SOA and IOD for the Mainframe
Two faces of the same coin

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Agenda

- **Mainframe drives enterprise data**

- **Information On Demand**

  - Delivering Trusted Business Information

- **Service-Oriented Architecture**

  - Information as a Service

- **IBM InfoSphere**

  - InfoSphere Information Server

- **Customer Case Studies**

- **Q/A**

Enterprise Information is on System z
Unlocking the Business Value of Information to Optimize

$3 trillion/day transferred through IMS by one customer

95% of top Fortune 1000 companies use IMS

Over 15 billion GBs of production data in IMS…

8 of every 10 of the largest retail banks in the US, Germany, Japan, and Australia use IMS for their core banking

24x7 ATM Deposits & Withdrawals

Reserves airline seats

Runs the world's stock exchanges & banking networks

Tracks the world's packages

DB2 for z/OS supports the world's largest known peak database workload

DB2: 9 of the top 10 global life/health insurance providers

DB2: 59 out of the top 59 banks in the world

23 of the top 25 US retailers

Information on Demand Software Stack is now on System z …

DB2 for z/OS, How Today's Businesses Run

- ***Used by…***

  - the top 56 banks in the world

  - 23 of the top 25 US retailers

  - 9 of the top 10 global life/health insurance providers

- ***Performance, Performance, Performance***

  - Delivered the largest banking benchmark ever at the Bank of China, a record 9,445 transactions per second

  - Supports the world's largest known peak database workload - 1.1 Billion SQL statements per hour at UPS

  - The world's largest known transaction processing database – 23.1 TB at UK Land Registry

Information Management Software

InfoSphere™

IBM

IMS Still A Major Player Around the World...

> " *A large and loyal IMS installed base. Rock-solid reputation of a transactional workhorse for very large workloads. Successfully proven in large, Web-based applications. IMS is still a viable, even unmatched, platform to implement very large OLTP systems, and, in combination with Web Application Server technology, it can be a foundation for a new generation of Web-based, high-workload applications.*
>
> *- Gartner Group* "
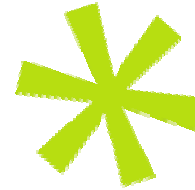
3M
MIPS running IMS

15M GB
Production Data managed by IMS

50B
Transactions/day through IMS

200M
Users a day served by IMS

>100M
IMS Transactions/day by one customer on single system

The Trusted Business Information Challenge
These Challenges Have Real Business Impact

Business Challenges
- Customer loyalty & churn
- Industry Consolidation
- Rapid Globalization
- Supply Chain complexity
- Business cost & velocity
- Intensifying regulatory requirements

Information Challenges
- Exploding volume & variety
- Data is highly fragmented
- Low Quality
- Data is incomplete
- Difficult to access
- Out of context

Business Impact

- The cost of a lost or incomplete customer record is $182[4]
- Enterprises have 14 different customer databases on average[2]
- 66% indicate profitability is negatively impacted by bad customer data[1]
- 30% of retail item information is incorrect, leading to 3.5% in lost sales[3]
- Credit card issuer fined $100M due untimely reporting
- One Telco Company reports 90% monthly churn

Source: Gartner

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47%

42%

59%
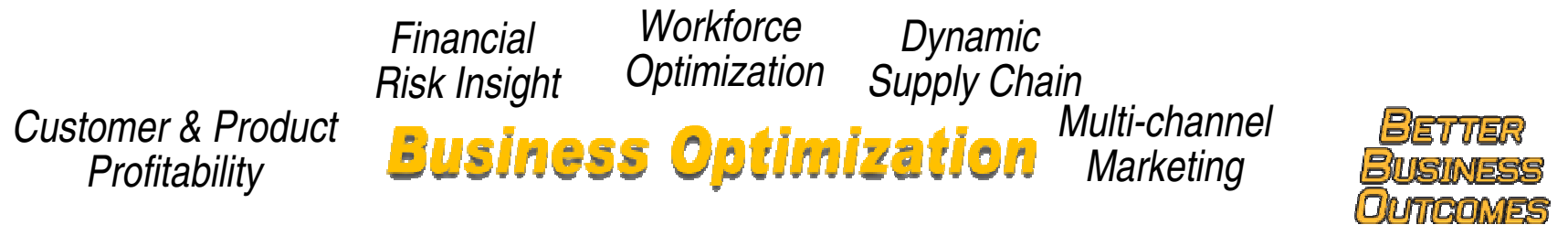
47% of users don't have confidence in their information

42% of managers use wrong Information at least once a week

59% say they missed information they should have used

Unlocking the Business Value of Information

Financial
Risk Insight

Workforce
Optimization

Dynamic
Supply Chain

Customer & Product
Profitability

Business Optimization

Multi-channel
Marketing

BETTER BUSINESS OUTCOMES

COGNOS®

Business Intelligence
& Performance Management

BUSINESS VALUE

InfoSphere™

Information Integration,
Warehousing, & Management

UNLOCK

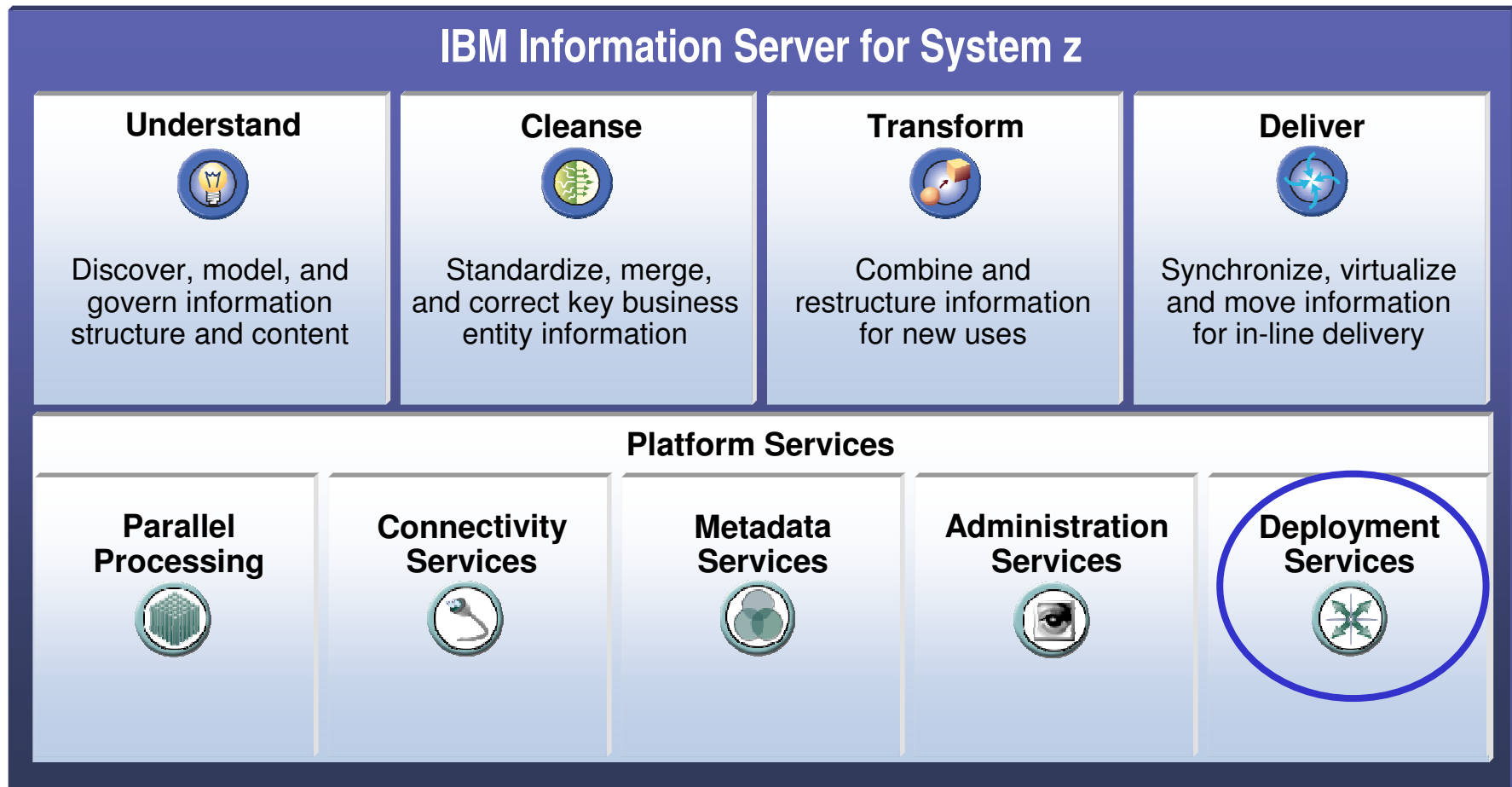Data Management   Content Management

INFORMATION ASSETS

InfoSphere™

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IBM InfoSphere Information Server for System z

Full capabilities to deliver *Trusted Information* across heterogeneous data sources

IBM Information Server for System z

Understand

Discover, model, and govern information structure and content

Cleanse

Standardize, merge, and correct key business entity information

Transform

Combine and restructure information for new uses

Deliver

Synchronize, virtualize and move information for in-line delivery

Platform Services

Parallel Processing

Connectivity Services

Metadata Services

Administration Services

Deployment Services

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Business flexibility and reuse is driving SOA adoption

- Economics: **globalization demands flexibility**

- Business processes: **changing quickly and sometimes outsourced**

- Growth: **at the top of the CEO agenda**

- Reusable assets: **can cut costs**

- Information: **greater availability**

- Crucial for flexibility and becoming an On Demand Business
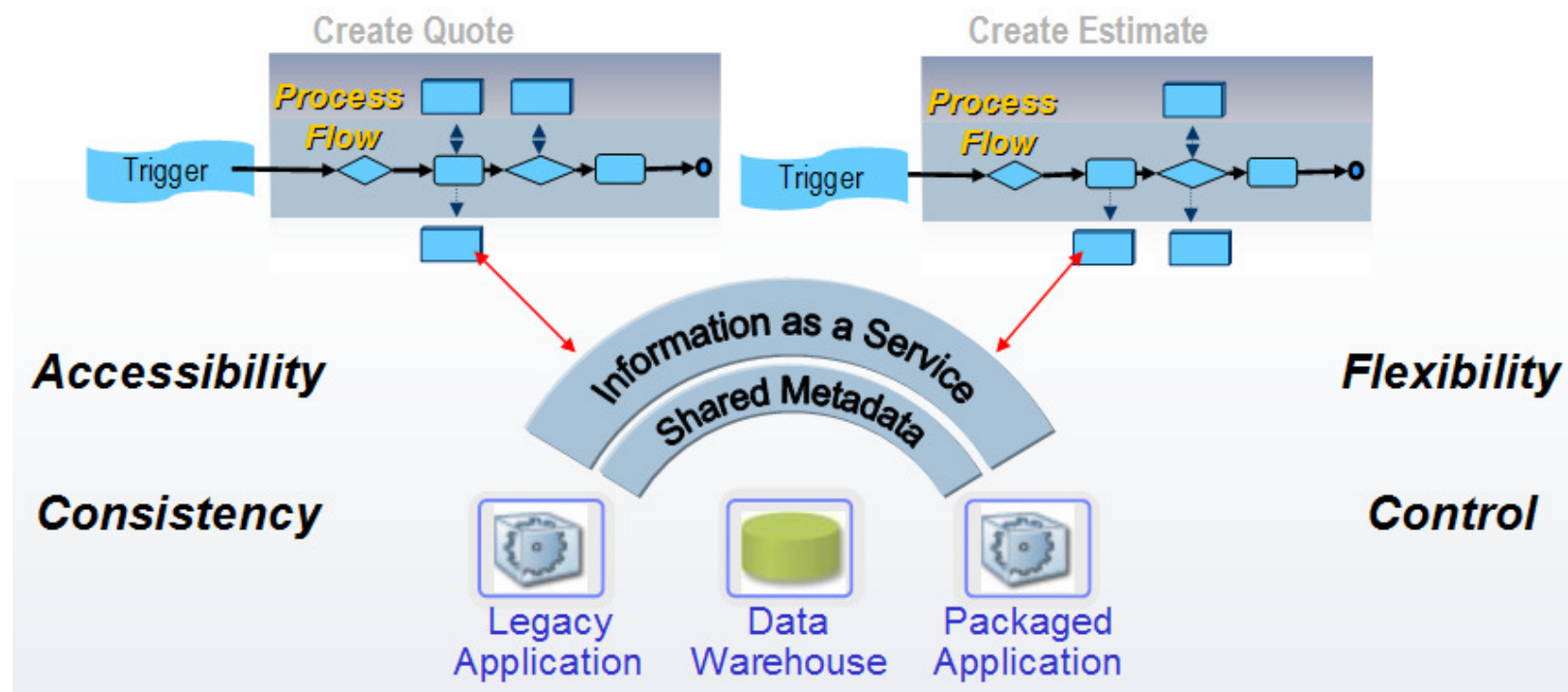
Traditional Business*

Case Study: Multi-channel Retail

Store or Brand

Case Study: Multi-channel Retail

Customer

Store or Brand

Shared Service

Supplier

Outsourced
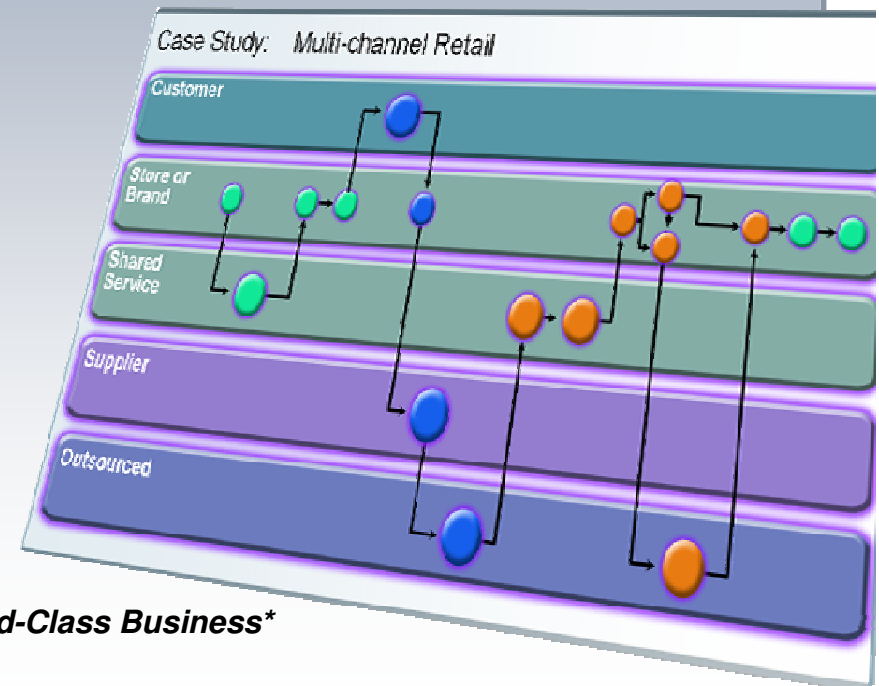
Today's World-Class Business*

*Sources: CBDi

Information as a Service – Flexibility / Responsiveness

Tight coupling of data locks you in

- *Inconsistency in the „view" of the data*
- *Inconsistency in sources and how data is derived*
- *Inconsistency in rules applied to data*
- *Multiple points of maintenance*
- *No flexibility to change sources and formats*

Information as a Service

- *Consistent packaging of data*
- *Leverages understanding of metadata relationships*
- *Applies consistent rules to data*
- *Centralized control and maintenance*
- *Flexibility to change sources and formats*

InfoSphere Information Services Director

- **Packages information integration logic as services that insulate developers from underlying sources**

  - Deploy services for DataStage, QualityStage, Federation Server, MDM Server, DB2, and Oracle

  - Services are created in minutes without coding

- **Controls the invocation of services via a variety of protocols**

  - EJB, web services, JMS, RSS, REST

- **Provides work load balancing assurance of service**

- **Provides foundation infrastructure for Information Services**
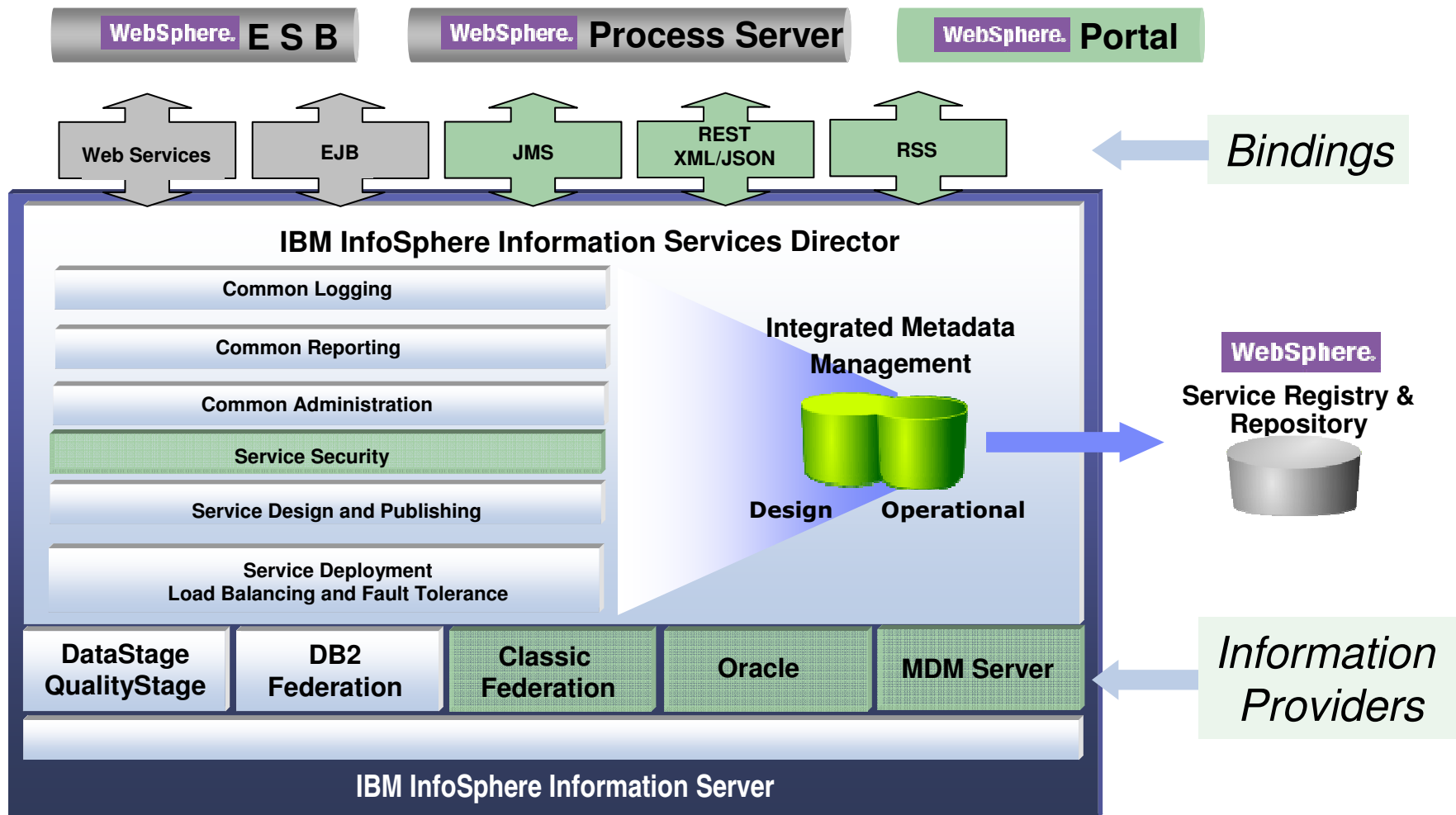
Developers   **Architects**

InfoSphere Information Services Director

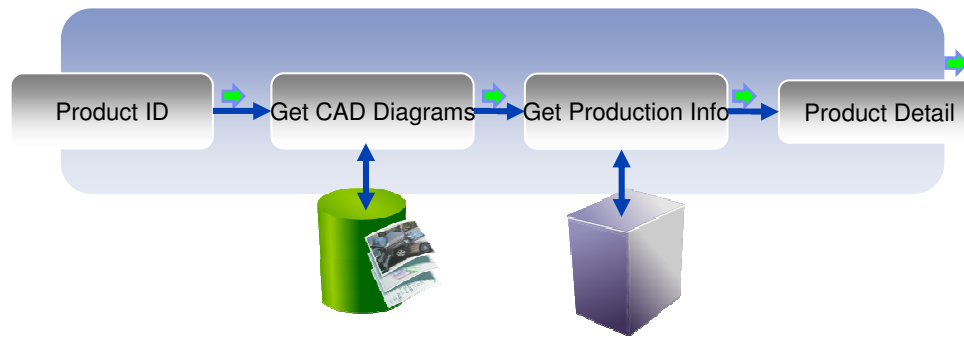**Flexibly deploy and manage reusable information services without hand coding**

Overview | Service 01
Bindings

Binding Settings
EJB
☑ Enable Binding

JNDI Name: *

Package Name: *

SOAP over HTTP
SOAP over JMS
☐ Enable Binding

Activation Spec JNDI Name: *   SOAP Style: *   Priority:
                                       Select

Description: Connecti

Rapid SOA Deployment

Destination: Message

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Information as a Service – Use Cases

Data Access Services

| Product ID | → | Get CAD Diagrams | → | Get Production Info | → | Product Detail |

Data Quality Services

Kate A. Roberts
416 Columbos Street #2
Boston, Mass

Kate A. Roberts
416 Columbos St #2
Boston, MA

Kate A. Roberts
416 Columbus Ave #2
Boston, MA 02116

Catherine A. Roberts
416 Columbus Ave. Apt. 2
Boston, MA 02116

| Customer Data | → | Standardize | → | Correct | → | Match | → | Customer Data |

Postal Records

Customers
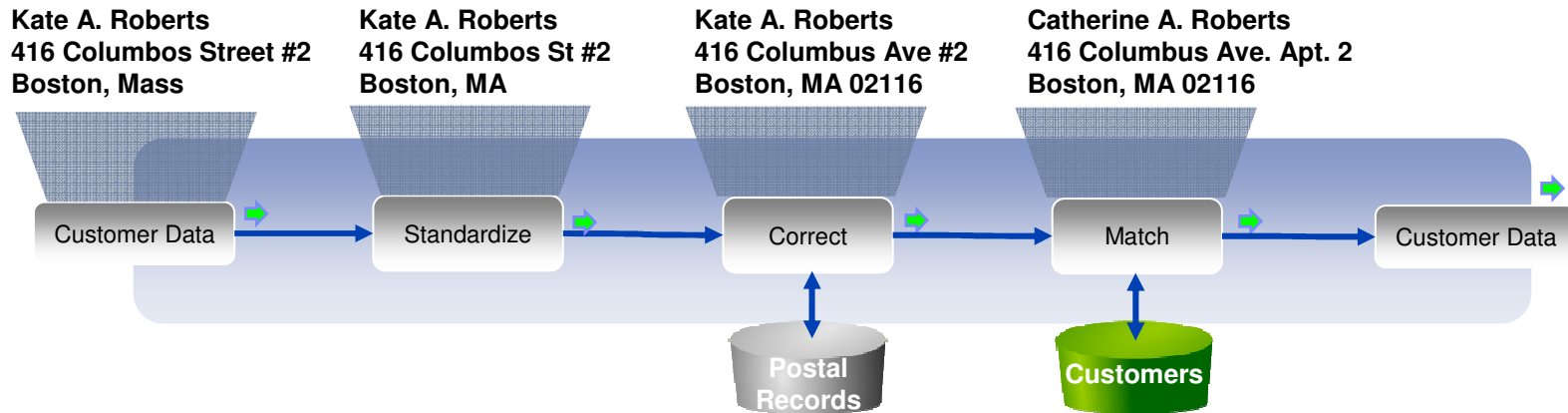
Information as a Service – Use Cases

Data Transformation Services

| Customer Name | Merge Account Details | Calculate Aggregates | Transform to New Context | Account Summary |

SIEBEL

Legacy System

Data Warehouse
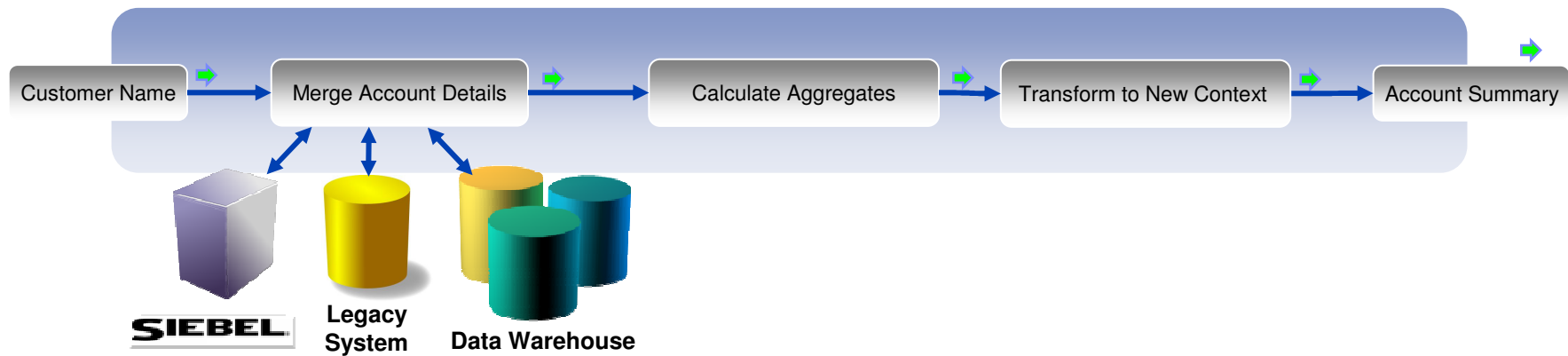
Data Federation Services

| Customer Name | Update Account | Account Detail |

Legacy System

Data Warehouse

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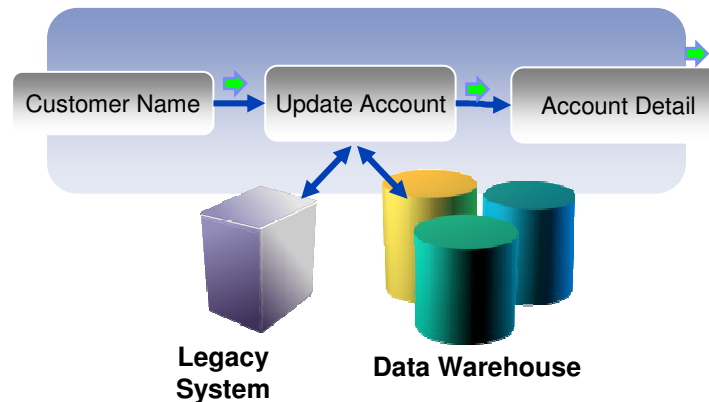
The SOA Foundation Elements

WebSphere
Portal

WebSphere ESB

InfoSphere
Information
Server

WebSphere
Process
Server

WebSphere Service Registry & Repository

Rational. Tivoli
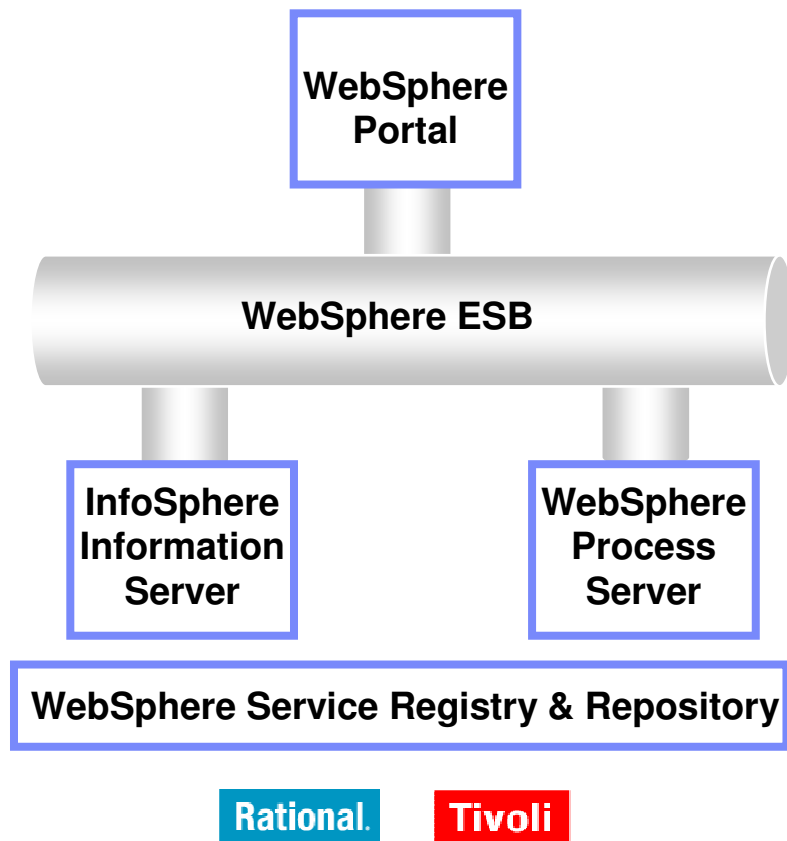
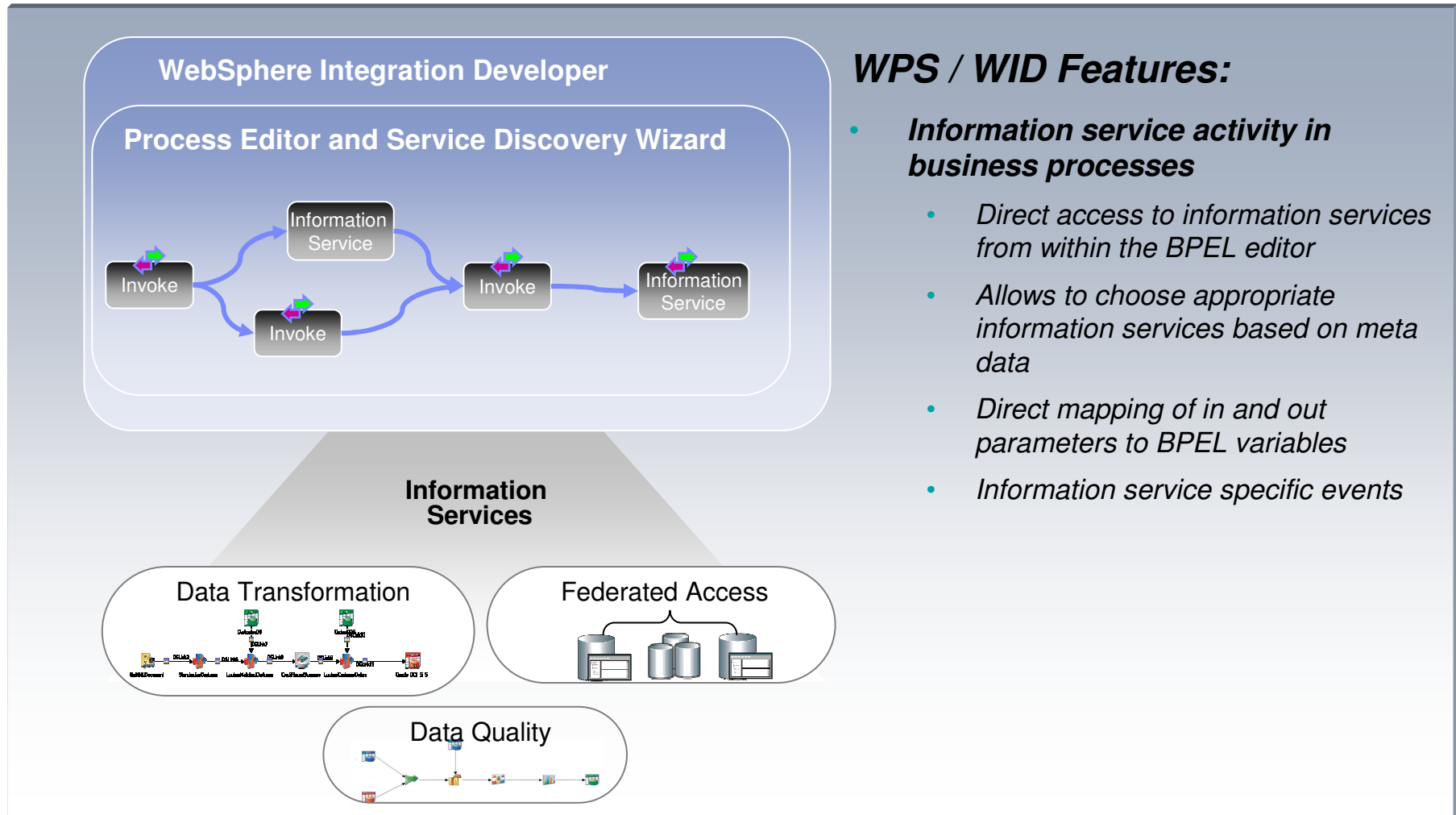- **WebSphere Portal** allows information and process services to be brought to people

- **WebSphere Process Server** allows services to be orchestrated into new processes

- **InfoSphere Information Server** allows trusted information to be delivered in line & in context to people and processes

- **WebSphere ESB** provides connectivity and communications across services

- **WebSphere Service Registry & Repository** provides service management and control
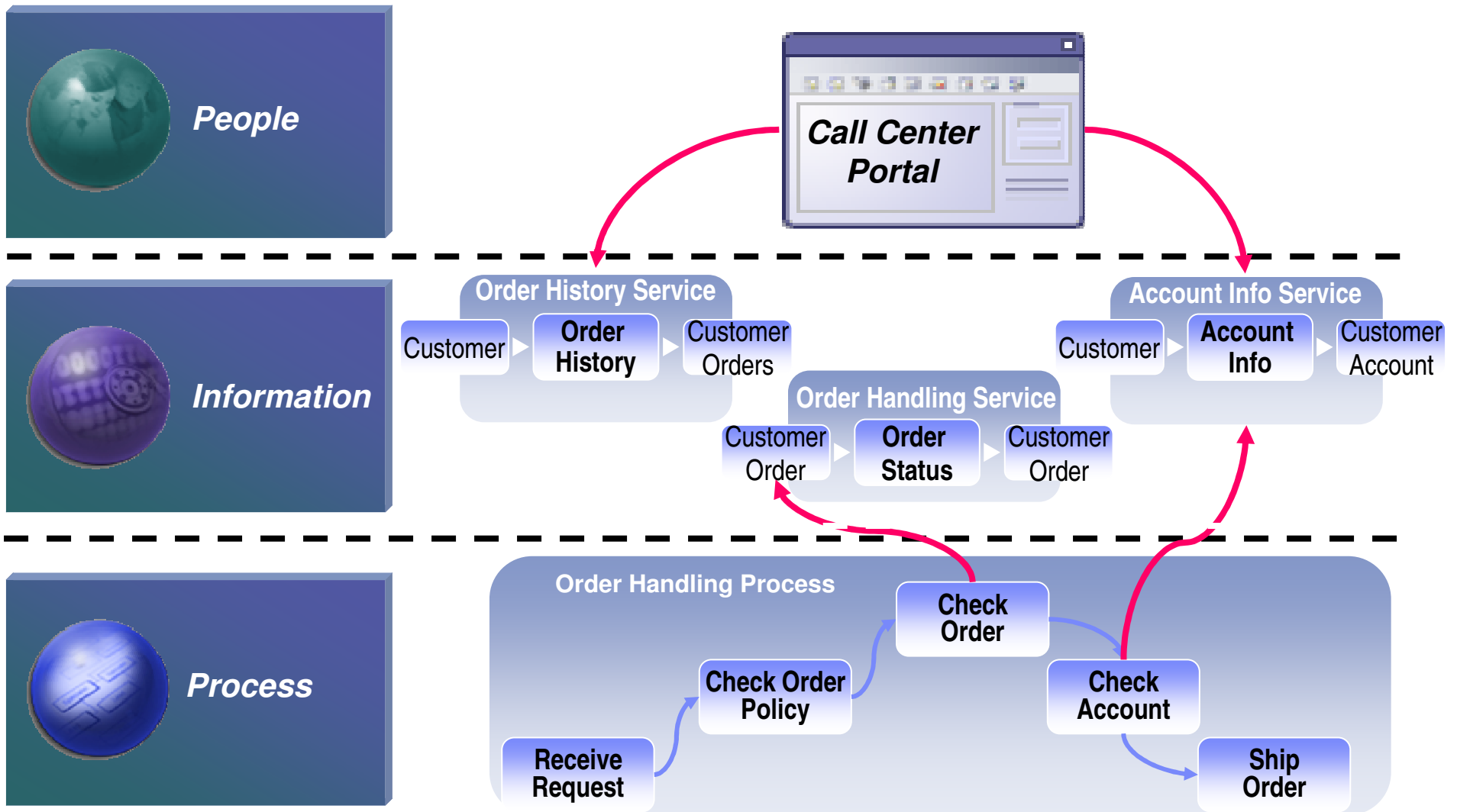
Service Consumers Deep Integration

WebSphere Integration Developer

Process Editor and Service Discovery Wizard

Information Service

Invoke

Invoke

Invoke

Information Service

Information Services

Data Transformation

Federated Access

Data Quality

WPS / WID Features:

- **Information service activity in business processes**

  - Direct access to information services from within the BPEL editor

  - Allows to choose appropriate information services based on meta data

  - Direct mapping of in and out parameters to BPEL variables

  - Information service specific events

Combining Information Services for Enterprise Solutions

People

Call Center Portal

Information

Order History Service

Customer → **Order History** → Customer Orders

Order Handling Service

Customer Order → **Order Status** → Customer Order

Account Info Service

Customer → **Account Info** → Customer Account

Process

Order Handling Process

Receive Request → Check Order Policy → **Check Order** → **Check Account** → Ship Order

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American Medical Association
Getting Started with Information as a Service

Challenge

- Validation and management of physician data was a manual process that took up 5 man-days per month

- Hundreds of information providers on a wide variety of data sources and formats

- Information was siloed and cannot flow freely throughout the enterprise

Solution

- Engaged IBM to take advantage of the SOA Innovation Win Program to get started on Information as a Service

- Managed subscriptions and registrations for a daily physicians newsletter on SOA

- Automated management of physician information using *IBM InfoSphere DataStage* and *QualityStage* as a service

AMA

Benefits

- 90% reduction in manual information management effort

- Newsletter subscriptions processed in real time 24x7

- Improved accuracy of physician data

- Information services are reusable across enterprise projects to unlock information for other uses such as outreach campaigns

- Established an SOA methodology and IaaS foundation centered around governance

APPROVED FOR EXTERNAL USE

Helzberg Diamonds
Retail jeweler beats competition with improved customer service

Challenge

- *Increased competition from mega retailers in the jewelry market was lowering retail transaction counts and threatening profits.*

- *To combat Wal*Mart and others advantage in terms of price and retail locations, Helzberg needed to build customer loyalty and offer better service.*

Solution

- *Helzberg's Online Personal Assistant allows each sales associate to proactively service and sell with thank you notes, service reminders or birthday offers.*

- *IBM InfoSphere DataStage and IBM InfoSphere QualityStage are deployed in a service-oriented architecture (SOA) to synchronize central and store level customer data warehouses.*

Benefits

- Improved customer service, resulting in an estimated 7-12% increase in annual sales (i.e. $36-$60M new sales per year).

- Better job satisfaction, employee retention and training among sales associates.

- Improved tools to measure, improve and track customer service and sales; likewise, better tools for employee coaching and development.

APPROVED FOR EXTERNAL USE

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InfoSphere™

IBM

Abstract

- The widespread adoption of service-oriented architectures (SOA) leads to a greater emphasis on enabling information on demand across enterprise systems in order to conduct business in a more flexible and responsive manner. By providing information as a service, organizations are able to gain better control and visibility over their data to optimize their business and achieve competitive advantage. However, the trustworthiness and accessibility of data then becomes key in order to support accurate decision making and business maneuvers.

- The mainframe system runs the largest and most critical applications in every organization, which means that is where the most important information resides. InfoSphere Information Server provides the data integration capabilities to unlock this mission-critical information and make it available throughout the enterprise as a service, enabling organizations to not only obtain a single version of trusted business information, but also leverage it as a strategic asset.