



IBM Software Group

# Enabling Information as a Service

*Unleashing the Power of your Data*



Dan Wardman

***VP, DB2 and IMS Tools***

***Information Management Solutions***

**ON DEMAND BUSINESS™** = *Make it happen now*

# The Information Challenge

*Information is in Silos... Trusted Information is Not Available*

**Today's business challenges mandate a fresh approach to managing information.**

**Managing information in silos has become obsolete.**

Globalization, M&As  
 Risk & Compliance,  
 Eroding Customer Loyalty,  
 Supply Chain Complexity,  
 Industry Transformations,  
 Cost Cutting...

**Information Must Become a Strategic Asset**

Multiple Versions of the Truth  
 Inaccurate, Untimely  
 Inconsistent  
 Incomplete, Inaccessible  
 Out of Context...

**5X More Value** creation by organizations effective at using Information as an Asset

**60%+** of CEOs: Need to do a better job leveraging information

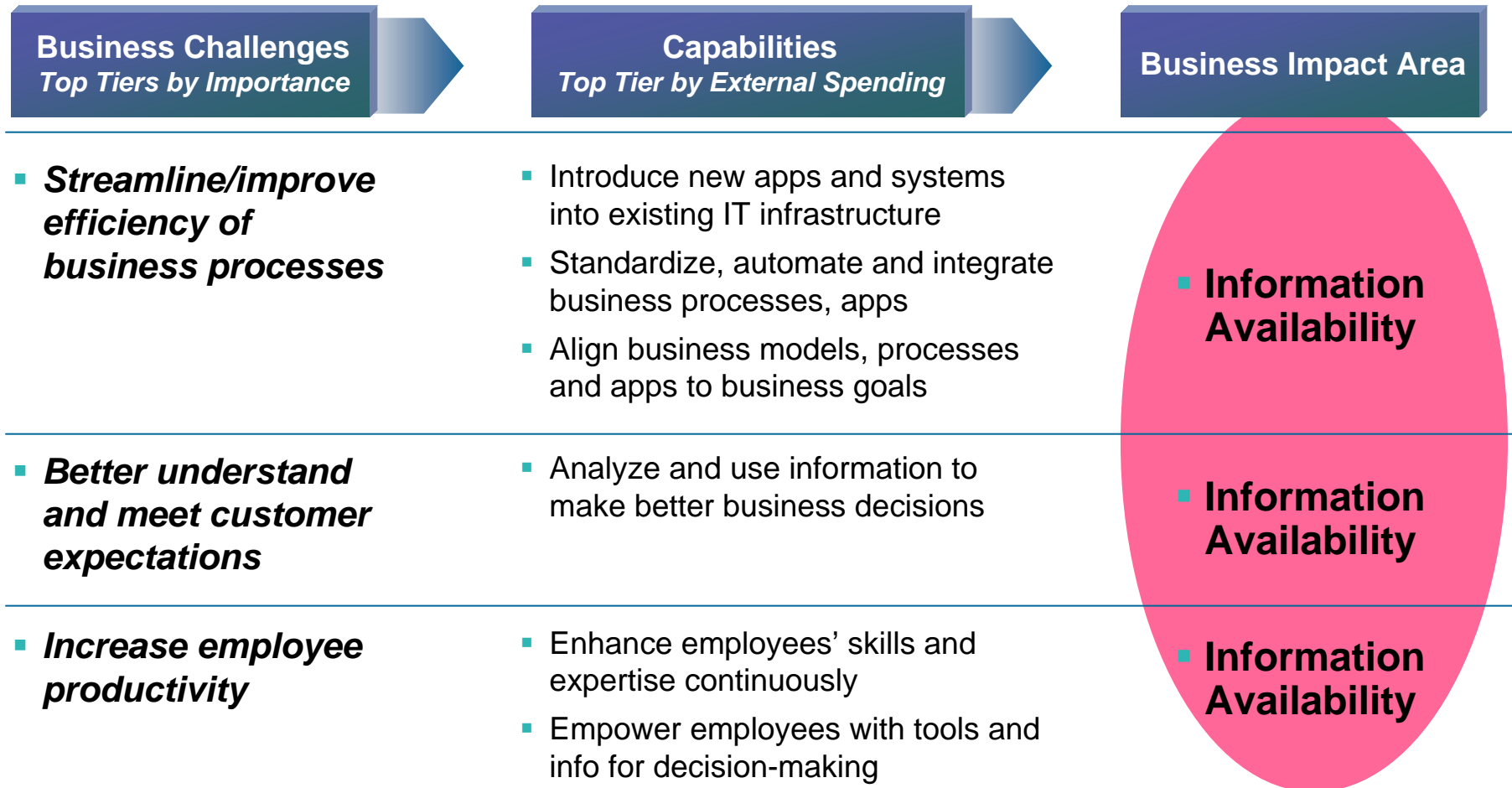
**70%** of people's time can be spent searching for relevant information

Sources: IBM Attributes & Capabilities Study, 2005; Client Interviews 2004; IBM CFO Study, 2006

# Today's Business Challenges

*Information Availability is the Top Priority*

*The most anticipated impact of business investing in IT has become information availability*

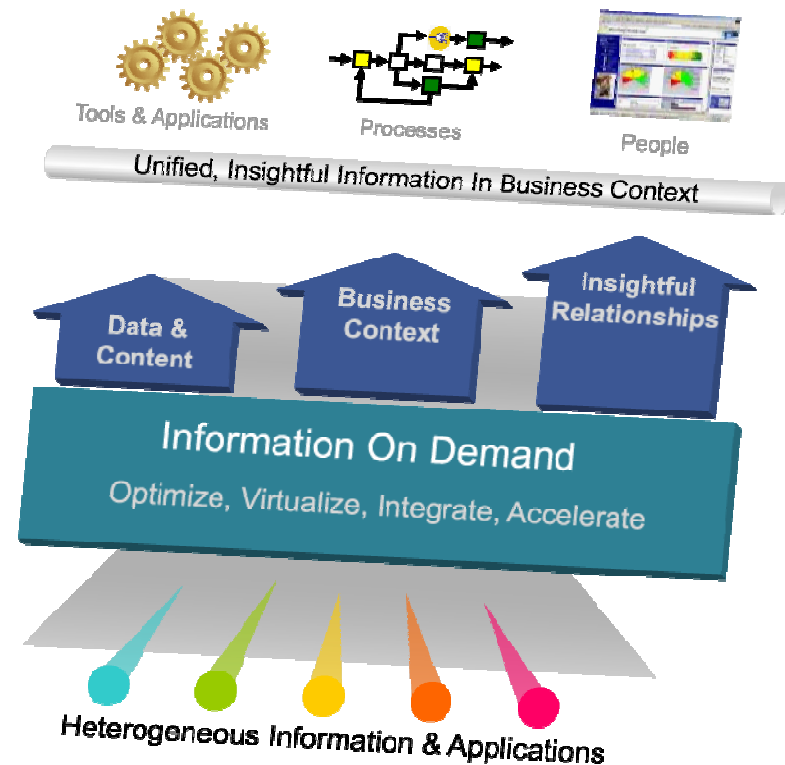


Source: IBM Attributes & Capabilities Study, 2005

# Information On Demand

## *Key Value Proposition for System z Customers*

- Enhanced capabilities in DB2 for z/OS, IMS, and Tools
  - Mission critical databases and applications platform
  - Optimize IT infrastructure
  - Lower total cost of Ownership
  - Streamline Compliance and Auditability
  
- Open Connectivity and Information On Demand
  - Leverage your data and applications with Information integration and Virtualization
  - Leverage unstructured content
  - Achieve ROI with solution accelerators



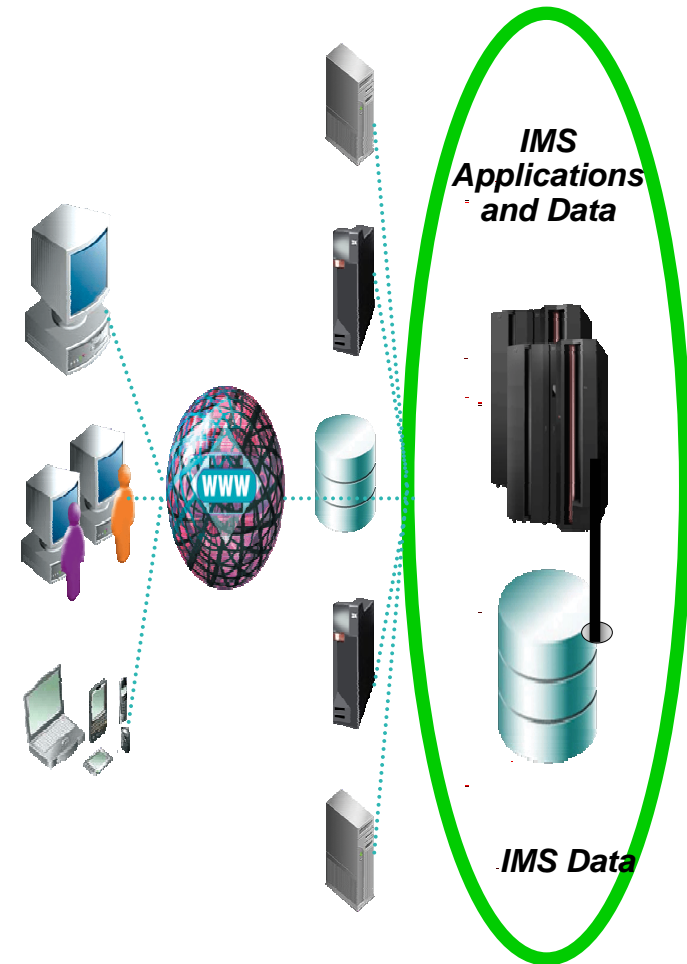
# *Information Services*

## **Data Services**



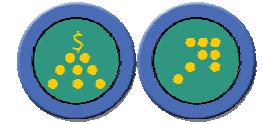
## IMS – 37 Years of Proven Quality, Performance and Commitment

- ✓ **Over 95% of Fortune 1000 Companies use IMS**
- ✓ **Over 50 Billion Transactions with 200 Million Users a Day**
- ✓ **Manage over 15 TB of production Data**
- ✓ **Reengineered to provide new programming, tooling and connectivity options such as Java, XML and Web Services**



# IMS Update

*Continuing Growth, Function and Business Value*



- **IMS V9 Currently Available**

- XML database support
- Publish Transactions/Data as Web Services
- Integrated Connect function for High Performance access
- Integrated HALDB Online Reorganization for ultra scalable/available data
- Tooling to easily develop/deploy/manage applications at low cost

- **2006 Targeted Delivery**

- SOA Enhanced Integration and Transformation
  - SOAP Gateway, XML Adapter, XQuery Preview, DLIModel Utility GUI Beta
- Further Enhancements for Integration, Manageability, Scalability



- **Next Steps**

- Increasing Parallelism in Recovery/Connectivity
- SOA Support Enhancements
  - XML, Web Services, PL/I Transactions, IMS as a Client
  - Integrated Operations across Subsystems/Platforms
  - Enhancing Security
- Installation/Management Enhancements to Simplify Skill Requirements

## IMS - China Construction Bank

### ■ Challenges

- ▶ Data center consolidation from mostly non-IBM environment
- ▶ Thousands of stations (sessions)
- ▶ 100+ million, soon to be 150 million savings accounts
- ▶ Phasing in branches (provinces) throughout 2003/2004/2005 resulting in
  - Drastic increases in amount of data
  - Exponential increases in transaction volume
- ▶ High availability essential



### ■ Solution

- ▶ IBM Parallel Sysplex
  - 2 way initial data sharing implementation going to 4-way soon
- ▶ IMS V8 Data Base Manager
  - HALDB for large DB's requiring multiple secondary indexes
  - Fast Path DEDB's using >240 Areas support for capacity and efficiency
  - Fast Data Base Recovery (FDBR) function used for continuous data availability
- ▶ Peer to Peer Remote Copy (PPRC)/Geographically dispersed Parallel Sysplex (GDPS) planned for remote site backup
- ▶ Automatic Restart Manager (ARM) used for quick image restart
- ▶ IBM System Automation tool used for subsystem startup / shutdown / etc.



## DB2 for z/OS V8: At a glance

- **Improved IT Infrastructure In Support of Compliance Efforts**

- Greater encryption capabilities (incl. DB2 data encryption tool)
- Common Criteria security certification currently in evaluation stage
- Multi-level & row-level security
- HW cryptographic features

- **Simplify development and porting**

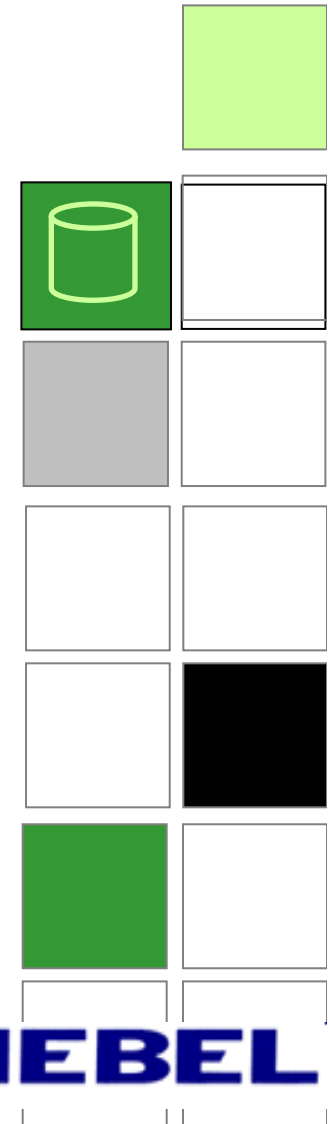
- Online Schema Evolution
- Rolling maintenance & upgrades
- DB2 SQL family improvements
- Dramatically increase limits throughout system

- **Decrease Complexity and Reduce Cost**

- 64-bit virtual addressing
- Built in data compression
- Autonomic capabilities
- Multi-row insert and fetch
- Increased optimization and query performance

- **Evolve Your Environment & SOA**

- Improved XML capabilities
- WAS and Java integration

# Leverage Existing Application Development Skills



- Exploiting new converged SQL

- Key Database Technologies

- SQL, SQL Procedures
- XML
- SOA, Web Services

- Developer communities

- COBOL, PL/I, REXX, C, C++
- Java (JDBC / SQLJ)
- .NET (C#, VB .NET)
- Open Source

- **PHP**
- **Perl**
- **Python**
- **Ruby on Rails**



# DB2 Family SQL

z z/OS V7

common

LUW Linux, Unix & Windows V8.2



z

c

o

m

m

n

o

m

n

l

u

w

w

Inner and Outer Joins, Table Expressions, Subqueries, GROUP BY, Complex Correlation, Global Temporary Tables, CASE, 100+ Built-in Functions, Limited Fetch, Insensitive Scroll Cursors, UNION Everywhere, MIN/MAX Single Index Support, Self Referencing Updates with Subqueries, Sort Avoidance for ORDER BY, and Row Expressions, Call from trigger, statement isolation

Updateable UNION in Views, ORDER BY/FETCH FIRST in subselects & table expressions, GROUPING SETS, ROLLUP, CUBE, INSTEAD OF TRIGGER, EXCEPT, INTERSECT, 16 Built-in Functions, MERGE, Native SQL Procedure Language, SET CURRENT ISOLATION, BIGINT data type, file reference variables, SELECT FROM UPDATE, DELETE & MERGE, multi-site join, 2M Statement Length, GROUP BY Expression, Sequences, Scalar Fullselect, Materialized Query Tables, Common Table Expressions, Recursive SQL, CURRENT PACKAGE PATH, VOLATILE Tables, Star Join Sparse Index, Qualified Column names, Multiple DISTINCT clauses, ON COMMIT DROP, Transparent ROWID Column, FOR READ ONLY KEEP UPDATE LOCKS, SET CURRENT SCHEMA, Client special registers, long SQL object names, SELECT from INSERT

# DB2 Family SQL

z z/OS V8

common

LUW Linux, Unix & Windows V8.2



**z**

Multi-row INSERT, FETCH & multi-row cursor UPDATE, Dynamic Scrollable Cursors, GET DIAGNOSTICS, Enhanced UNICODE for SQL, join across encoding schemes, IS NOT DISTINCT FROM, Session variables

**c  
o  
m  
m  
o  
n**

Inner and Outer Joins, Table Expressions, Subqueries, GROUP BY, Complex Correlation, Global Temporary Tables, CASE, 100+ Built-in Functions including SQL/XML, Limited Fetch, Insensitive Scroll Cursors, UNION Everywhere, MIN/MAX Single Index Support, Self Referencing Updates with Subqueries, Sort Avoidance for ORDER BY, and Row Expressions, 2M Statement Length, GROUP BY Expression, Sequences, Scalar Fullselect, Materialized Query Tables, Common Table Expressions, Recursive SQL, CURRENT PACKAGE PATH, VOLATILE Tables, Star Join Sparse Index, Qualified Column names, Multiple DISTINCT clauses, ON COMMIT DROP, Transparent ROWID Column, Call from trigger, statement isolation, FOR READ ONLY KEEP UPDATE LOCKS, SET CURRENT SCHEMA, Client special registers, long SQL object names, SELECT from INSERT

**L  
U  
W**

Updateable UNION in Views, ORDER BY/FETCH FIRST in subselects & table expressions, GROUPING SETS, ROLLUP, CUBE, INSTEAD OF TRIGGER, EXCEPT, INTERSECT, 16 Built-in Functions, MERGE, Native SQL Procedure Language, SET CURRENT ISOLATION, BIGINT data type, file reference variables, SELECT FROM UPDATE, DELETE & MERGE, multi-site join

# DB2 Family SQL

z z/OS V8 DB2 9

common

LUW Linux, Unix & Windows V8.2



z

Multi-row INSERT, FETCH & multi-row cursor UPDATE, Dynamic Scrollable Cursors, GET DIAGNOSTICS, Enhanced UNICODE for SQL, join across encoding schemes, IS NOT DISTINCT FROM, Session variables, TRUNCATE, DECIMAL FLOAT, VARBINARY, optimistic locking, FETCH CONTINUE, ROLE, MERGE

c  
o  
m  
m  
o  
n

Inner and Outer Joins, Table Expressions, Subqueries, GROUP BY, Complex Correlation, Global Temporary Tables, CASE, 100+ Built-in Functions including SQL/XML, Limited Fetch, Insensitive Scroll Cursors, UNION Everywhere, MIN/MAX Single Index Support, Self Referencing Updates with Subqueries, Sort Avoidance for ORDER BY, and Row Expressions, 2M Statement Length, GROUP BY Expression, Sequences, Scalar Fullselect, Materialized Query Tables, Common Table Expressions, Recursive SQL, CURRENT PACKAGE PATH, VOLATILE Tables, Star Join Sparse Index, Qualified Column names, Multiple DISTINCT clauses, ON COMMIT DROP, Transparent ROWID Column, Call from trigger, statement isolation, FOR READ ONLY KEEP UPDATE LOCKS, SET CURRENT SCHEMA, Client special registers, long SQL object names, SELECT from INSERT, UPDATE, DELETE & MERGE, INSTEAD OF TRIGGER, Native SQL Procedure Language, BIGINT, file reference variables, XML, FETCH FIRST & ORDER BY in subselect and fullselect, caseless comparisons, INTERSECT, EXCEPT, not logged tables

L  
U  
W

Updateable UNION in Views, GROUPING SETS, ROLLUP, CUBE, 16 Built-in Functions, SET CURRENT ISOLATION, multi-site join, MERGE

# Optimized for SAP

## System z provides

- Continuous availability with data sharing
- True scalability with performance
- Storage cost savings with hardware compression
- Central server for SAP (MCOD)
- Customized infrastructure with zIIP
  - DB2 support available June 2006



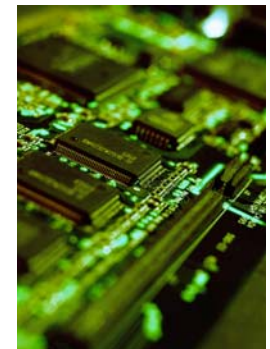
**DB2 and  
System z  
Unique**

## DB2 for z/OS delivers for SAP

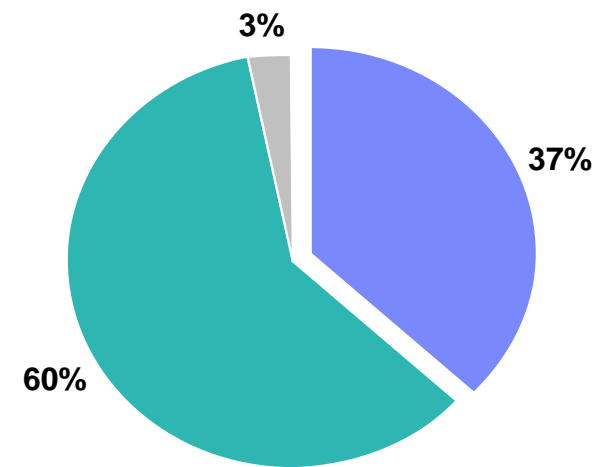
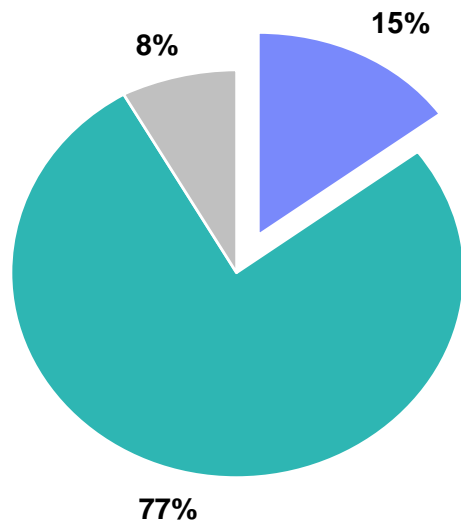
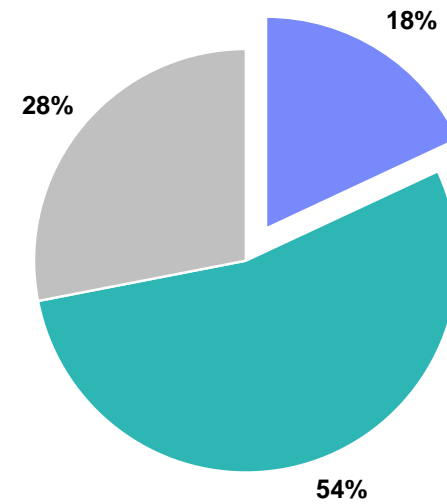
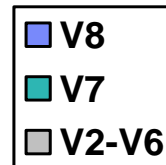
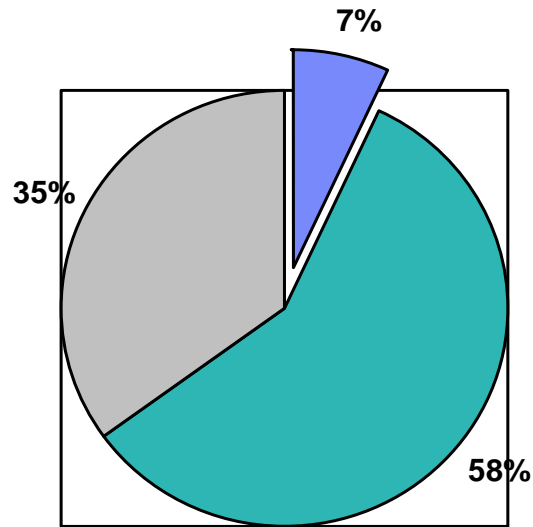
- Largest SAP implementation runs on DB2
- 50+ SAP requested features delivered in DB2 V8
  - SAP NetWeaver BI improvements
- 30+ more coming in DB2 9
- Ease of use and manageability
  - Self healing, self optimization
  - Utilities - DBA productivity
  - SAP toolkits for DB2



**DB2 9  
Closed Beta  
June 2006**



# DB2 for z/OS V8 Upgrades YE 2004



# HVBInfo -- HypoVereinsbank AG

## Challenge:

HVBInfo provides IT services for HypoVereinsbank, one of the three largest banks in Europe and the leading real estate financier. Their 2400 branches serve 8 million customers. Their challenges were to:

- Deliver a true 24x7 application environment with access to updated, consistent and secure data
- Upgrade database platform to improve stability, availability, and performance
- Exploit 64-bit accessibility and achieve better integration with DB2 software applications

## Business Benefits:

- **Increased flexibility in application environment**
- **Ability to integrate Java applications easily**
- **20 to 30% decrease in time to market for new banking applications**
- **Significant cost savings are projected**

## Solution:

HVBInfo upgraded to DB2 for z/OS V8 on an existing eServer System z platform and improved availability and data sharing. The solution also includes:

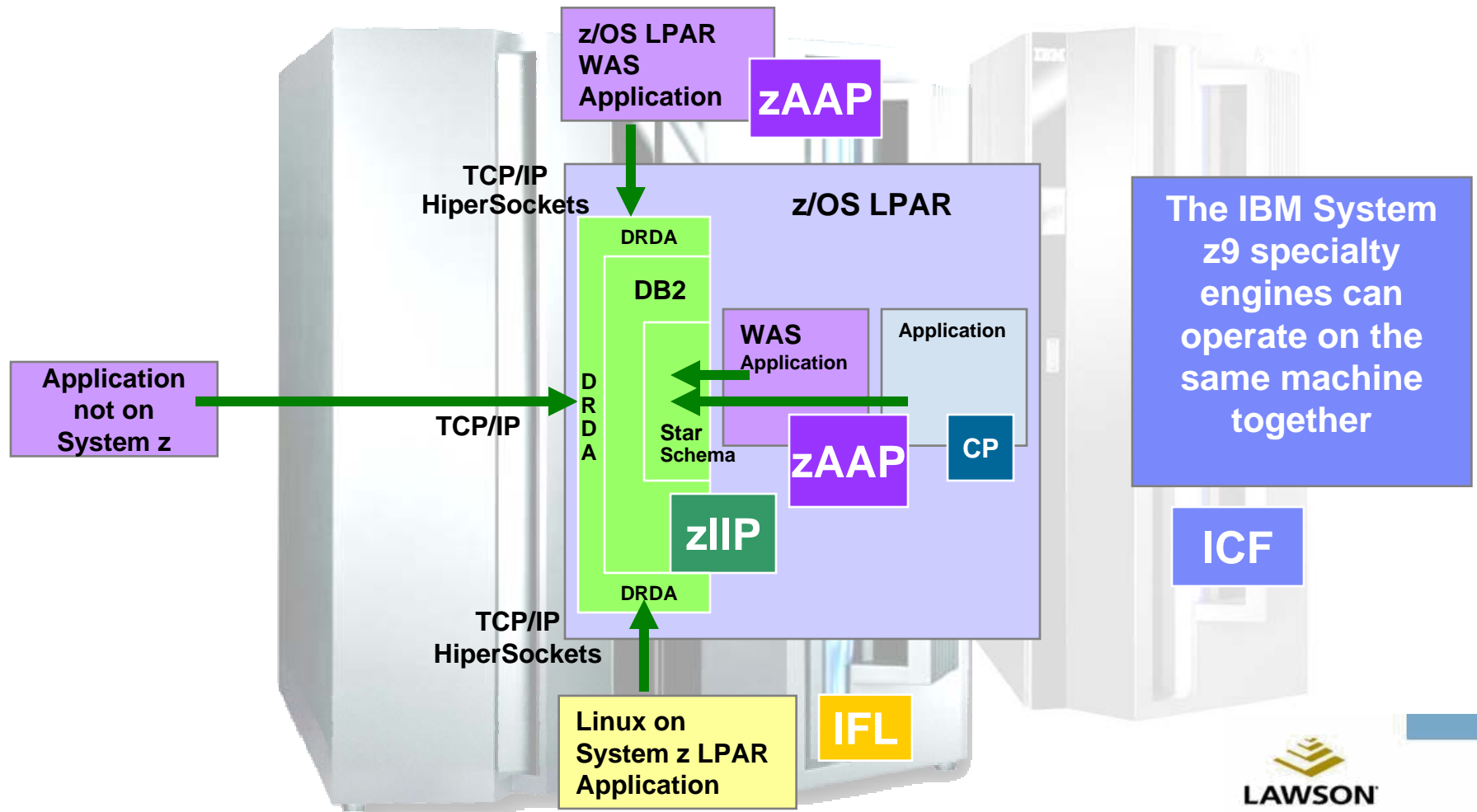
- DB2 Connect Enterprise Edition, V7 and V8
- DB2 QMF, V8
- DB2 Administration Tool for z/OS, V7

## Technology Benefits:

- **DB2 for z/OS V8 provides automated resolution of database logical page list and virtual storage constraint relief**
- **DB2 Connect accesses data on workstations**
- **DB2 QMF retrieves specific data stored in a data warehouse**
- **DB2 Admin Tool manages objects, tables, indexes through online schema evolution**

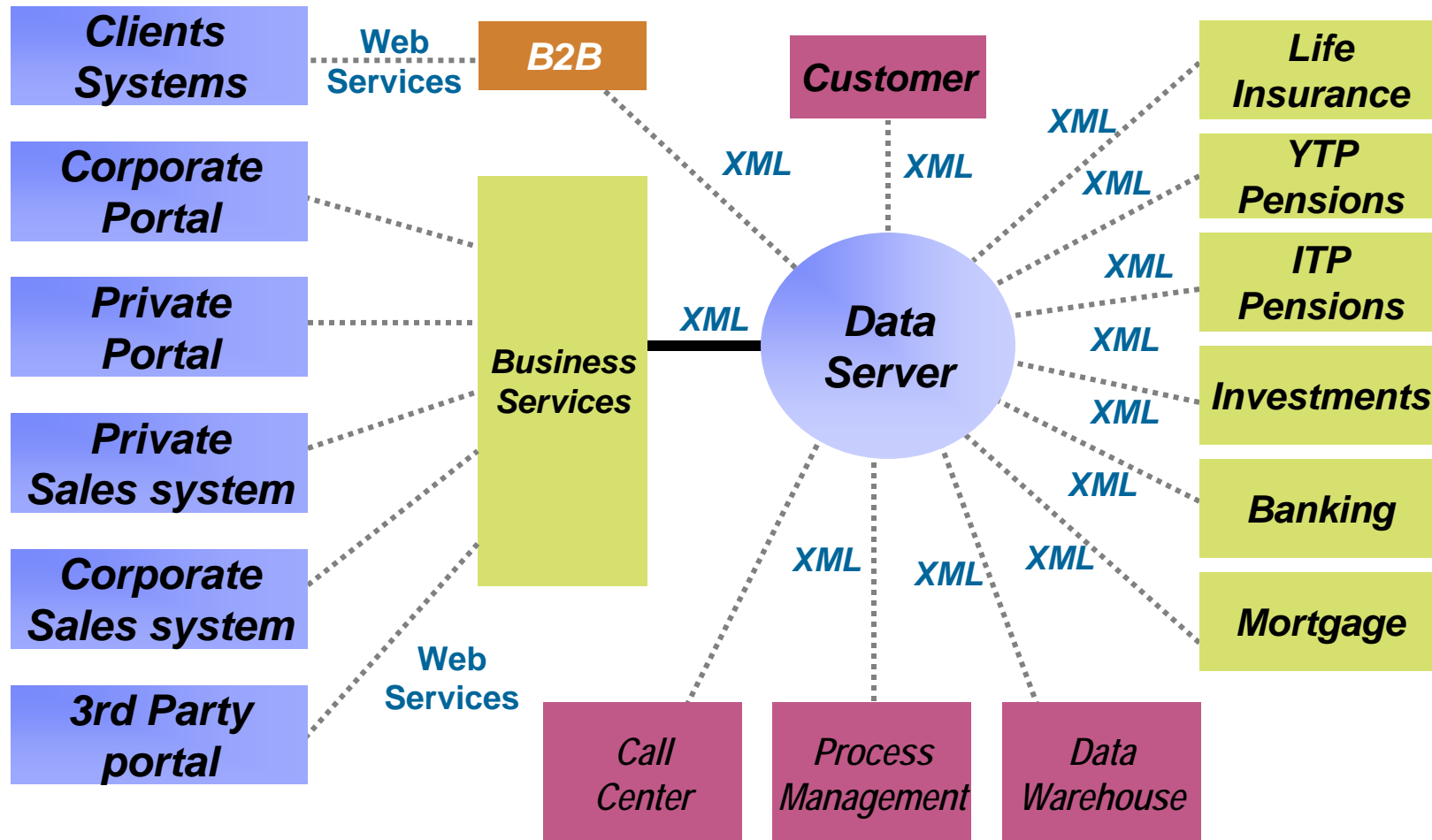


# Optimize Costs... Specialty Engines



# Powering a Flexible Approach

*XML and SOA are the Keys*

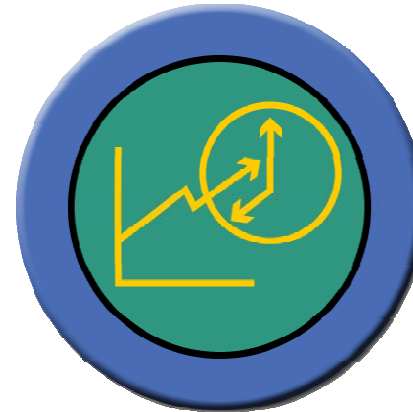


# DB2 Viper for z/OS

## *Scalability, Availability, Performance*

*Closed Beta  
Starts  
June, 2006*

- **Hybrid Data Server with Pure XML**
- **Data Definition On Demand**
  - Online reorganization with no BUILD2 phase
  - Fast replacement of one table with another
  - Rename column and index
  - Alter index to change page size
  - Table space that can add partitions, for growth
  - Modify early code without requiring an IPL
  - Alter table space and index logging
  - Clone Tables
- **CPU reductions in LOAD and REORG**
- **Online REBUILD INDEX**
- **Insert performance**
  - APPEND, INDEX, LOG
- **LOB performance, function, scalability**
- **INDEX on expression**
- **SQL and optimization improvements**



*and more...*

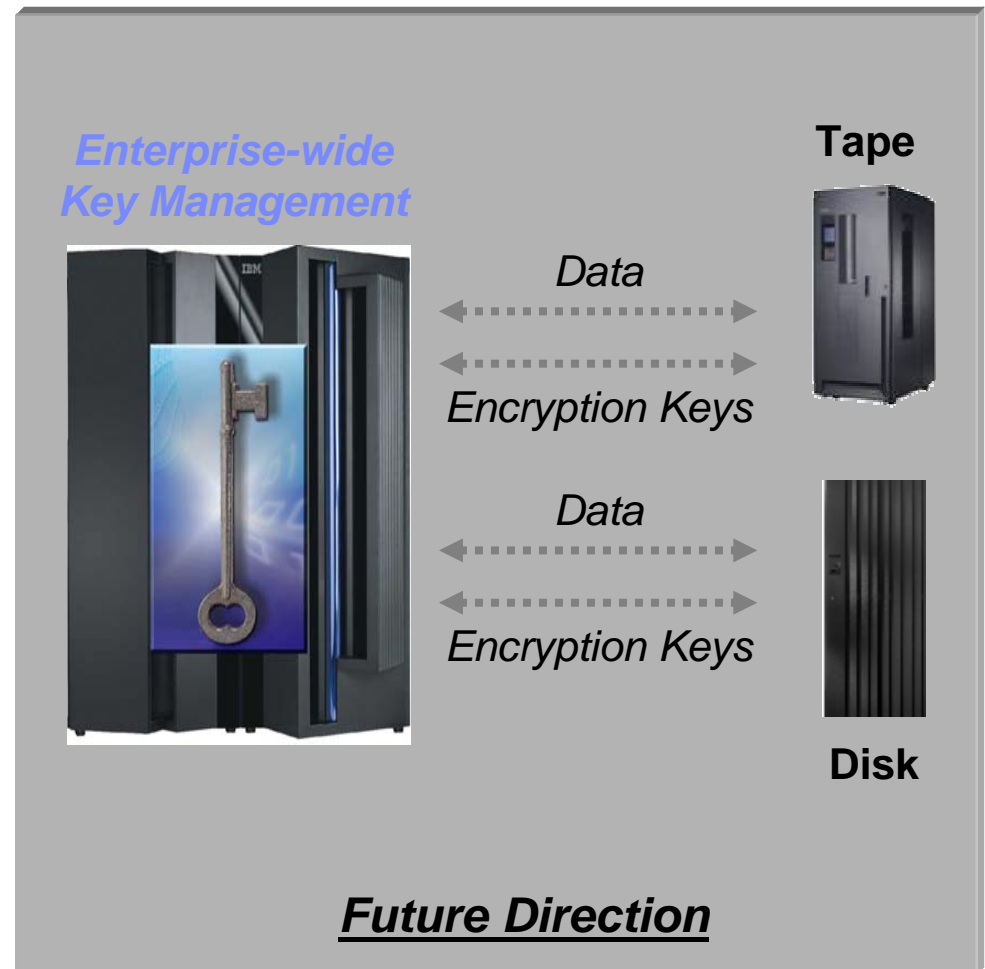
# DB2 Viper for z/OS

*Securing the Information Asset*

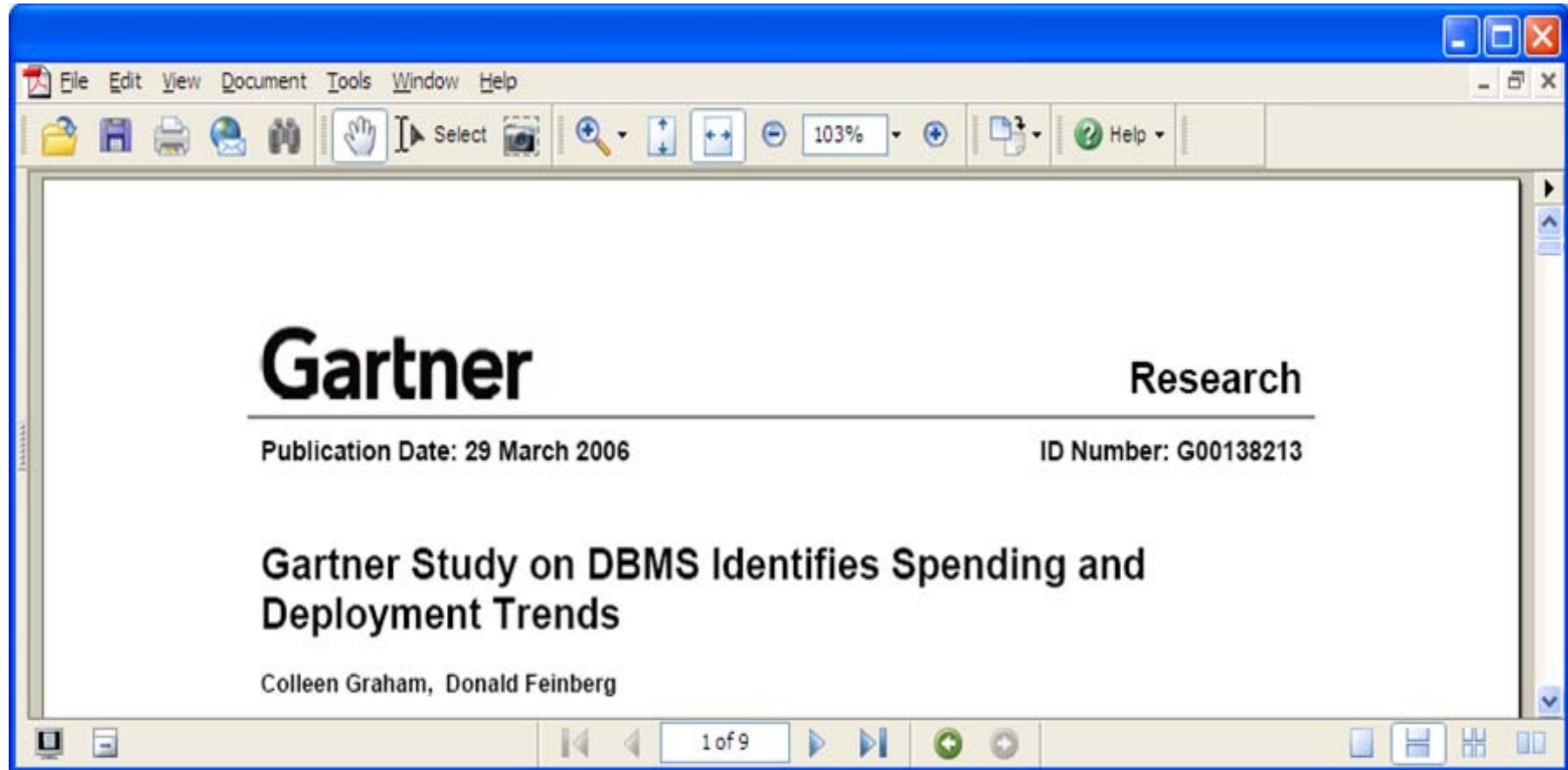


## DB2 9 for z/OS

- **Roles**
- **Network Trusted Contexts**
- **Instead of Triggers**
- **Improved Auditing**
- **Secure Socket Layer**
- **Data Encryption**



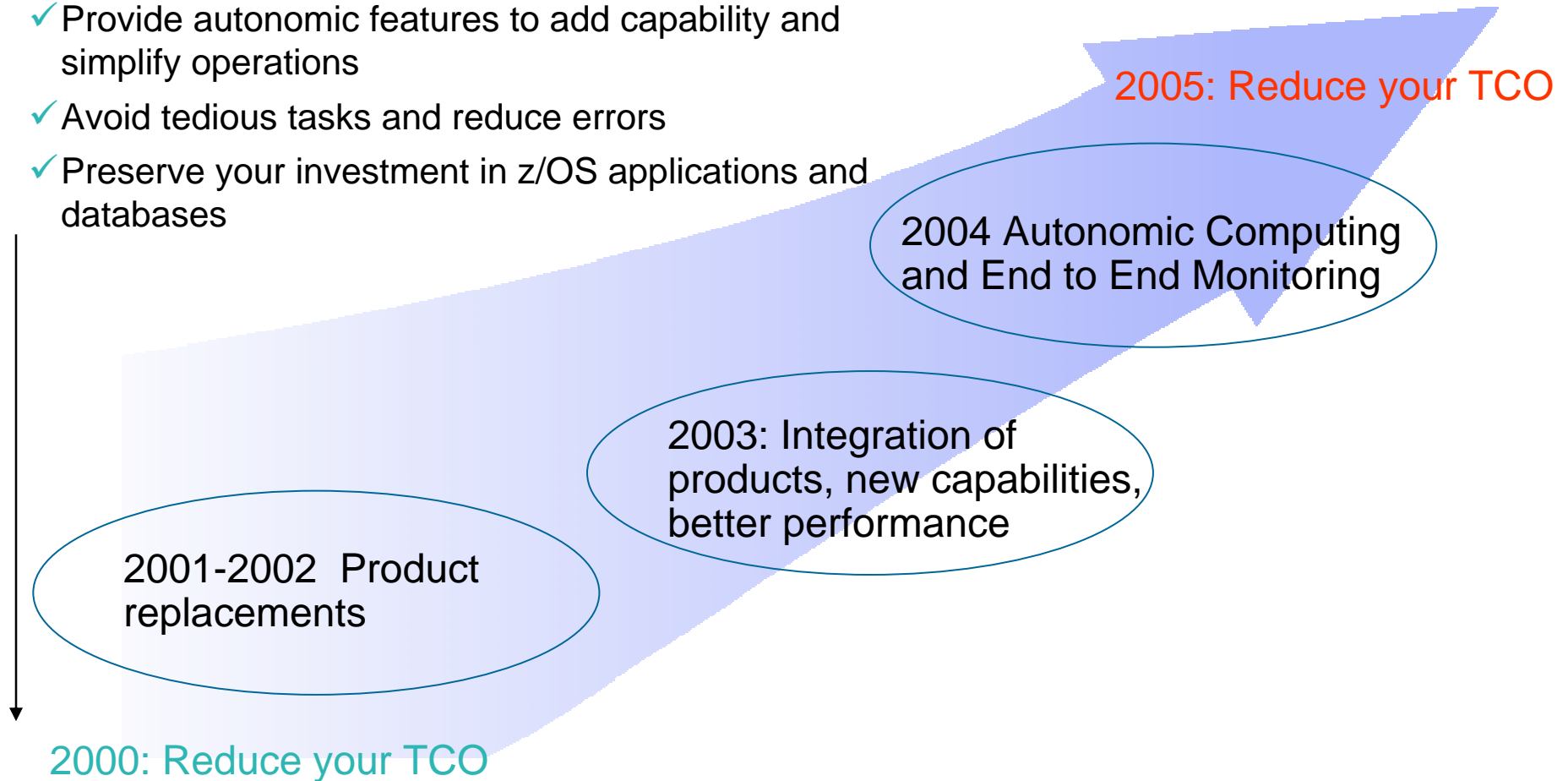
# What are Others Saying About DB2?



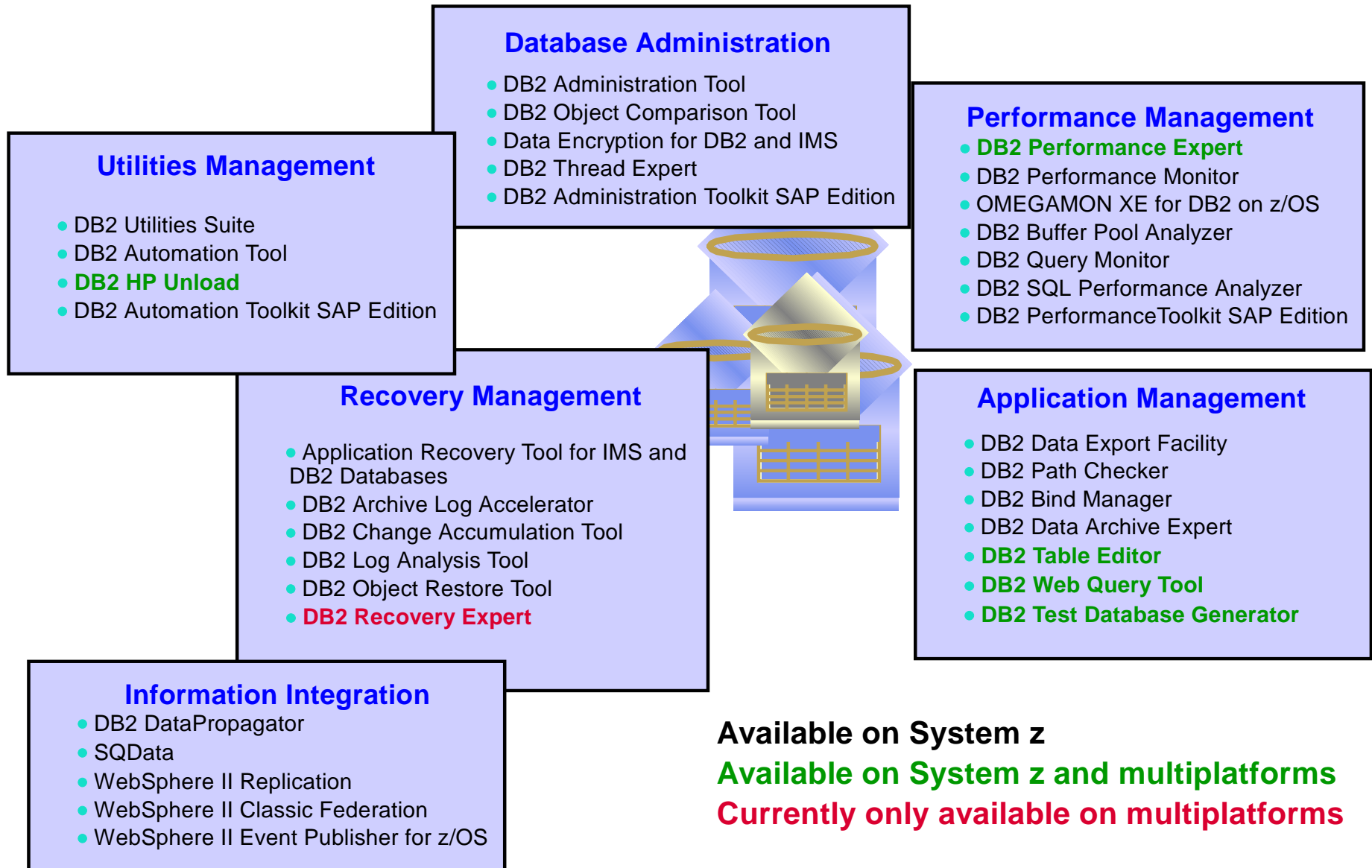
# DB2 and IMS Tools

*Reducing TCO is our first focus* →

- ✓ Provide autonomic features to add capability and simplify operations
- ✓ Avoid tedious tasks and reduce errors
- ✓ Preserve your investment in z/OS applications and databases



# Today's IBM DB2 Tools

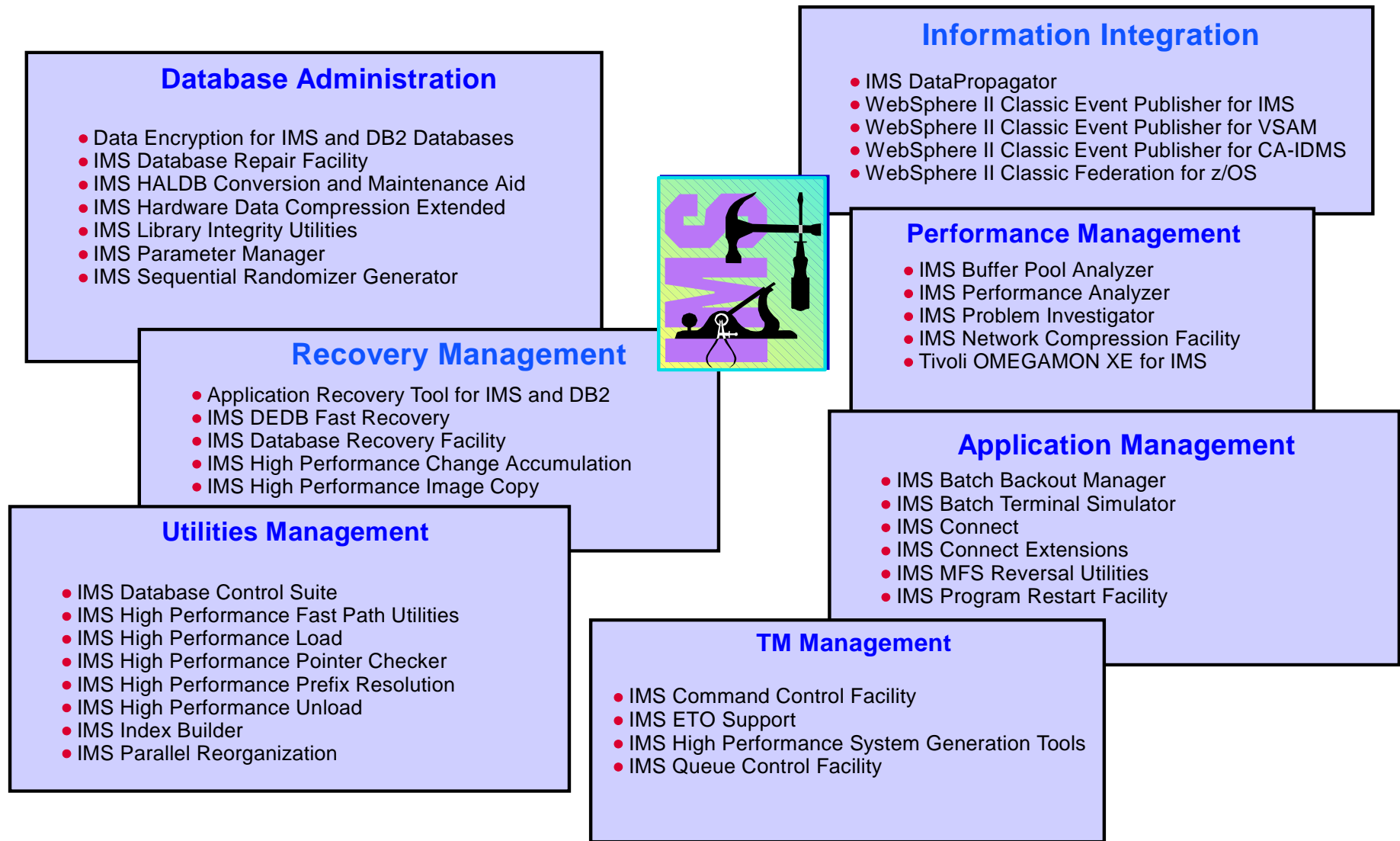


**Available on System z**

**Available on System z and multiplatforms**

**Currently only available on multiplatforms**

# Today's IBM IMS Tools Product Portfolio





## New Tools to address TCO in 2006

### ■ DBA Time = Money

- Managing application changes
- Tuning for performance
- Optimizing repetitive tasks
- Managing Complexity
- Complying with regulations and audit



### ■ Time savers

- DB2 Change Management Expert
  - Automates and simplifies the most time consuming DBA task
- Omegamon DB2 Performance Expert
  - Tunes DB2 systems
  - Finds performance problems
  - Eliminates bottlenecks
- DB2 Optimizer Expert
  - Optimizes query performance
- DB2 Utilities enhancements
  - V8 zIIP exploitation
  - vNext volume based utilities
- IMS Sysplex manager
  - Simplifies complex IMS sysplex management
- DB2 Thread Expert
  - Manages DB2 Threads
- DB2 Audit Management Expert & IMS Audit Management Expert
  - Enables fast auditing of DB2 and IMS users and data
- DB2 Regulatory Compliance Suite
  - Combines 4 tools, including Audit Expert into a single compliance offering

## Aids to DB2 Optimization – New in DB2 9

### Optimization Service Center (OSC)

Part of the new DB2 9 Base offering

- **Visual Explain**
  - Easy to use SQL Explain function
- **Stats Advisor**
  - Helps you determine when to run Statistics
- **Service SQL**
  - Helps to resolve performance bugs
- **Visual Plan Hint**
  - Visual building for Plan hints

### Optimization Expert (OE)

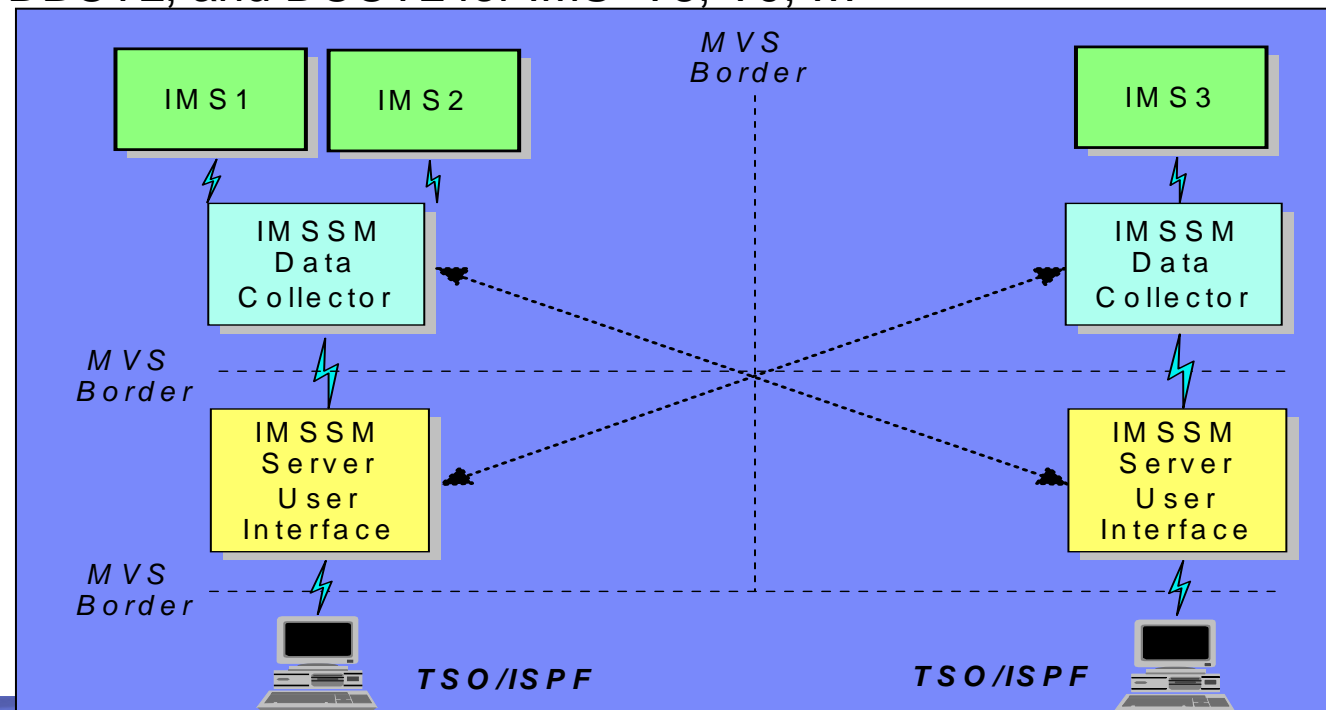
A new product complimentary to DB2 9

- **Index Advisor**
  - Enables you to select the best index to optimize query and application performance
  - Provides advice on what indexes to create
- **Query Advisor**
  - Advice for writing queries for best performance
- **MQT Advisor**
  - Advice on when to use Materialized Query Tables

# Managing large IMS complex systems

IMS Sysplex Manager Improves IMS availability and scalability

- Real-time management of IMS Sysplex
- Single system image for operation of IMS in Sysplex environment
- Aggregated or local view
- Simplified User Interface to reduce operational complexity
- Structured displays of IMS address spaces, CF structures, & resources
- Recorded System Exceptions and Console alerts
- Supports IMS DB/TM, DBCTL, and DCCTL for IMS V8, V9, ...



## DB2 Regulatory Compliance Suite

| Key Requirements  | Set of Tools   |
|---|--|
| <b>Use encryption to protect your vital information</b> | <b>Encryption Tool for DB2 databases</b> <ul style="list-style-type: none"> <li>– Supports both secure key and clear key encryption</li> <li>– Low overhead, high performance</li> </ul> |
| <b>Generate test data while protecting your assets</b>  | <b>DB2 Test Database Generator</b> <ul style="list-style-type: none"> <li>– Protects sensitive data when needed in test environments</li> <li>– Preserves data relationships</li> </ul>  |
| <b>Retaining data to comply with policies</b>           | <b>DB2 Data Archive Expert</b> <ul style="list-style-type: none"> <li>– Simplifies and automates archive of data for retention requirements</li> </ul>                                   |
| <b>Analyze unauthorized usage of your data</b>          | <b>DB2 Audit Management Expert</b> <ul style="list-style-type: none"> <li>– Lets you determine who did what to whom and when</li> </ul>  |

# Tools - AMICA



## ■ Challenge

- ▶ Need to increase the efficiency of its IT operations
- ▶ Need to reduce total cost of ownership (TCO) of database platform
- ▶ Want to maintain competitive edge

## ■ Solution

- ▶ Suite of database management tools from IBM helped Amica improve its database administration efforts
- ▶ Respond to its employees' needs for quick and reliable access to information
- ▶ Created an end-to-end solution tailored to business needs providing the power needed at an attractive price

## ■ Business Benefits

- ▶ Reduced staff training time
- ▶ Enhanced database administrator (DBA) productivity
- ▶ Increased ability to respond to workforce's need for high-performance business applications  
--ability for IT team to institute proactive database maintenance
- ▶ Migration completed three months ahead of schedule



*improves IT services while reducing costs*

## Challenge

- Alitalia SERVIZI relies on an IBM IMS database to store enormous amounts of critical data, and to serve as a transaction manager. More than 2,500MB of data are defined by the database, and a high number of IMS transactions access the IMS data each day.
- When Alitalia SERVIZI increased its computing power by adding more central processing units (CPUs), existing tool vendor required that the company pay more for the database management tools. They wanted a new database management solution that would offer similar functionality but at a lower cost.

## Solution

- By replacing its current database management tools with IMS tools from IBM, Alitalia will save money through cost reduction.

## Business Benefits

- The solution from IBM aligns with customer's goal to improve IT services while reducing costs.

## Technology Benefits:

- Improved data availability, guaranteed data coherency and facilitated data management. IMS tools speed IMS database reorganization through faster database unload, load and image-copy processes.

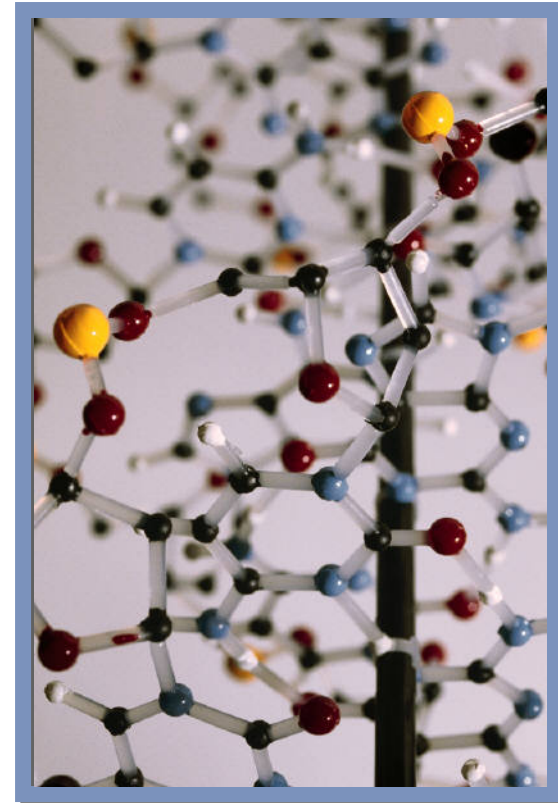
# *Information Services*

## **Content Services**



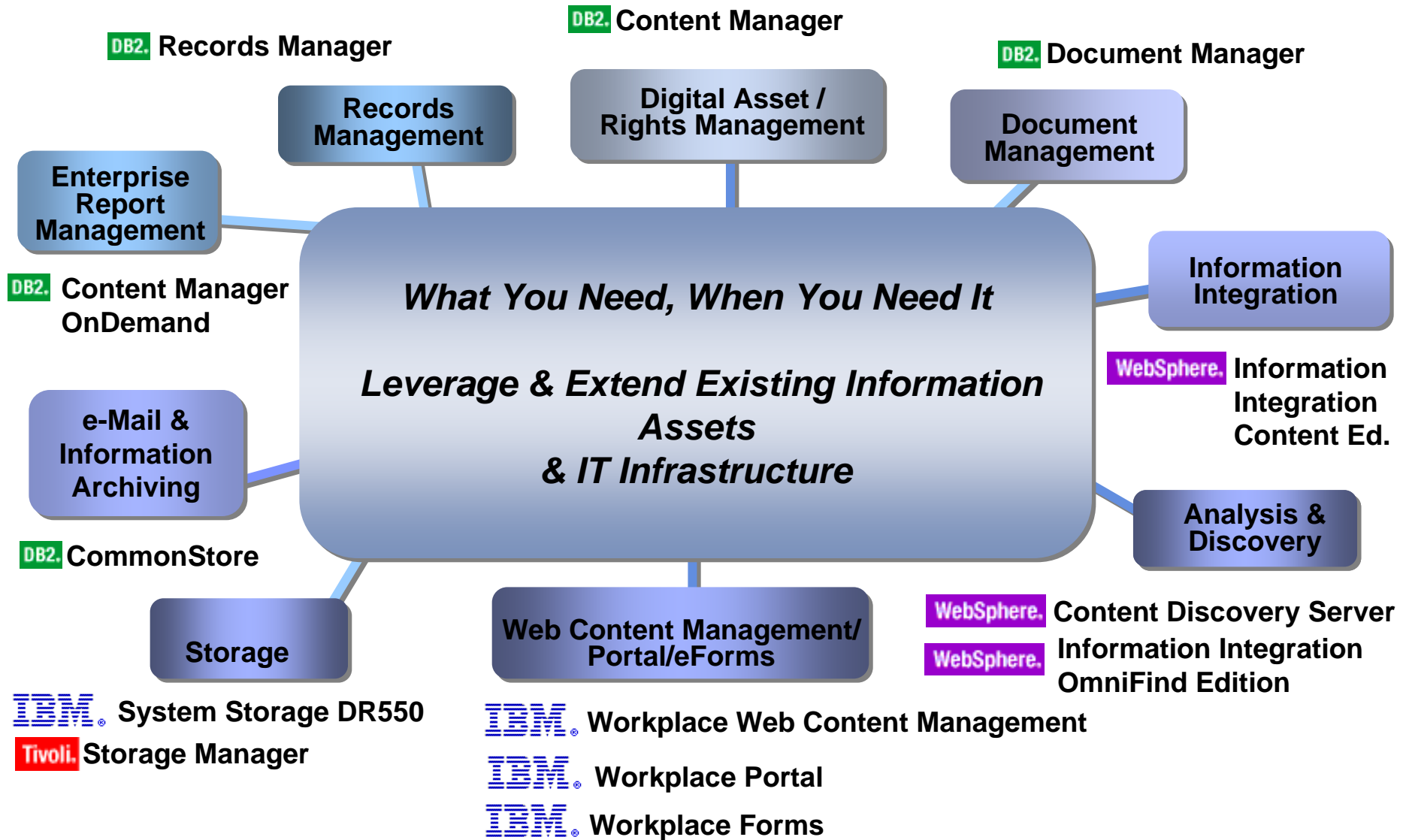
# IBM Content Management & Discovery Services

- The ability to capture, integrate, manage, deliver **all forms of digital content in-context based on specific user needs** across an entire company to create real business value.
  - **Leverage Data for Business Transformation**
    - Manage information across repositories
    - Declare, classify records across business solutions
    - Open standards/Java Content Repository support
  - **Manage Risk & Streamline Compliance**
    - Automate records management
    - industry-specific CM compliance solutions
  - **Gain Insight through Analysis and Discovery**
    - Scalable search capabilities
    - Extract knowledge and meaning for greater relevance and insight

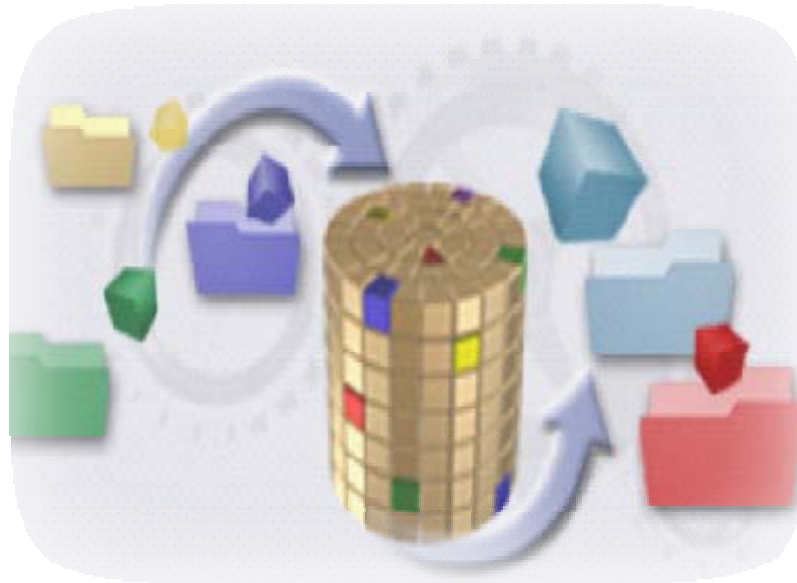




# IBM Content Management & Discovery Portfolio

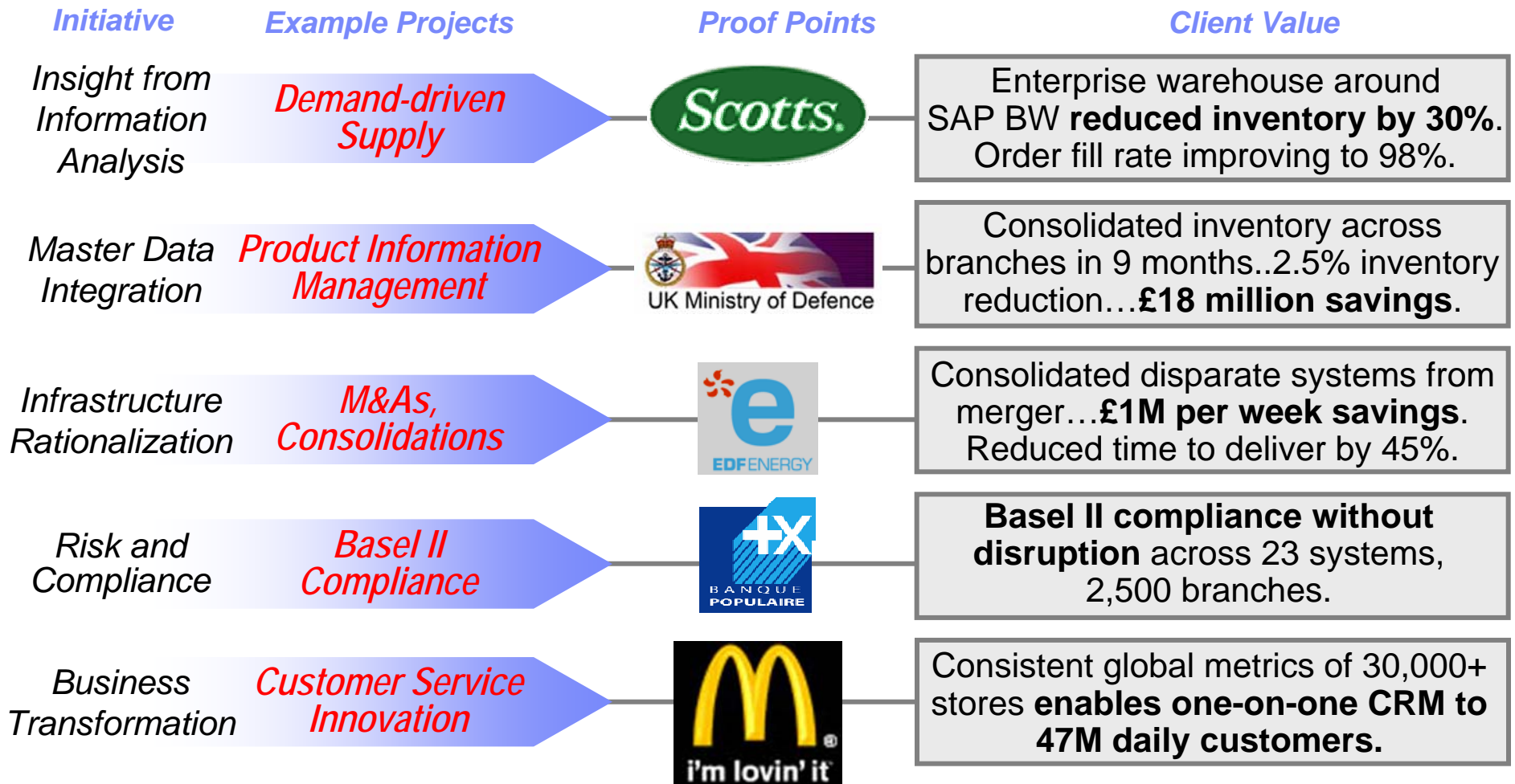


*Information Services*  
***Information Integration Services***  
*and*  
***Business Information Accelerators***



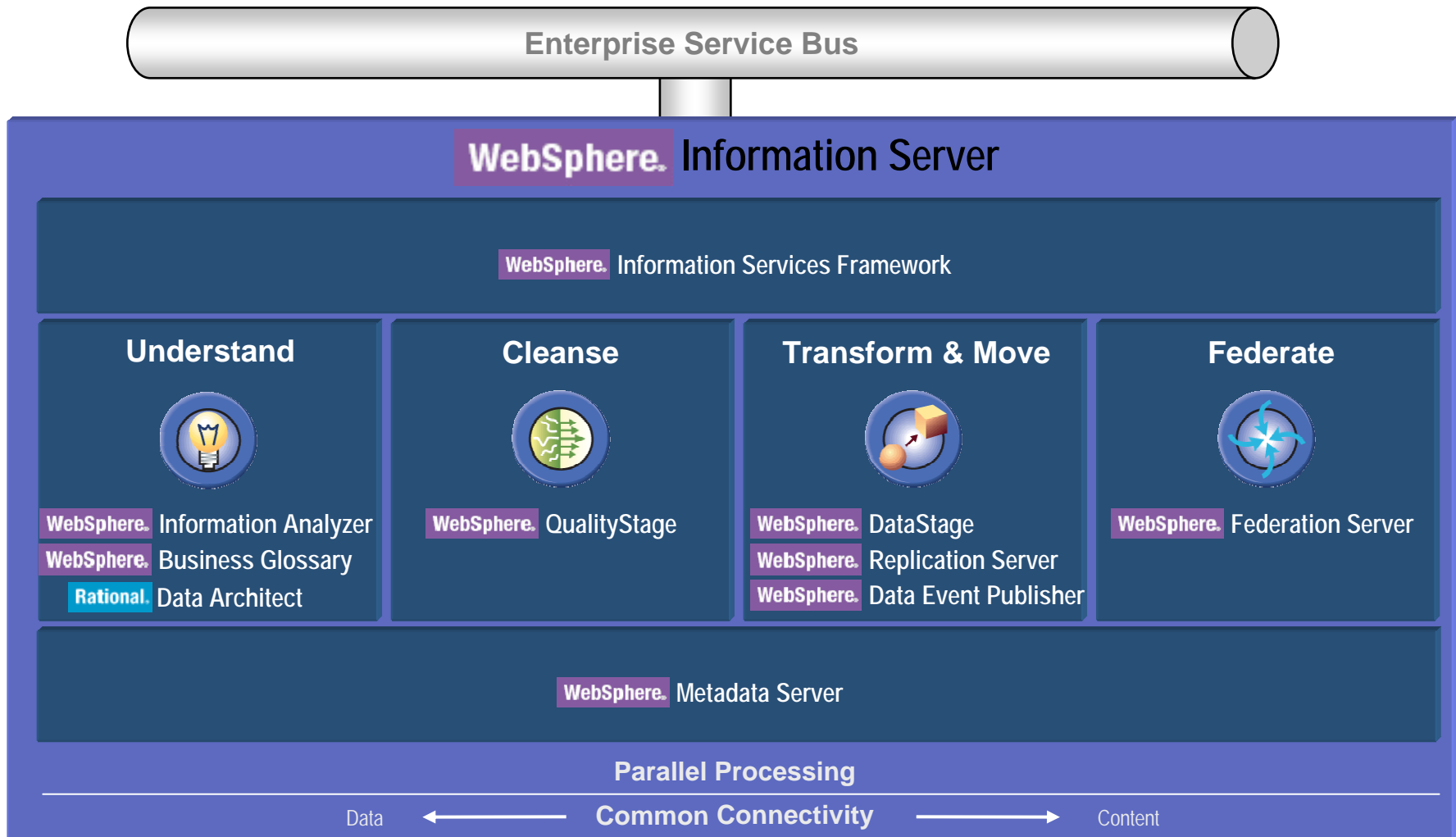
# Information Integration Business Drivers

*Where Business and IT Initiatives Meet*



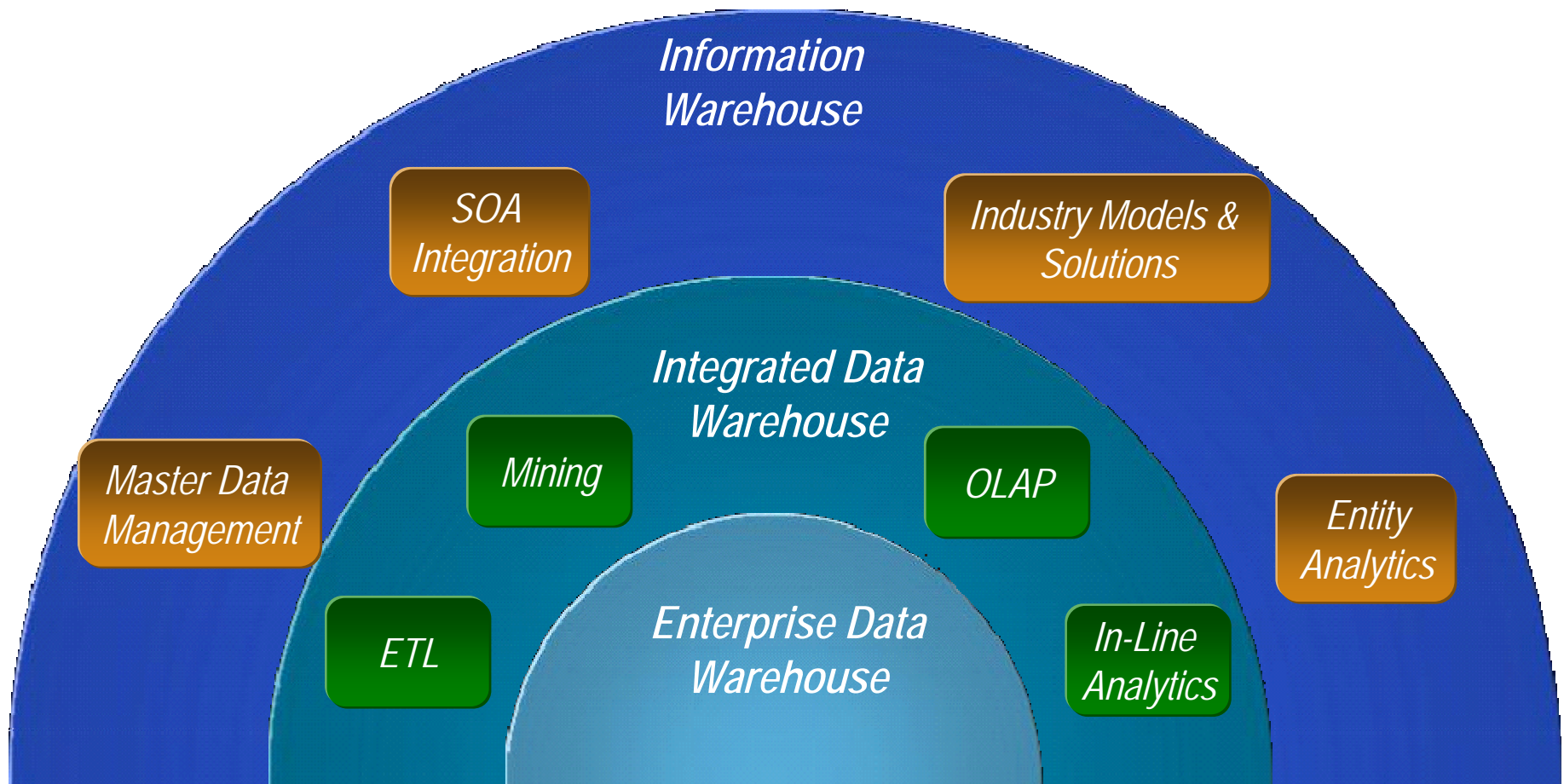
# IBM WebSphere Information Server

*Delivering information you can trust*



# From Data Warehousing to Information Warehousing

*The core of the information warehouse is an enterprise data warehouse providing a single version of the truth, implemented as a single scalable database.*



# Entity Analytics Solutions



**DB2 for z/OS V8  
Support GA  
May 26, 2006**

|                    |                       |                                  |
|--------------------|-----------------------|----------------------------------|
| <b>Who is Who?</b> | <b>Who Knows Who?</b> | <b>Who Knows Who Anonymously</b> |
|--------------------|-----------------------|----------------------------------|

**Establish Unique Identity**

- Same, Similar, Different
- Full Attribution
- Self-correcting
- Never reload
- On Demand Context
- Enterprise Discovery

**Relationship Awareness**

- Relationship Awareness
- Obvious and Non-Obvious
- Links People and Groups
- Degrees of Separation
- Instant Alerts

**Privacy-enhancing**

- Analytics on Anonymized Data
- Lowers Risk of Unintended Disclosure
- Discovery Without Disclosure



**Entity #14465**



|  |                                |                             |
|--|--------------------------------|-----------------------------|
| <b>Identity Resolution</b>             | <b>Relationship Resolution</b> | <b>Anonymous Resolution</b> |
| <b>IBM Entity Analytics Technology</b> |                                |                             |

| ADDRESSES                             | NAMES   | ADDITIONAL  |
|---------------------------------------|---|---|
| 4737 Cimarron Dr.<br>Easton, MA 02334 | Katherine D. Green<br>Kate Mills-Green<br>Katie Green | DOB: 12/13/71<br>Phone: (508)278-6019<br>(978)365-6631<br>(501)661-8044 |
| 1 Bourne St.<br>Bolton, MA 01512      | Kate Mills<br>Kate Green                              | Work: Zycast Int.<br>Silverback<br>Kinear                               |
| P.O. Box 12743<br>Clinton, MA 01510   | Kate M. Green   |   |

# Enable New Applications

*Leveraging System z Values for Master Data Management*

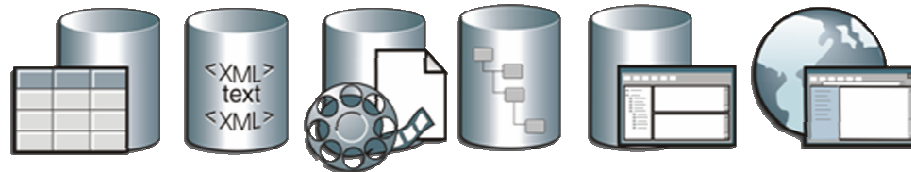


***Existing Information Assets, Control, TCO, Service Level Quality...***



*Product...Customer...Supplier...Location...Employee...Consumer...Asset...Applicant...*

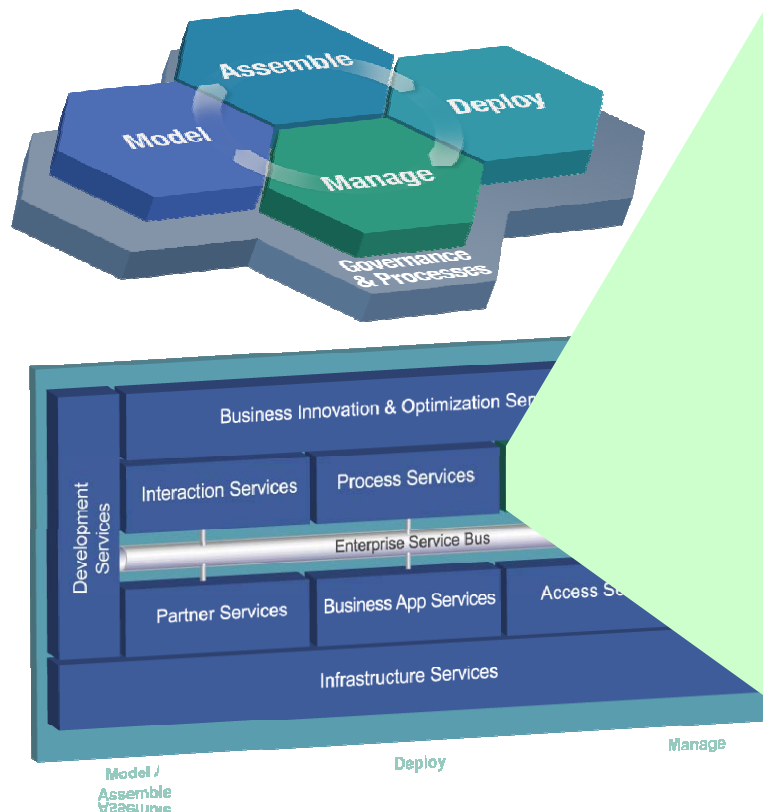
## ***Master Data Solutions***



# IBM Information Management software

*Unmatched Breadth and Depth of Capabilities*

**Information Delivered On Demand  
Based on Services Oriented Architecture**



- **Data Services**

- Data Servers, Warehouses, Tools...

**#1, #2 in Share  
450,000+ Clients**

- **Content & Discovery Services**

- Content Mgmt Svcs
- Discovery Services

**#1 in Share  
13,000+ Clients**

- **Information Integration Services**

- Quality Services
- Transformation Services
- Federation Services
- Metadata Services

**#1 in Share  
5,000+ Clients**

- **Business Information Accelerators**

- Master Data Management
- Entity Analytics
- Information Warehousing
- Industry Models

**Leading Space  
1,000+ Clients**



# Where You Put Your Information Matters

Flexible, Reliable, Scalable, Manageable, Affordable

- “It’s easier to manage the mainframe than a bunch of Windows servers. We have a smaller staff running the mainframe and those functions run 80% of our business.”

Bill Homa, CIO, Hannaford Brothers

- “What we are looking for is the flexibility to quickly respond to business changes. The mainframe will be a transaction engine that the insurance company’s business partners will access through SOA.”

John Campbell, Senior VP and CIO, American Modern Insurance Group

- “The industry tried, 'Let's everyone get off of the mainframe,' in the late 90s. It didn't work because there are many organizations that need that level of power. Mainframes have been used for applications insulated from the public security breaches of newer technologies. It's a natural to expose those transactions as services.”

Phil Murphy, Principal Analyst at Forrester Research

- “System z is clearly becoming a cornerstone of SOA strategy. This is a seismic shift from just a few years ago when the role of the mainframe had been reduced to ‘legacy’ applications.”

Feedback from zSummit attendee