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Relational Database Solutions

IBM Data Strategy

DB2 101

Premier Business Partner IBM

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Agenda:

- The Fillmore Group, IBM Business Partner
- IBM IM Acquisitions and Strategy
- Data Governance
- Information Integration
- Data Warehouse Offerings
- Mainframe Update
- Competing with Oracle

THE FILLMORE GROUP
Relational Database Solutions

The Fillmore Group, Inc.

- Frank Fillmore, DB2 Gold Consultant, IBM Champion
- Kim May, IBM Champion
- Information Management Consulting Services
- IBM Authorized Training Partner
- IBM Information Management Software Reseller

IBM CHAMPION

THE FILLMORE GROUP
Relational Database Solutions

Services:

- DB2 – implementation and tuning
- Data Governance tools
- Information Integration
- Data Warehousing

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IBM 2011 News:

- Watson obliterated opponents on Jeopardy, February, 2011
- June 16, 2011, IBM celebrated its 100th anniversary in New York
- IBM opened several new offices in Africa and named IBM PC inventor Mark Dean CTO of IBM Middle East and Africa.
- In November Warren Buffett bought a 5% stake in IBM
- CEO Sam Palmisano announced his successor, Virginia "Ginni" Rometty

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Acquisition Strategy

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An Incredible Journey of Investment

$14B invested in acquisitions and development over the past 3 years
25,000 developers WW
$20B additional investment in acquisitions and development over the next 3 years

Trusted Information Platform

Business Analytics & Optimization Platform

Business Analytics & Optimization Solutions

NETEZZA an IBM Company

Unica

SPSS

princeton softech

EXEROS

COGNOS

solid.

FILENET DataMirror

dwl

iphrase

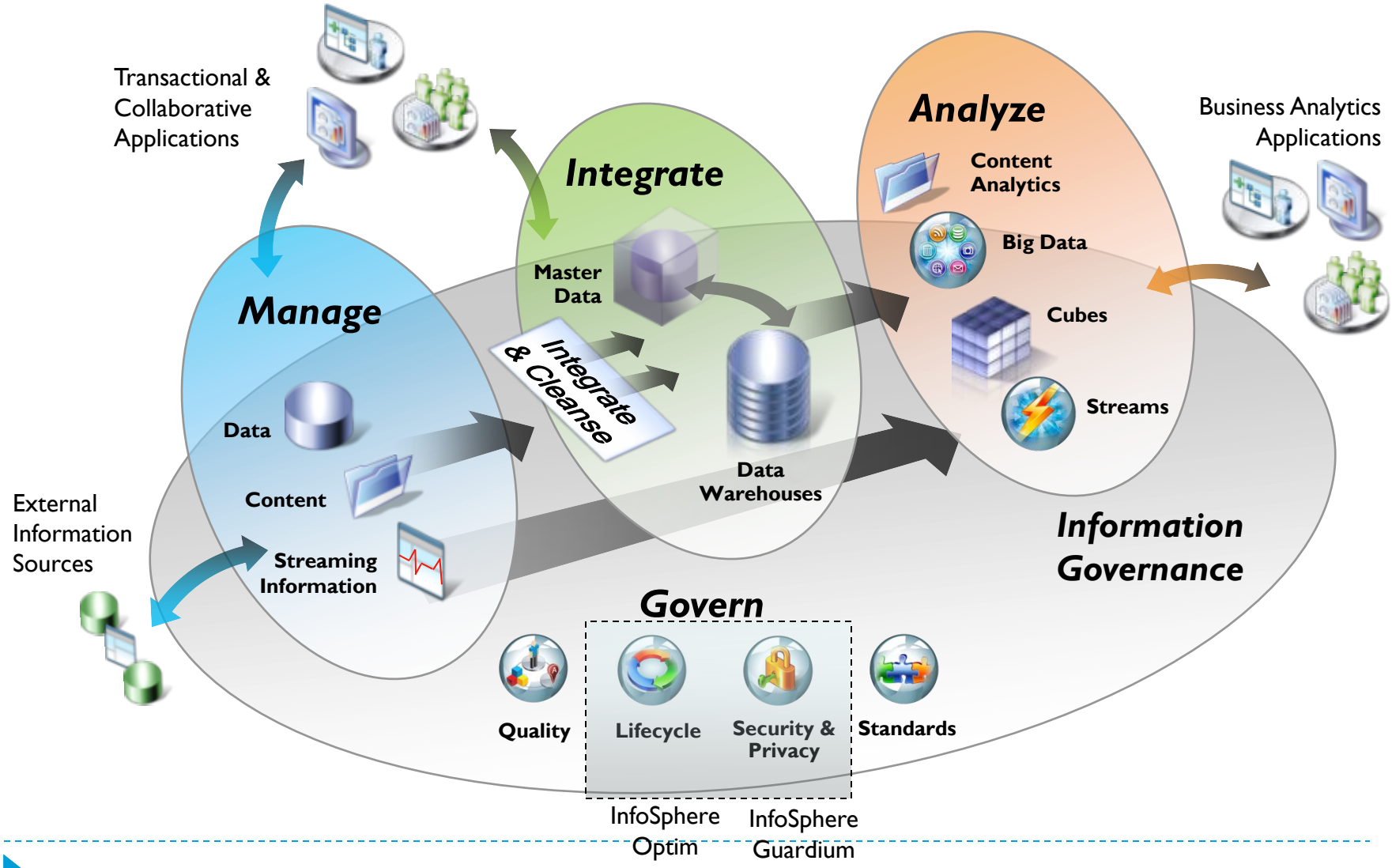
Ascential

SRD

LAS

unicorn

The "Information Supply Chain"



What's in the Information Management portfolio?

- DB2
- Data Governance
- Information Integration
- Data Warehouse

2012 IBM Portfolio

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Data Governance

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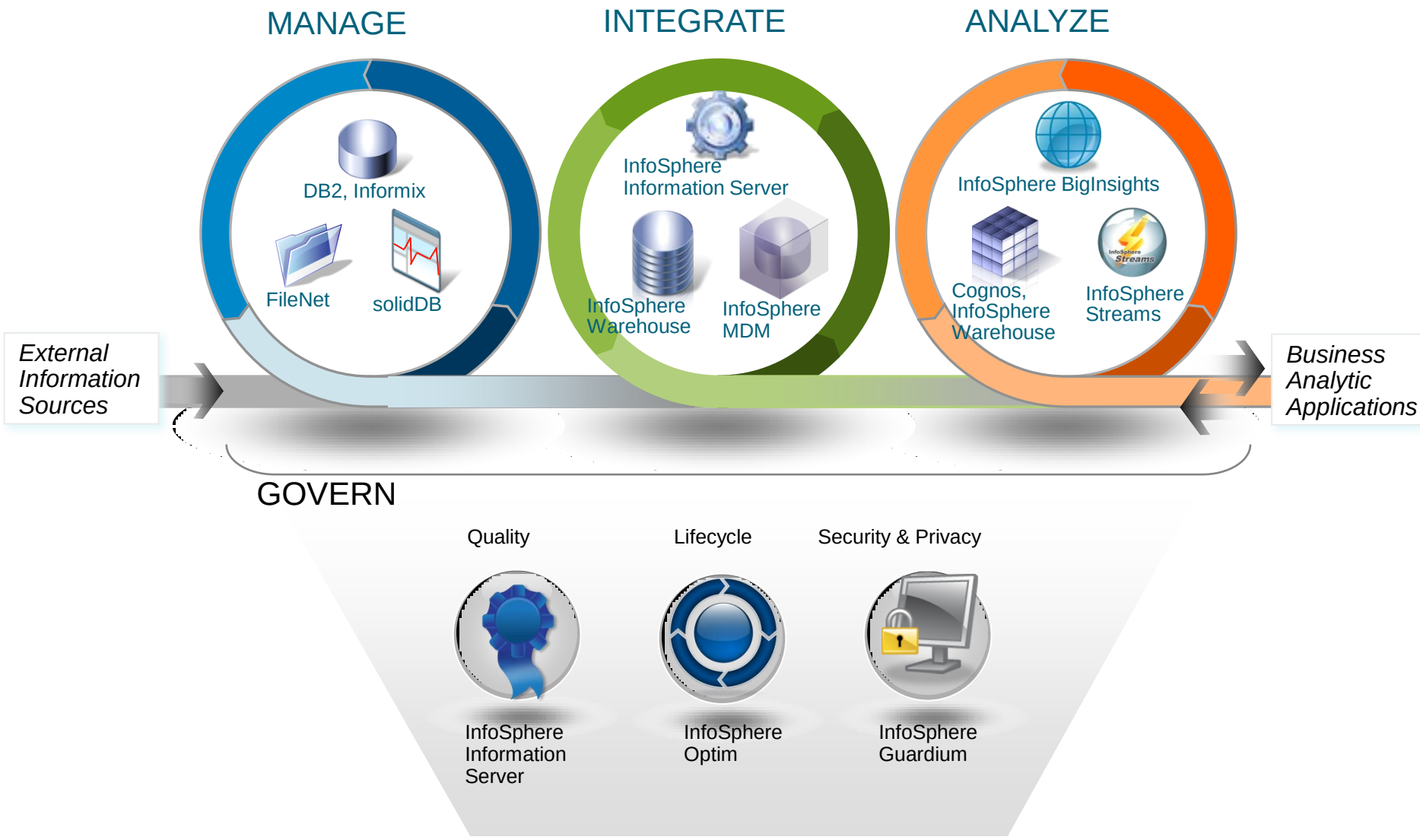
Delivering trusted information for smarter business decisions – across the entire information supply chain



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Data Governance Product Portfolio

Information Life-Cycle Management

InfoSphere Optim

- InfoSphere Discovery
- InfoSphere Data Architect
- InfoSphere Optim Data Growth (custom & packaged ERP)
- InfoSphere Optim Test Data Management (custom & packaged ERP, add-on Data Masking)
- InfoSphere Optim Data Find
- InfoSphere Optim Application Repository Analyzer for Oracle family of products
- InfoSphere Optim Test Data Management & System Analyzer for SAP
- InfoSphere Optim Application Retirement
- Performance Tools for DB2 (Upsell Kit)
- InfoSphere Optim Performance Manager
- InfoSphere Query Workload Tuner
- InfoSphere Optim Tools for Development and Database Administration

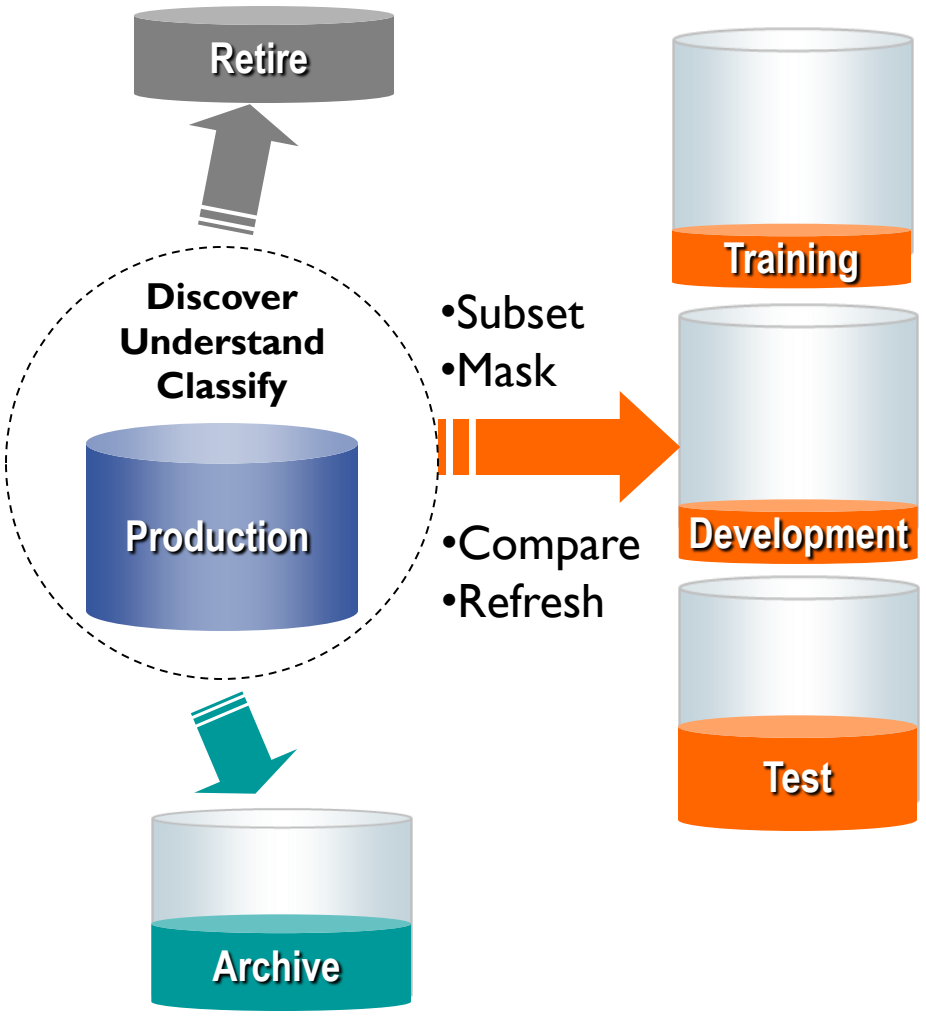
Information Security & Privacy

InfoSphere Guardium

- InfoSphere Discovery
- InfoSphere Guardium Database Encryption Expert
- InfoSphere Guardium Data Redaction
- InfoSphere Optim Data Masking
- InfoSphere Guardium Database Activity Monitor
- InfoSphere Guardium Advanced Compliance Workflow Automation
- InfoSphere Guardium Database Vulnerability Assessment
- InfoSphere Guardium Entitlement Reports
- InfoSphere Guardium Data-Level Access Control
- InfoSphere Guardium Configuration Audit System for Database Servers
- InfoSphere Guardium Enterprise Integrator

IBM Optim solutions

Managing data throughout its lifecycle in heterogeneous environments



Discover

- Speed understanding and project time through relationship discovery within and across data sources
- Understand sensitive data to protect and secure it

Test Data Management

- Easily refresh & maintain right sized non-production environments, while reducing storage costs
- Improve application quality and deploy new functionality more quickly

Data Masking

- Protect sensitive information from misuse & fraud
- Prevent data breaches and associated fines

Data Growth Management

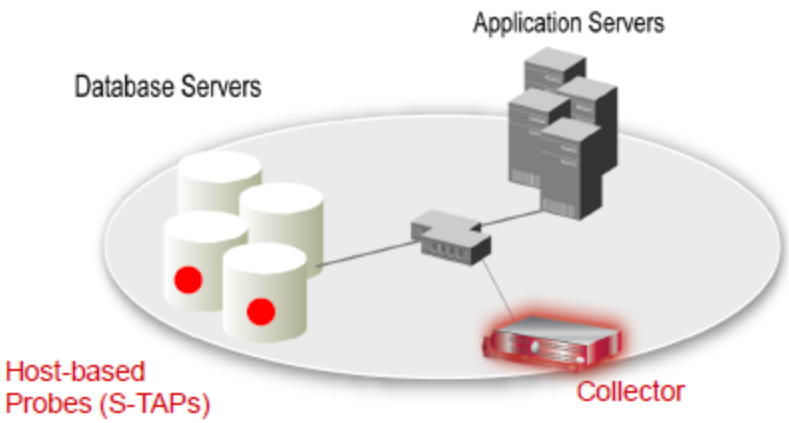
- Reduce hardware, storage & maintenance costs
- Streamline application upgrades and improve application performance

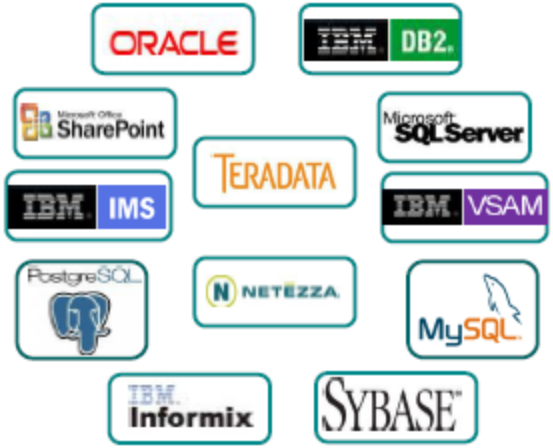
Application Retirement

- Retire legacy & redundant applications while retaining data
- Ensure application-independent access to archive data

InfoSphere Guardium

Real time database monitoring and protection with InfoSphere Guardium





- No DBMS or application changes
- Does not rely on DBMS-resident logs that can easily be erased by attackers, rogue insiders
- 100% visibility including local DBA access
- Minimal performance impact

- Cross-DBMS solution
- Granular, real-time policies & auditing
  - *Who, what, when, how*
- Automated compliance reporting, sign-offs and escalations (financial regulations, PCI DSS, data privacy regulations, etc.)

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InfoSphere Guardium

Addressing the full database security lifecycle

InfoSphere Guardium

InfoSphere Guardium allows you to protect your most valuable information

Continuously monitor access to high-value databases to:

1. **Prevent data breaches**

   Mitigate external and internal threats

2. **Ensure the integrity of sensitive data**

   Prevent unauthorized changes to sensitive data or structures

3. **Reduce cost of compliance**

   Automate and centralize controls
   1. Across PCI DSS, data privacy regulations, HIPAA/HITECH, …
   2. Across databases and applications

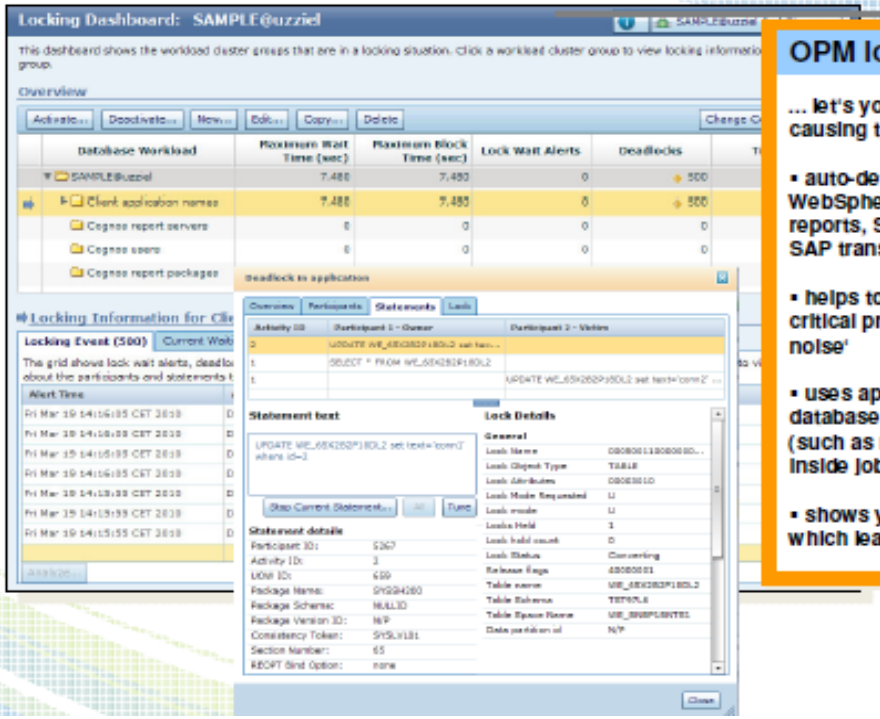
   Simplify processes

Premier Business Partner

Optim Performance Manager

- Reduce Costs
  - Quicker time to resolution
    - 3 step workflows rather than many screens
    - Close loop process for typical performance problems
  - Integration shortens time to proactively manage performance
    - Same UI
    - OPM lets you check your WLM configuration and helps in creating initial definitions
    - Problematic SQL statements can easily be identified and will then be analyzed in a one-click step with Query Tuner
    - pureQuery tells you exactly where problematic SQL statements are coded
  - Enable transition from heritage Performance Expert to OPM
    - Packages both heritage PE interface and new OPM UI
- Prevent outages and reduce application slowdown Reduce Risk
  - Enhanced WLM management through ?
  - Dashboard Alerting capability
  - Historical performance data available to enable capacity planning
    - Visualizing and aggregation for key performances
    - Averages over time
    - Set granularity so can scale on time and focus
- Decrease time to data value
  - Increasing current staff expertise through IBM knowledge
    - Close loop process for typical performance problem analysis
  - QA Testing is easier so increase confidence to go into production
  - Historical performance data available to enable capacity planning

OPM – Locking Dashboard



OPM locking dashboard

… let's you see the real application which is causing trouble or having problems.

- auto-detects typical applications, such as WebSphere apps, DataStage jobs, Cognos reports, SQL Warehouse operations, or SAP transactions
- helps to differentiate easily between critical problems and just ‚background noise'
- uses application terms instead of database terms to point to root cause area (such as report name, or DataStage step ID inside job)
- shows you also the statement history which lead to a deadlock problem

Add-ons:

- Query Tuner
- Extended Insight

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Information Integration

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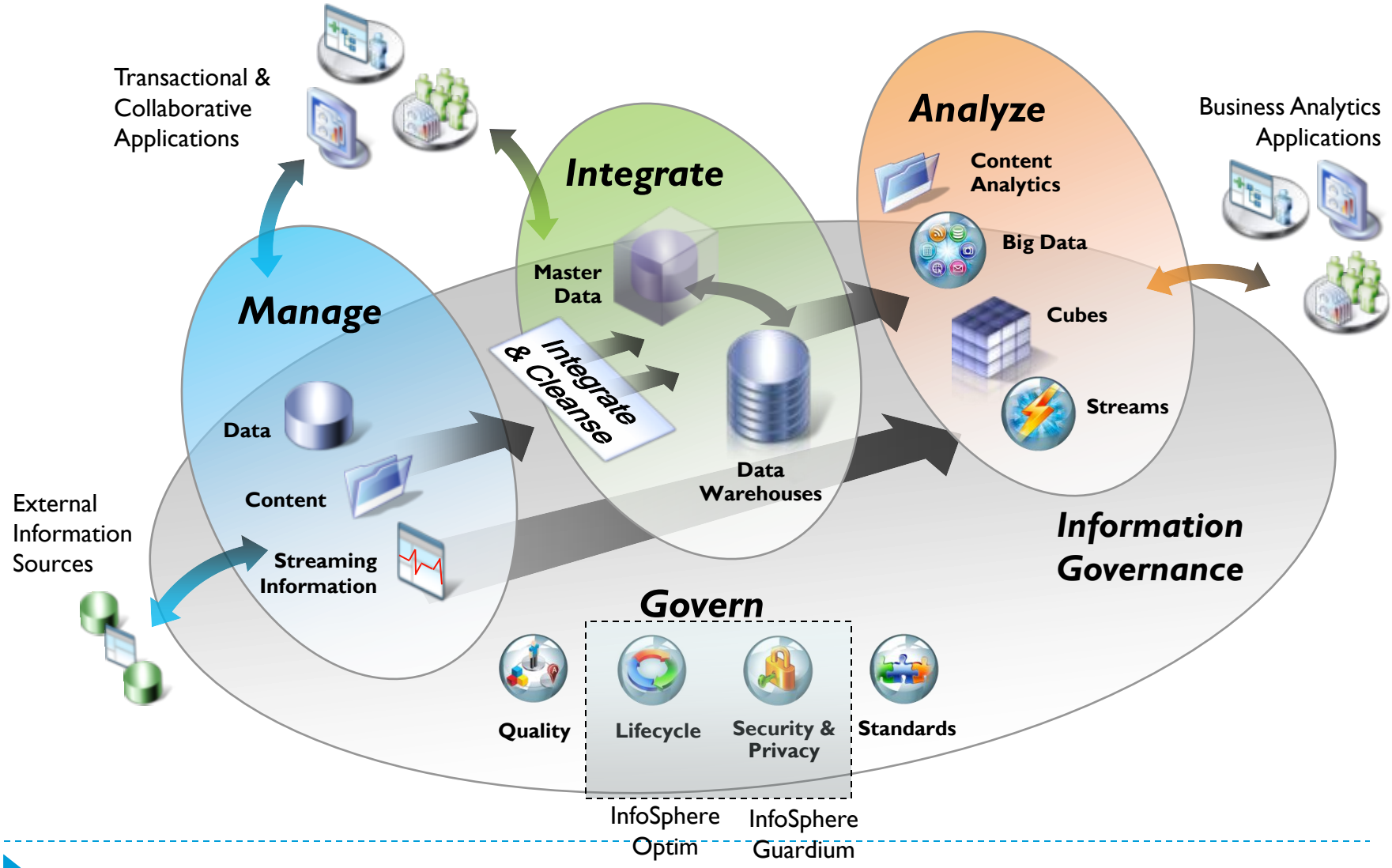
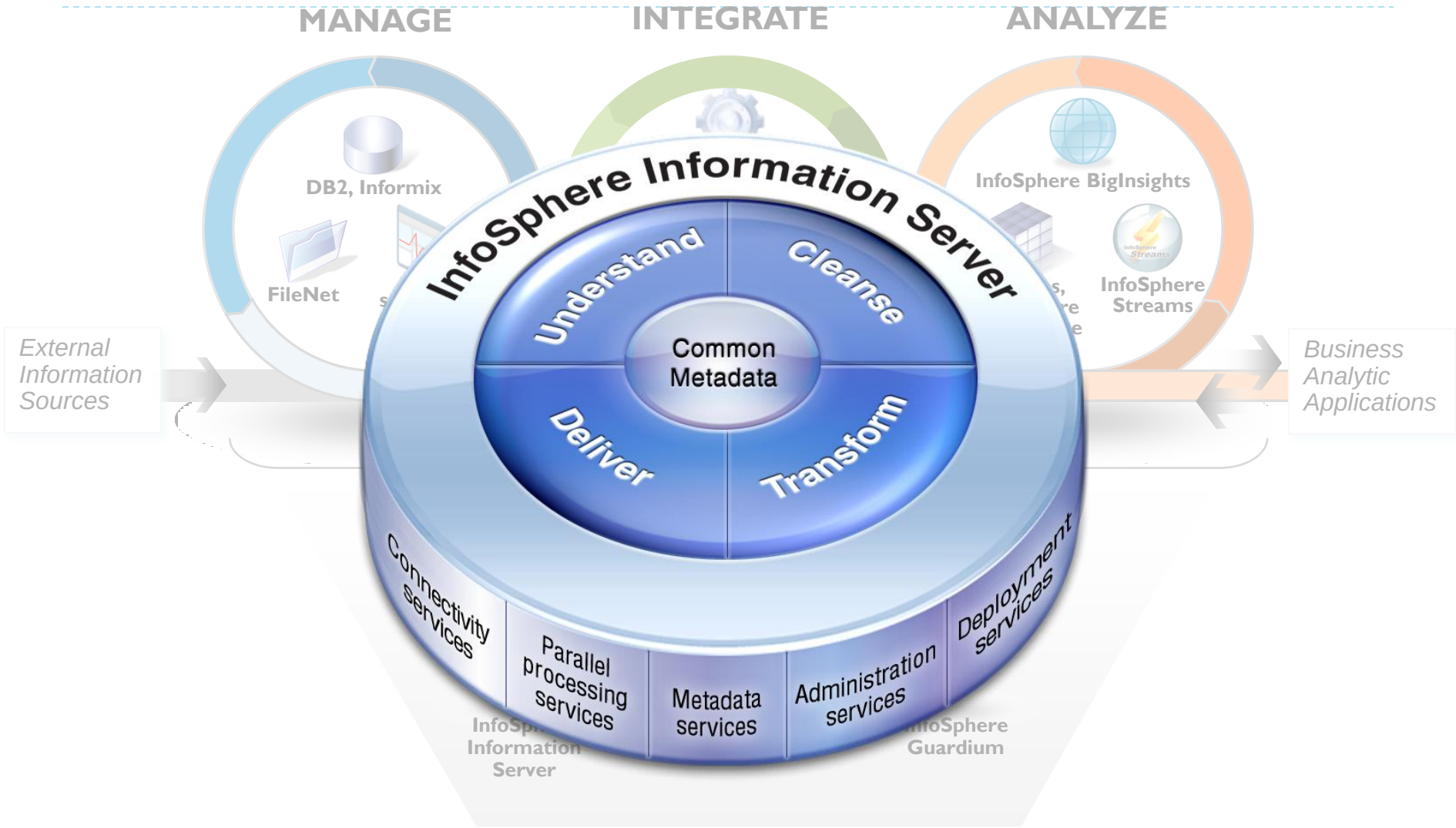
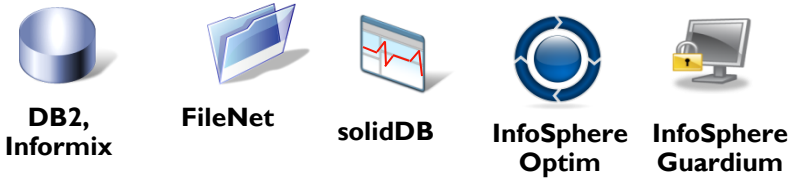
The "Information Supply Chain"



IBM Information Integration – Info Server

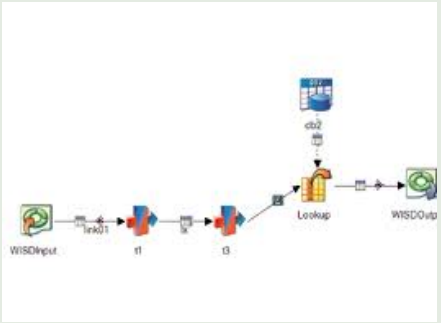


IBM's Information Integration



Organizations Use Integration for...

DataStage, QualityStage

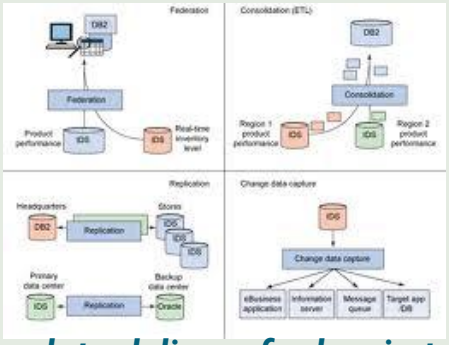


...data loading, cleansing, migrating, movement, high availability and high performance

Foundation Tools

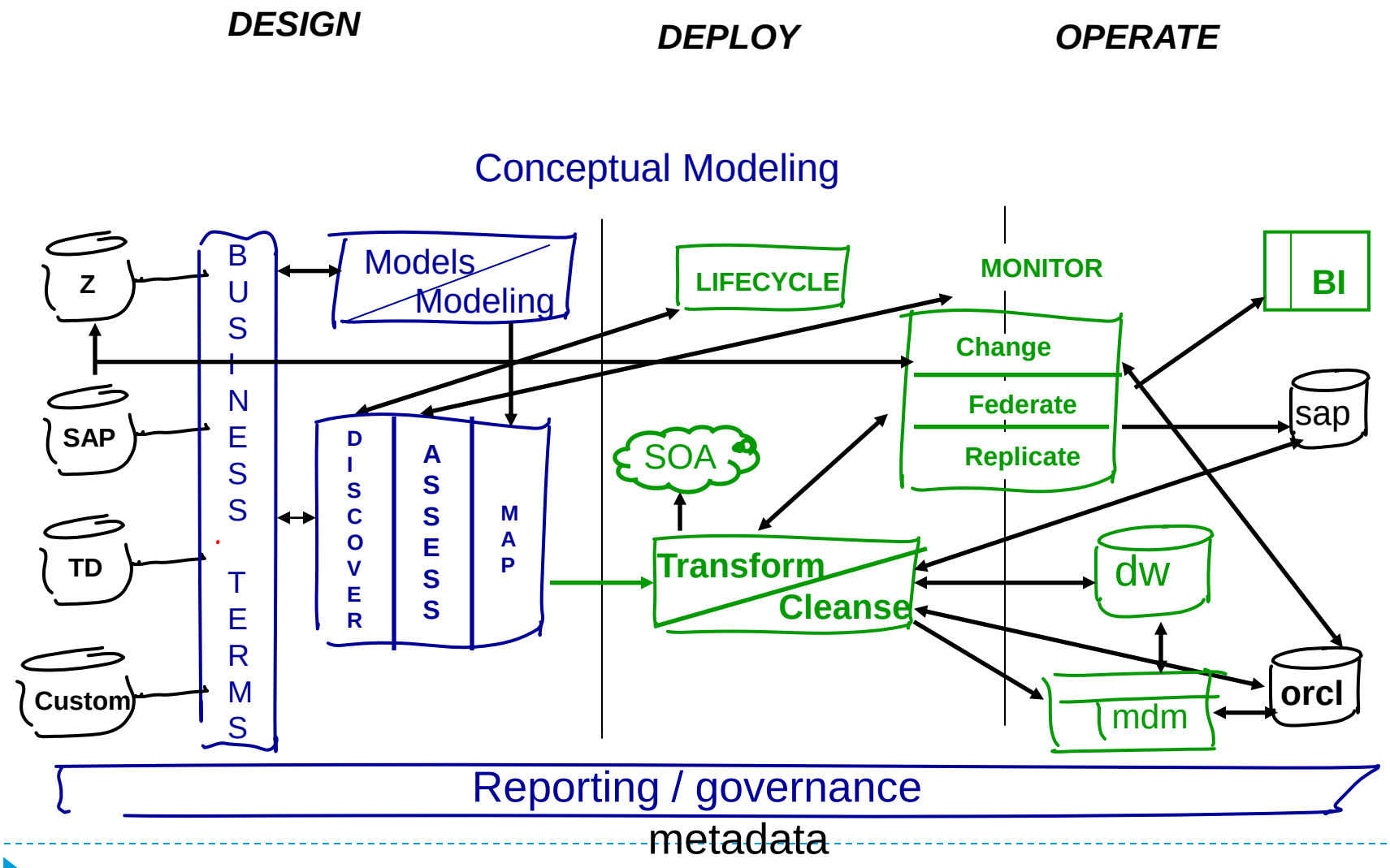
...deep analysis, design, metadata, collaboration and data governance

CDC, Federation, Replication



...data delivery for low impact, timely access to critical business data and operational data requirements

Enabling Information Governance - Integration



InfoSphere Foundation Tools

Foundation tools help profile, model, define, map and govern information that is spread across your enterprise, so your business can deliver the right information, to the right people, at the right time

- **InfoSphere Information Analyzer**
- **InfoSphere Information Architect**
- **InfoSphere FastTrack**
- **Business Glossary**

- Foundation tools are designed to be deployed in a heterogeneous IT environment to leverage existing IT investments.

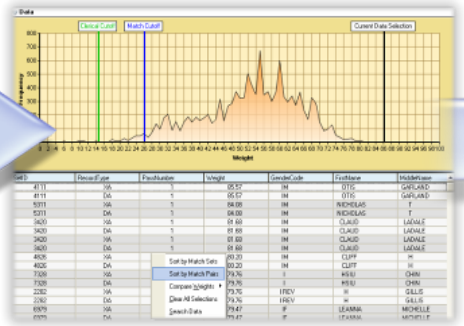
- They work with any IBM or non-IBM data source, business intelligence tool or operating system -- or in conjunction with the Tools' own comprehensive set of integration products.

InfoSphere QualityStage

QualityStage

Standardize, cleanse and deduplicate data, ensuring a complete, accurate view of information

- **Redundancies**
- **Lack of standards**
- **Unlinked records**
- **Incorrect data**



Complete & accurate view of information

Requirements

- Resolution of data quality issues
- Standardization of data formats
- Cleanse data
- Manage duplicate data
- Enable ongoing quality

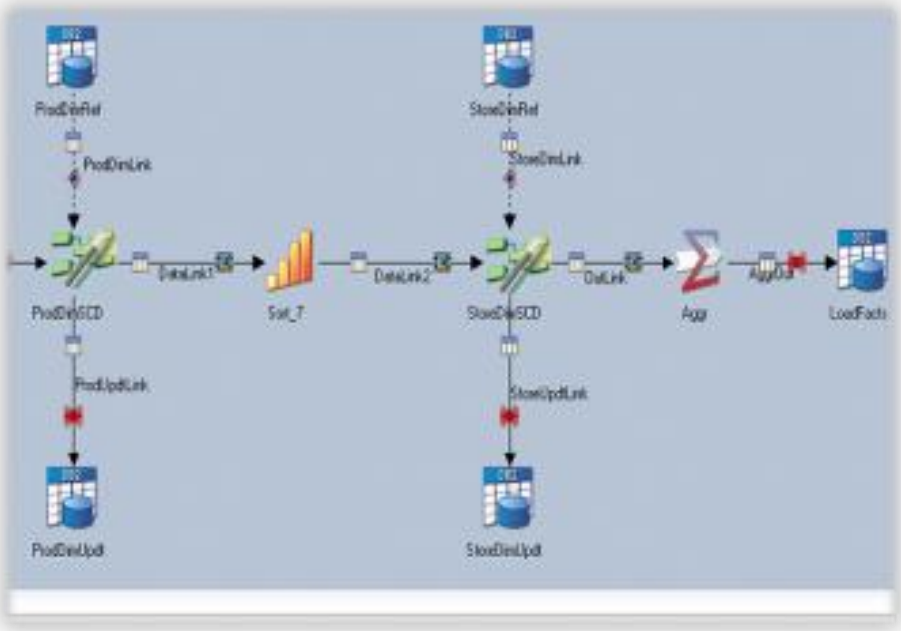
Benefits

- Removes duplicates
- Cross-references matching records
- Survives a single, complete record
- Validate and enriches data

InfoSphere DataStage

DataStage

Integrate, transform and deliver data on demand across multiple sources and targets including databases and enterprise applications



Requirements

- Integrate and transform multiple, complex, and disparate sources of information
- Demand for data is diverse – DW, MDM, Analytics, Applications, and real time

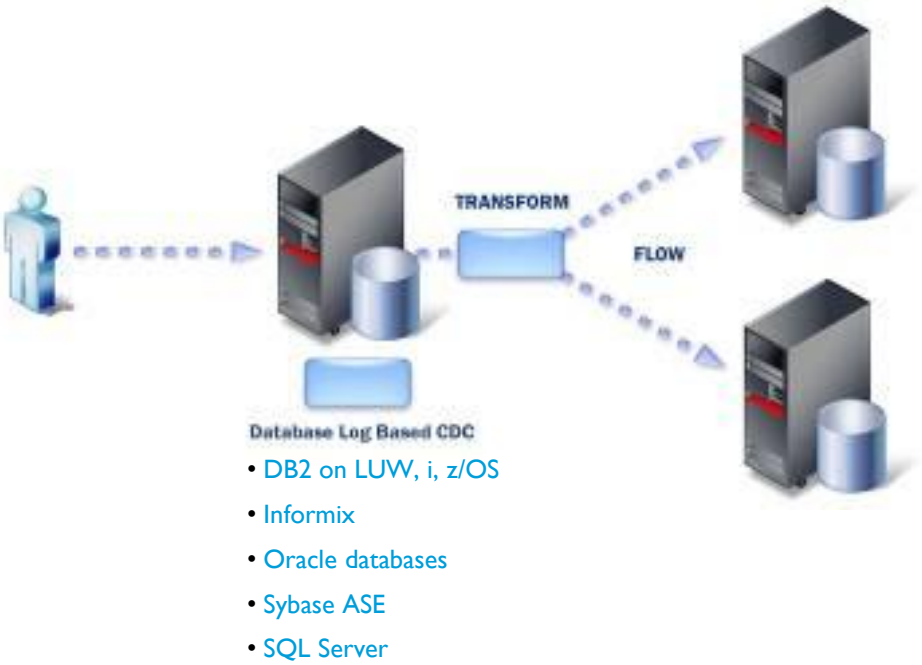
Benefits

- Transform and aggregate any volume of information
- Deliver data in batch or real time through visually designed logic
- Hundreds of built-in transformation functions
- Metadata-driven productivity, enabling collaboration

InfoSphere Change Data Capture

Change Data Capture

Real-time change data capture and delivery to deliver critical information at the speed of business



Requirements

- Rapid data delivery for mainly heterogeneous environments
- Minimize CPU utilization on source systems
- Increased visibility into lines of business

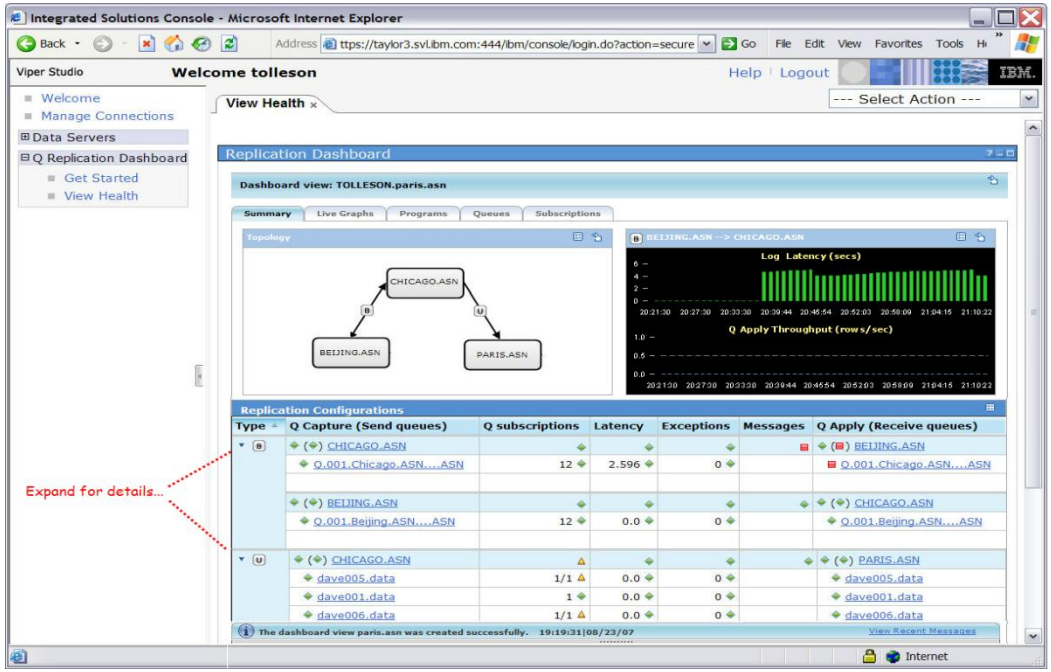
Benefits

- Delivers real-time data for information management projects
- Minimize batch windows to optimize ETL processes
- Flexible implementation for multiple topologies

InfoSphere Replication Server

Replication Server

High volume, low latency data replication for continuous business availability



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Requirements

- Rapid data delivery for mainly DB2 environments
- Resiliency to hardware, software, and network failures
- Visibility into replication processes for monitoring

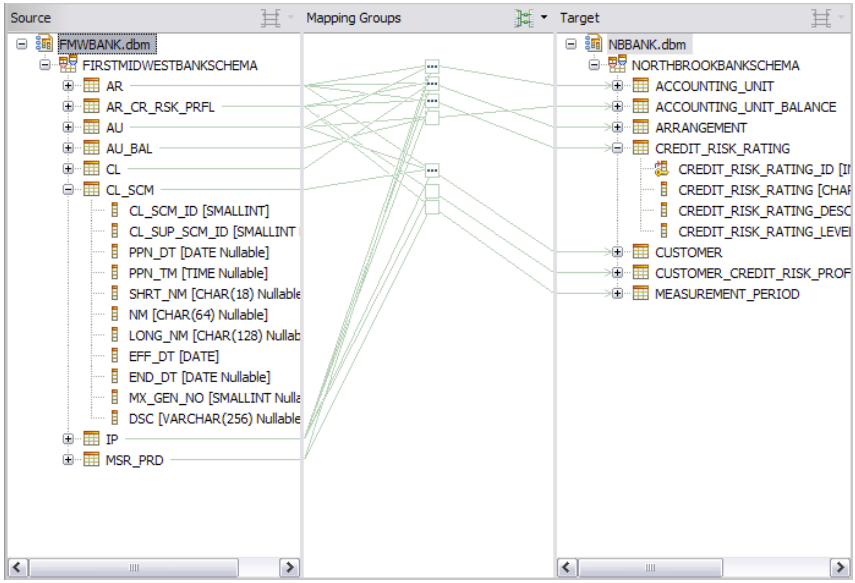
Benefits

- Delivers real-time data for information management projects
- Deep performance monitoring & troubleshooting
- To publish data to MQ, use **InfoSphere Data Event Publisher**

InfoSphere Federation Server

Federation Server

Enable access and delivery of diverse and distributed information as if it were in one system



Requirements

- Access to critical information in disparate databases/apps
- Physical replication not viable
- Budget constraints prevent new database purchases

Benefits

- Virtually consolidates data from multiple lines of business
- Cost-effective point of access to multiple DBs
- Enable SOA with **InfoSphere Information Services Director**

We connect to EVERYTHING!!!!!

RDBMS

DB2 (on Z, I, P or X series)
Oracle
Informix (IDS and XPS)
MySQL
Netezza
Progress
RedBrick
SQL Server
Sybase (ASE & IQ)
Teradata
HP NeoView
Universe
UniData
Greenplum
PostresSQL
And more…..

Bold / Italics indicates Additional charge item…

General Access

Sequential File
Complex Flat File
File / Data Sets
Named Pipe
FTP
External Command Call
Parallel/wrapped 3rd party apps

Enterprise Applications

JDE/PeopleSoft EnterpriseOne
Oracle eBusiness Suite
PeopleSoft Enterprise
SAS
SAP R/3 & BI
SAP XI
Siebel
Salesforce.com
Hyperion Essbase
And more…

Standards & Real Time

WebSphere MQ
Java Messaging Services (JMS)
Java
XML & XSL-T
Web Services (SOAP)
Enterprise Java Beans (EJB)
EDI
EBXML
FIX
SWIFT
HIPAA

CDC / Replication

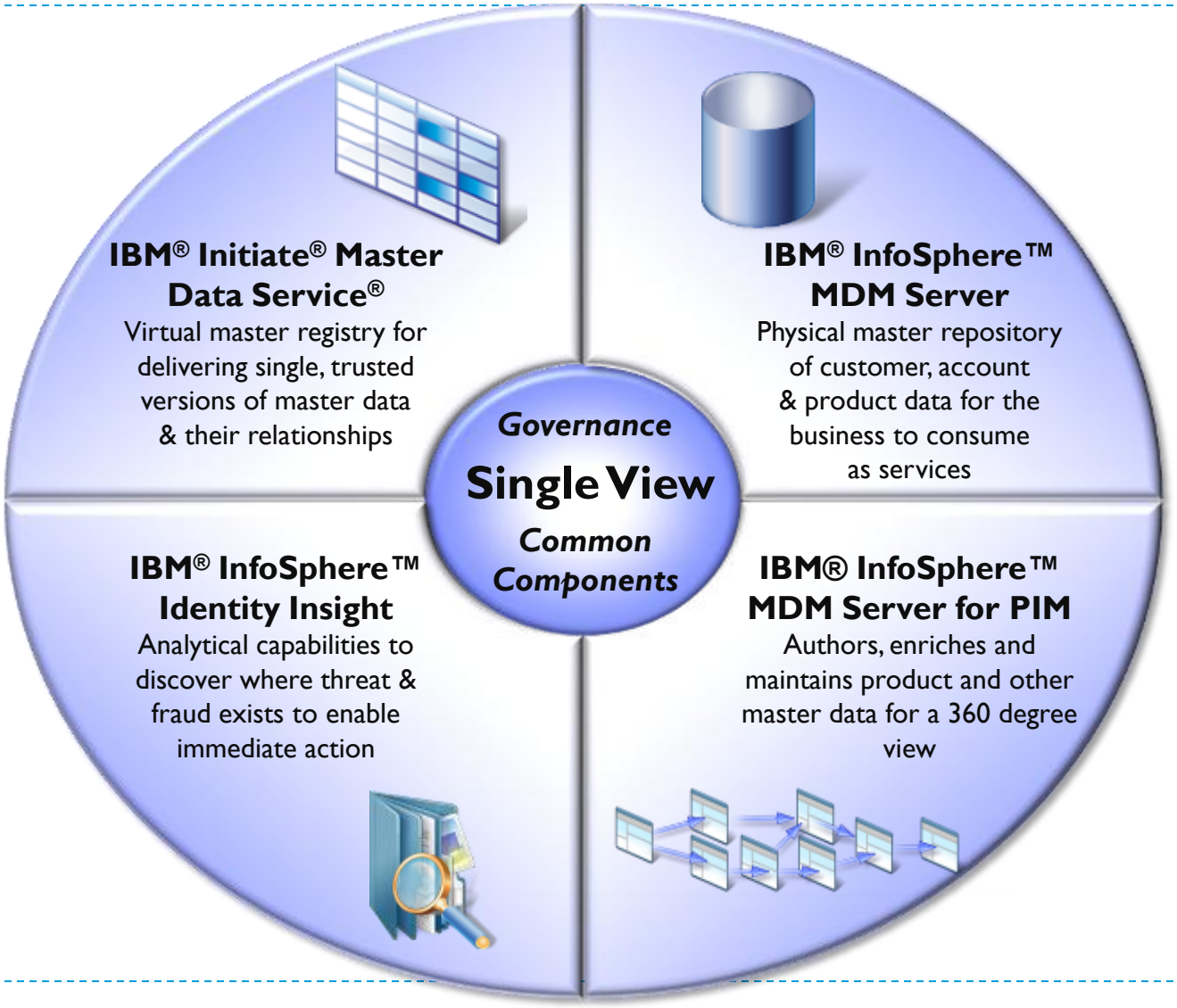
DB2 (on Z, I, P, X series)
Oracle
SQL Server
Sybase
Informix
IMS
VSAM
ADABAS
IDMS

Legacy

ADABAS
VSAM
IMS
IDMS
Datacom/DB

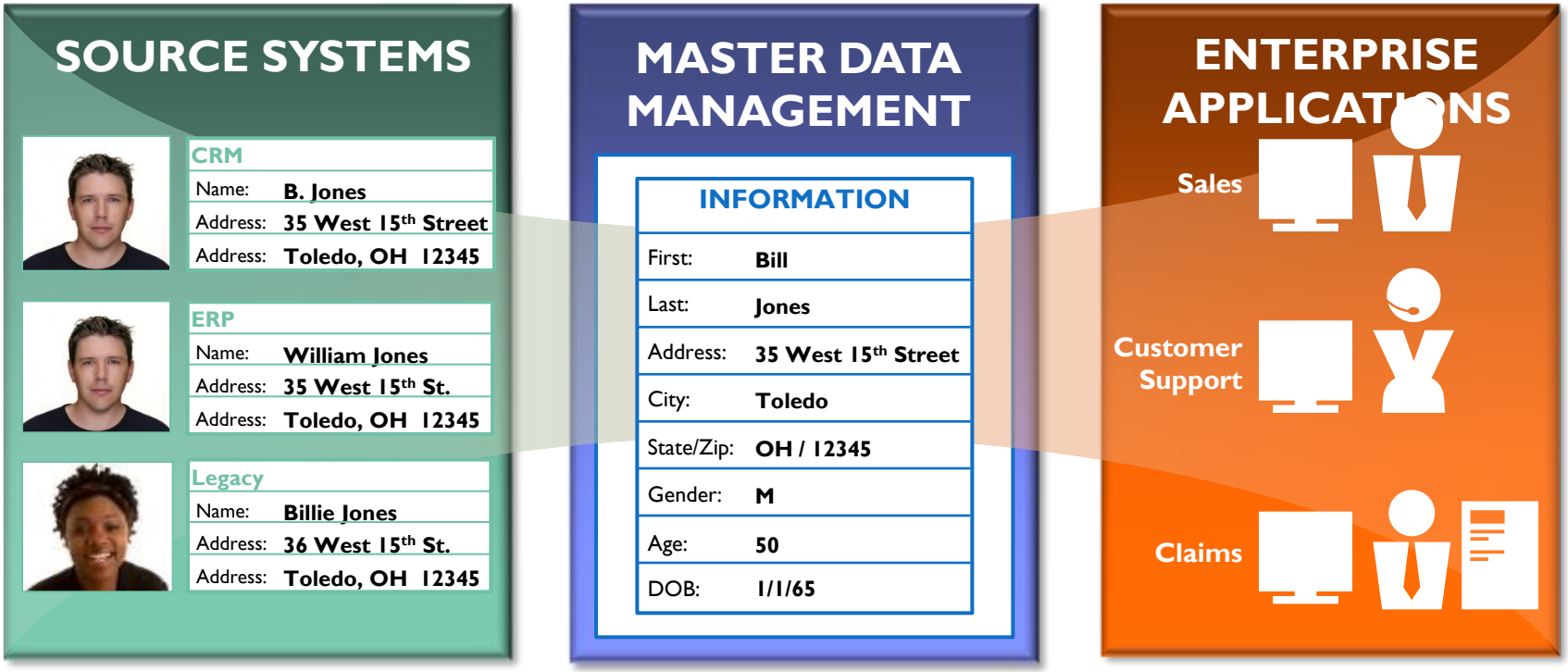
3rd party adapters:
Allbase/SQL
C-ISAM
D-ISAM
DS Mumps
Enscribe
FOCUS
ImageSQL
Infoman
KSAM
M204
MS Analysis
Nomad
NonStopSQL
RMS
S2000
And many more…

IBM® InfoSphere MDM Product Portfolio



What is Master Data Management?

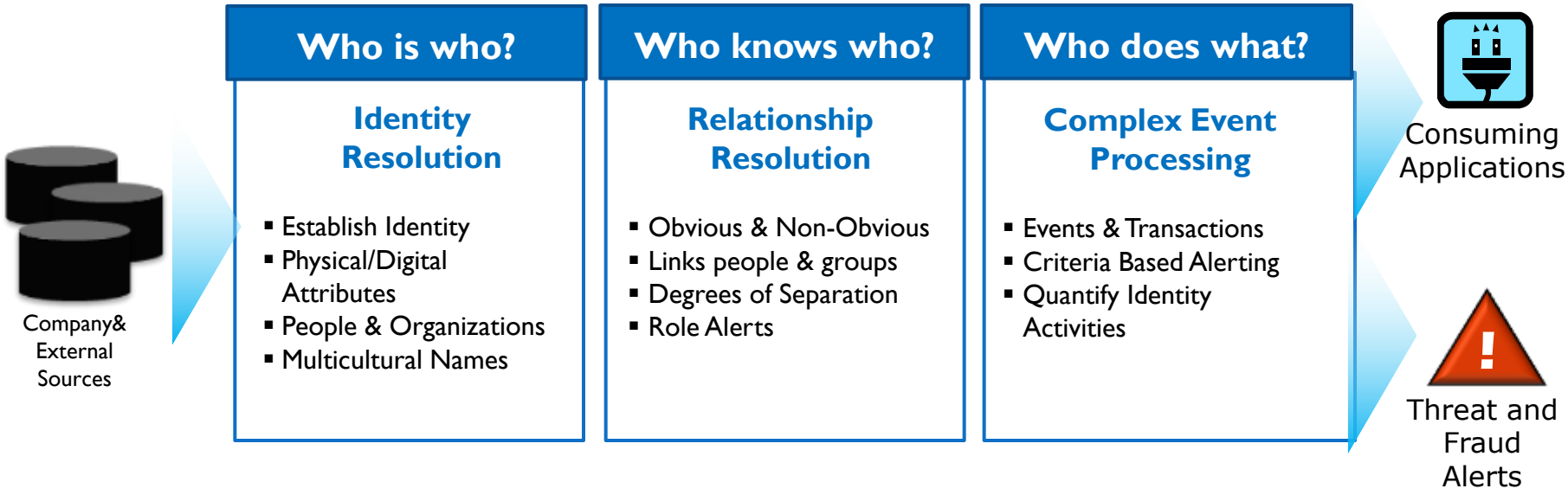
- Discipline that provides a consistent understanding of master data entities (customer, product, etc.)
- A set of functionality for data governance that provides mechanisms & governance for consistent use of master data across the organization
- Is designed to accommodate, control and manage change



IBM provides a cost-effective, rapidly deployable solution to complex customer data management challenges

Entity Resolution and Analysis extends MDM capabilities

…It is used to identify the use of false identities and networks of individuals who are trying to hide their relationships to each other. The same technologies or analyses are used in the detection of fraud networks, racketeering and money-laundering. - *Gartner*

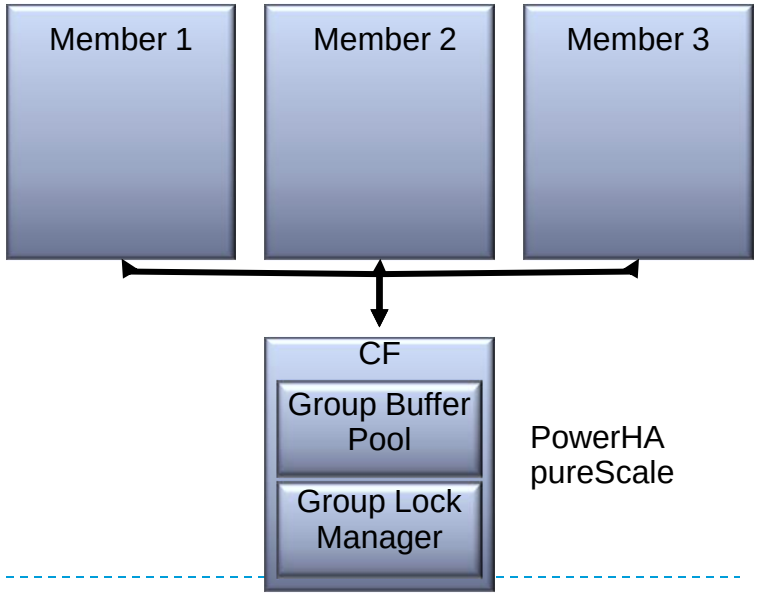


DB2 pureScale

- 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

pureScale - Key to Scalability and High Availability

- Efficient Centralized Locking and Caching
  - As the cluster grows, DB2 maintains one place to go for locking information and shared pages
  - Optimized for very high speed access
    - DB2 pureScale uses Remote Direct Memory Access (RDMA) to communicate with the powerHA pureScale server
    - No IP socket calls, no interrupts, no context switching
- Results
  - Near Linear Scalability to large numbers of servers
  - Constant awareness of what each member is doing
    - If one member fails, no need to block I/O from other members
    - Recovery runs at memory speeds



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Data Warehouse Solutions

DB2 101

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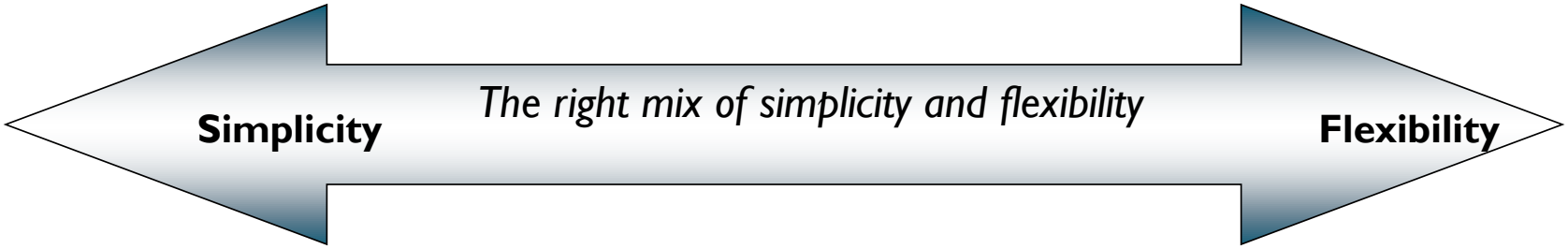
Simplicity, Flexibility, Choice

IBM Data Warehouse & Analytics Solutions

IBM Netezza	IBM Smart Analytics System	IBM InfoSphere Warehouse
True Appliance	**Flexible Integrated System**	**Custom Solution**
• IBM investment in solution design, integration and upgrades • Speed and ease of deployment and administration • Optimized performance for a specific workload range	• IBM investment in solution design, integration and upgrades • Flexibility of multiple options - platform, capacity, and integrated software • Customizable to optimize for a range and mix of workloads	• Client investment in solution design, integration and upgrades • Complete flexibility to mix and optimize software, servers and storage for the complete range and mix of workloads



Data Warehousing Portfolio

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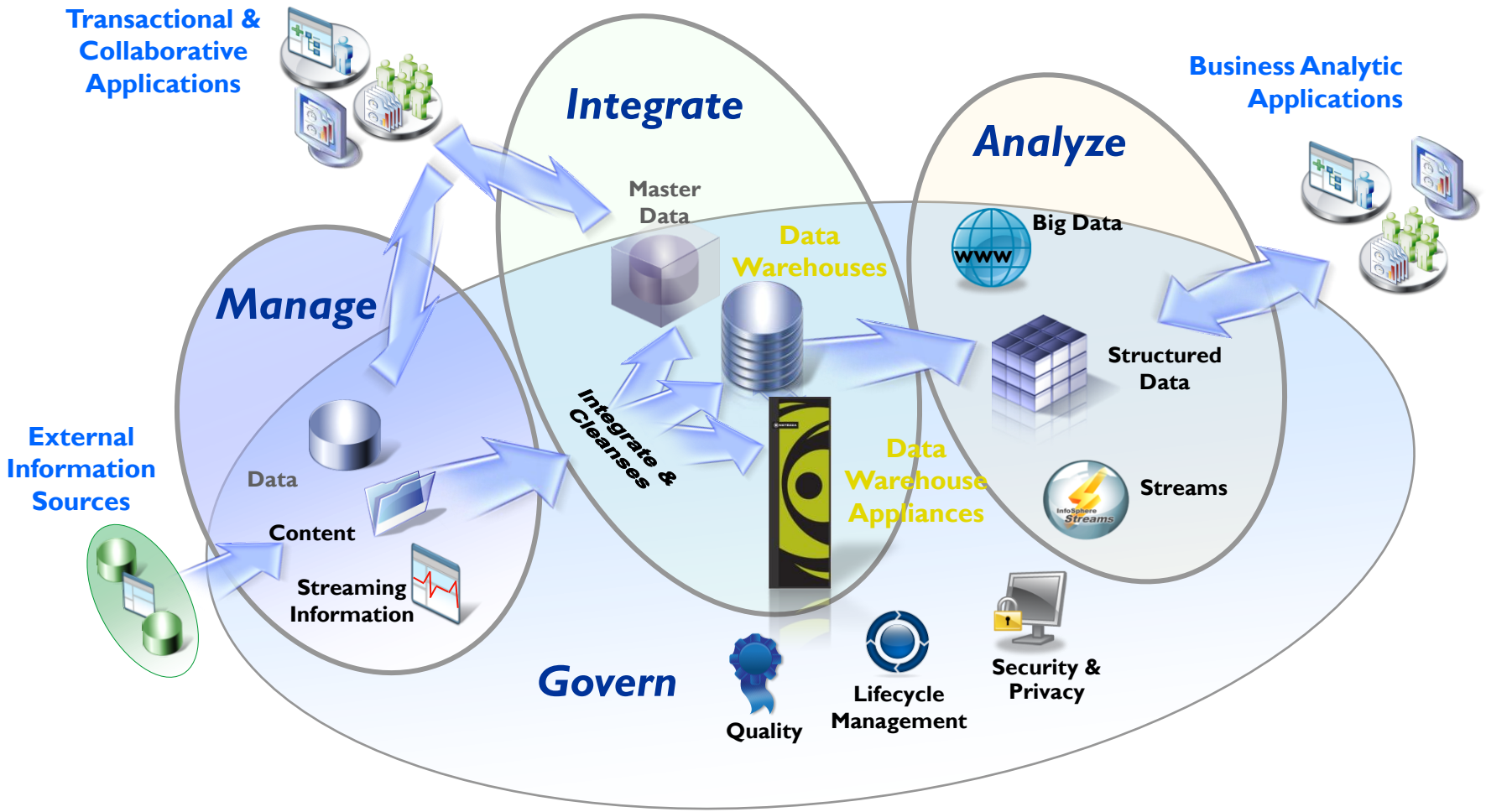
Netezza	Smart Analytics System	InfoSphere Warehouse
Netezza provides a family of data warehouse appliances and software products that allow customers to easily deploy high performance data analytics across their entire enterprise.	A deeply integrated and optimized platform providing broad analytics capabilities on a powerful warehouse foundation with IBM server and storage.	A comprehensive data warehouse platform that delivers access to structured and unstructured information in real time on all distributed platforms and System z.
Netezza Warehouse Appliances	IBM Smart Analytics Main Page 1050 and 2050 5600 7700 9600	InfoSphere Warehouse for LUW Informix Ultimate Warehouse Edition Data Warehousing on System Z

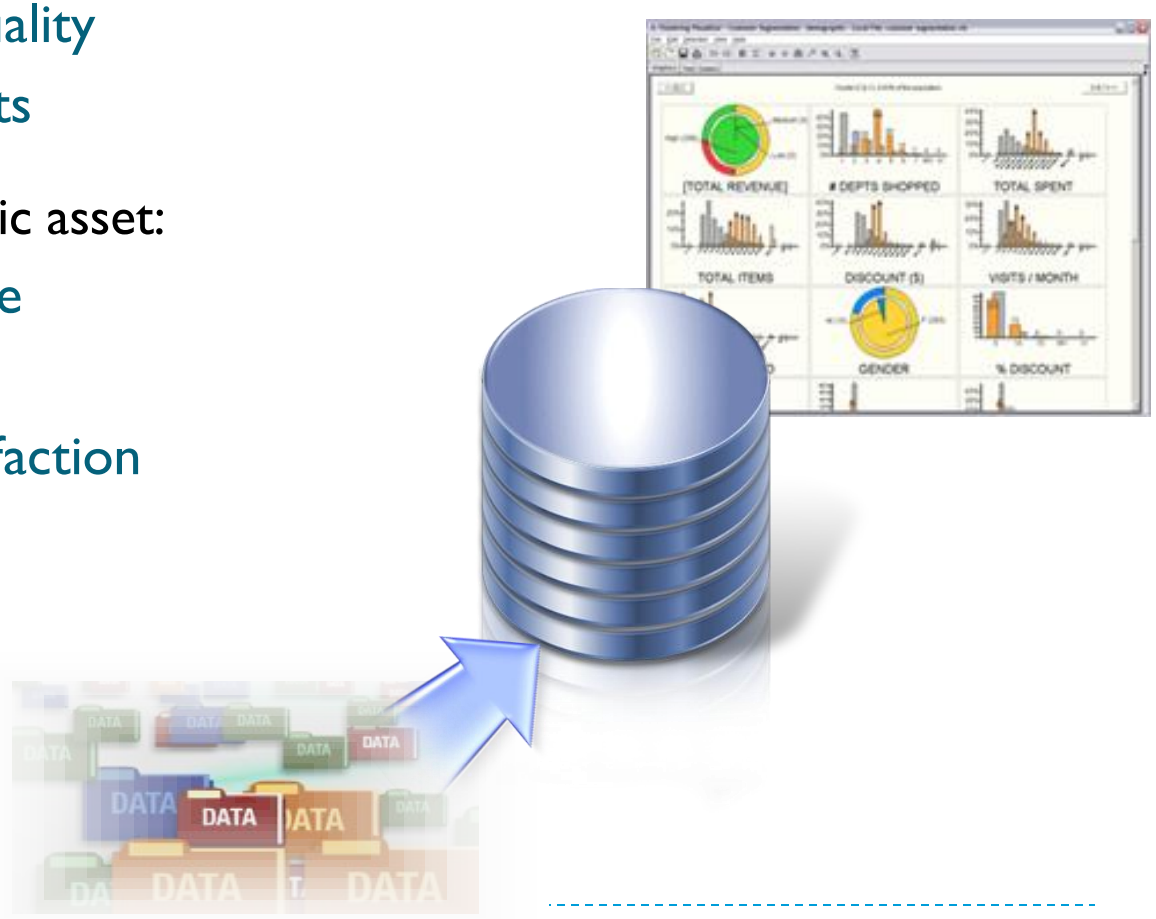
Industry Models	Big Data	IBM Mashup Center
Combines deep expertise and industry best practice in a usable form ("blueprint") by both business and IT communities to accelerate industry solutions.	IBM enables new solutions to gain insights from unprecedented information flows, which are exploding in volume, variety, velocity and vitality.	IBM Mashup Center is an end-to-end enterprise mashup platform, supporting rapid assembly of dynamic web applications with the management, security, and governance capabilities IT requires.
Banking Insurance Financial Markets Telecommunications Retail Health Plan	InfoSphere Streams InfoSphere BigInsights	IBM Mashup Center

The Warehouse and Analytics Ecosystem



Strategic Direction

- Leverage data and resources in new ways to:
  - Drive business growth
  - Maintain high service quality
  - Reduce operational costs
- Use information as a strategic asset:
  - Unlock its business value
  - Optimize performance
  - Improve customer satisfaction



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Ancillary Warehouse Products

- Industry Models
- Bigdata and Streams
- Appliances

Industry Models

Industry Models combine deep expertise and industry best practice in a usable form ("blueprint") by both business and IT communities to accelerate industry solutions. IBM's industry models are based on the experiences of more than 500 clients, and more than ten years of development.

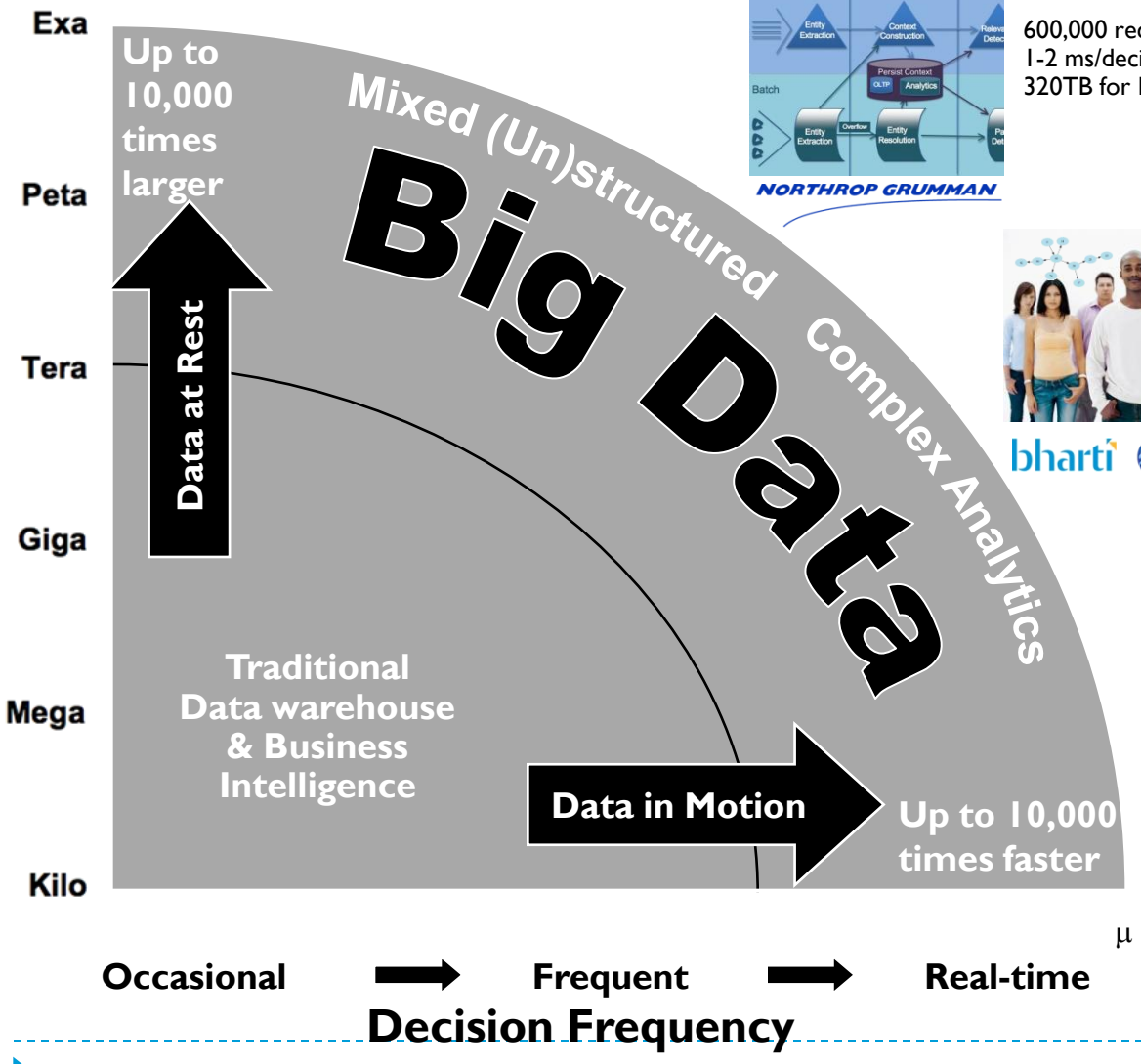
Industry models include:

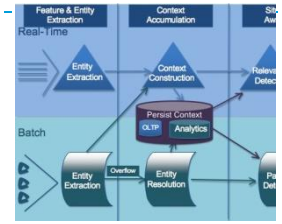
-Comprehensive data models containing data warehouse design models, business terminology model and analysis templates to accelerate the development of business intelligence applications.

-Best practice business process models with supportive service definitions for development of a service-oriented architecture (SOA).

The result: acceleration of projects and reduced risk.

Why "Big Data"? It brings new opportunities and requires New Analytic Methods





Homeland Security

600,000 records/sec, 50B/day
1-2 ms/decision
320TB for Deep Analytics

Telco Promotions

100,000records/sec, 6B/day
10 ms/decision
270TB for Predictive Analytics

bharti Globe

BEST BUY
GameStop power to the players

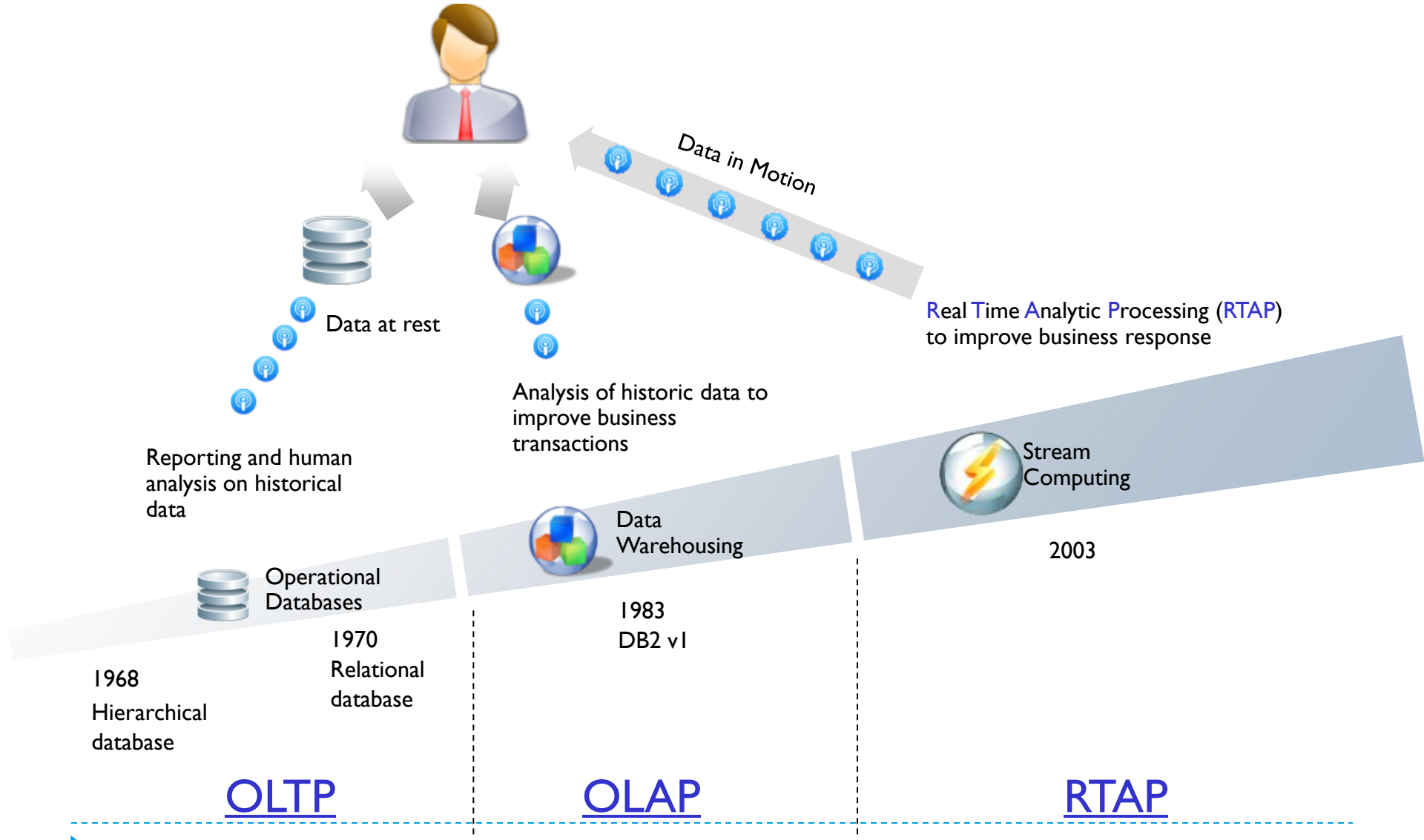
Multi-Channel sales

Weblogs and transactions
Predictive analytics to up sell and cross sell
1 sec/decision

Smart Traffic

250K GPS probes/sec
630K segments/sec
2 ms/decision, 4K vehicles

Stream Computing



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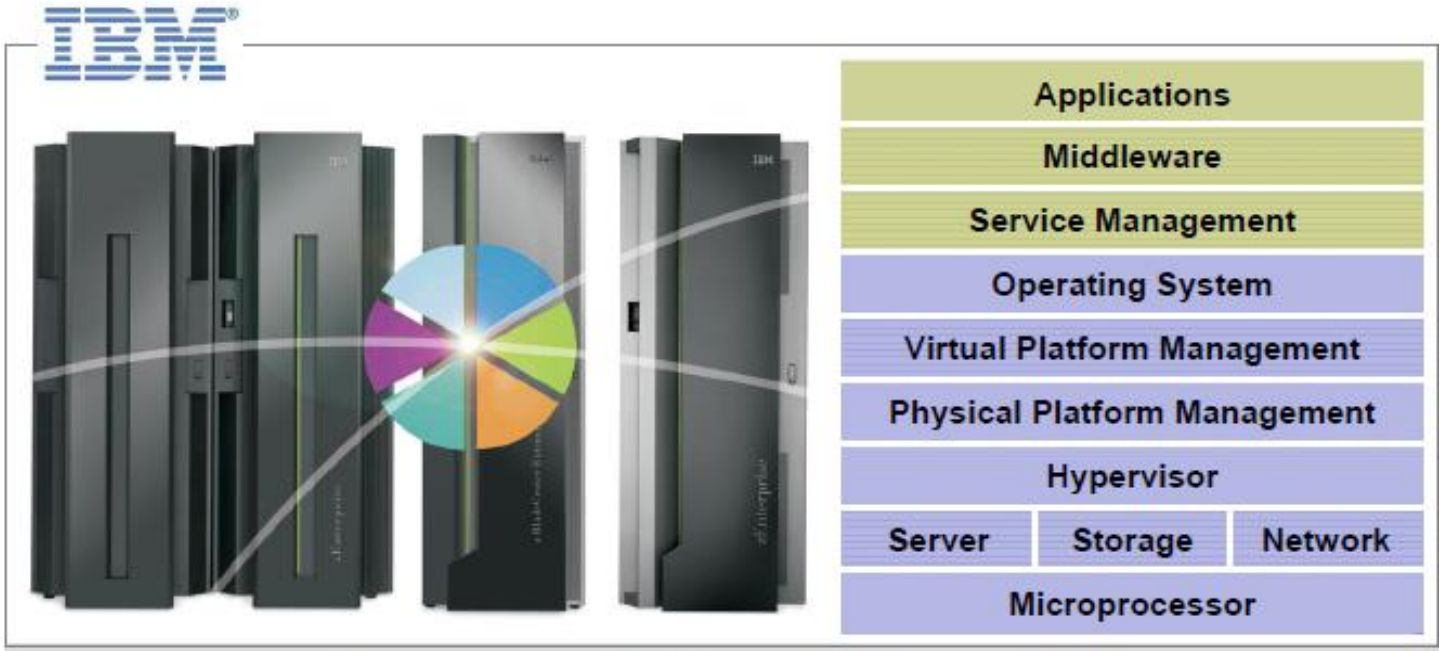
Mainframe Strategy

DB2 101

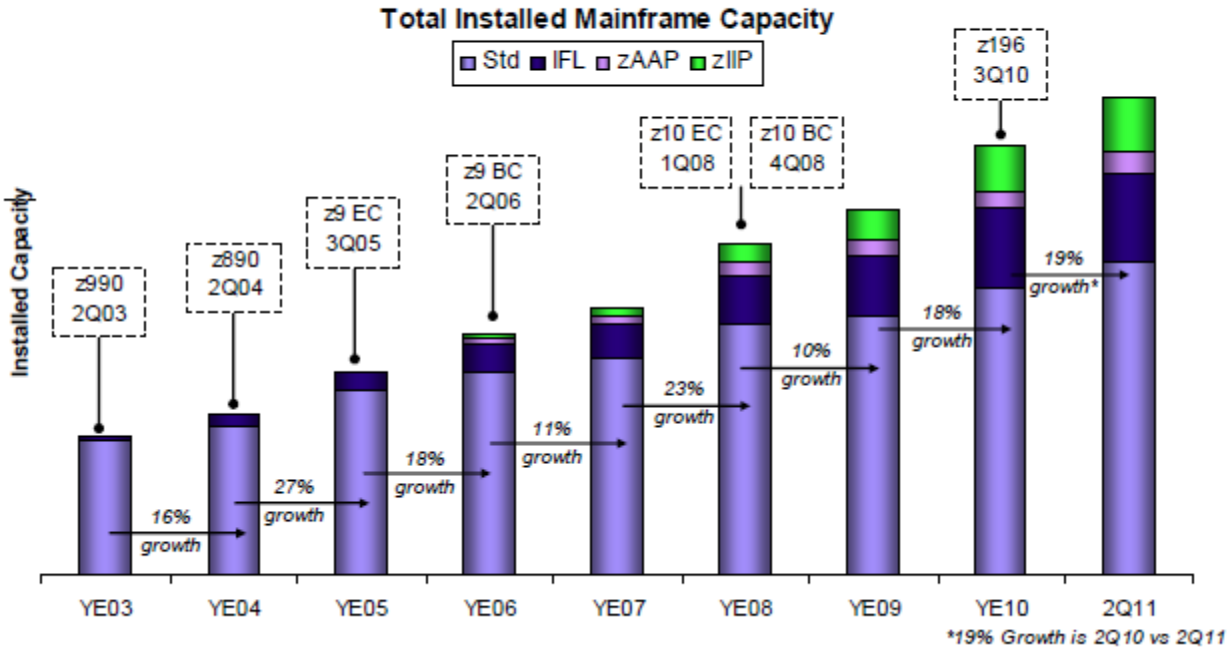
Premier Business Partner IBM

Innovation, integration and optimization at every level



Focused, collaborative innovation
A "complete systems" approach
Intelligent performance

Year-to-year IBM mainframe growth



Premier Business Partner

DB2 Analytics Accelerator for z/OS

Netezza appliance connected to System z only accessible through DB2

Blending System z and Netezza technologies to deliver unparalleled, mixed workload performance for complex analytic business needs.

What is the value?

- Fast, predictable response times for “right-time” analysis
- Accelerate analytic query response times
- Improve price/performance for analytic workloads
- Minimize the need to create data marts for performance
- Highly secure environment for sensitive data analysis
- Transparent to the application and user

Large Insurance Company – Business Reporting

"we had this up and running in days with queries that ran over 1000 times faster"

			DB2 Only		DB2 with IDAA		Times Faster
Query	Total Rows Reviewed	Total Rows Returned	Hours	Sec(s)	Hours	Sec(s)	
Query 1	2,813,571	853,320	2:39	9,540	0.0	5	1,908
Query 2	2,813,571	585,780	2:16	8,220	0.0	5	1,644
Query 3	8,260,214	274	1:16	4,560	0.0	6	760
Query 4	2,813,571	601,197	1:08	4,080	0.0	5	816
Query 5	3,422,765	508	0:57	4,080	0.0	70	58
Query 6	4,290,648	165	0:53	3,180	0.0	6	530
Query 7	361,521	58,236	0:51	3,120	0.0	4	780
Query 8	3,425.29	724	0:44	2,640	0.0	2	1,320
Query 9	4,130,107	137	0:42	2,520	0.1	193	13

- DB2 Analytics Accelerator (Netezza 1000-12)
  - Production ready - 1 person, 2 days
  - Choose a Table for "Acceleration"
- Table Acceleration Setup in 2 Hours
  - DB2 "Add Accelerator
  - Choose a Table for "Acceleration"
  - Load the Table (DB2 Loads Data to the Accelerator
  - Knowledge Transfer
  - Query Comparisons
- Initial Load Performance
  - 400 GB Loaded in 29 Minutes
  - 570 Million Rows
  - Loaded 800 GB to 1.3 TB per hour
- Extreme Query Acceleration - 1908x faster
  - 2 Hours 39 minutes to 5 Seconds
- CPU Utilization Reduction to 35%

International Securities Company (RESULTS ZOOM IN)

IDAA Effects (Expressed as Percentage Improvement)		
Class 1 Elapsed Time	**Class 1 CPU Time**	**Class 2 CPU Time**
545%	17,921%	27,669%
618%	21,075%	32,545%
442%	22,187%	34,299%
473%	20,123%	31,135%
487%	12,256%	18,924%
719%	1,155,561%	2,233,215%
894%	1,274,866%	2,475,147%

IDAA Effects (Expressed as Percentage Improvement)		
Class 1 Elapsed Time	**Class 1 CPU Time**	**Class 2 CPU Time**
798%	1,084,384%	2,105,236%
917%	1,157,700%	2,118,067%
873%	1,485,960%	2,859,808%
921%	2,439,563%	4,485,969%
3,668%	8,854,373%	16,384,135%
1,656%	18,693,289%	31,056,453%
1,722%	23,467,287%	39,804,341%

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Oracle Takeout Strategy

DB2 101

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- IBM DB2 Advanced Enterprise Edition is as low as 1/3rd the price[1] of Oracle
- DB2 on POWER is as 3X faster per core[2] than Oracle Database on SPARC
- Breakthrough migration technology delivers up to 98% compatibility[3] with Oracle PL/SQL

1. **PRICE** based on price per core of comparable hardware and publicly avail U.S. info on 11/11/2011 for IBM DB2 Advanced Enterprise Edition + Oracle software w/comparable capabilities. Price comparison is NOT based on the specific benchmarks listed here. IBM: 100 Processor Value Units. Oracle: assumes 1.0 processor multiplier. Both incl. Y1 maint/support.
2. **PERFORMANCE**: www.tpc.org (http://www.tpc.org) as of 11/11/11 [IBM Power 780 (3 x 64 C)(24 Ch/192 C/768 Th); 10,366,254 tpmC; $1.38/tpmC; avail 10/13/10 v. Oracle SPARC SuperCluster w/T3-4 Servers (27 x 64 C)(108 Ch/1728 C/13824 Th); 30,249,688 tpmC; $1.01/tpmC; avail 6/1/11]. TPC-C is a trademark of Transaction Performance Processing Council. www.sap.com/solutions/benchmark/ (http://www.sap.com/solutions/benchmark/) as of 11/11/11 [IBM Power 795 (32 P/256 C/1024 Th); 126063 users/2-tier SAP ERP 6.0 pack4/AIX 7.1 + DB2 9.7; cert 2010046 v. Oracle SPARC Enterprise Server M9000 (64 P/256 C/512 Th); 39100 users/2-tier SAP ERP 6.0/Solaris 10, Oracle 10g; cert 2008042]. SAP is registered trademark of SAP AG in Germany and in several other countries.
3. **COMPATIBILITY**: Based on internal tests and reported client experience from June 30, 2010 through July 20, 2011.

The Value of DB2

Better
Top speed, reliability, and automated workload management

Faster
Best performance on Power & with Warehousing, SAP and XML

Cheaper
Unparalleled performance, automation, and compression 1/3 the price of Oracle

TPC

#1 in TPC-C Performance on Power

#1 in 10TB TPC-H Performance

Worldwide Banks

Global Life / Health Insurance Providers

US Retailers

SAP

#1 in SAP SD 3-tier Standard Application Performance

Business Value Assessment Tool

Calculate your savings with DB2

- The tool uses a simple graphical interface - enter a few key inputs and assumptions.
- Assumptions can be modified if inputs change.
- Cost categories show detailed calculations.
- Talk to your IBM Rep or The Fillmore Group to run an assessment.

For Transactional Workloads, IBM is the Clear Choice

"We have succeeded in reducing the total cost of ownership by 45 percent…keeping maintenance costs low both now and in the future."

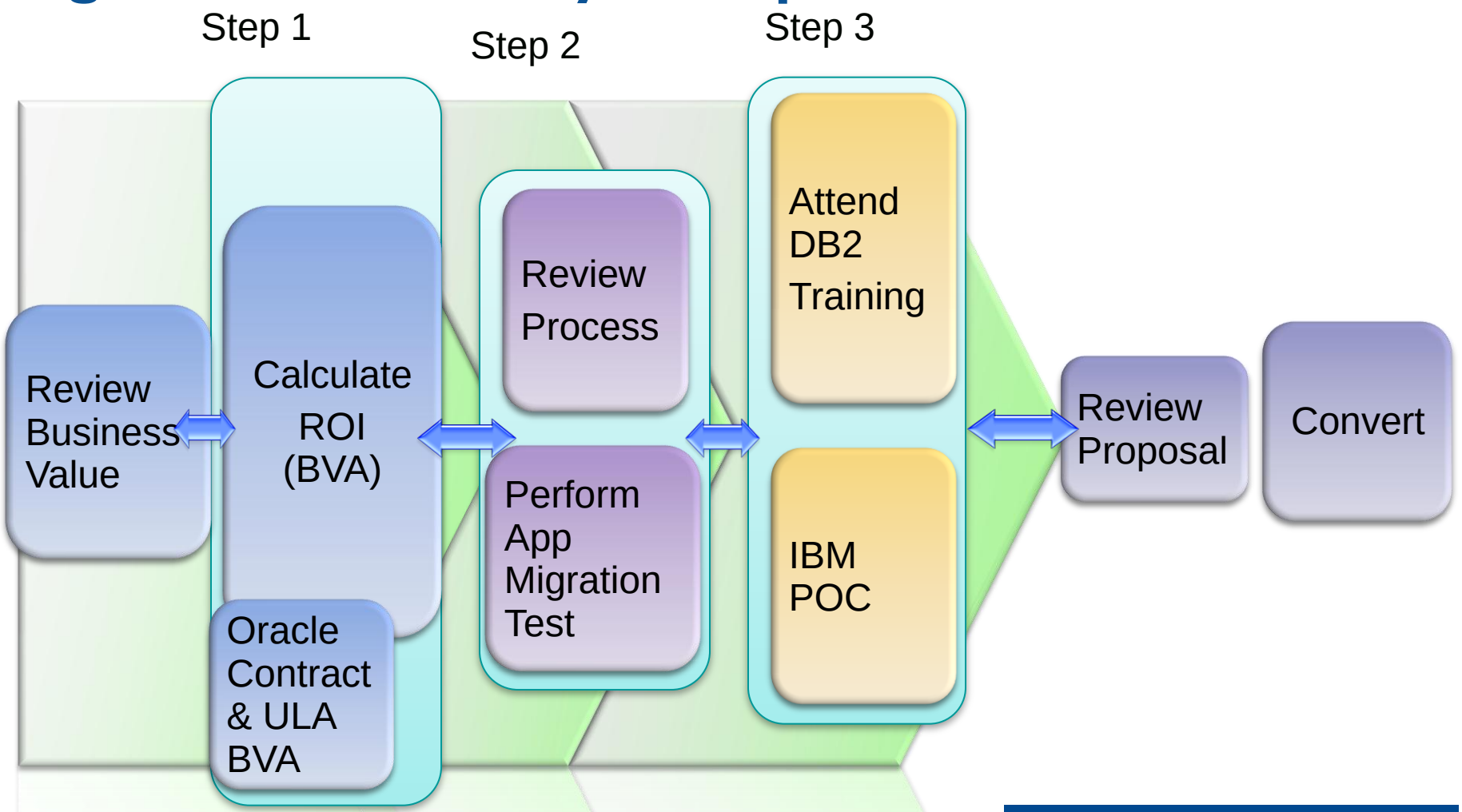
Wolfgang Pelzer, Senior Executive Manager for Application Development and Maintenance

RELIANCE

"the total cost of ownership of DB2 on IBM Power servers is almost **half** the cost of Oracle Database on Sun"

Anuprita Daga, Reliance Life Insurance

Migration – Discovery to Implementation



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IBM Database Facts:

- Has more patents than Oracle and SQL Server combined
- Over 1300 Core Database developers located in 5 main development laboratories around the world.
- Over 300 researchers located in labs in the United State, Canada, Japan and Israel are currently working on advancement in database technologies for IBM. Examples of past research projects which have developed into product include : database compression, heterogeneous replication, advancements in query optimization for optimal performance, high availability , pureScale and cubing engines. All of these are best of breed in the marketplace.
- 25 of the top 25 banks
- 9 of the top 10 insurance providers
- 23 of the top 25 U.S. retailers
- Migrated over 100 customers from SAP / Oracle to SAP / DB2 in last 2 years
- Over 700 customers have made the SAP / DB2 decision

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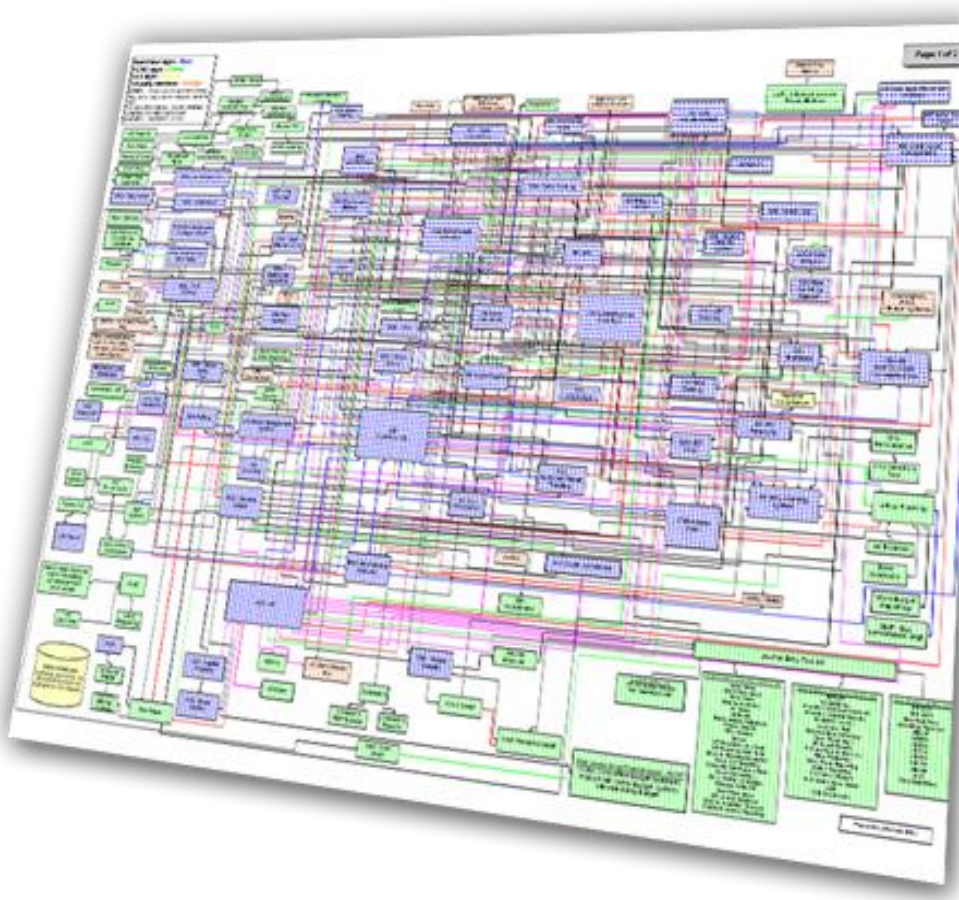
DB2 101 Summary

DB2 101

Premier Business Partner IBM

Business Imperative for Strategic IT Investments

- How do organizations create a sustainable advantage from their investment in IT?
- How do organizations evolve their IT investment without being blindsided by tactical problems?
- How do organizations enshrine a collaborative Business and IT approach, lexicon and governance?



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We Can Help You Avoid This!!

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Thank you

Frank Fillmore, President, The Fillmore Group
(410) 465-6335

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