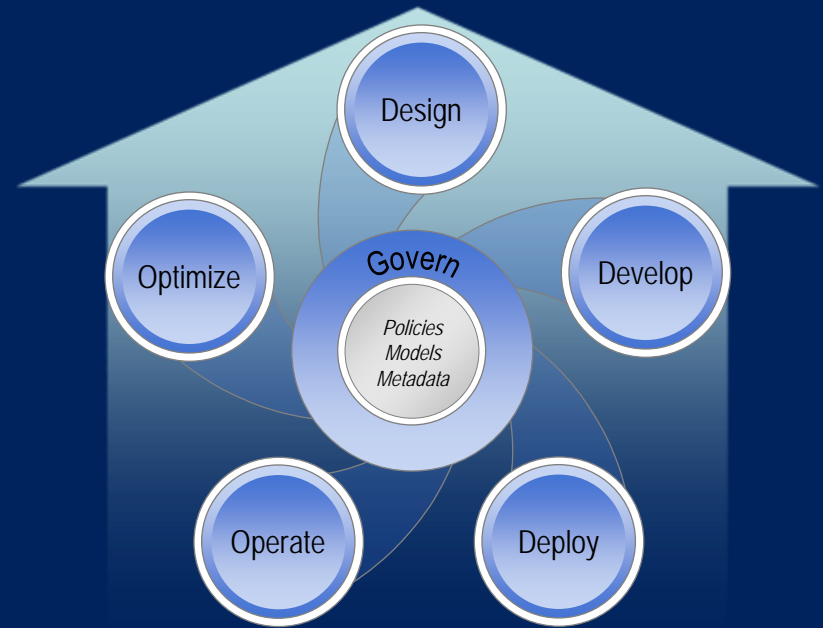
Smarter

Faster

Leaner



**Database
Innovations**



**Integrated
Data Management**

DB2 9.7 for Linux, Unix & Windows

Break free from higher cost DBMS

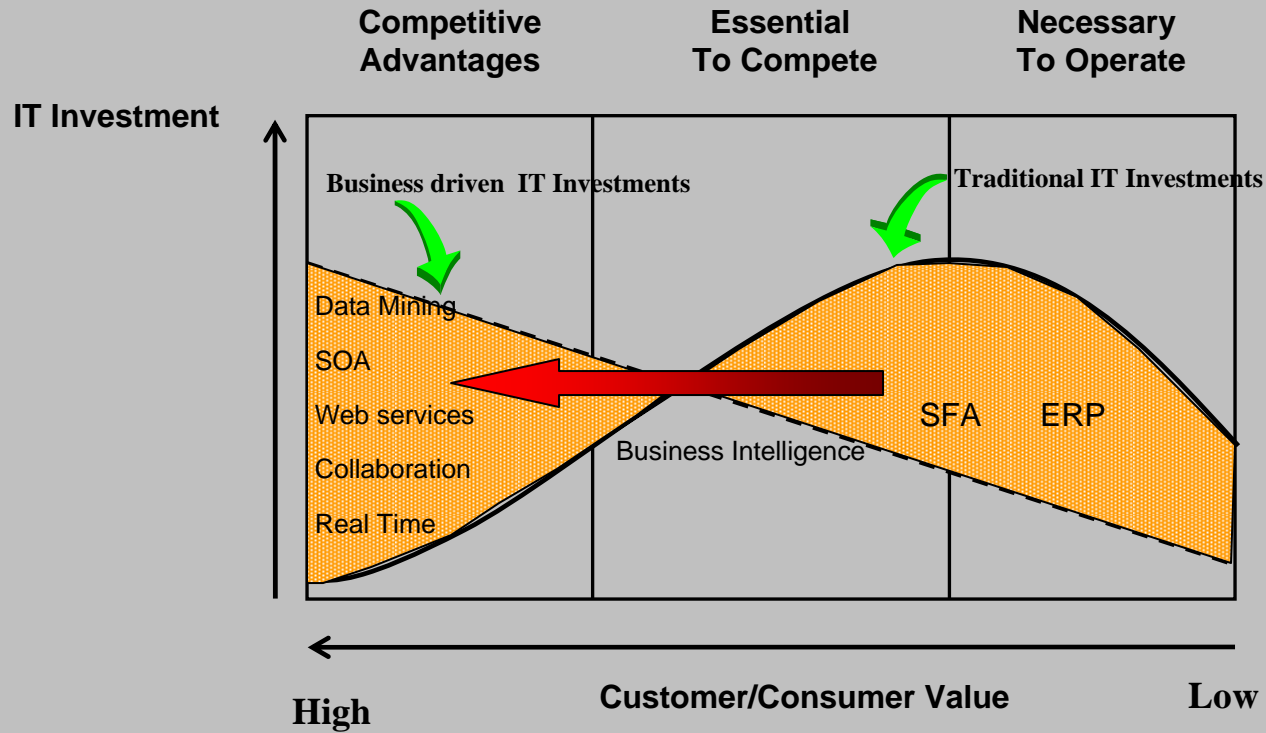


Easier Move to DB2

Low Operational Costs.

Reliability

The IT Expense Curve





April 29, 2009

“IBM DB2 9.7 Shakes Up the DBMS Market With Oracle Compatibility”

“The Oracle compatibility feature will enable Oracle applications to run natively on DB2. In discussions with Gartner, reference customers tell us that DB2 runs 95% or more of Oracle specific functionality found in SQL statements and natively runs PL/SQL, Oracle’s stored procedure language. This native functionality is not an emulator, nor does it require changes to the application code (other than the 5%, which is mostly minor functionality, not found in many applications). Any provider offering applications that run with the Oracle DBMS can easily port it’s application to IBM’s DB2...”

– Donald Feinberg, Gartner VP Distinguished Analyst

Use Oracle SQL Skills with DB2

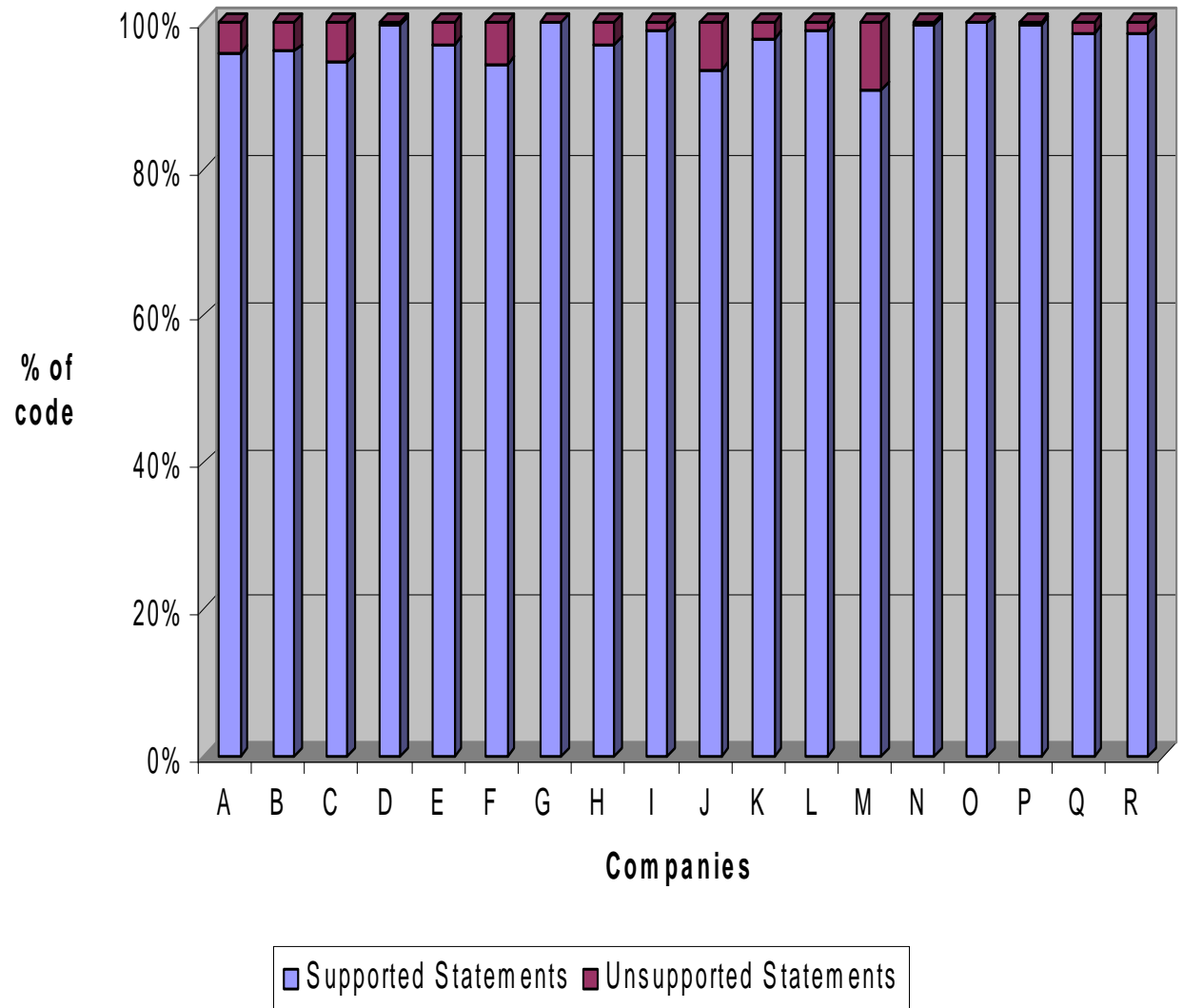
- DB2 supports PL/SQL syntax
- Easy for developers to use DB2
- Easy for applications to use DB2

- DB2 supports:
 - SQL PL
 - SQL/PSM
 - PL/SQL
 - Packages
 - Built-in packages
 - JDBC
 - SQL*Plus scripts



Percentage of Supported PL/SQL Statements

- **Variety of participants:**
 - Different industries
 - Different solutions
 - Different app sizes
 - Different countries
- **PL/SQL supported:**
 - > 750,000 lines of code
 - Average: 98.43%



What This Means...

- Oracle Database developers enjoy:
 - Being able to use their Oracle Database skills with DB2
 - Being able to easily enable their applications and solutions to work with DB2
- Existing DB2 developers enjoy:
 - Being able to use the packages and built-in packages that Oracle Database developers have traditionally enjoyed
 - Being able to use 'weak typing' if they so choose
 - Being able to write code that uses the new locking behavior

Low Operational Costs



Unparalleled Automation

→ **Lower administration costs**

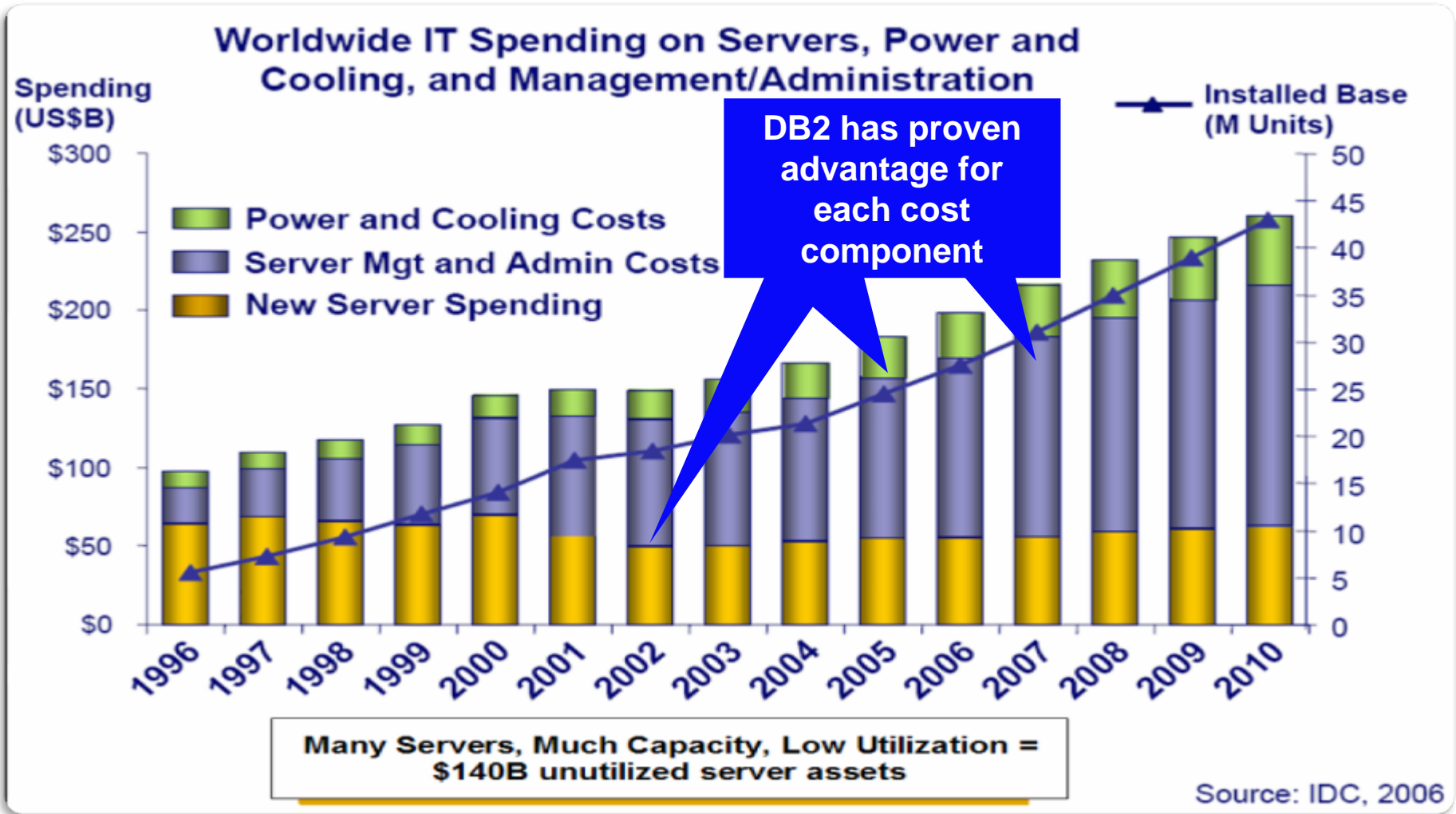
Deep Compression

→ **Lower storage costs**

Industry-leading performance

→ **Lower server costs**

Where is DB2 Focused? Cost Reductions



The Current IT Storage Climate



Survey: Storage Growth Outpaces PC, Server Markets
By Chris Dremsberger/May 12, 2006

“Storage hardware is steadily increasing as a percentage of IT budgets. Backup and recovery was the second most important driver of spending...and is the No. 1 issue keeping CIOs awake at night”



*Global spending on the data center **power and cooling** in 2007 was roughly **equivalent to spending on servers***

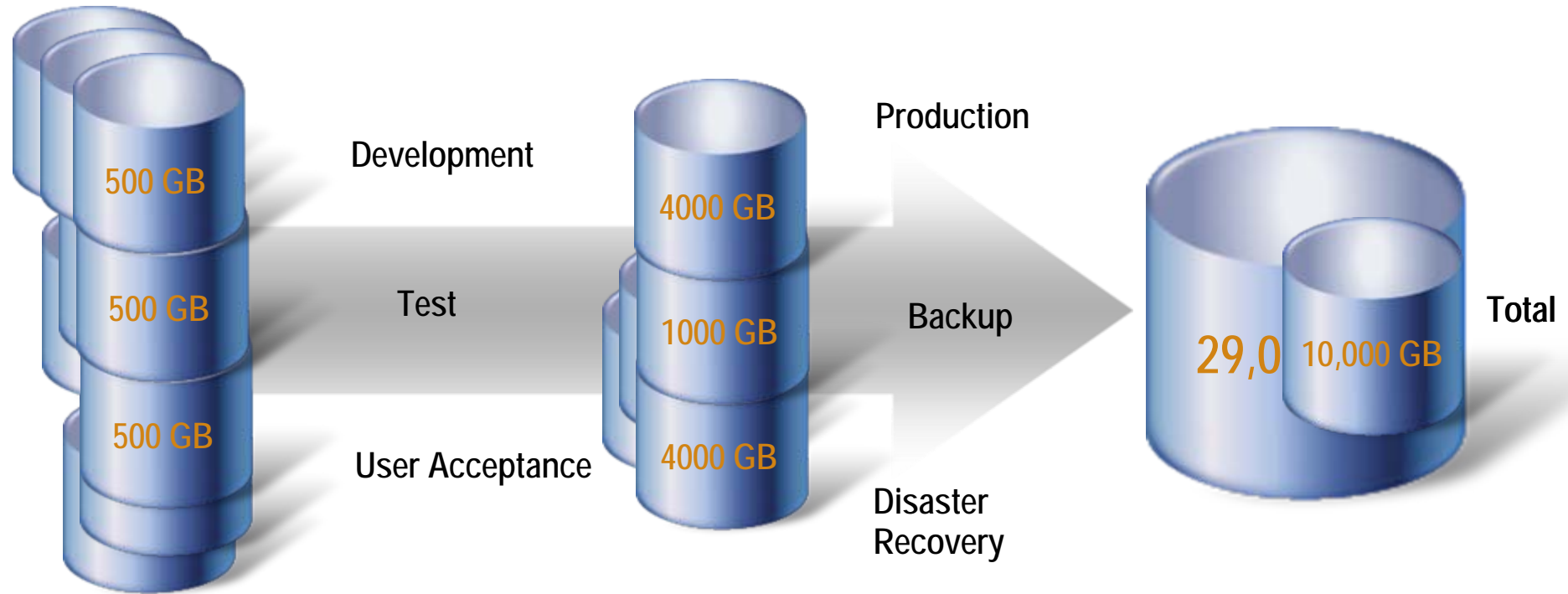


*Half of the world's data centers will face an **acute power shortage** by the end of 2008*

facebook.

Facebook: \$1 Million A Month in Power Costs

DB2 Dramatically Slashes the Database Burden Rate



Total Storage for 4TB DB
 Without compression = 29TB
With 65% compression \cong 10TB

What Customers are Saying About DB2 Compression?



*"With the new compression technology in DB2 Viper, we realized an **80% 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% faster than before.**"*

- Donny Ledbetter, Senior DBA



*"We are **saving anywhere between 60 to 65% in storage** and we've actually found **the performance has improved.**"*

- Bashir Khan, Director Business Intelligence



*"We're seeing **compression rates up to 83%** on the Data Warehouse. The projected **cost savings are more than \$2 million initially with ongoing savings of \$500,000 a year.**"*

- Michael Henson, Database Delivery Services



*"We needed a database that represented the future and DB2 9 is the future. DB2 9 compression capabilities are key in helping **reduce the size of our databases—in one case by up to 83%.** This ultimately helps us **minimize storage costs and increase performance.**"*

- Jean Holley, CIO

How Does Archiving Impact Cost?

Makes production databases more efficient and lowers cost

“Moving inactive data to another instance or archive system not only makes production databases more efficient, but it also lowers cost.”

“Large databases also drive up hardware cost, database license cost, and general administration effort.”

Noel Yuhanna, Forrester Research

“Database Archiving Remains An Important Part Of Enterprise DBMS Strategy”, 8/13/07

FORRESTER®

Lower Costs with Smart Administration



It's hard to believe, but we only have 3 DBAs supporting over 100 instances of DB2."

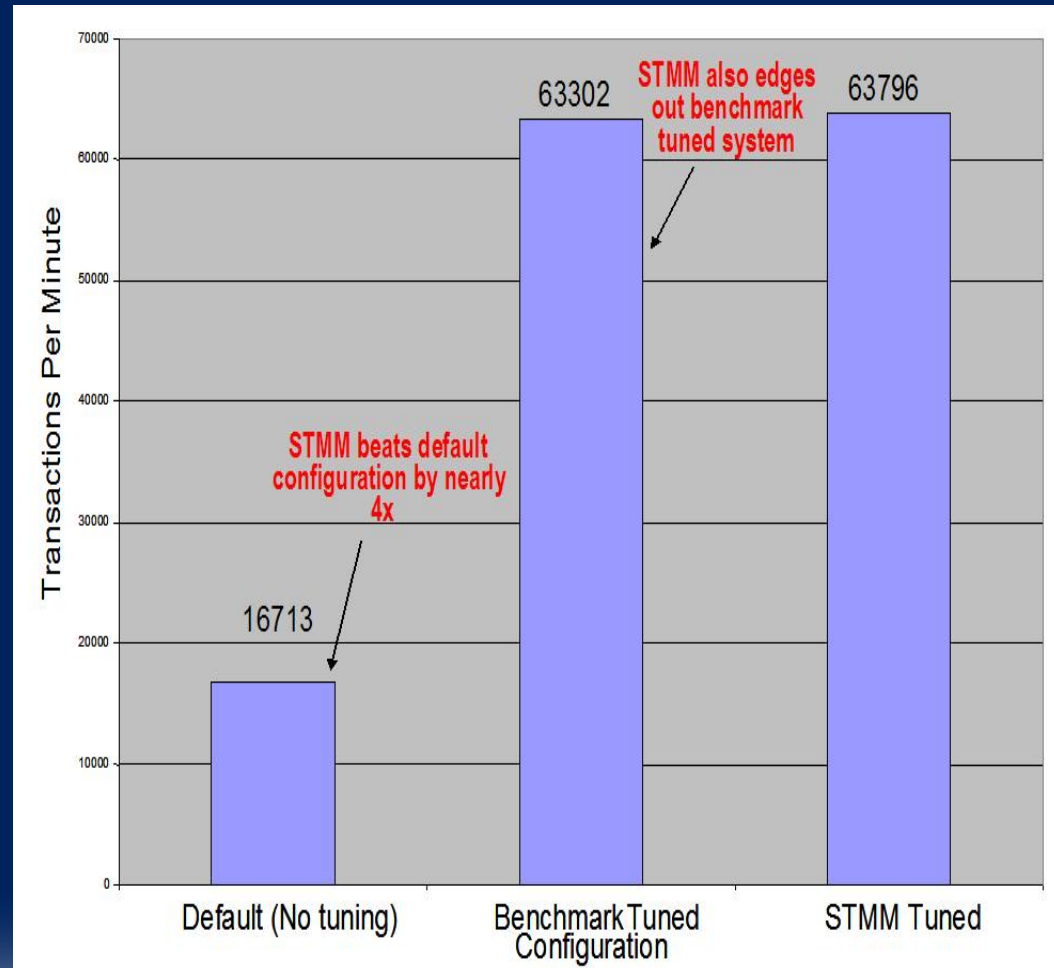
—Phil Kilgore, Director of Technical Services

- Automatic features:
 - DBA-free statistics collection
 - DBA-free health monitoring
 - And more
- This means that DBA shifts to:
 - Focus on higher-value projects
 - Respond quickly to new needs
 - Deliver new capabilities faster



Let DB2 Tune Itself, Focus on Your Business

- Self Tuning Memory Manager
 - Configures DB2 without needing a DBA
 - Get your system running quickly in minutes with little skills or training
- Let DB2 tune itself
 - Focus on your business, not database management
- Easy configuration
 - Configuration Assistant
 - Automatic Storage
 - Wizards and advisors



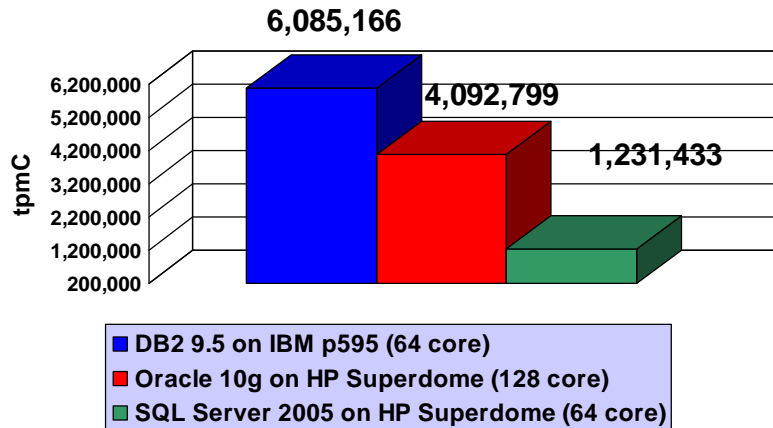
Proven Performance Maximizes your Investments



“In comparison tests with both Oracle Database and Microsoft SQL Server, IBM DB2 continually demonstrated a better price-to-performance ratio.”

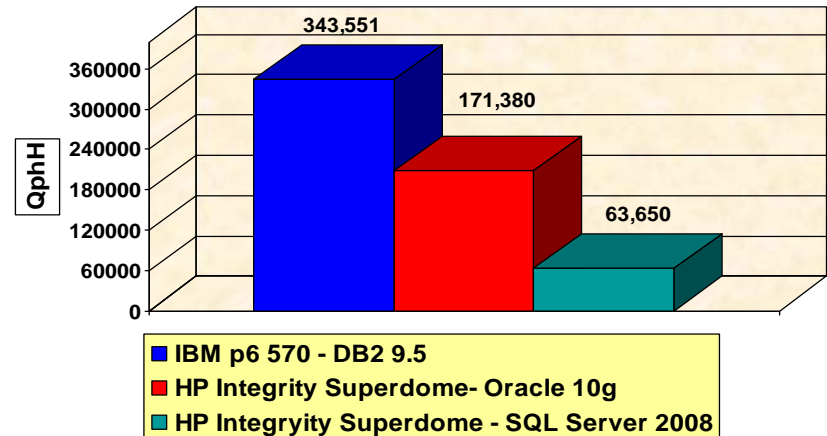
—Benjamin Simmen, Zurich Financial Services

Top TPC-C Performance



- 50% Faster than Oracle Database
- 5X Faster than SQL Server
- Lower server costs for transactional systems
- solidDB available for extreme speed

TPC-H 10 TB BI Benchmark



- 65% Faster than Oracle Database
- 5X Faster than SQL Server
- Lower server costs for BI systems
- DB2 powers InfoSphere Warehouse

Lower server costs → Lower software license costs → Lower software maintenance costs

DB2 is THE Database for SAP



The banner features the IBM and SAP logos on the left, followed by four small images: a handshake, a network diagram, a globe, and a checkered flag. To the right of these images is the text "Alliance Solutions Flash". Below the images is a white box containing the following text:

IBM DB2 Gains New Enthusiasts in Search of Better Performance at Lower Cost. More than 100 SAP Clients Have Switched their Database Software to DB2 in Last Six Months

“...we have observed a **40% cut in response times with DB2...”**

—Peter Boegler, SAP IT

SAP



“DND is a large and dynamic SAP implementation that is in a constant state of enhancement and expansion. We have **two DBAs that currently manage 100 SAP instances (and growing)**. We are often called upon to create a new instance to support our project and deliver in less than 24 hours. **This level of productivity and quick response would not be possible without the automated features of DB2 LUW** and the very tight integration with the SAP Cockpit, which we use extensively.”

– Carm Germano, Manager IM/IT Operations

Reduce Risk with Improved Security and Audit Features

- ❑ 44% of IT staff cited authorized access as key security challenge
- ❑ Top challenge for 43% of CFOs is governance, controls, and risk management

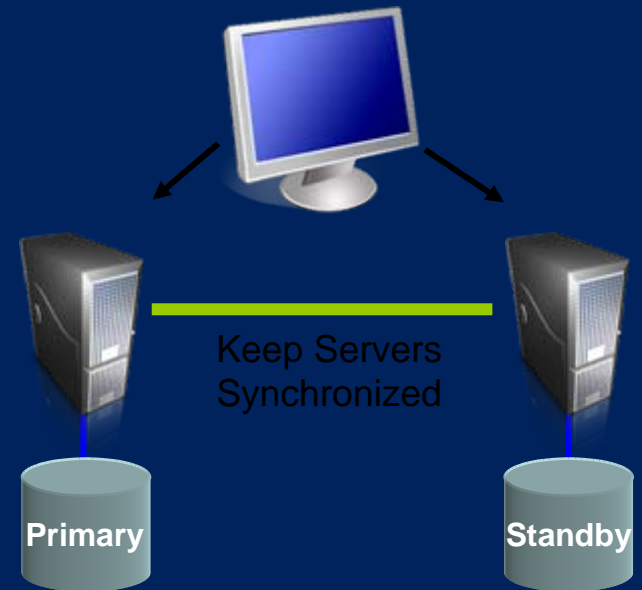
- Understand risks and security issues
 - Auditing redesigned for fast performance
 - Easily find out Who, What, Where, When, and How you may have a breach
- Reduce risk of unauthorized access
 - Precise Control
 - Encryption
 - Label-Based Access Control (LBAC)



“IBM is a definite leader in heterogeneous data integration...”
—Naomi Rafael, Melbourne Health

Robust Operation with High Availability

- Ultra-fast (seconds)
- Manage planned and unplanned outages
- Easy to add
 - No rewrite of your application
 - No specialized hardware
 - Setup in only minutes with graphical wizard
 - Systems can be in different locations



“One of the major advantages of DB2 is that we get a disaster recovery solution for our SAP system with HADR at no extra cost.”

—*Gustav Elias, Austrian Railways*

Introducing DB2 pureScale



Critical IT Applications Need Reliability and Scalability

- **Local Databases are Becoming Global**
 - Successful global businesses must deal with exploding data and server needs
 - Handling change is a competitive advantage in today's IT landscape



Customers need a highly scalable, flexible solution for the growth of their information with the ability to easily grow existing applications



- **Down-time is Not Acceptable**
 - Any outage means lost revenue and permanent customer loss
 - Today's distributed systems need reliability

IT Needs to Adapt in Hours...Not Months



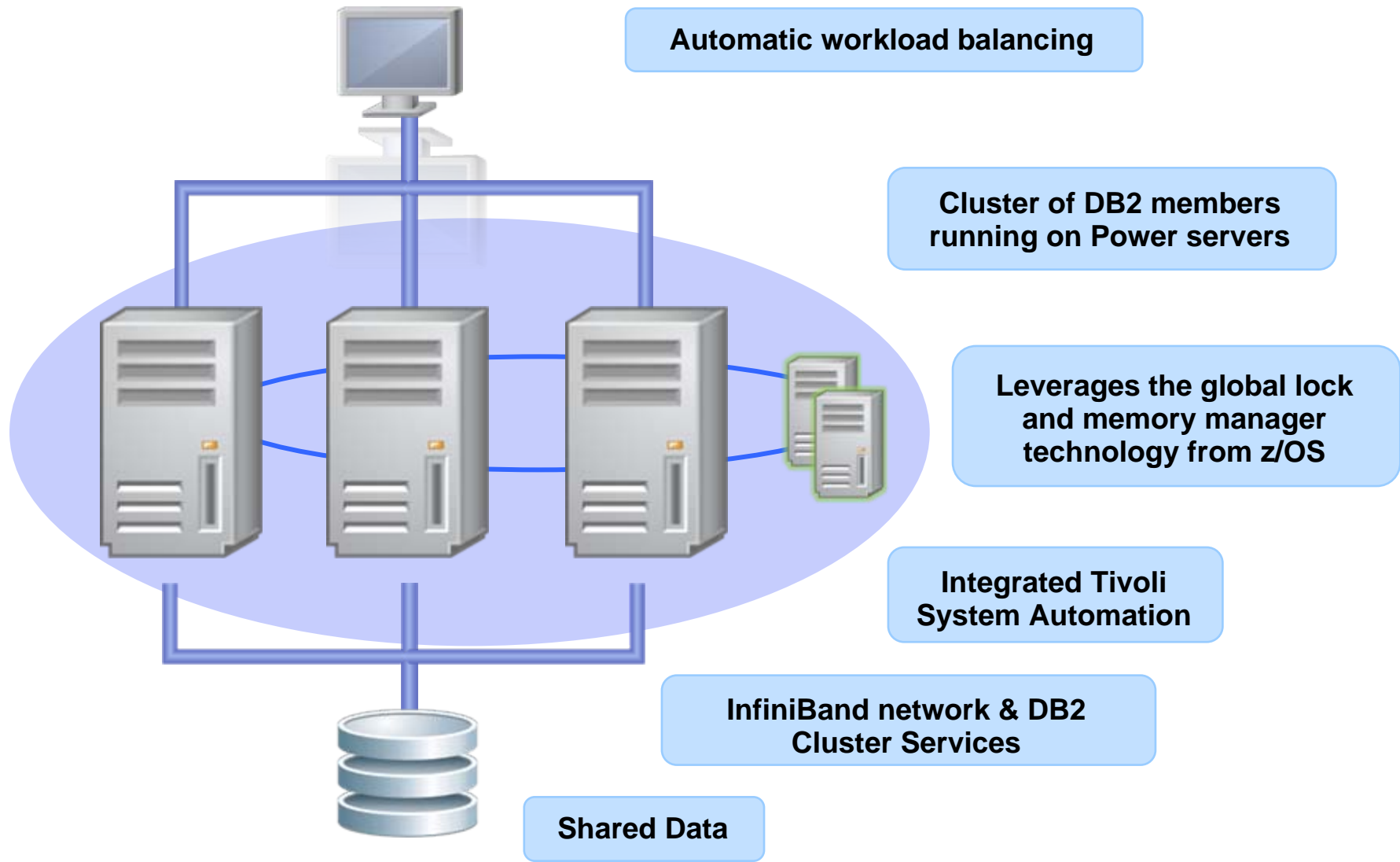
- **Dynamic Capacity is not the Exception**
 - Over-provisioning to handle critical business spikes is inefficient
 - IT must respond to changing capacity demand in days, not months

Businesses need to be able grow their infrastructure without adding risk

- **Application Changes are Expensive**
 - Changes to handle more workload volume can be costly and risky
 - Developers rarely design with scaling in mind
 - Adding capacity should be stress free



DB2 pureScale Architecture



DB2 pureScale

- **Unlimited Capacity**
 - Buy only what you need, add capacity as your needs grow
- **Application Transparency**
 - Avoid the risk and cost of application changes
- **Continuous Availability**
 - Deliver uninterrupted access to your data with consistent performance



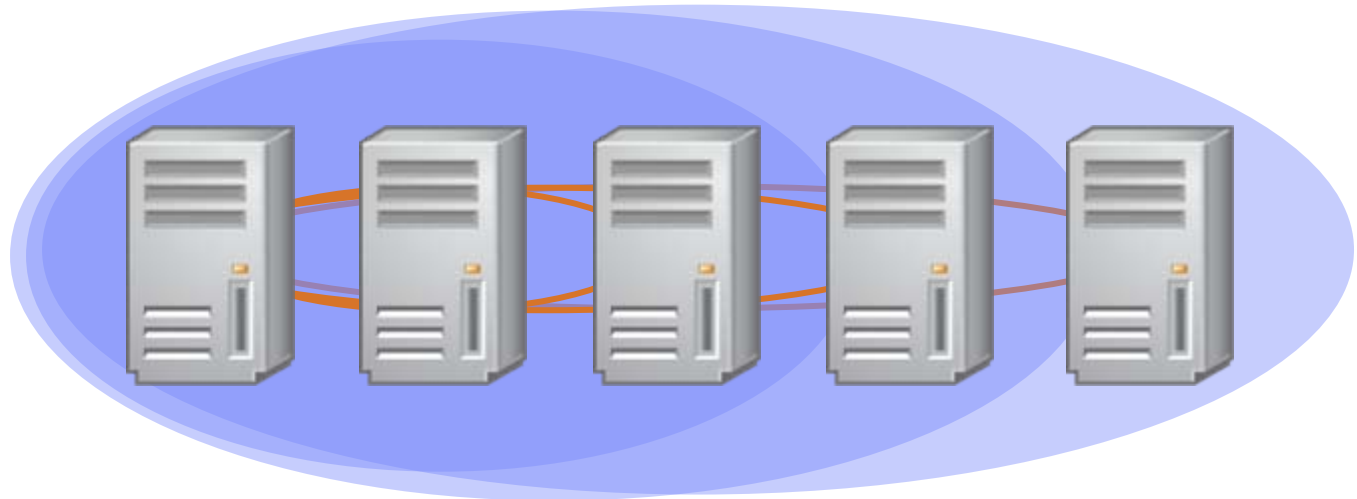
Learn how DB2 pureScale can help you reduce the risk and cost of meeting changing business demands

Unlimited Capacity

- **DB2 pureScale has been designed to grow to whatever capacity your business requires**
- **Flexible licensing designed for minimizing costs of peak times**
- **Only pay for additional capacity when you use it even if for only a single day**

Solution:

Use DB2 pureScale and add another server for those two days, and only pay for the days you use it.



Over 100+ node architecture validation has been run by IBM

DB2 pureScale is Easy to Deploy



Single installation for all components



Monitoring integrated into
Optim tools



Single installation for fixpaks
and updates



Simple commands to add
and remove members

Summary

- Understand where the REAL Costs of managing your information are.
- IBM continues to develop a portfolio of products that allow you to manage the cost, performance, availability and reliability
- With pureScale IBM introduces the first Mainframe class cluster solution for Unix
- With DB2 9.7 - You have real choice.

Break Free Now !



Thank you!

BACK UP

**INNOVATE,
OPTIMISE
AND PERFORM**
FOR SMARTER
BUSINESS
OUTCOMES



Integrated Data Management

Managing data throughout the lifecycle



- Deliver Value Across the Data Lifecycle
- Facilitate Collaboration & Efficiency
- Improve Service Levels
- Comply with Data Security, Privacy, & Retention Policies

Listen to What Business Partners Said...

Fast Return on Investment, Faster Development

Easy to Learn and Use

*“It took us **about a week to migrate the code** to the new environment. The money we've invested we got back in about one to two months, and our development will operate **up to 20 to 50% faster** than before.”*

- Janick Bernet, Developer, Swiss ASP



Portfolio Investments

Lowering end-to-end costs

**Smarter
Business Outcomes**

*Financial
Risk Insight*

*Workforce
Optimization*

*Dynamic
Supply Chain*

*Customer & Product
Profitability*

*Multi-channel
Marketing*

Business Optimization

Cognos.
software



Business Intelligence
& Performance
Management

InfoSphere™
software



Trusted Information
Management

Informix.
software

FileNet.
software



Data
Management



Enterprise Content
Management

DB2.
software

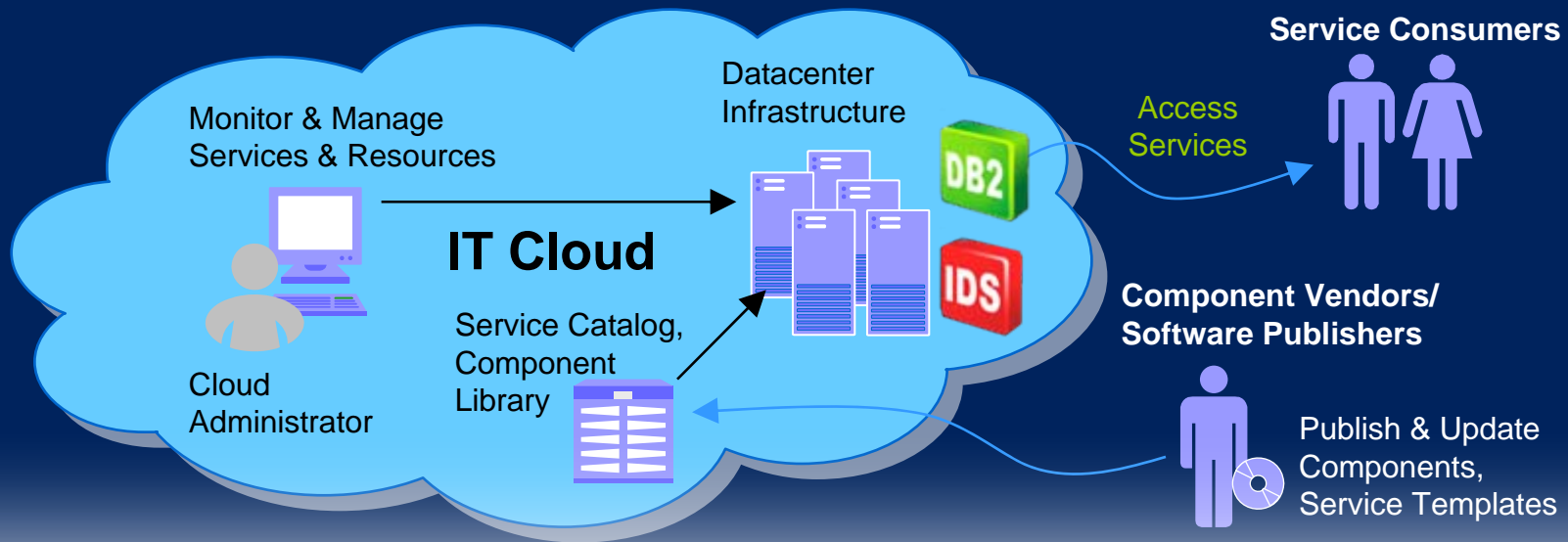
Information Infrastructure

**End-to-end
Capabilities**

DB2 and IDS in the Cloud

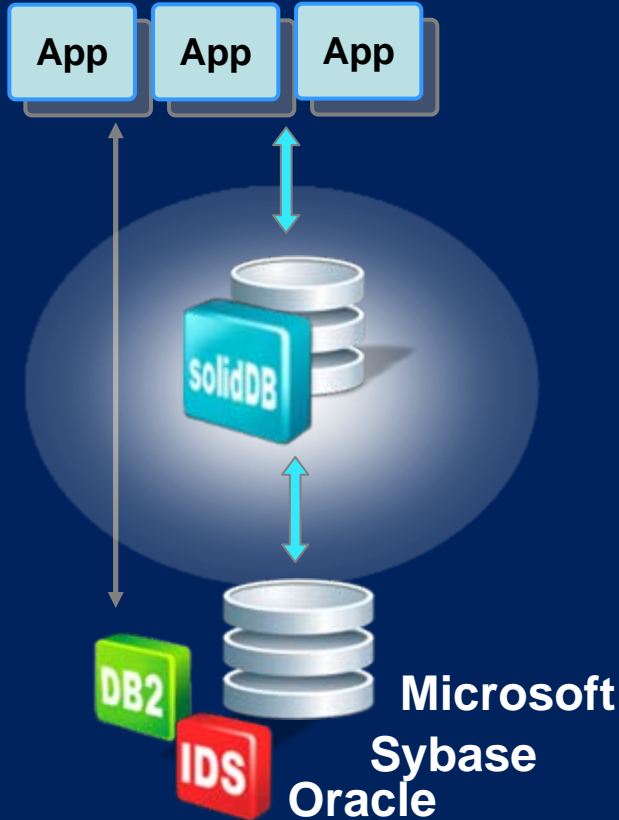
Ease and speed of deployment

- Partnership with Amazon Web Services
- Quickly get started using DB2 or IDS
- Pay as you go licensing model



solidDB Universal Cache

Accelerates virtually all leading RDBMs for extreme speed



The New York Times

IBM Announces Industry's First Universal Database Cache

*"An industry first, **solidDB Universal Cache** relies on relational, in-memory database software to accelerate IBM's own DB2 and Informix Dynamic Server, as well as..."*

FORRESTER®

Forrester Research

"Caching will be critical over the next 3-4 years with huge applications needing high performance."

Noel Yuhanna Forrester Research
August 2008

InfoSphere Warehouse 9.7

New Departmental Editions Lower Cost



✓ Save Money

Greater storage savings with enhanced Deep Compression

✓ Uncover Opportunities

Simplified analytics and expanded support for XML data

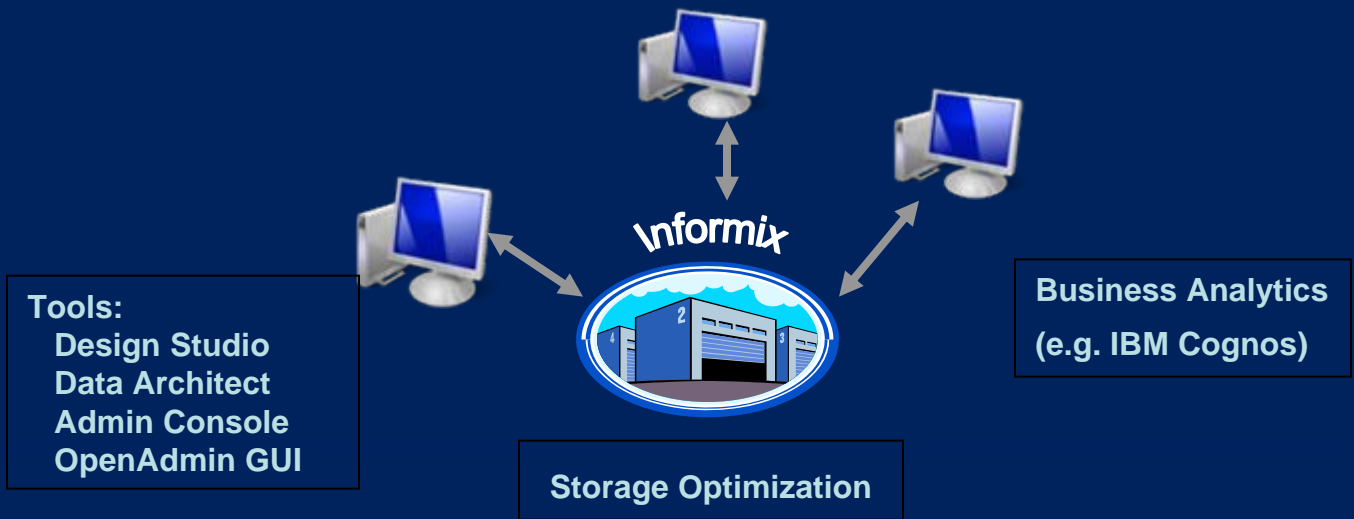
✓ Move Now

New technology for rapidly deploying applications, including applications written for other database software

Informix Warehouse

Delivering more value from existing IDS data assets

- Optimized for Informix
- Create a warehouse in a day
- Utilize existing infrastructure
- Drag and drop design and deployment tools



SAP on DB2 – Long-term Joint Roadmap

Tight integration lowers costs for customers

DB2 Optimized for SAP Software

Partnership



Joint SAP + IBM teams and cooperation on all levels

Product Integration



One Product, one maintenance strategy and all services

Technology Innovation



Joint Technology plan with focus on SAP

SAP runs DB2



> 1200 internal SAP systems on DB2 LUW

SAP and IBM DB2 – A Unique Partnership!

DB2 Optimized for SAP – The Roadmap

Working together to deliver higher value at lower cost



SAP Next

2010

DB2 Next

2009

DB2 Version 9.7

- 360° Monitoring
- Even Deeper Deep Compression
- Near-0 Storage Admin
- BI query performance boost

2008

DB2 Version 9.5

- Integrated & automatic HADR
- Integrated Flash Copy
- DPF Scaling Improvements

2007

DB2 Version 9.1

- Storage limits removed
- Near-0 admin
- Compression

2006

DB2 Version 8.2.2

- Automatic storage admin
- Deployment optimized for SAP
- Tailored concurrency & perf improvements

2005

1Q/07 NW 7.0

- Embedded database
- Unlimited scalability
- Minimal admin

2Q/05 NW 2004

- Streamlined install
- Streamlined admin
- Auto storage EE

1993

DB2.
software

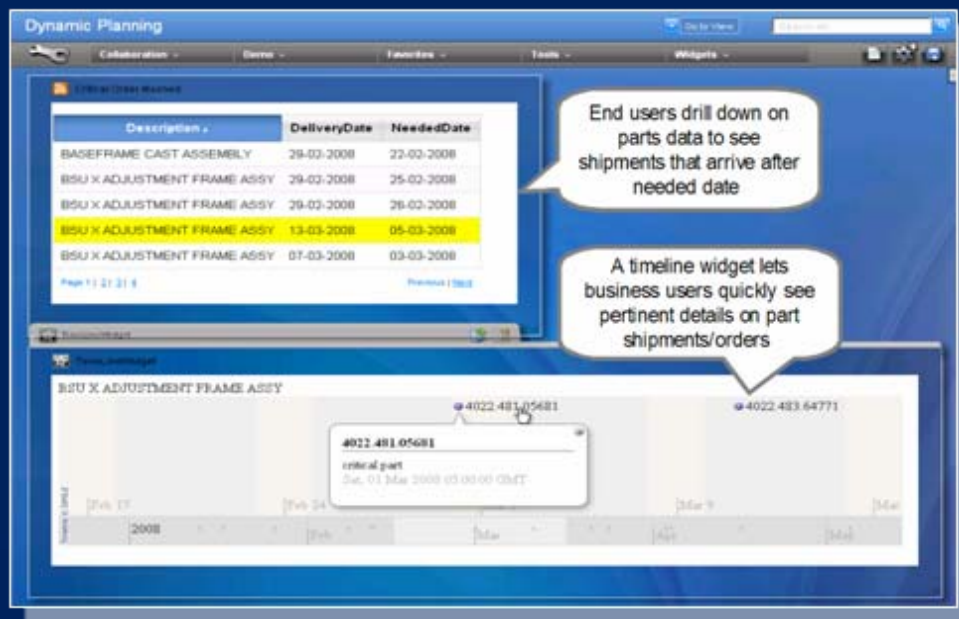
Mashups: Immediate ROI

Innovation to advance new technologies to simplify data access

\$400,000+ hard annual cost savings from first deployed Mashup

Solution:

Provided real-time manufacturing information for semiconductor supplier, mixing enterprise data and external data



Enterprise Mashups of information from supplier's ERP system and semiconductor manufacturer's portal



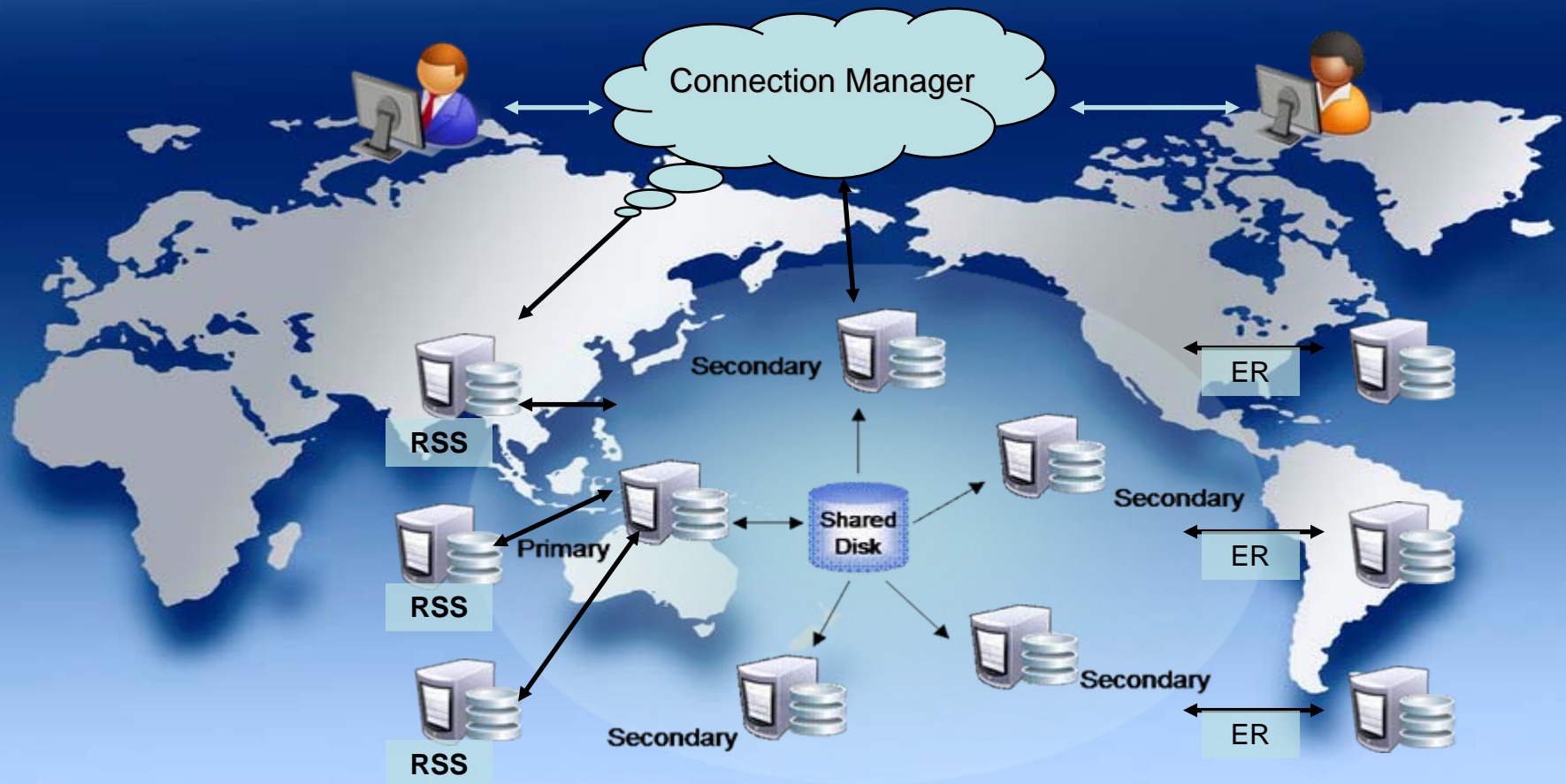
MACH 11: Active Data Clusters

Innovation for affordable and reliable scale up or scale out

✓ Scale Up or Scale Out

✓ Change dynamically

✓ Shared disk or remote replicas

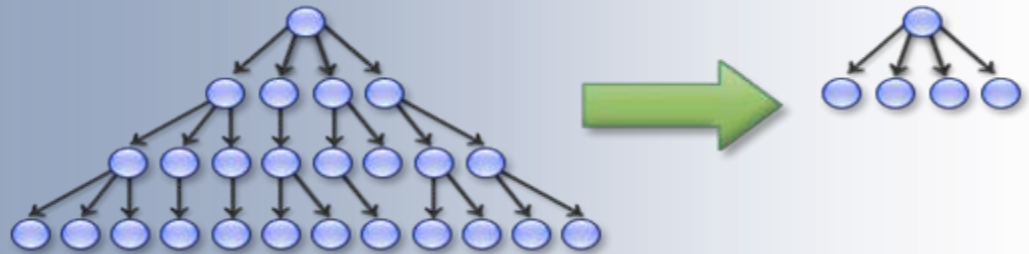


Compression

Innovation to Reduce Costs and Improve Performance

Index Compression

Automatic,
Multiple Algorithms



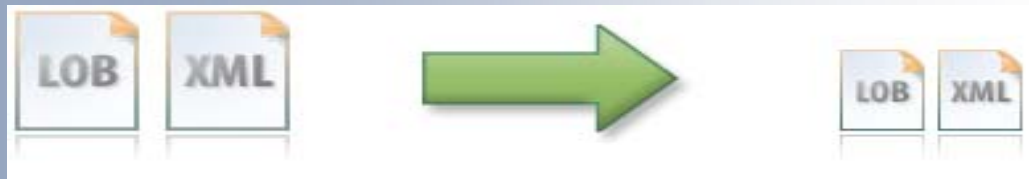
Temp Table Compression

Automatic



LOB & XML Compression

Intelligent

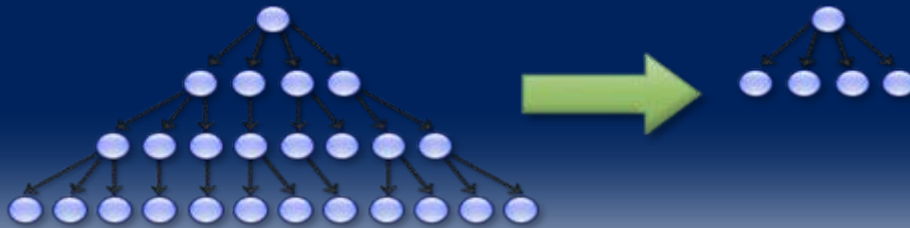


SunTrust Saves \$2M with Compression

Innovation with real results - spend less on storage

*“We're seeing **compression rates up to 83%** on the data warehouse tables. The projected cost savings are more than **\$2 million initially** with **ongoing savings of \$500,000 a year**”*

— Michael Henson, SunTrust Bank, Inc.



Openbravo ERP

Open source web-based ERP system

- Developed by Openbravo
- Millions of downloads
- Used in over 50 countries



Currently supported RDBMS

- Oracle & PostgreSQL

Database Size

- 520 tables
- 400+ PL/SQL routines / triggers

Migration to DB2 Cobra

~ 6+ MONTHS

1. Map schema and data
2. Translate PL/SQL
Missing built-in functions & packages
3. Translate SQL in application code
1000's of untyped expressions
4. Concurrency problems
5. Test and Tuning



1 WEEK

1. Map schema, data and SQL
 - **Native support**
 - **99% of SQL compatible**
 - **156 of 158 procedures natively supported**
2. Run your shared code
 - **Native support**
3. Test and Tuning

With DB2 Cobra, no porting required for new releases

IBM Data Management Community

- **User group momentum**
 - Lively community activity at worldwide events in April and May
 - 240 informative sessions
- **XML Challenge**
 - 20 countries / 50 workshops / 300 colleges
 - Global winners from six countries
- **Academic Initiative**
 - Growing DB2 footprint in universities
 - Informix on Campus introduction



International DB2 User Group



International Informix User Group



IBM Academic Initiative
ibm.com/academicinitiative

The World is Getting Smarter



Our world
is becoming

Instrumented



Our world
is becoming

Intelligent



Our world
is becoming

Interconnected



The Opportunity for Progress is Clear



10%
**REDUCTION IN
ENERGY COSTS**

Utility Networks

Pacific Northwest
National Lab



20%
**LESS
TRAFFIC**

Traffic System

Stockholm,
Sweden



90%
**LOWER COST OF
THERAPY**

Smart Healthcare

ActiveCare
Network

IBM Data Management

Powering a Smarter Planet

**New
Intelligence**



**Green &
Beyond**

**Dynamic
Infrastructure**

