# Track 4 Technical. Session 4.2

# What's New in WebSphere SOA Connectivity & Integration

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IBM Software

## Impact2011

Changing the Way Business and
IT Leaders Work

**Optimize for Growth. Deliver Results.**

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# Our world is becoming vastly more complex

## 33 billion
*RFID tags embedded into our world*
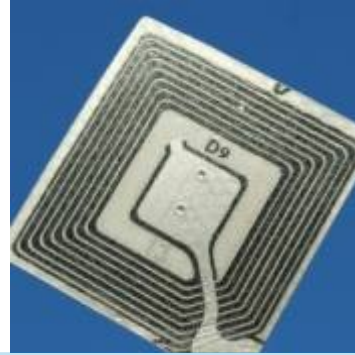
## 534 billion
*Dollars in mobile transactions by 2015*

## 70%
*Of businesses outsource one or more strategic activities*

## 1 trillion
*Devices connected to the internet by 2013*
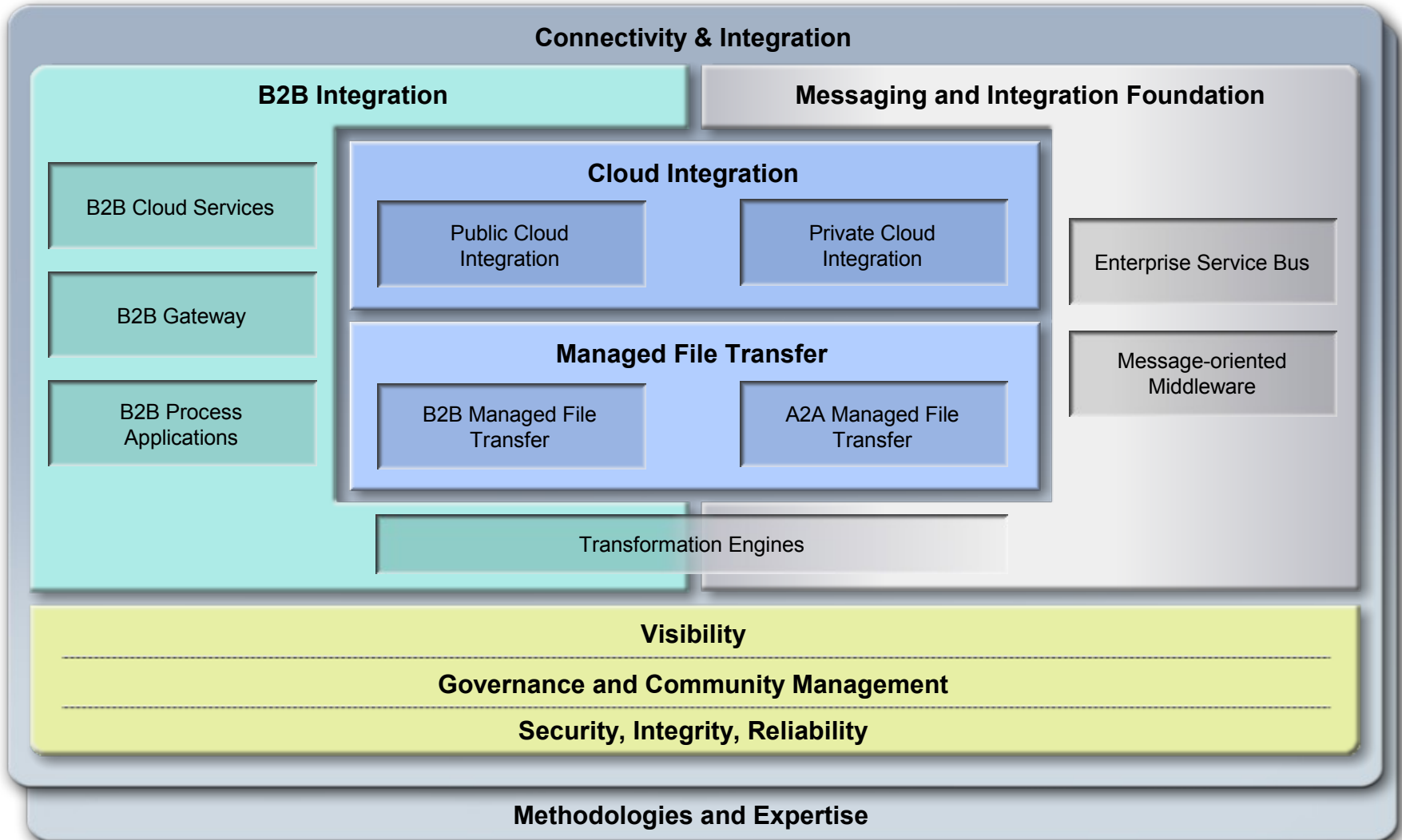
## 85%
*Of enterprises use external cloud services*

## 50%
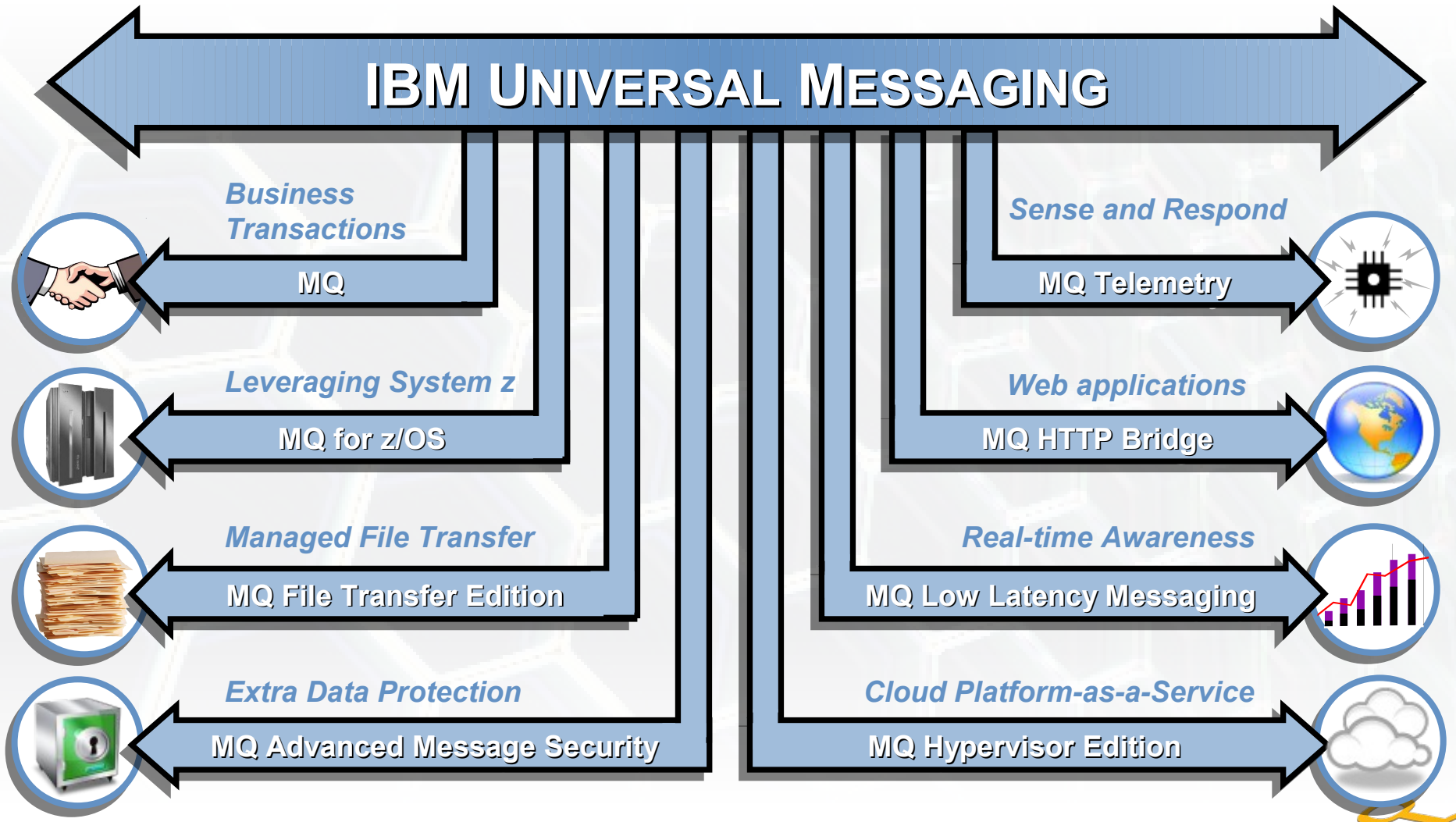*Of businesses plan to adopt more collaborative sourcing models*

# With rich, integrated capabilities

**Connectivity & Integration**

**B2B Integration**

**Messaging and Integration Foundation**

B2B Cloud Services

B2B Gateway

B2B Process Applications

**Cloud Integration**

Public Cloud Integration

Private Cloud Integration

Enterprise Service Bus

Message-oriented Middleware

**Managed File Transfer**

B2B Managed File Transfer

A2A Managed File Transfer

Transformation Engines

**Visibility**

**Governance and Community Management**

**Security, Integrity, Reliability**

**Methodologies and Expertise**

# IBM's Universal Messaging Backbone

**Proven, Flexible, Robust business data delivery from anywhere to everywhere**



**IBM UNIVERSAL MESSAGING**

*Business Transactions*
MQ

*Leveraging System z*
MQ for z/OS

*Managed File Transfer*
MQ File Transfer Edition

*Extra Data Protection*
MQ Advanced Message Security

*Sense and Respond*
MQ Telemetry

*Web applications*
MQ HTTP Bridge

*Real-time Awareness*
MQ Low Latency Messaging

*Cloud Platform-as-a-Service*
MQ Hypervisor Edition

# Add security protection to messages
## *WebSphere MQ Advanced Message Security V7.0.1.1*

- *Protects* message contents end-to-end

- Helps comply with aspects of *regulatory compliance* obligations

- Reduces time and skills needed to *secure messaging*

WebSphere MQ
Advanced Message Security

Queue Manager    Queue Manager

### *What's New?*

- *Add security services* to WebSphere MQ

- *No changes needed* to existing messaging solutions

- *Protects message contents* at the application level

  - Protects message contents end-to-end by *encrypting data* in queues, including when residing in queues

  - Improved customer's ability to meet regulatory *compliance* obligations, such as one of 6 key PCI DSS requirements

  - *Simplified administration* with centralized policy-based authentication for applications. Supports Hardware Security Modules

  - MQ *currency support* and Connectivity Portfolio support - MQ V6.0, V7.0 and V7.0.1, also support MQ FTE V7.0.1.3

# Securing private customer information with WebSphere MQ Advanced Message Security

A large North American life insurance provider, delivers high quality customer service, in support of growing membership



## Client Pains

➤ Negative exposure due to loss of customer personal insurance information and credit card data

➤ Securing large volumes of personal data traversing multi-channels

## Solution Benefit

➤ Standardize governance and lower total cost of ownership with little or no changes to existing applications

➤ Simplified installation and maintenance to prevent operational downtime

➤ Limits access to secure data, reducing opportunities to compromise data

# Comprehensive Managed File Transfer Environment
## *WebSphere MQ File Transfer Edition V7.0.4*

- Enables reliable *Managed File Transfer*

- *Leverages existing investments* in MQ networks and skills

- Connects *batch-driven file-based* systems with message-oriented online applications and services

- Supports rapid development of *ad hoc transfers*

- New in V7.0.4:

    – Enables MFT across a combined MQ and Connect:Direct solution

    – Transfers files into and out of existing Connect:Direct networks using C:D Bridge.

    – Visibility of files that transfer into and out of existing Connect:Direct networks



*Provide a secure and reliable Managed File Transfer environment across Connect:Direct and WMQ FTE endpoints*

# Managed File Transfer across MQ and Connect:Direct networks

**New!**

- ## Pains
  - Integrate existing C:D environment with MQ messaging-based environments
  - Visibility into transfers that flow from MQ FTE into and out of existing C:D networks

- ## WMQ File Transfer Edition V7.0.4 provides
  - Bridge adds ability to send files to (& receive files from) existing C:D nodes
  - Enhanced visibility of transfers into/out of Connect:Direct networks
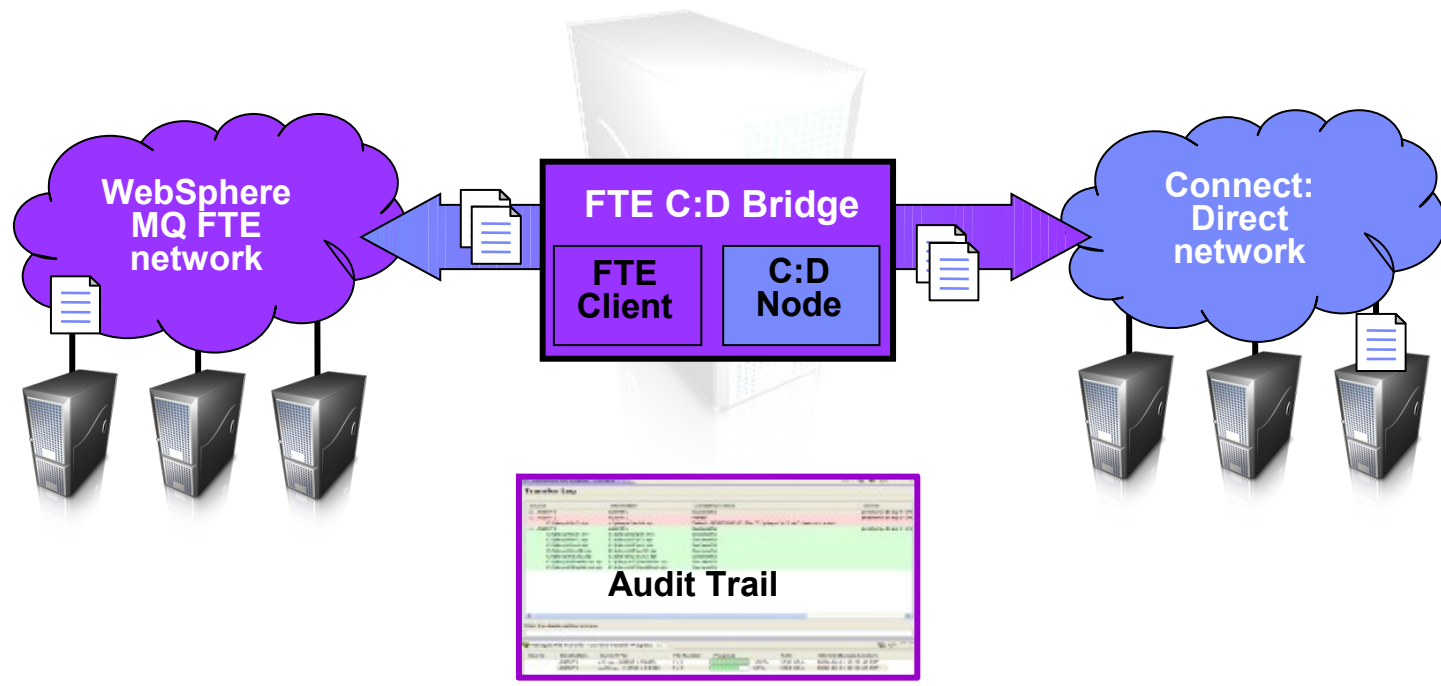
*Meijer replaces aging home-grown file transfer tool increasing reliability and visibility of transfers*

## Customer Needs

- Needed to overcome file size limitations & increase reliability
- Remove bottlenecks slowing delivery of pricing & PoS data
- Replace difficult to maintain, time-consuming and costly tools

## Real Results

- *Timely delivery* of critical file data without size limitations

- *Improved visibility & audit* of files transfers across business

- *Reduced admin costs* through automation, detection and resending failed transfers due to network outages

# Facilitating your Messaging Backbone in the cloud
## *WebSphere MQ Hypervisor Edition for Red Hat Enterprise Linux for X86 V7.0.1*

- ***Rapidly install, configure and deploy*** MQ messaging solution in the cloud

- Enables administrators to ***leverage cloud provisioning*** to deploy and update MQ solutions

- New in V7.0.1:

  - Easily maintain and upgrade MQ installations

  - Supports for Red Hat Enterprise Linux x86 64-bit environments

  - Predefined patterns and script packages for WebSphere Cloudburst and IBM Workload Deployer

  - Dispense new MQ (7.0.1.4) images rapidly and easily, by combining IBM Workload Deployer, cloud appliances or VMWare ESX

*Optimizes WebSphere MQ for virtualized environments, enabling more flexible hardware utilization, reduced installation and configuration time, allowing more time for strategic initiatives*

# ESB for Quick Integration of Applications and Processes
## *WebSphere Enterprise Service Bus V7.5*

- ***Decouples*** complex ***integration logic*** from each application providing consistency in connectivity across point-to-point infrastructure diversity

- Provides service mediation and hosting on ***common internet-standard application infrastructure*** based on WAS

- Extends to service registry and repository for ***SOA solutions*** with a published catalog of services supporting dynamic endpoint resolution

- New in V7.5:
    - Common Web 2.0 role-based business space UI for SOA users of WESB and WSRR, extending to BPM
    - Policy resolution extended to cover all binding types and manual endpoints configured in WSRR
    - More powerful transformations with XSLT2
    - Textual mediation flow format for a scriptable ESB  allowing XML editing with tool of choice
    - Dynamic service connectivity for any application, including WAS and BPM (any edition)

**Enhanced!**

| | | BPM |
|---|---|---|
| Portal | | |
| Commerce | WESB | Adapters |

**WAS ND, WAS z/OS**
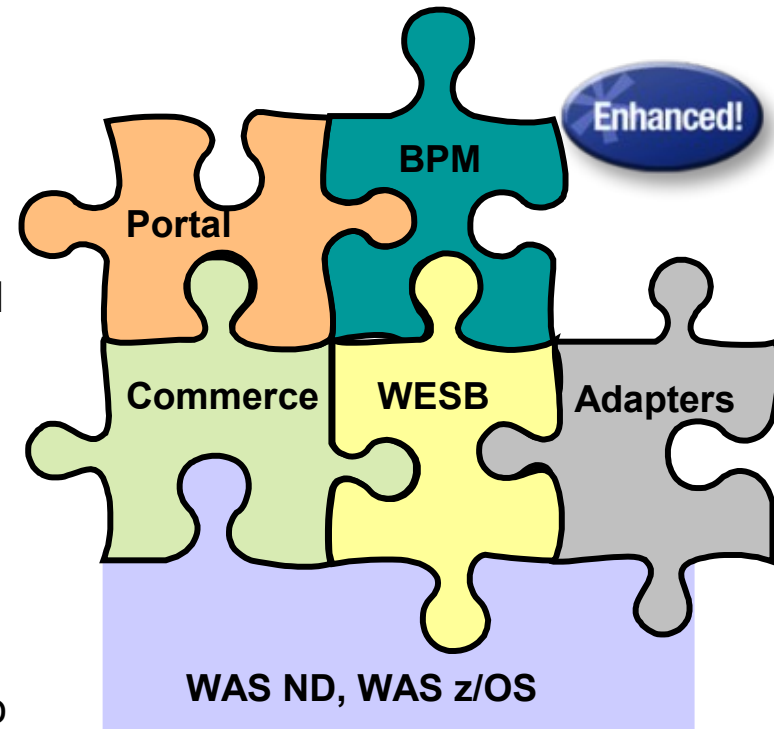
*Achieve efficiencies in skills, cost and time-to-value across your middleware solutions*

# Enhanced connectivity to key applications, systems and standards
## *WebSphere Adapters v7.5*

- ***Provides service enablement*** for EIS connectivity and technology standards

- Quickly and easily service enable legacy applications, ERP, HR, CRM, and supply chain systems

- New in V7.5:

  - Enhanced Oracle EBS, SAP, Siebel, JDBC, and ECM Adapters

  - Active-active HA clustering extended to JDBC, Flat File and FTP adapters

  - New calendar-based scheduling across adapters for inbound event polling

  - Delivered with Integration Designer v7.5 (for WebSphere ESB and BPM Advanced) and with RAD v8.0.3, WAS v8 Base and ND (for java developers)

*Unlock siloed information and extend applications to promote reuse and maximize ROI*

# Increased Visibility and Control for Insight into your SOA
*WebSphere Service Registry and Repository V7.5*

**Enhanced!**

- Ensures *awareness of available applications, services* and their consumers with associated metadata and documents throughout the organization

- Helps implement recommended practices and *increases runtime agility* enabling a policy driven SOA ensuring:
  - Consistent application of operational policies
  - Enforcement of governance lifecycle policies

**New in V7.5:**

- Improved role-based business space UI widgets for *improved user experience*, including report hosting to quickly view reports

- *Enhanced search capability* allowing google-type search through metadata and documentation

- Updated policy *authoring, attachment and analytics*, including:
  - Click-to-assign governance lifecycles
  - Assertion wizard to help assign assertions to lifecycle transitions
  - Operational policy analytics for WebSphere Message Broker
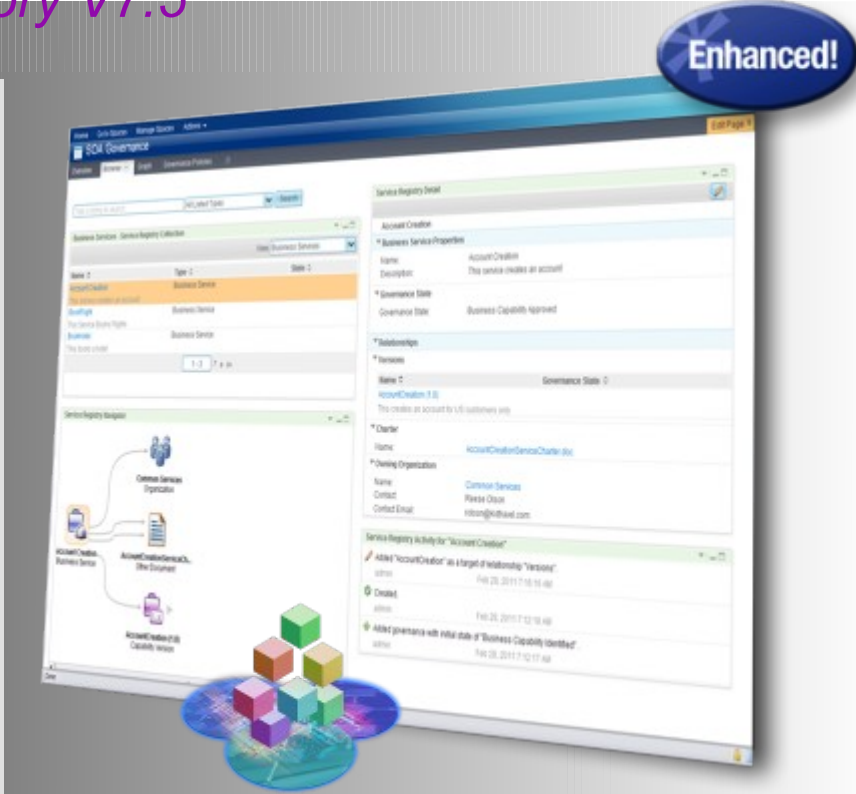
*Gain insight into SOA services and their consumption, policies and associated metadata in your enterprise*

# Lowering costs with standardized governance with WebSphere Service Registry & Repository

**Northwestern Mutual** insurance / investments / ideas™

Northwestern Mutual is a leading provider of life insurance and other financial products in the United States.

## Client Pains

- Inconsistent model for delivering enterprise-wide services
- Tightly bound services with little reuse
- Inflexible application of security policies
- Pressures to reduce IT costs

## Real results

- A *Standardized* governance model providing lower total cost of ownership
- *Agility* of service delivery to clients
- Reduced time to deliver solutions through increased *reusability*
- Able to show the *business* value of IT investment

# Accelerated SOA Deployment with a Combined Solution
*WebSphere Enterprise Service Bus Registry Edition V7.5*

- **Decouples** complex **integration logic** from each application

- **Increases visibility** with an established catalog of services

- **Promotes fast ROI** through tracking of service usage

- New in V7.5:

  - Incorporates unified role-based business space UI for SOA users of WESB and WSRR

  - Delivers benefits of V7.5 enhancements to both WESB and WSRR, including:

    - Multiple consumability updates

    - Dynamic service connectivity to IBM Business Process Manager & WebSphere Application Server to address greater integrated BPM / Application Infrastructure scenarios

*Packaged SOA solution combining ESB and Registry for accelerated SOA success*

# Rapid SOA adoption enables agility and lower TCO with WebSphere Enterprise Service Bus Registry Edition

Large provider of health insurance integrates services quickly to meet business need and enables further service reuse

## Client Pains

- Growing number of applications, services and points of integration
- Pressures to reduce IT costs
- Needed to manage service proliferation - homegrown and 3rd party
- Inability to track service usage
- Needed agility and control

## Real results

- *Decoupled* complex integration logic from each application
- Increased *visibility* with an established catalog of services
- *Fast ROI* through tracking of service usage
- Reduced time to deliver solutions through increased *reusability*
- Able to show the *business* value of IT investment

# Integrate Cloud & On-premise Applications in Days
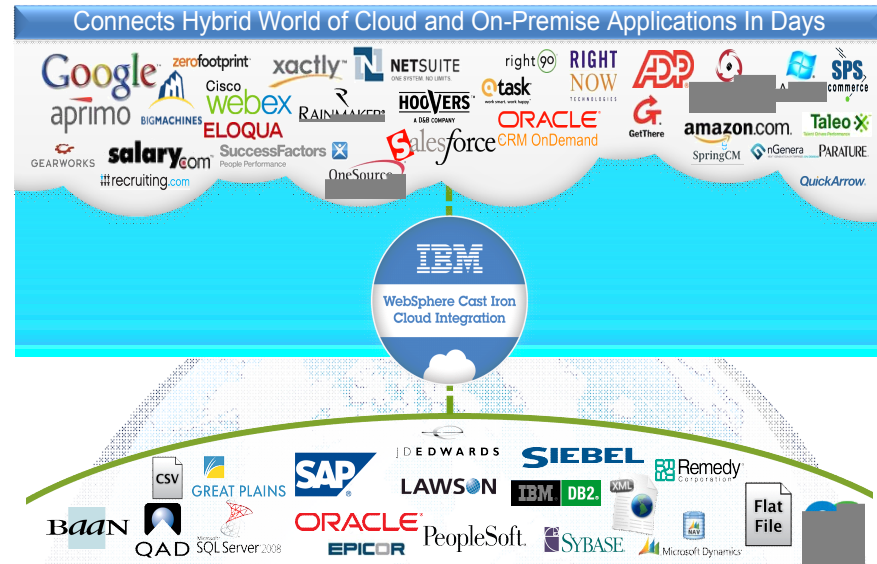## *WebSphere Cast Iron Cloud Integration*

**Fastest Time to Market:** No software to install or manage; Graphical configuration, not coding; Pre-built Template Integration Processes (TIPs) for the most common integration scenarios

**Lowest Costs:** Up to 80% lower costs vs. hand-coding alternatives; Low monthly subscription pricing

**Rapid, Efficient Development:** Unmatched flexibility — can be deployed as an appliance, virtual appliance or integration-as-a-service; Pre-built connectors for SaaS, CRM, ERP, all major databases, flat-files, Web Services, messaging systems, etc

**What's new**:

−**WebSphere DataPower Cast Iron Appliance XH40**: purpose-built, easy-to-use appliance designed for simplified deployment to deliver the capabilities needed for cloud and on-premise application integration.

−**WebSphere Cast Iron Hypervisor Edition**: a virtual appliance that can be installed on your existing servers by using virtualization technology.

−**WebSphere Cast Iron Live**: A complete multi-tenant cloud offering to connect cloud and on premise applications.



Connects Hybrid World of Cloud and On-Premise Applications In Days

*WebSphere Cast Iron Cloud integration enables you to connect the hybrid world of cloud and on-premise applications within days to achieve the lowest cost and highest returns on your investment in cloud and SaaS models.*

# Industry leading online brokerage shares business lead referrals with WebSphere Cast Iron

**TD Ameritrade**

*TD Ameritade* needed a bi-directional solution for on-premise and off-premise integration

## Business Challenges

- Leads being passed manually between sales teams, each using disparate systems
- SAP used as CRM for Investor Education Group
- Salesforce.com used as broker-dealer's opportunity mgmt system



## Real results
- Phase I completed in 10 days
- Approx. 10% increase in the total number of referrals submitted or received by the brokerage team
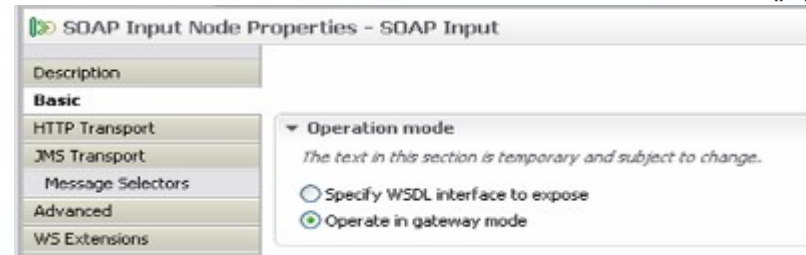- More efficient lead sharing, cross-selling across sales teams

# Accelerate, simplify your integration for universal connectivity
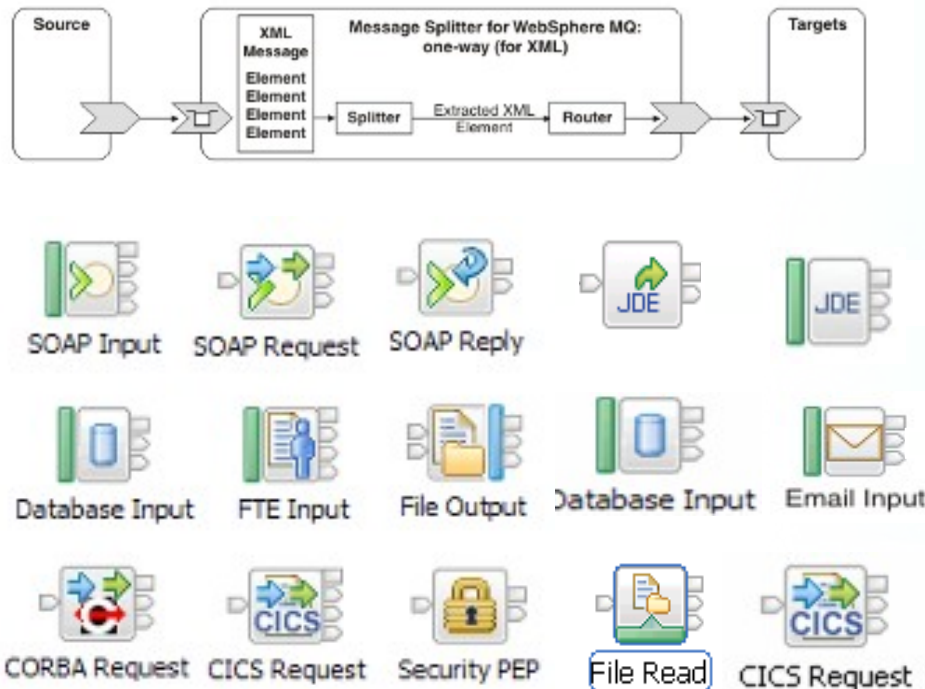## *WebSphere Message Broker V7.0.0.2*

- Eliminate complex and point-to-point integration connecting anything to anything

- Simplify *integration with intelligent routing and pre-built mediations*

- Accelerates productivity across user roles with *patterns-based development*

**SOAP Input Node Properties – SOAP Input**

| | |
|---|---|
| Description | |
| **Basic** | |
| HTTP Transport | ▼ Operation mode |
| JMS Transport | *The text in this section is temporary and subject to change.* |
|   Message Selectors | ○ Specify WSDL interface to expose |
| Advanced | ◉ Operate in gateway mode |
| WS Extensions | |

*IBM WebSphere Message Broker*
*V7.0.0.1 & V7.0.0.2*

**Message Splitter Pattern**

Source → XML Message [Element Element Element Element] → Message Splitter for WebSphere MQ: one-way (for XML) → Splitter → Extracted XML Element → Router → Targets

SOAP Input    SOAP Request    SOAP Reply    JDE    JDE

Database Input    FTE Input    File Output    Database Input    Email Input

CORBA Request    CICS Request    Security PEP    File Read    CICS Request

## *What's Enhanced?*

- *Simplicity and Productivity* with pattern creation, refinements and a development community

- *Universal Connectivity for SOA* with nodes for Web Services, email input, CICS, CORBA, JDEdwards and WMQ File Transfer

- *Dynamic Operational Management* adding Web Services Gateway for better manageability, execution group profiles for multi-tenancy and SAML for security

- *Platform Coverage* with new support for SolidDB, Windows 7, and JMS Node enhancements

# Reducing integration time and costs with WebSphere Message Broker

A large specialist retailer, with more than 1000 stores across 50 countries reduced the amount spent on integration and reduces TCO



## Client Pains

➢ Multiple best of breed systems

➢100 point-to-point interfaces consuming 30% of development effort

➢ Long project lead time

## Real results

•Successful first project replacing financial management system and integrating data into a single application
•Additional projects to create additional reusable services and components
•Exception management system built for first project ready for reuse in all subsequent deployments

# Rapidly provision and deploy runtime environments
## *WebSphere Message Broker Hypervisor Edition V7.0*

- *Speed time-to-value* by rapidly deploying and configuring environments leveraging best practice deployment patterns

- *Efficiently and cost-effectively deploy and manage* ESB deployments, including new flows, fixes, and modifications

### *What's new?*

- *Hypervisor enablement* of WebSphere Message Broker V7.0.0.1 and WMQ V7.0.1 for use in virtualized environments

- Full deployment of Broker image with *underlying OS & configurations* via IBM Workload Deployer (was WS Cloudburst Appliance) cloud appliances or VMWare

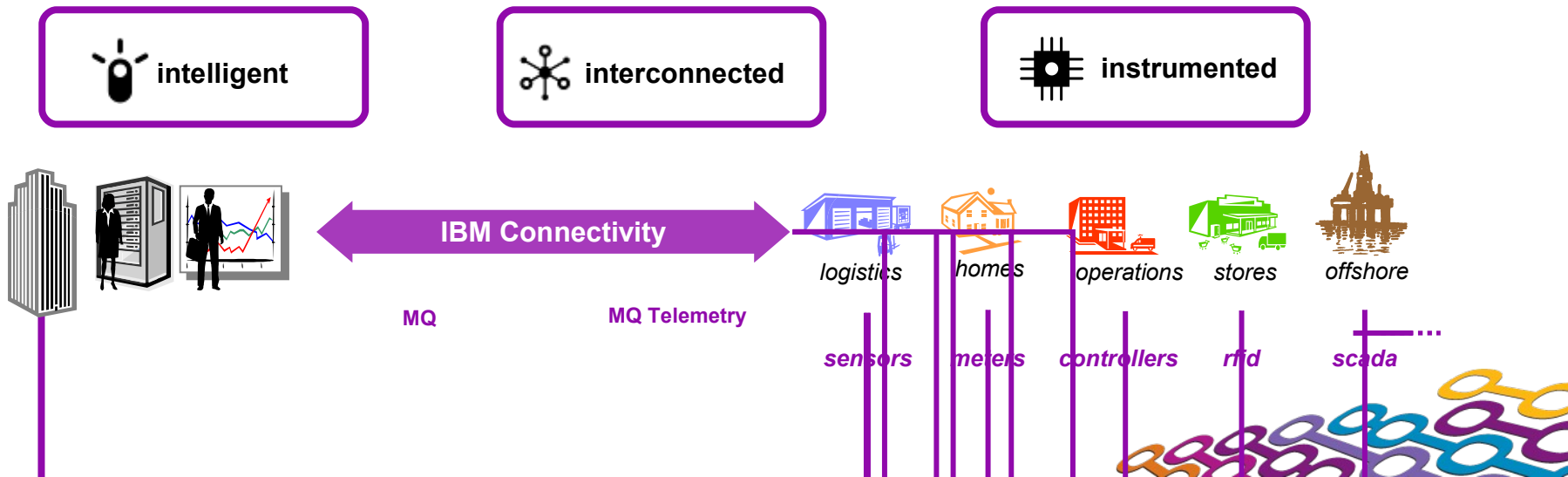*IBM WebSphere Message Broker Hypervisor Edition V7.0*

# Sense & Respond with WebSphere MQ Telemetry

- Messaging optimized for smart sensors and telemetry devices
- Enables intelligent decision-making based on remote real-world events
- Remote resource management of static or moving assets, people, locations

- **Telemetry capabilities**
  - Direct device integration into back-office
  - Tiny messaging optimized for resource-constrained devices & gateways (RTUs)
  - Terse protocol & compact header (2 bytes), for fragile & pay-per-byte networks
  - Advanced device level data buffering
  - Event-driven publish-and-subscribe delivery of only significant information
  - Open protocol encourages widespread device enablement
  - Last Will & Testament for automated handling of device failures or outages

intelligent     interconnected     instrumented

IBM Connectivity

MQ     MQ Telemetry

logistics     homes     operations     stores     offshore

sensors     meters     controllers     rfid     scada

...

# Smart Metering enabled by WebSphere MQ Telemetry

*__Consert__ deliver Intelligent Utility Network offerings for optimizing load on electricity grids*

## Business Partner Needs

- Needs robust middleware technology to connect to remote smart meters

- Needs to be able to rapidly scale solution nationwide

## Real Results

- *__Able to offer__ daily energy savings of 15-20%*

- *__Enables__ utilities to reduce peaks and avoid punitive charges*

- *__Helps save__ electricity through better peak load management*

# Reliable, high volume, low latency messaging
## *WebSphere MQ Low Latency Messaging V2.6*

- ***Respond to business opportunities faster*** with ultra low latency, high throughput messaging

- ***Minimize disruption to business*** by addressing critical need for constant latency
  - Near zero jitter
  - Constant, predictable latency

New in V2.6:
- Increased throughput and industry leading latency
  - **98 million** messages per second
  - **1 microsecond** latency for shared memory
- Enhanced Consumability
- Improved Networking
- Expanded Platform coverage

*Deliver high volume low latency solutions with high throughput, flexible message delivery, filtering and congestion control*

# Driving down Latency & Increasing Throughput
*WebSphere MQ Low Latency Messaging v2.6*

## ■ Setting the Bar for Throughput

**98 million** messages per second on

**Native Infiniband and Shared Memory**

**75 million** messages per second on

**10 Gigabit Ethernet**

## ■ Industry Leading Latency

**1** microsecond for shared memory

**2** microseconds over Native InfiniBand

**4.5** microseconds over Ethernet (10 GbE*)

**System Configuration**
- IBM HS22 blades: 2 x Quad core Intel Xeon E5570 2.93GHz 14GB RAM. Linux RHEL 5 update 3 (x86_64 64 bit)
- Voltaire 40 Gb IB Switch Module / BNT 10Gb Ethernet Switch Module
- Mellanox ConnectX MT26428 HCAs / Chelsio T320 Dual Port 10GbE Adapter
- * 10GbE using RoCEE

### High Throughput
*10 Gigabit Ethernet*

| Message size (bytes) | Message Rate (msgs/sec) |
|---|---|
| 12 | 75,914,578 |
| 45 | 25,253,255 |
| 120 | 9,724,107 |
| 1200 | 985,846 |
| 12,000 | 98,225 |

### Low Latency
*Single hop Average*

| Network | Message size (bytes) | Transmission rate (msgs/sec) | |
|---|---|---|---|
| | | 10K | 100K |
| 1 GbE Ethernet | 120 | 29 µs | 34 µs |
| 10GbE Ethernet* | 120 | 4.5µs | 4.5µs |
| InfiniBand | 120 | 2 µs | 3 µs |
| Shared Memory | 120 | 1 µs | 1 µs |

# Responding faster with WebSphere MQ Low Latency Messaging

**Bolsa Comercio SANTIAGO**

***Bolsa de Comerico de Santiago** dramatically accelerate their trading rates and throughput*

**Customer Needs**
- Needed to better integrate with international financial markets
- Needed to support higher volumes of traffic and fulfil more of its customers' transactional requirements

**Real Results**
- ***Able to scale 100 times** to millions of messages per second*
- ***Reduced latency** from 2 secs to milliseconds per transaction*
- ***Increased customer access** to additional market data sources*

# Drive Business Integration and Optimization with IBM Connectivity & Integration

## Messaging

- Secure and reliable information delivery across the enterprise with the capability to scale to 100s of millions of messages per day

## Integration Foundation

- Fast and flexible connectivity between processes, applications, and information for a robust SOA and governance foundation

## B2B integration

- Flexible and secure connectivity and management of diverse partner, customer, and supplier communities

## Cloud integration

- Integration of cloud, SaaS and on-premise applications designed to maximize the effectiveness and value of cloud investments

## Managed file transfer

- Secure data movement enabling enterprises to gain control and oversight of the movement of critical corporate data to facilitate data growth, reduce security risk, and improve IT and business efficiency

# What's New in IBM Connectivity and Integration
## *New announcements this week and since IMPACT 2010*

## Messaging

- Connect sensors and devices with lightweight and reliable messaging
  *WebSphere MQ Telemetry*

- End-to-end message level security, reducing the time and skills needed for aspects of common security standards
  *WebSphere MQ Advanced Message Security*

- Increased performance and availability for low-latency messaging
  *WebSphere MQ Low Latency Messaging v2.6*

## Cloud integration

- Multi-tenant integration as a service to connect cloud and on premise applications
  *WebSphere Cast Iron Live*

- Physical and Virtual integration appliance
  *WebSphere DataPower Cast Iron Appliance XH40*
  *WebSphere Cast Iron Hypervisor Edition*

- Leverage best practice deployment patterns with private cloud provisioning
  *WebSphere MQ & WebSphere Message Broker Hypervisor Edition*

## B2B integration

- Cloud service for file-based B2B interactions & document management services
  *Sterling B2B Integration Solutions*

## Integration Foundation

- Grow your SOA adoption with a scriptable and configurable ESB
  *WebSphere Enterprise Service Bus v7.5*

- Accelerated integration for universal connectivity
  *WebSphere Message Broker v7.0.0.2*

- Increased visibility, control and insight into your SOA
  *WebSphere Service Registry & Repository v7.5*

- Unified role-based user-experience with WESB Registry Edition v7.5 to better manage your services
  *WebSphere Enterprise Service Bus Registry Edition v7.5*

- Enhanced connectivity to key applications, systems and standards
  *WebSphere Adapters v7.5*

- Increased performance and enhanced integration
  *WebSphere DataPower Integration XI52, XI50z, B2B XB62*

## Managed file transfer

- Enabling customers to leverage their investments to enable Managed File Transfers between domains
  *WebSphere MQ File Transfer Edition v7.0.4*
  *Sterling Connect:Direct*

**New announcements at IMPACT 2011**

# IBM is the proven leader in connectivity & integration

## Largest Customer Base

**25,000+ Customers**

Customer success stories;
**100+** on ibm.com

## Strongest Ecosystem

**1000+** business partners

and user groups

## Unparalleled expertise, and level of investment

**Over 15 years** of industry leadership

**100's** of assets

**Broadest, Deepest** solution portfolio & services

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