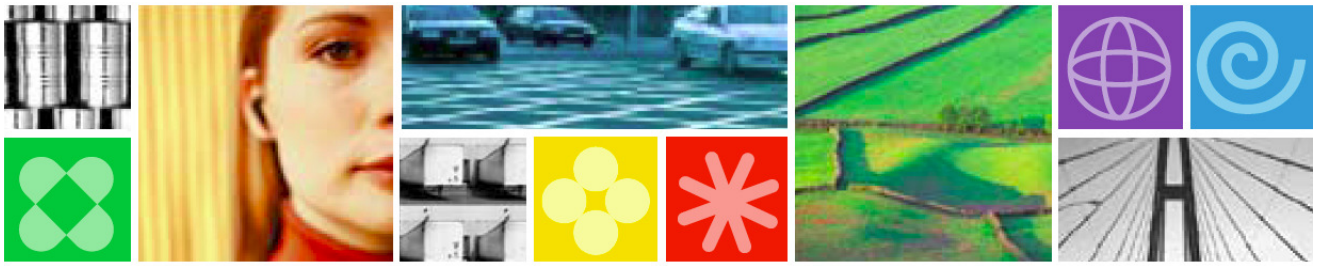
Discover, Interact, Optimize

SOA connectivity and integration solutions on System z



We are living in a new landscape

Smarter Planet

instrumented
interconnected
intelligent

people
companies, institutions, industries
man-made systems
nature's systems

Rapid change. New competition. Unprecedented opportunity

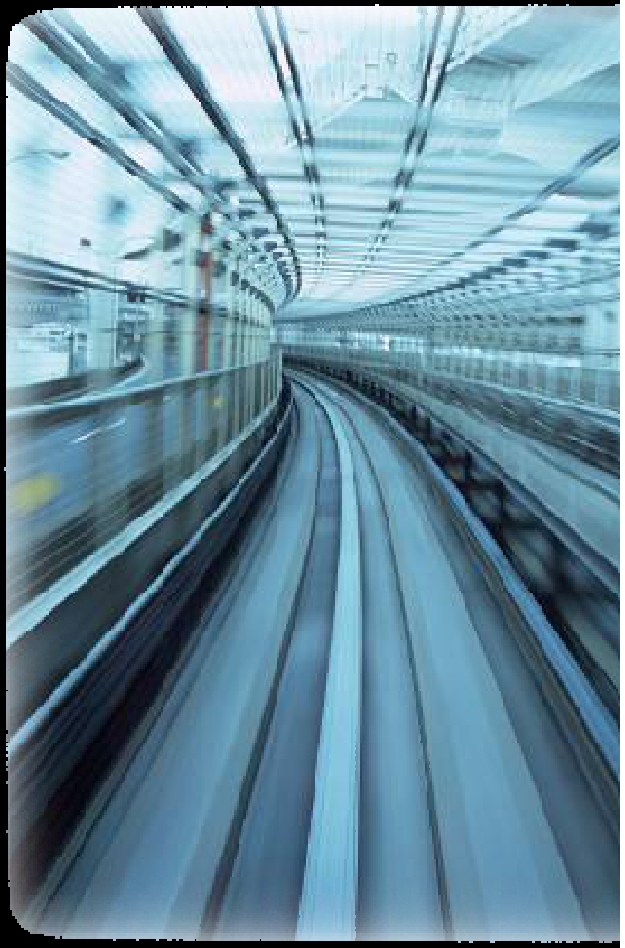
You can’t just work harder

You can’t just spend money for more resources

You must Work Smarter

We face the challenge of accelerating market shifts

- **Rising consumer expectations compel improvements in speed and personalization**
- **Rapid swings in economic and commodity markets highlight lack of adaptability**
- **Lower barriers to entry in a digital, flat world, enable fast and easy access by new competitors**



Businesses must evolve…

…by adapting and responding dynamically

Businesses must become agile

Businesses become agile by…

Discovering Insights that enable innovation

Enhance awareness and understanding
across processes and ecosystems

Maximizing the value of business **interactions**

Access rich information and applications
at the right time and in the right context

Optimizing productivity and resources

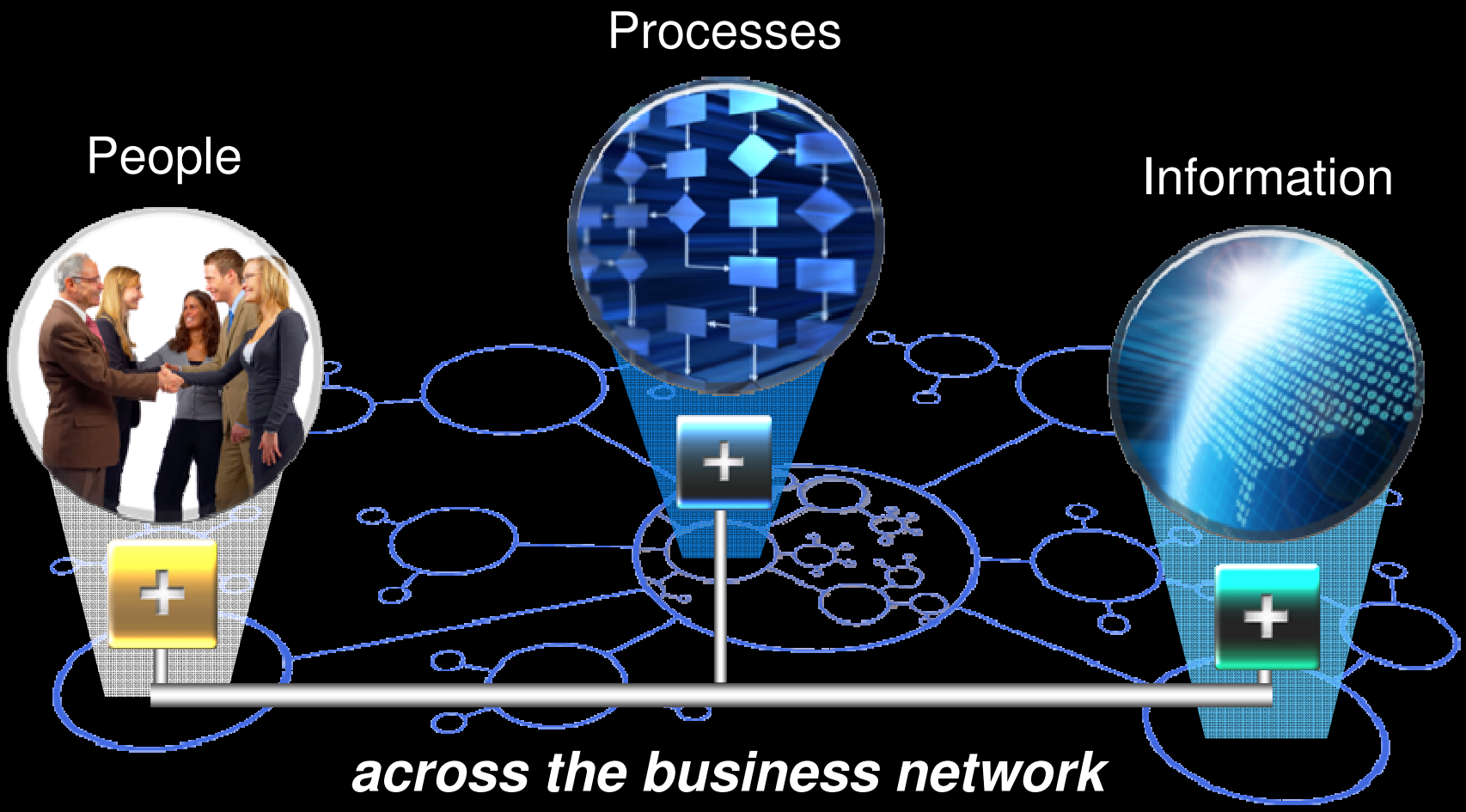
Broadly flexibly and continuously automate
and govern processes

Business innovation requires extended visibility across the business network

Real-time visibility across applications, employees, partners, & customers

Adhere and adapt to changing industry standards

Service-orientation seamlessly integrates



Can quickly integrate applications from new acquisitions

Reuse optimizes IT assets and maximizes investments

- Automate processes leveraging shared services
- Organize and manage services in a central repository
- Easily find the right services and information

Manages costs by eliminating redundant services, applications, and systems

IBM is the industry leader in SOA

Largest Customer Base with Smartest Outcomes

- **8002 Customers**

Strongest Ecosystem

- **7420** SOA community business partners
  - Up 48% Year to Year

Unparalleled expertise and investment

- **Trusted** thought leadership and guidance
- **Trained IBM SOA community** over 100K
- **Broadest, Deepest** portfolio of offerings

Reduce Costs With Unified, Guaranteed Message Delivery

WebSphere MQ V7.0.1 for z/OS

- Reduce TCO and accelerate ROI with new options for software-enabled high availability messaging and resilience features
  - Reduce business costs and disruption from unplanned outages
  - Reduce IT costs of skills, programming, and system maintenance
- Increase performance through tighter integration with WebSphere Message Broker
- Extend value of z/OS platform with 64-bit storage and increased performance
- Increase governance and save time preparing for audits by controlling MQ applications with SOA governance and change events
- Minimize cost of disruption with automatic re-routing through standby Queue Managers

Reliable, proven, and ubiquitous multi-purpose messaging transport for SOA connectivity

WMQ V7 Initial Updates (7.0.1)

- Complete some elements of V7 that didn't make GA
  - Migration/ coexistence PTFs for z/OS
- Service Definition Wizard
  - Describing MQ applications in WSDL for better governance
- Standalone MQ Explorer download (SupportPac MS0T)
- XA-aware API Exit
- Continued performance enhancements
- SupportPac updates
  - MS81 (MQIPT)
  - Performance Reports
  - Various Cat2 packages: MS03, MA01, MS0P, MO71, MO72, MC91 …

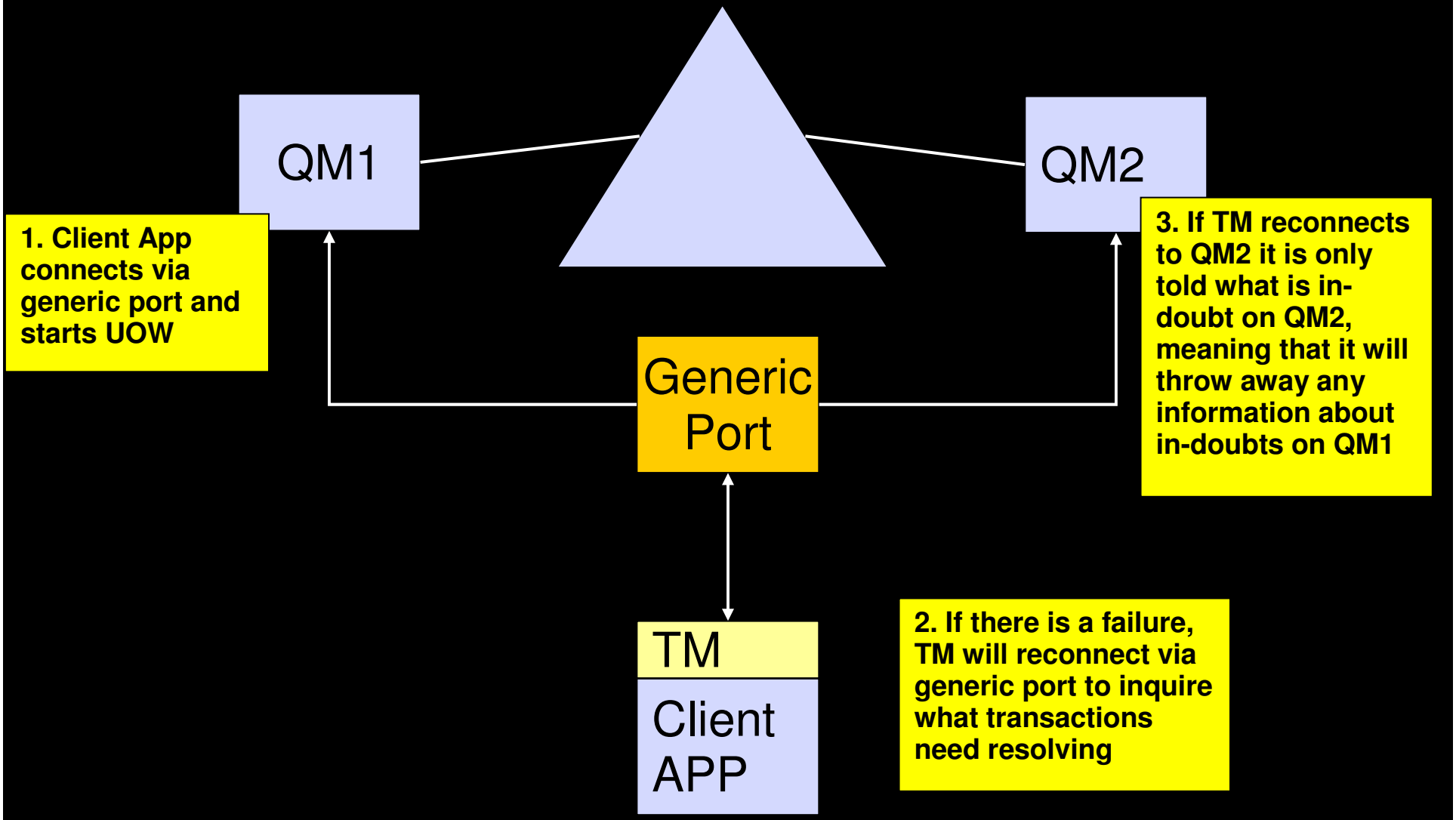
WMQ V7.0.1 for System z Installation and Delivery

- WMQ V7.0.1 is a modification release on the V7 base
  - Which means limited scope for new objects/attributes
  - Minimises migration aspects
- On Linux for System z, it is available in two ways
  - A fixpack for upgrade from existing V7 installations (which can be backed out)
  - A replacement V7 installation image
  - Customers ordering V7 will now get V7.0.1
  - Single service stream for V7.0.x.y
- On z/OS, it is available as a modification level release
  - Migration supported from V6 and from V7.0.0
  - Customers ordering V7 will now get V7.0.1
  - New ZPARM OPMODE (COMPAT|NEWFUNC) option to control whether new function is available for use and therefore subsequent fallback will NOT be possible

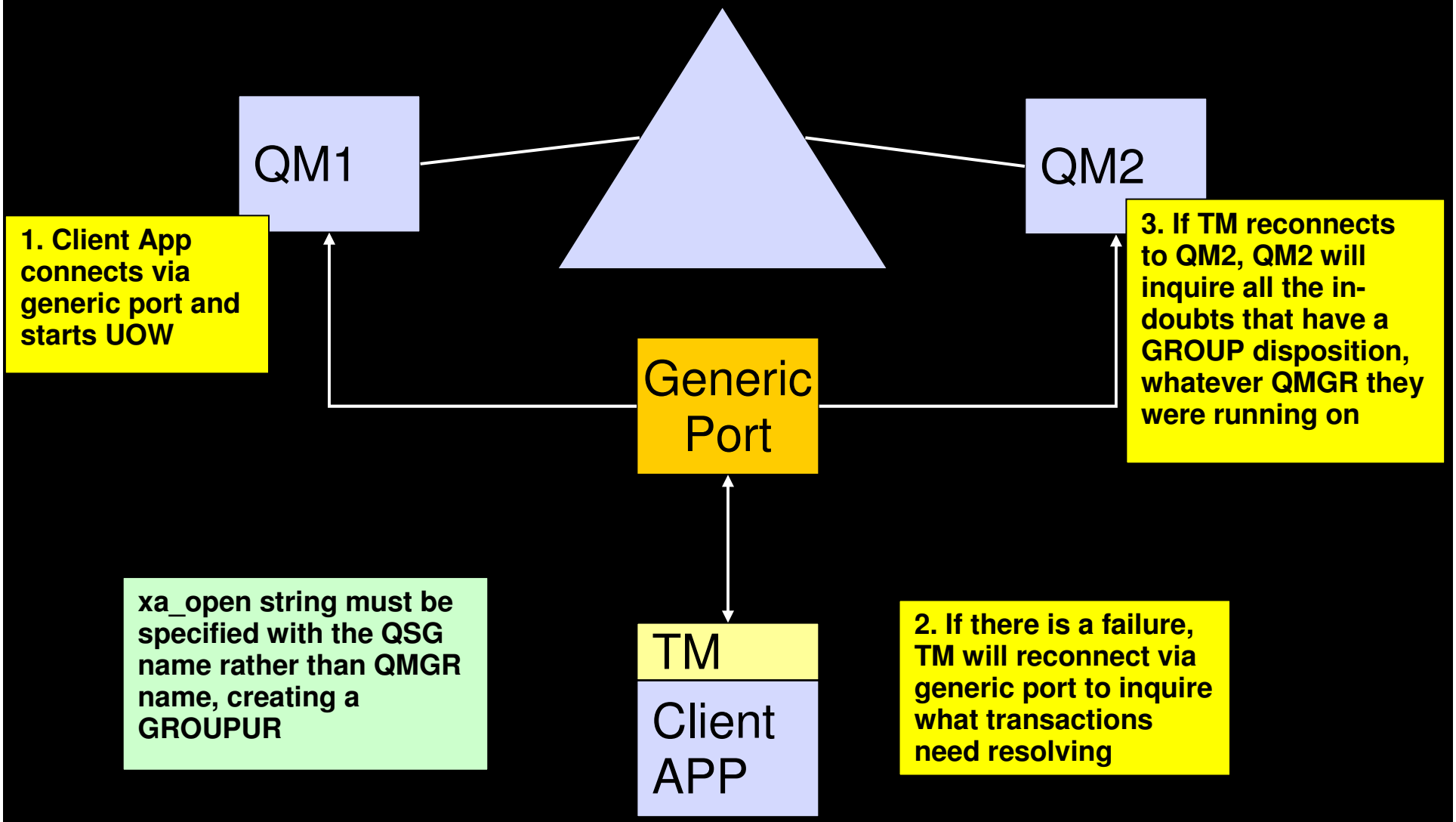
WMQ V7.0.1 for z/OS Group-level Units of Recovery for z/OS

- A client's two-phase/global transaction can now be owned by a QSG
  - Instead of by individual queue managers
- These in-doubt transactions can be resolved on any QMGR in the QSG.
  - Required for support 2-phase commit resolution while connected to the QSG
- Requires use of the Extended Transactional Client
  - For example, from WAS
  - Configure the WAS client connection with the QSG name rather than the QMGR name

WMQ V7.0.1 for z/OS Shared Queues GROUPUR: The Problem

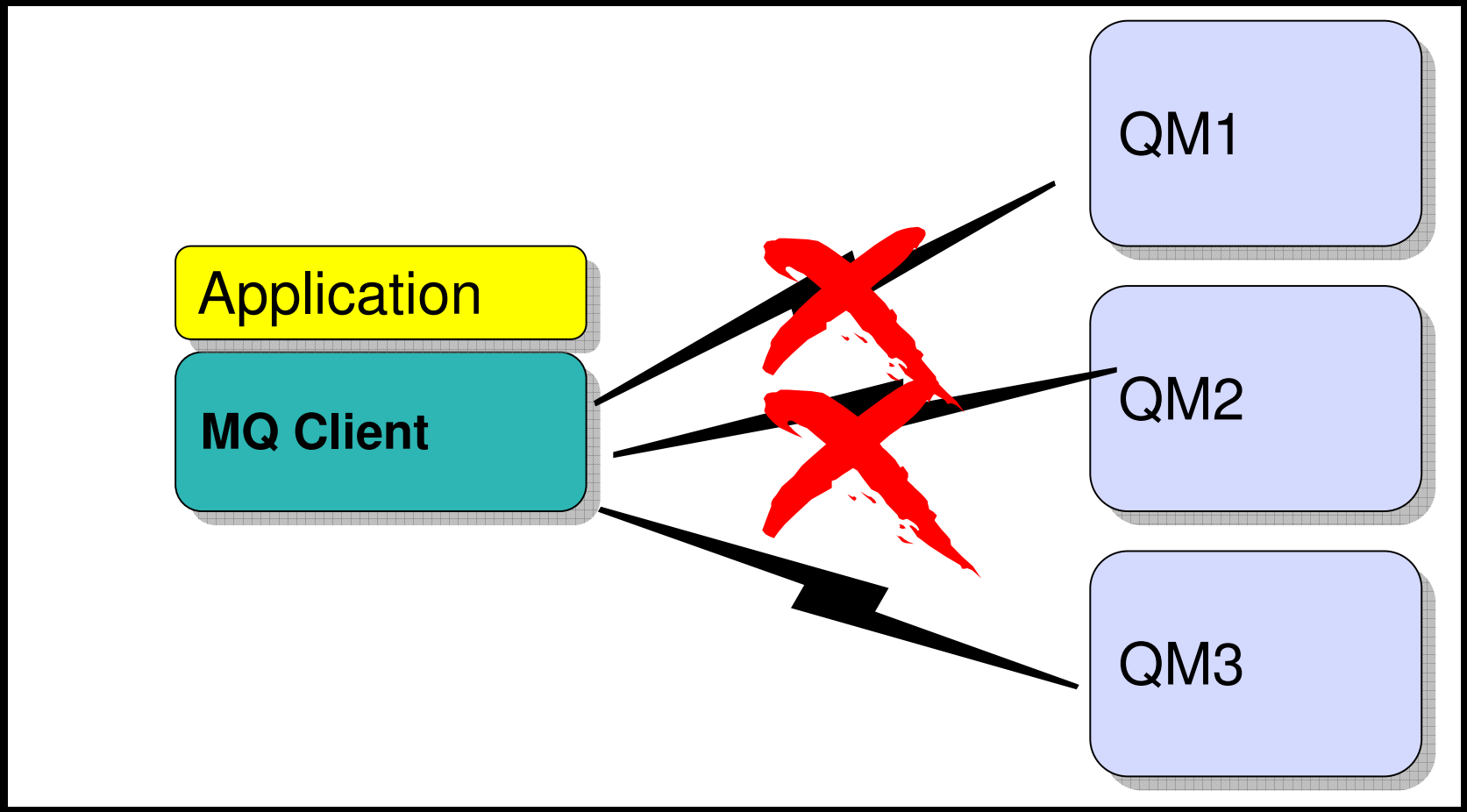


WMQ V7.0.1 for z/OS Shared Queues GROUPUR: The Solution



WMQ V7.0.1 for z/OS Automatic Client Reconnection

- Client library provides necessary reconnection logic on detection of a failure
- Hides failure from application code



WMQ V7.0.1 for z/OS Automatic Client Reconnection: Details

- Enabled in application code or ini file
  - Event Handler callback shows reconnection is happening if app cares
- Tries to keep dynamic queues with same name
  - So replies may not be missed
- Not all MQI is seamless, but majority repaired transparently
  - eg a browse cursor would revert to the top of the queue, non-persistent messages will have been lost during restart, non-durable subscriptions may miss some messages, in-flight transactions backed out, hObj values maintained
- Some MQI options will fail if you have reconnection enabled
  - Using MQGMO_LOGICAL_ORDER, MQGET gives MQRC_RECONNECT_INCOMPATIBLE
- Initially just in MQI and JMS – not the other OO classes
  - Requires both client and server to be V7.0.1 level with SHARECNV>0
  - Server can be z/OS

WMQ V7.0.1 for z/OS Constraint Relief

- In ***WMQ V7.0***, the queue manager started to exploit 64-bit addressing
  - New Pub/Sub features
- In ***WMQ V7.0.1*** more Queue Manager storage moves to 64-bit
  - 64-bit Queue Indices
  - 64-bit Lock Manager
- Can have more open queues, more messages on indexed queues etc
- Small message storage changed
  - One message per page instead of fitting multiples into single page
  - May increase DASD use, especially if messages not quickly retrieved
  - But typical workloads show improved performance and reduced CPU
- In ***WMB V7***
  - Execution group size is 64 bit & all commands are 64 bit
  - Generally, 32 bit execution groups are no longer available
  - z/OS address spaces are all 64 bit

WMQ V7.0.1 for z/OS Log Compression

- Can increase the throughput possible for persistent messages
- May reduce the size of your logs
  - Dependent on your message content
  - Useful if you are DASD constrained.
- RLE (run-length encoding) of “insert” log records for private queue messages
  - Will not compress shared queue log records
  - SMF 115 records updated to show compression rates achieved etc
- Controlled via zPARM option at queue manager level.
  - COMPLOG(NONE) or COMPLOG(RLE) in CSQ6LOGP
  - Can also be viewed/controlled via DISPLAY LOG / SET LOG

WMQ V7.0.1 for z/OS Programming Enhancements

- Enhanced JMS
  - More applications being written to use this API
  - Underpins many SOA/ESB solutions needing access to messaging
  - Improved performance & ease-of-use
- Enhanced Publish-and-subscribe
  - Ease-of-use
  - New support for z/OS
- Extended verbs and behaviours for MQI programming interface
- Enhanced MQ clients for increased throughput resilience and availability
- Web 2.0 support to help create richer user experience
- Evolutionary – if you know V6, you will know V7

WMQ V7.0.1 for z/OS Publish/ Subscribe Enhancements

- Option to discover if no subscribers (user or proxy) during MQPUT/PUT1
  - MQPMO_WARN_IF_NO_SUBS_MATCHED
  - MQRC_NO_SUBS_MATCHED
- Will guarantee that no one has received the publication
  - But does NOT guarantee that anyone will definitely receive the publication
  - For example, it is not returned if the target queue is full
- Publish Exit
  - When a publication is made, this exit is invoked for each valid subscriber
    - Runs “inside” the queue manager
  - Can change routing destination
  - Can change contents of message
  - Can change contents of message descriptor
  - Can inhibit publication

File Transfer with Control and Confidence

WebSphere MQ File Transfer Edition V7.0.2 for z/OS

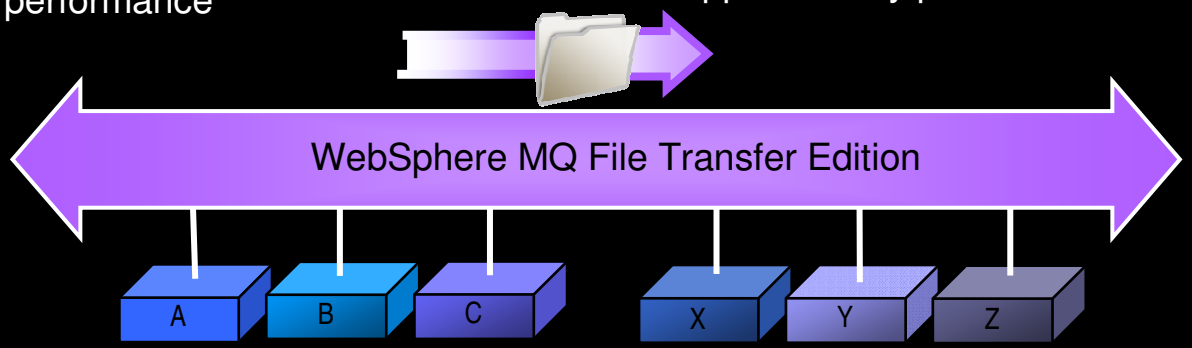
Adds managed file transfer services to WebSphere MQ

Enables reliable, secure and traceable file transfers

Replaces costly, home-grown solutions that lack management controls

File transfer capabilities

- Any file size (Kb, Mb, Gb, Tb…)
- Powerful graphical tooling
- No need for programming
- Reliable delivery leveraging MQ
- Full logging for audit purpose
- High performance
- Character set conversion between platforms
- Industry standard SSL security
- XML scripting for distributed job automation
- Multi-purpose solution – transports both messaging and files
- Supports many platforms



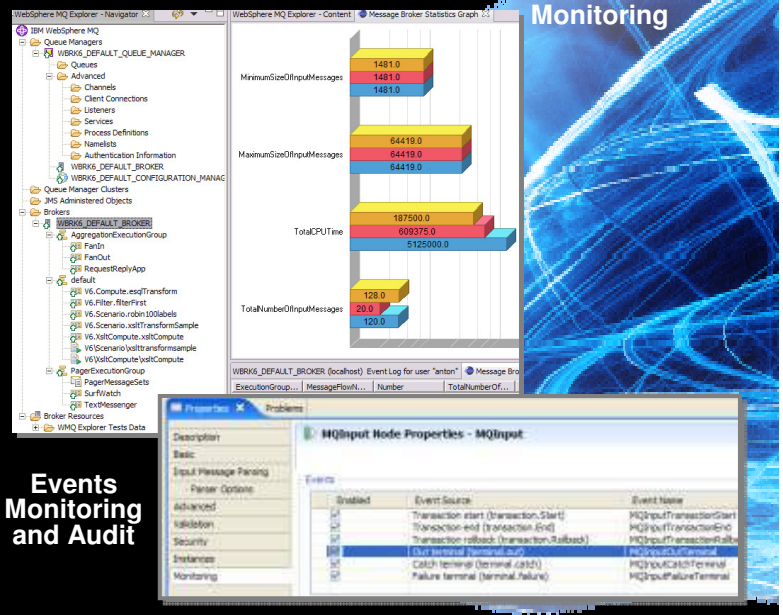
"Move files in a managed way from anywhere to everywhere"

Fast and Flexible Access to Business Information anywhere

WebSphere Message Broker V7.0 for z/OS

- Dynamic and quick business interactions through portfolio integration and simplification
  - Integrated WebSphere MQ publish-and-subscribe, software-based high availability, and MQ Explorer
  - Quick and easy event handling and monitoring via WebSphere Business Monitor and WebSphere Business Events
- Unifying the business information to make fast and better decisions
  - Service Federation management across multiple SOA domains, ESBs and organizations
- Accelerate productivity across business and IT users
  - New SCA nodes for easy interoperability with WebSphere Process Server and WebSphere ESB
  - Dynamic configurations and pattern based development for faster implementation

Built for universal connectivity and transformation in heterogeneous IT environments



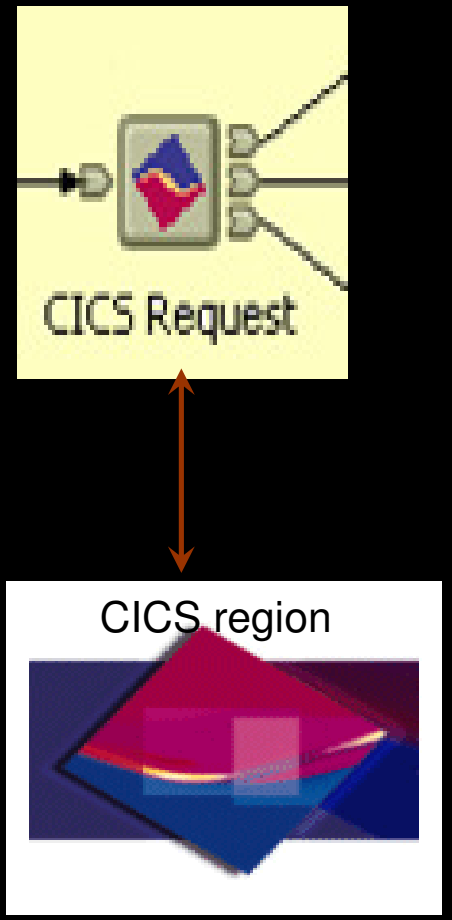
WMB V7.0 for z/OS Nodes

Message Broker includes powerful z/OS-specific nodes

- **VSAM nodes**
  - Batch Input Processing
  - Data Enrichment and Routing from VSAM
  - Data Logging to VSAM
  - Deletion of VSAM data
  - Remove VSAM file records on the basis of message processing
- **QSAM nodes**
  - Similar in concept to VSAM nodes, but sequential file oriented
- **CICS**
  - Fully transactional, high performance EXCI CICS interaction direct from a z/OS message flow

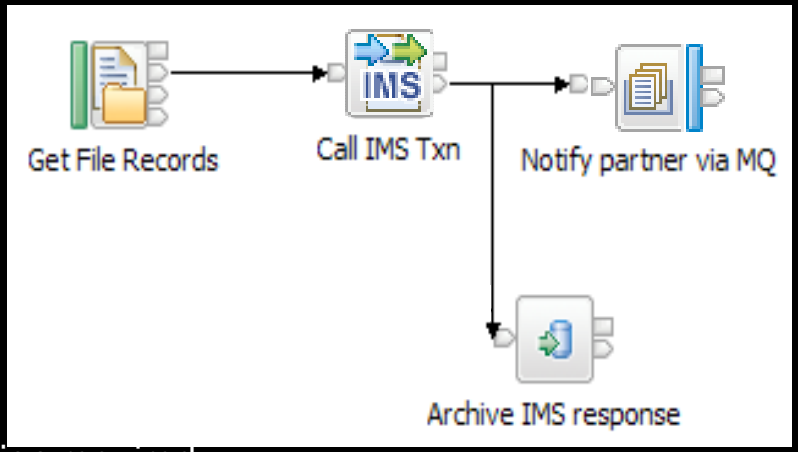
WMB V7.0 for z/OS CICSRequest Node

- **Execute a CICS program (DPL) request within message flow**
- **Transforms messages**
- **Synchronous**
- **Transactional (uses RRS)**
- **Gets input from**
  - node attributes
  - message contents (in message assembly)
  - environment (z/OS, broker, CICS region)
- **Puts output to**
  - output message (in message assembly)
  - exceptions (in message assembly)
  - to flow (Error, Failure, Output)
- **Only available on WMB for z/OS**



WMB V7.0 for z/OS IMS Node

- IMS Request node
  - Allows message flows to call IMS transactions and handle responses
  - Typical scenarios include Web Service->IMS, File->IMS, SAP->IMS…
  - Provides high performance, synchronous, multi-platform access to IMS
  - Complements MQ IMS Bridge and IMS Web Services currently accessible via MB
- Synchronous invocation of IMS transactions and commands
  - Supports a broad range of IMS facilities
    - MPP, BMP and Fast Path transaction regions
    - Commit mode 0, 1
    - SyncLevel NONE, CONFIRM
    - Single and multi segment IMS messages

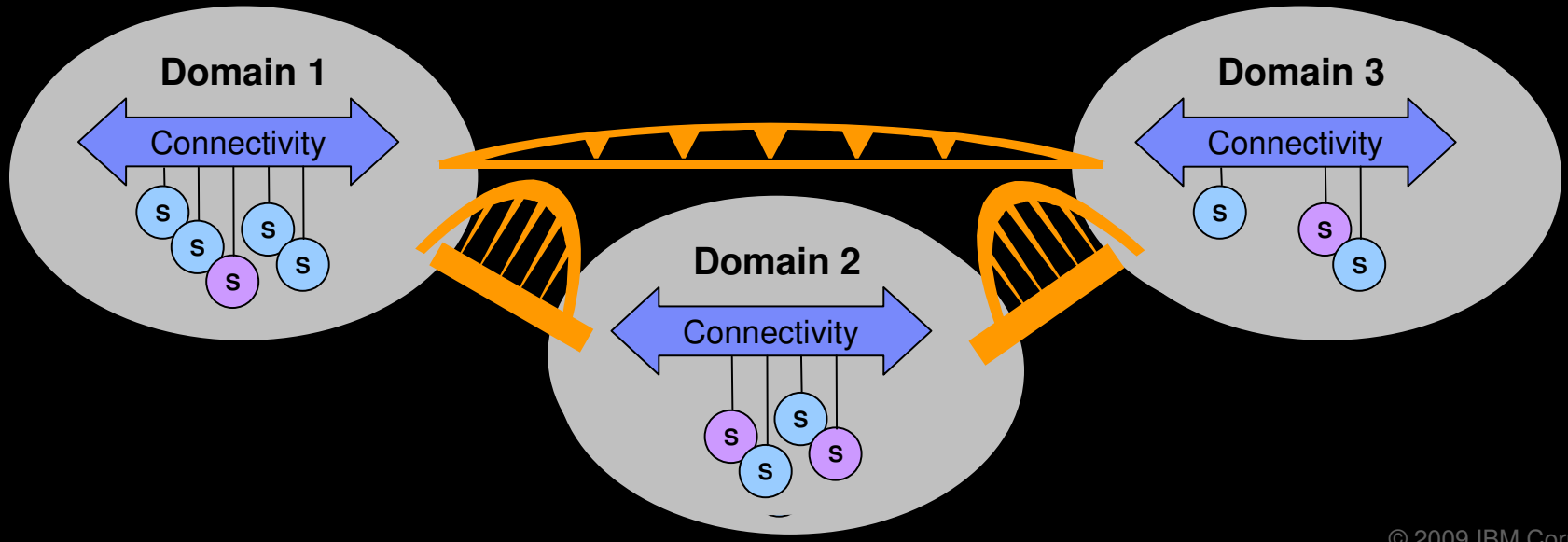


- Exploits IMS TM Resource Adapter
  - Delivered built into MB, no extra cost/install/customization required
    - IMS Connect is required
  - Configurable Services allow operational control of IMS connection configuration

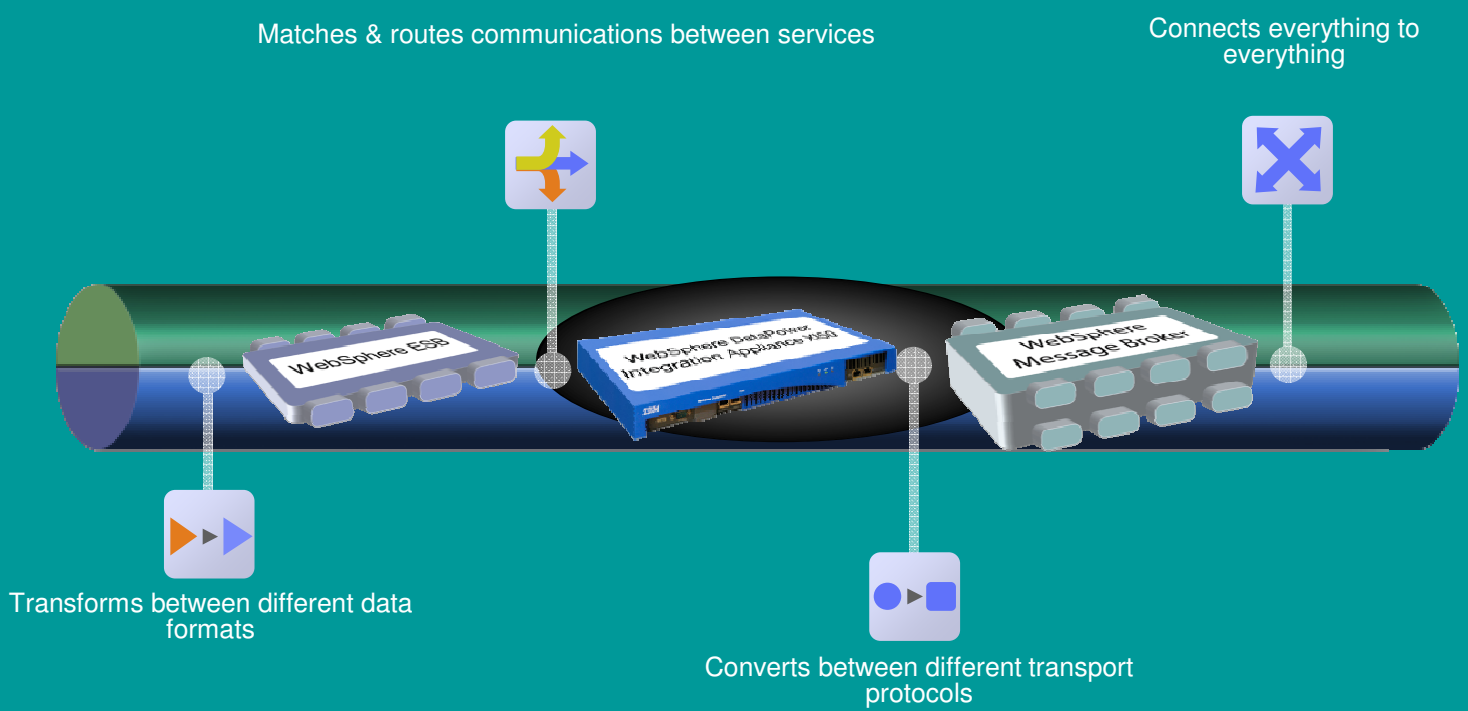
The Reality of Modern Enterprises

- **Most are** *not* **monolithic, and have** *multiple business units*
- **Each business unit encapsulates services reused** *within* **the business unit boundaries via its connectivity infrastructure**
- **The business units often are isolated and autonomous**
- **The business units are in effect** *service domains …* **Islands of SOA**

- To allow service reuse to span domain boundaries
  - Must bridge Connectivity across domain boundaries
  - Resulting in Service Federation …



The ESB – Universally-accepted Functions



An ESB enables flexible SOA connectivity for integrating business applications, services and processes

Maturing Requirements for ESB's

"ESBs are not a one size fits all. You have to find the one that works best for you."

Eric Roch, Chief Technologist at Perficient Inc.

- Distinct categories of ESB technology are emerging
- Enterprise adoption is largely incremental even across departments
- Deployment scenarios continue to advance driving varying requirements

WebSphere DataPower Integration Appliance

Purpose-built hardware ESB with simplified deployment and hardened security

WebSphere Message Broker

ESB for universal connectivity and transformation in heterogeneous IT environments

WebSphere ESB

Built on WebSphere Application Server for an integrated SOA platform

Easily Connect Applications for Cost Optimization and Agility

WebSphere Enterprise Service Bus V7.0 for z/OS

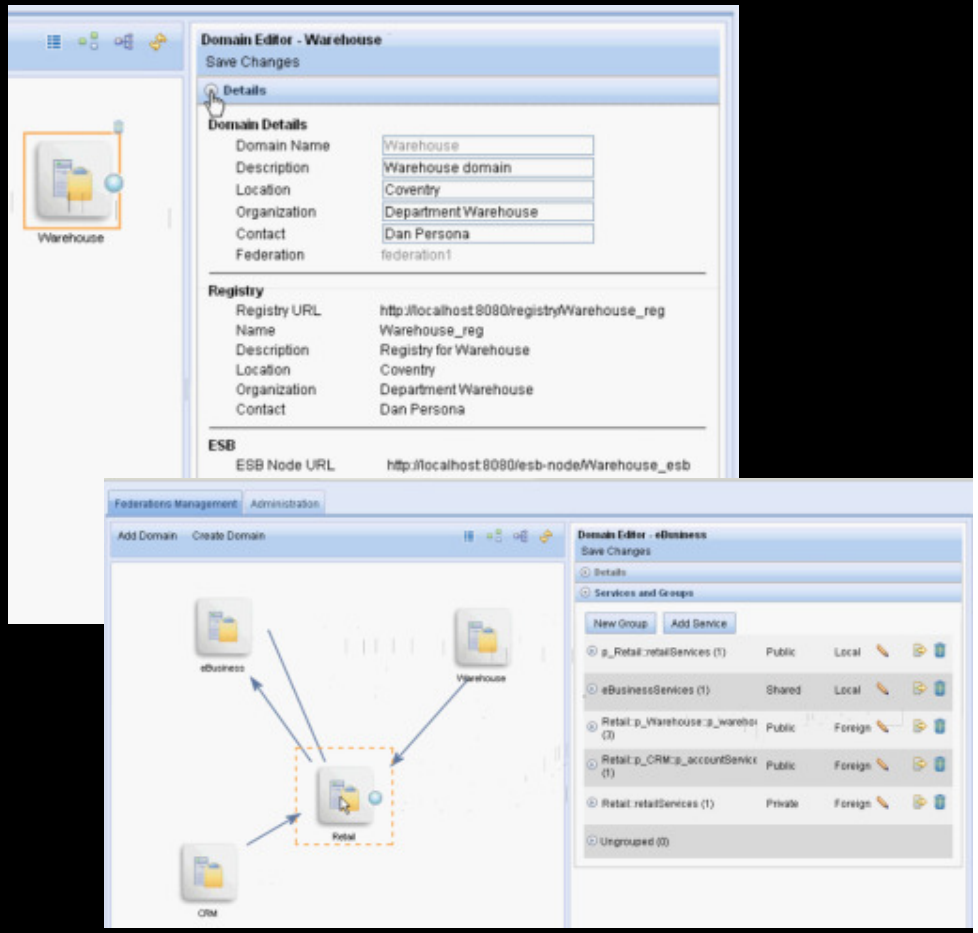
- Access data directly across the business network and easily manage and adapt to changing industry standards
- Exploits and extends WebSphere Application Server V7 with enhanced standards, administration, and integration
- Enables advanced ESB scenarios, such as Service Federation Management
- Enhanced support for open standards
- Accelerates productivity across user roles

Built on rock solid WebSphere Application Server V7.0 for z/OS technology

Manage service visibility and reuse across the enterprise

Service Federation Management

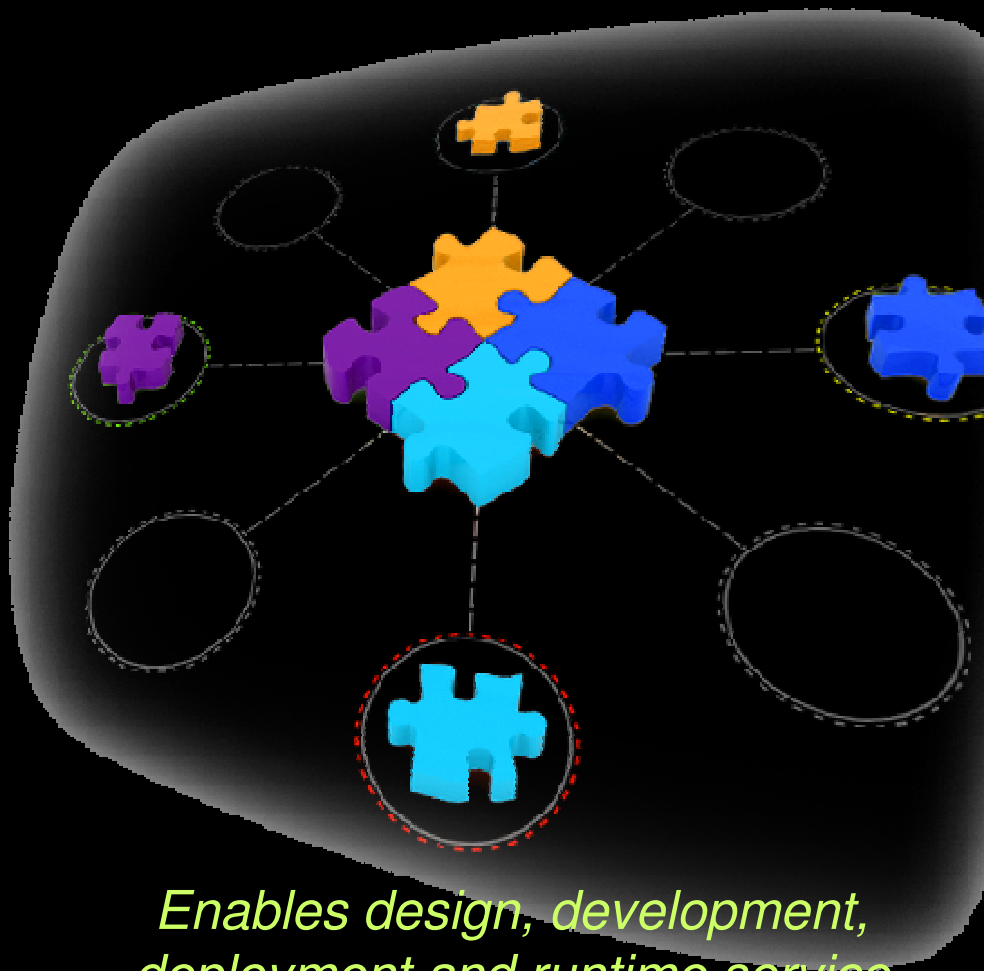
- **Integrated solution** **WSRR** (console UI and registry) and the ESB family to enable service re-use across enterprise domains.
- **Provides a unifying view** of federation relevant content
- **Web 2.0-based protocol** to access the service connectivity and registry components supporting a domain
- Easy configuration of **best practice patterns for service sharing**



Improved Service Visibility and Governance

WebSphere Service Registry & Repository V7 for z/OS

- New Business Space user interface and analyst tools for easy interface for business and IT
- Provide seamless view of services with Federated Impact Analysis and Change Management
- Monitor and manage policies with SOA Policy Monitoring Analytics



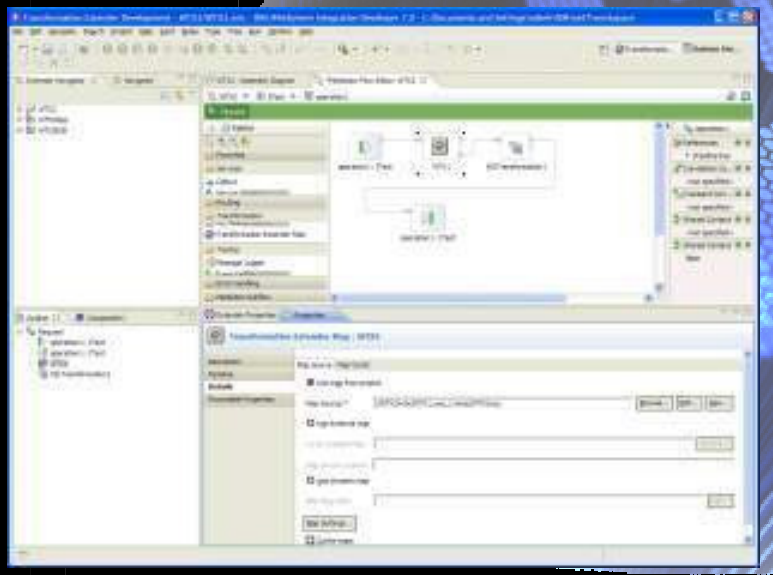
Enables design, development, deployment and runtime service visibility and governance

Accelerate Industry Data Delivery

WebSphere Transformation Extender V8.3 for z/OS

Rapidly deploy industry transformation solutions

- Expand your ecosystem and integrate partners and suppliers with enhanced industry packs and EDI capabilities
- Predefined industry packs for Healthcare, Financial Services, Insurance and EDI
- Industry pack updates to keep current with industry standards
- Industry data delivery easily with core engine running on WebSphere ESB and WebSphere Process Server.
- Improved usability and consumability with tools and trace/audit log capabilities
- Transformation of non-XML data in-flow within WebSphere ESB/WebSphere Process Server



Predefined industry packs for Healthcare, Financial Services, Insurance and EDI

WebSphere TX V8.3 on z/OS

Extend your advanced ESB to provide true universal transformation with WebSphere Transformation Extender

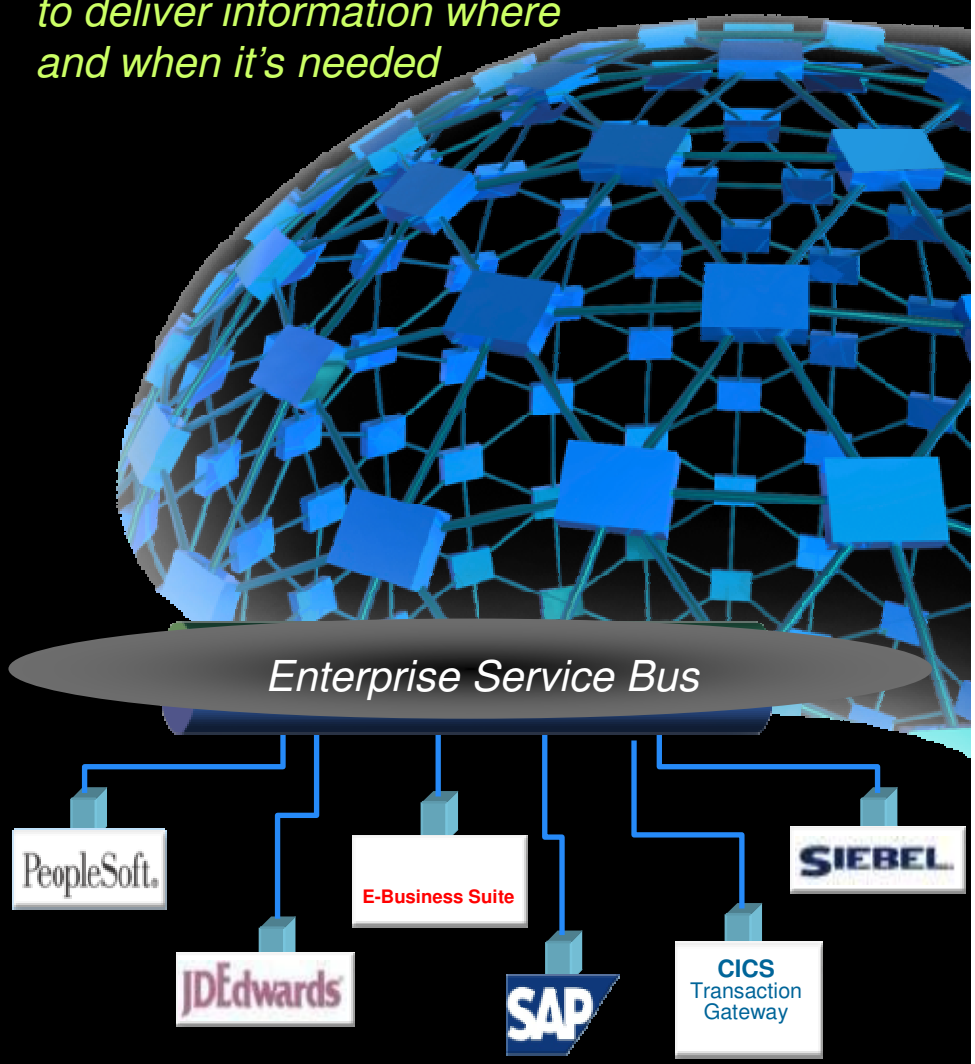
- **Data Enhancement**
  - Lookups
  - Data logic and routing
  - Transaction repair
  - Related information and usage rules
- **Many-to-Many Transformation**
  - Single-transaction conversions and logic
  - Mixed data and source/target types
  - Dependent result sets, nested structure dependencies
- **Complex Data Transformation**
  - Nested, semi-structured and hierarchical data types
  - Dependent inputs and outputs
  - Binary, packed, EBCDIC, ASCII, mixed character data
- Industry Specific Data Transformations – SWIFT; EDI; HL7…

Unlock Siloed Information and Extend Applications

WebSphere Adapters V7 for z/OS

- Quickly edit and extend existing adapter interfaces with enhanced tooling for iterative development with incremental data discovery
- Improve productivity and performance through adapter enhancements for expanded use cases
  - SAP, Oracle, IBM i, JDBC, FTP, WebSphere Adapter Toolkit
- New visibility into Domino applications with the WebSphere Adapter for Lotus Domino, linking WebSphere Integration Developer with Lotus Domino-based apps
- Additional products enabled for enterprise application adapters (SAP/Oracle)
  - WebSphere Business Events
  - WebSphere Business Monitor

Service enable applications to deliver information where and when it's needed



z/OS Adapter Product Matrix (WAS, WPS, WESB)

DB2 (z/OS)	IMS DB	VSAM	Sequential File (PDS)	Flat File (HFS)
JDBC Driver for DB2 UDB, WebSphere-z JDBC Adapter	**JDBC Driver for IMS, WII CF z/OS Event Publisher**	**WII CF z/OS, JDBC Driver, WebSphere-z JDBC Adapter**	**WII CF z/OS, JDBC Driver, WebSphere-z JDBC Adapter**	**WebSphere-z Flat File Adapter**

Note: JDBC driver sufficient for standard CRUD functionality. JDBC adapter adds configurable integration, and capabilities e.g. to listen for data changes.

CA Dataconm	CA IDMS	Software AG Adabas	Oracle database (distr)	DB2 (distr)
WII CF z/OS, JDBC Driver, WebSphere-z JDBC Adapter	**WII CF z/OS, JDBC Driver, WebSphere-z JDBC Adapter**	**WII CF, JDBC Driver, WebSphere-z JDBC Adapter**	**JDBC Driver, WebSphere-z JDBC Adapter**	**Same as with DB2 for z/OS**
CICS	CICS 3270	IMS TM	IMS MFS (3270)	LU 0 & LU 6.2
JCA: CTG **WS: CICS Web Services** **JMS: MQ/ MQ CICS Bridge; CICS Business Event Publisher**	**JCA: HOD or CTG via CICS Link3270**	**JCA: IMS Connect** **WS: IMS SOAP Gateway** **JMS: MQ/MQ IMS Bridge**	**JCA: HOD (WDz) or IMS MFS Web Support**	**JCA: BTT**
SAP	Siebel	Oracle applications	PeopleSoft	JD Edwards
WebSphere-z Adapter for SAP** **WebSphere adapters for SAP on distributed**	**No z/OS Client provided by Oracle** **WBI Adapter for Siebel on distributed**	**JDBC Driver, WebSphere-z JDBC Adapter*** **WBI Adapter for Oracle applications on distributed**	**No z/OS Client provided by Oracle** **WBI Adapter for PeopleSoft on distributed**	**No z/OS Client provided** **WBI Adapter for JDE on distributed**
FTP	E-mail			
WebSphere-z FTP Adapter*	**WebSphere-z eMail Adapter**			

Conclusion

IBM is in a unique position to offer our clients:

- **A functionally rich, high performance, highly available, scalable and manageable** Enterprise Service Bus
- WebSphere MQ **provides best in class connectivity between disparate network endpoints allowing robust QoS and traffic management solutions**
- WebSphere Message Broker **provides a first class z/OS subsystem implementation, and is well integrated with the key characteristics of the z/OS platform which its users expect for their business processing**
- **By extending and accelerating their ESB and MQ based solutions with** WebSphere Adapters, WebSphere Transformation Extender, and SOA Appliance **solutions, our clients are leveraging universal connectivity to build their SOA on the robust capabilities of an advanced Enterprise Service Bus for z/OS**

Learn More…

More information on the value of ESBs can be found here:

Considerations for making System z your ESB deployment platform

http://www-01.ibm.com/software/integration/wmq/library/libraryallversions.html

More information on WebSphere Message Broker can be found on DeveloperWorks:

The value of WebSphere Message Broker V6 on z/OS

http://www.ibm.com/developerworks/websphere/library/techarticles/0604_odowd/0604_odowd.html

More information on WebSphere MQ can be found on the WebSphere MQ library:

WebSphere MQ - IBM application integration software on IBM System z technology

http://www-01.ibm.com/software/integration/wmq/library/libr...l

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3. Get a year's worth of World Class education & a lifetime of contacts in 1 week!
4. Network with the Best in the Industry: Peers, IBM execs, SME's & Thought leaders.
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Offer expires February 28th, 2010

Let's Build a Smarter Planet on System z