



IBM Software Partner Academy Program

**Telefonkonferenz am 04.12.2009**

**WebSphere Connectivity 7.0  
what's new in MQ, MQ FTE und WMB**



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# Agenda

- **Business Agility und WebSphere Connectivity 7.0**
- **WebSphere MQ 7.0.1 und what's new**
- **WebSphere MQ File Transfer Edition 7.0.2 und what's new**
- **WebSphere Message Broker 7.0 und what's new**
- **Summary, Hinweise und weitere Links**

Discover, Interact, Optimize

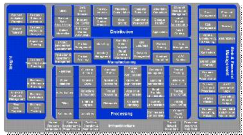
# A dynamic network requires business agility

*Bringing relationships into focus and accelerating client ROI and time to value*

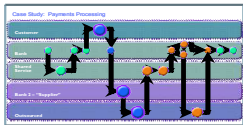
*Bringing out the engines of agility  
2006+*

*Engines aligned for accelerated  
client success 2009+*

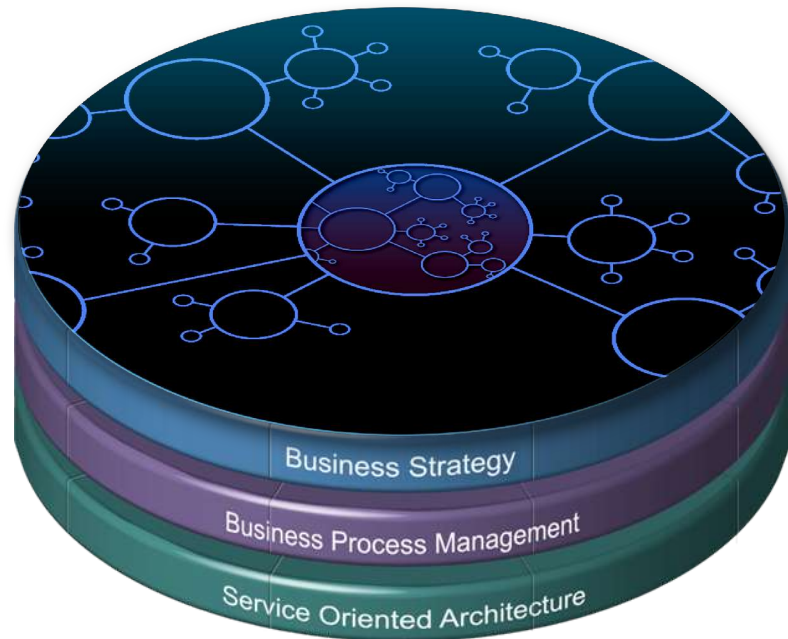
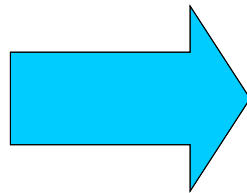
**Business  
Architecture**



**Business  
Processes**



**SOA Foundation  
& Infrastructure**



*Leading to greater business agility and optimized performance with  
BPM and SOA Connectivity Version 7 portfolios*

*Discover, Interact, Optimize*

# Achieving business agility now...

## **Discover** Insights that enable innovation

Enhance awareness and understanding  
across processes and ecosystems

## Maximize the value of business **interactions**

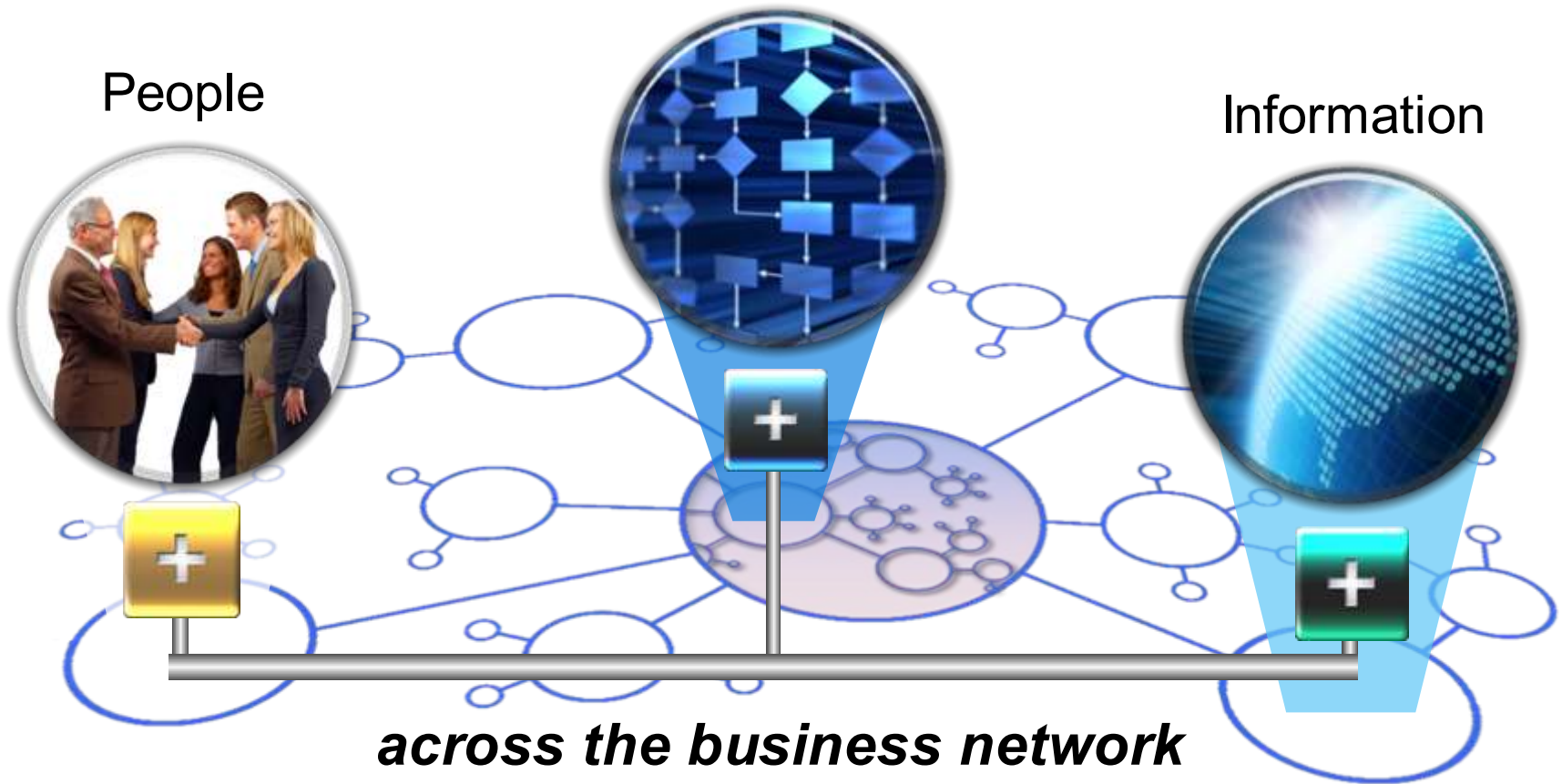
Access rich information and applications  
at the right time and in the right context

## **Optimize** productivity and resources

Broadly flexibly and continuously automate  
and govern processes

Discover, Interact, Optimize

# Service-orientation seamlessly integrates Processes

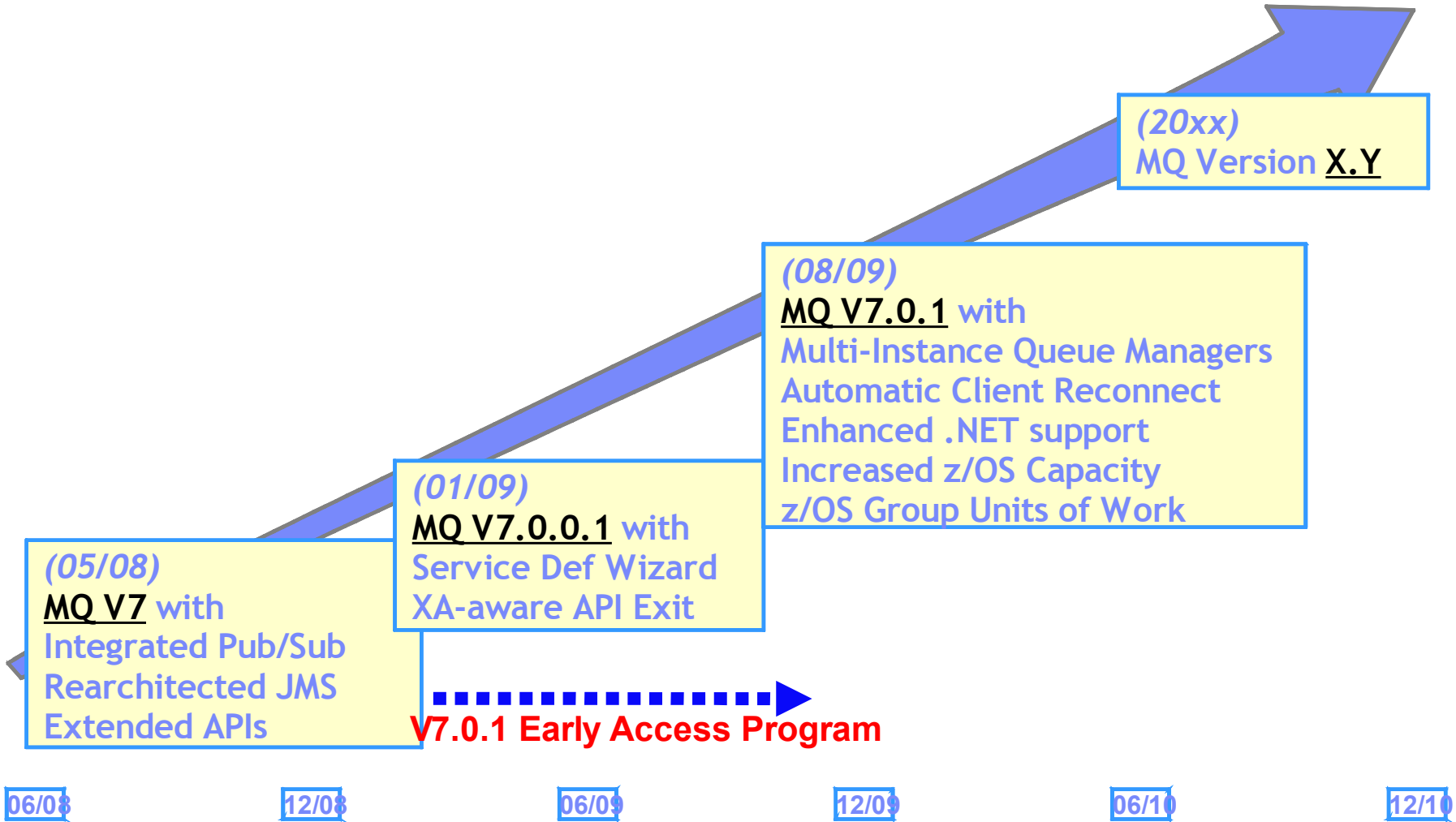


Can quickly integrate applications from new acquisitions

# WebSphere Connectivity

- When we talk about SOA and when we talk about existing and newly built artifacts, everyone seems to take it for granted that the artifacts can talk to each other quite easily. It's not quite that easy...
- IBM and specifically the WebSphere Brand is the leader in making artifacts talk to each other so that they can participate in an SOA. We have a portfolio of products – tools and run times that support this important concept which we call “connectivity”.
- There are a number of core connectivity products in the WebSphere portfolio – namely:
  - **WMQ**                      **WebSphere MQ 7.0.1**
  - **WMB**                      **WebSphere Message Broker V 7.0**
  - WESB                      WebSphere Enterprise Service Bus V7
  - DATAPOWER              WebSphere's XA34, XS40, XI50, XB70, XM70 Appliances
  - **WMQ FTE**                **WebSphere MQ File Transfer Edition 7.0.2**
  - WTX                        WebSphere Transformation Extender V 8.3
  - WSRR                      WebSphere Service Registry and Repository V7
  - Adapters                  WebSphere Adapters V7

# WebSphere MQ Delivery Roadmap





## Reduce Costs With Unified, Guaranteed Message Delivery

### WebSphere MQ V7.0.1

- 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
- Minimize cost of disruption with automatic re-routing through standby Queue Managers
- 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

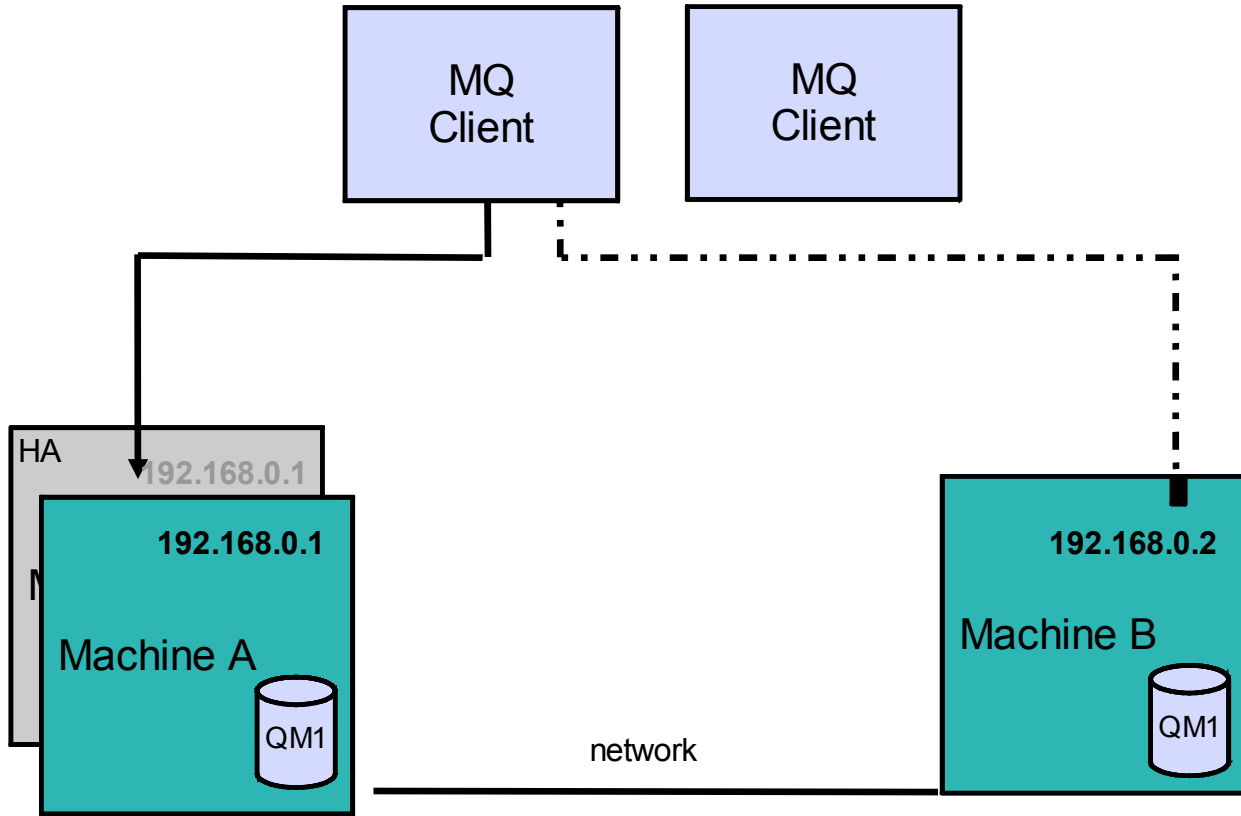


Reliable, proven, and ubiquitous multi-purpose messaging transport for SOA connectivity



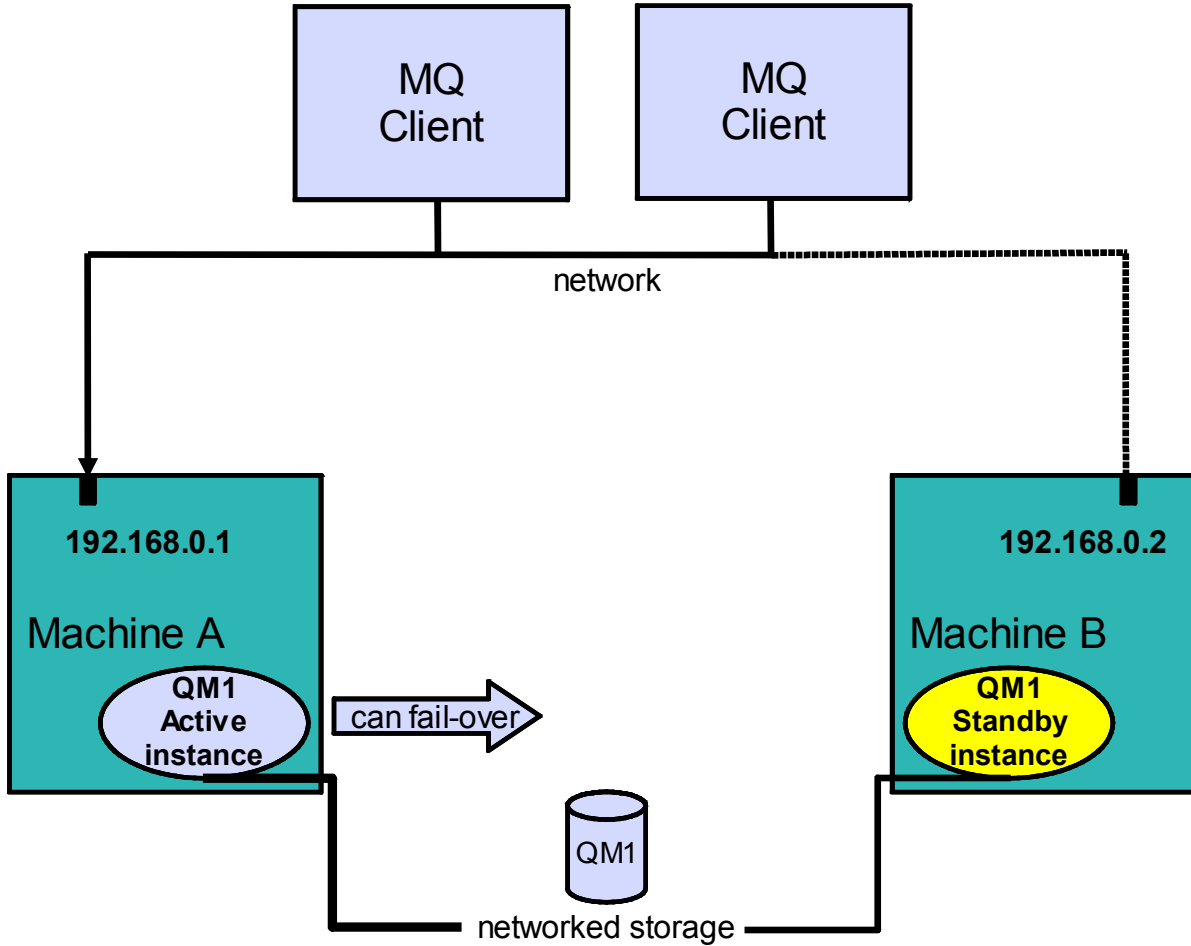


# Vor MQ 7.0.1



# Multi-instance Queue Managers

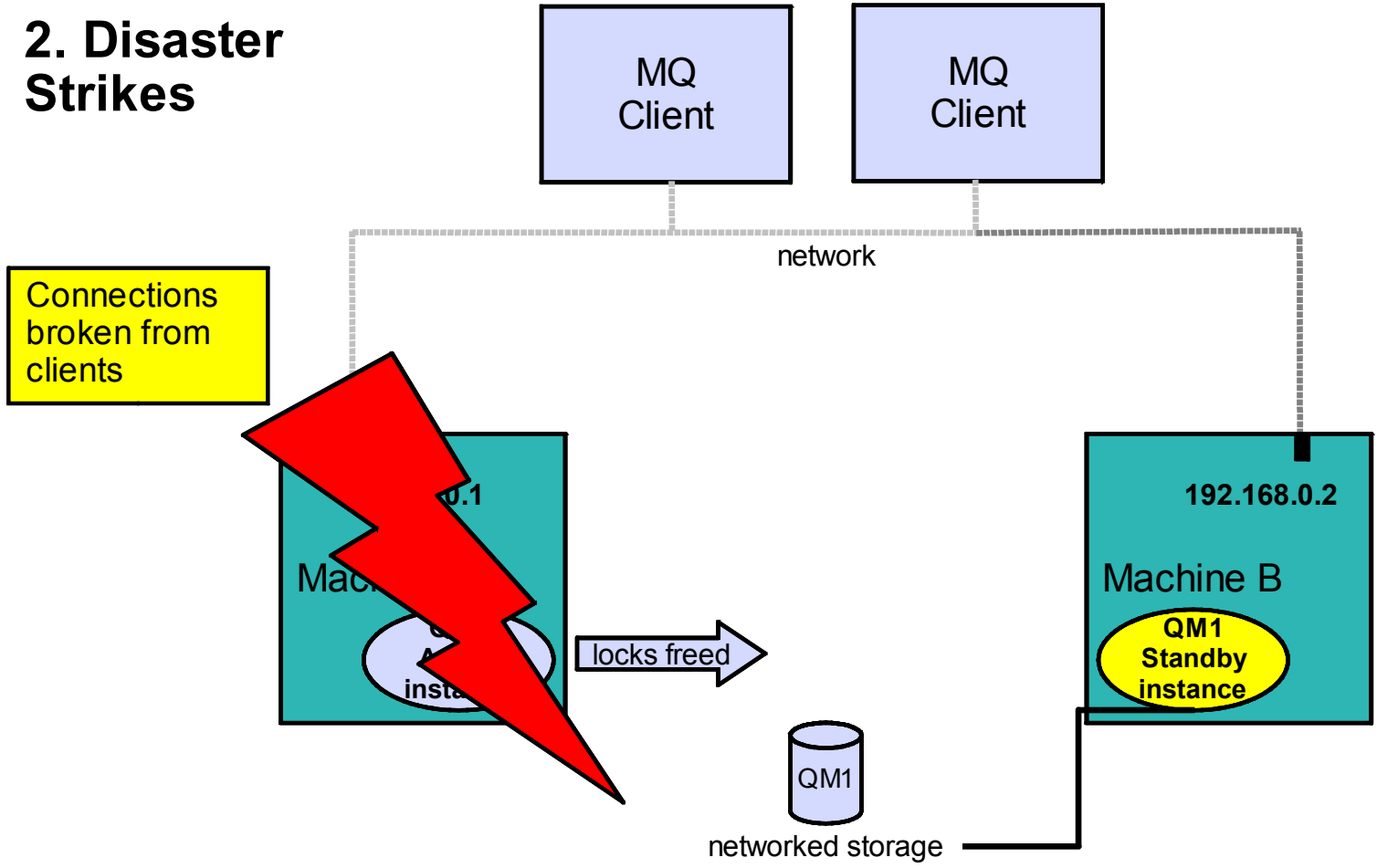
## 1. Normal Execution



Owens the queue manager data

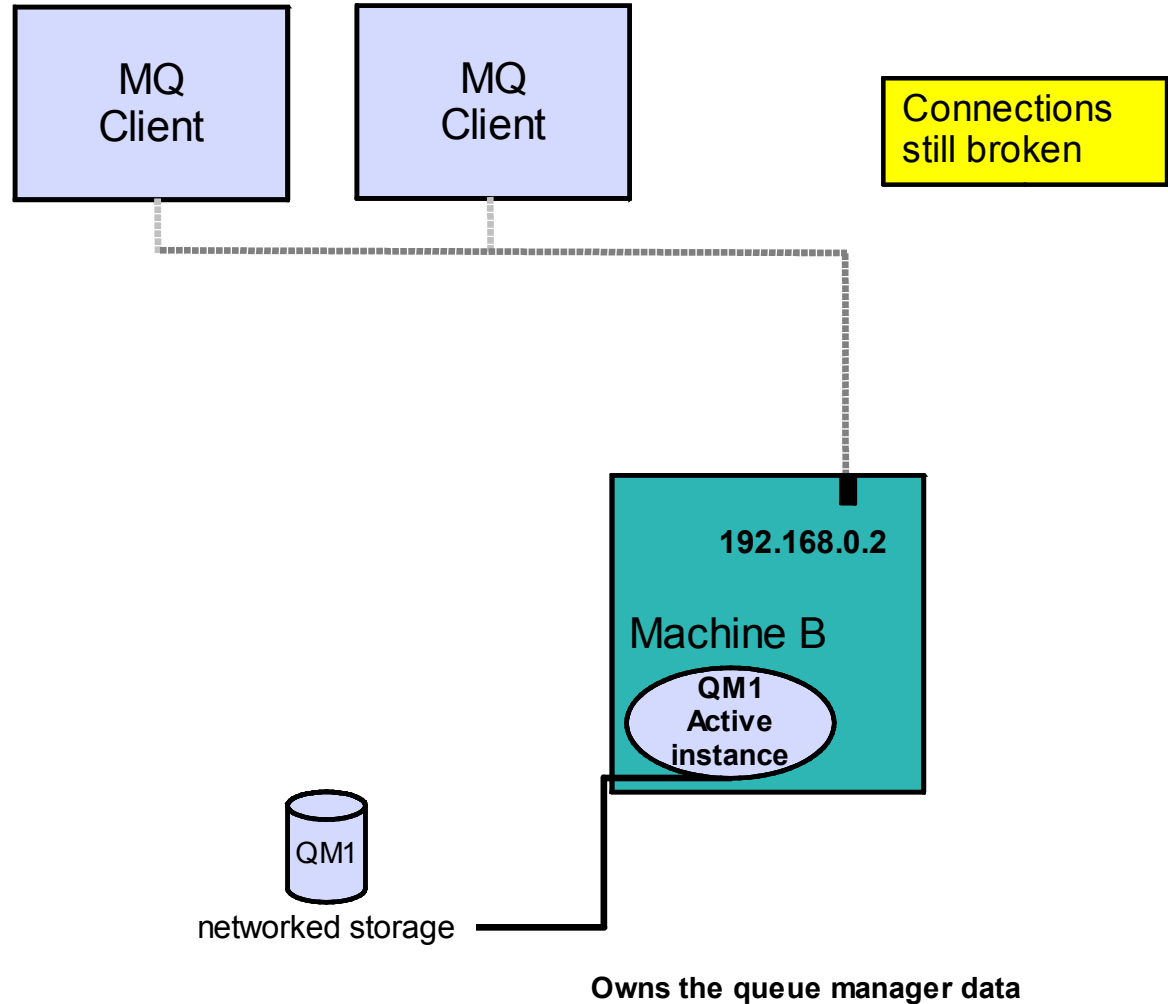
# Multi-instance Queue Managers

## 2. Disaster Strikes



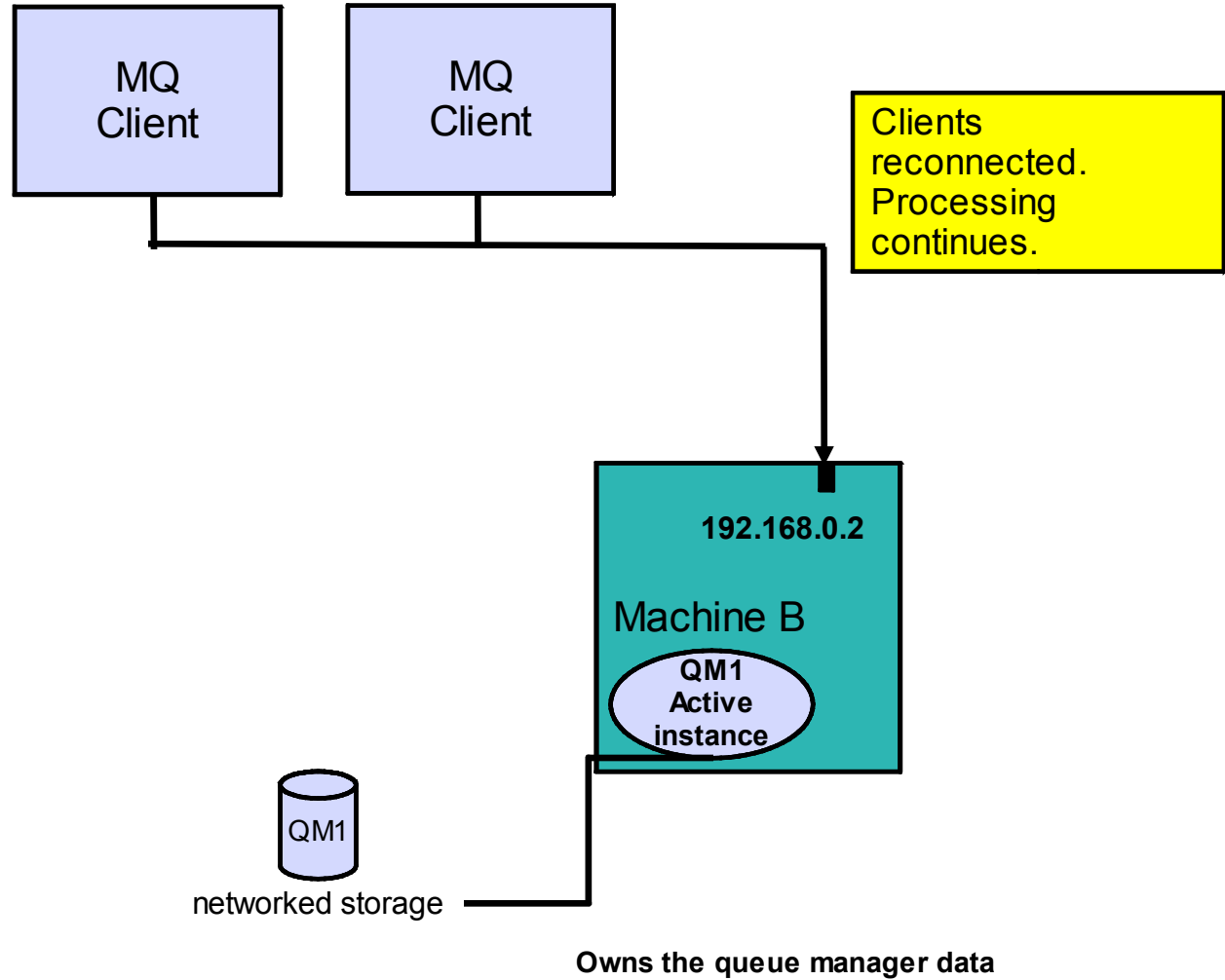
# Multi-instance Queue Managers

## 3. Standby Comes to Life



# Multi-instance Queue Managers

## 4. Recovery Complete



## Distributed Platforms: Multi-instance Queue Managers

- Basic failover support without HA coordinator
  - Windows, Unix, Linux platforms
  - HP-UX not yet supported, needs a patch
- Queue manager data is held in networked storage
  - ▶ MQ ensures only one instance of the queue manager is active
- Multiple (2) instances of a queue manager on different machines
  - ▶ Active instance
    - “owns” the queue manager’s files
    - Accepts connections from applications
  - Standby instance
    - Does not “own” the queue manager’s files
    - if the active instance fails, performs queue manager restart and becomes active
- Instances share data, so it’s the SAME queue manager

# Multi-instance queue managers

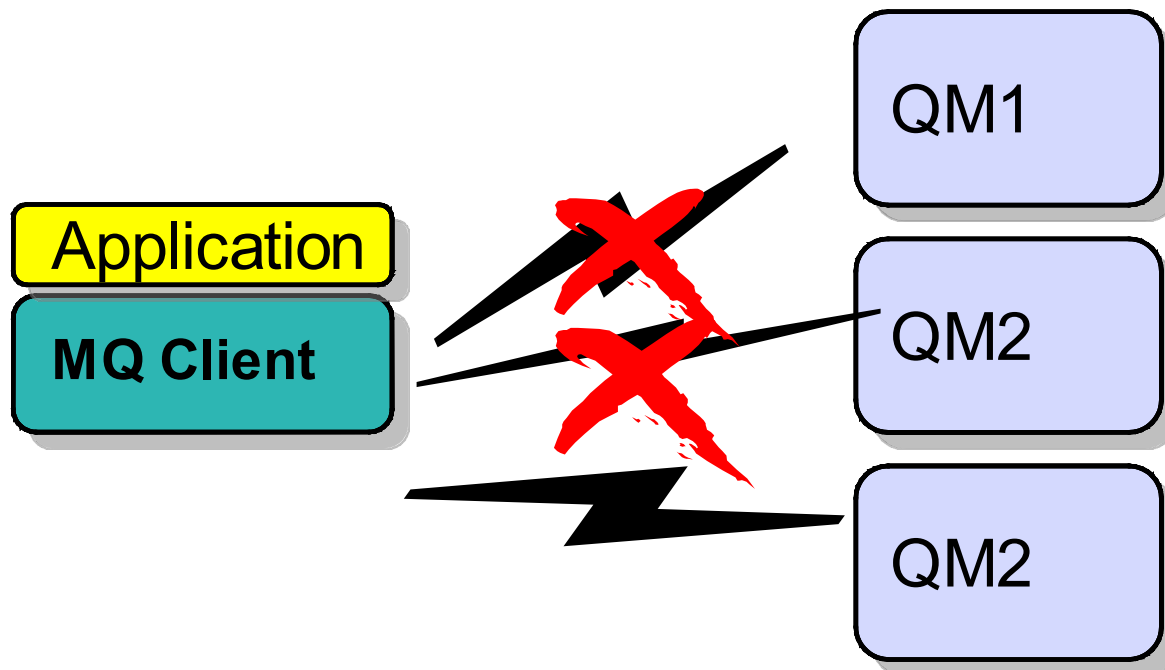
## - Details

- **MQ is NOT becoming an HA coordinator**
  - If other resource managers are required, you need an HA coordinator
  
- **The IP address is not taken over**
  - Network configuration must reflect both possible IP addresses
  - CONNAME('machineA,machineB')
  
- Support for networked storage over modern network file system protocols
  - NFS v4 (not v3)
  - Must ensure that any **caching is turned OFF** to ensure data integrity



## Automatic Client Reconnection

- Client library provides necessary reconnection logic on detection of a failure
- Hides failure from application code
- Only MQI and JMS clients supported



- XA (2-phase-commit) interface and automatic reconnection not supported

# Automatic Client Reconnection

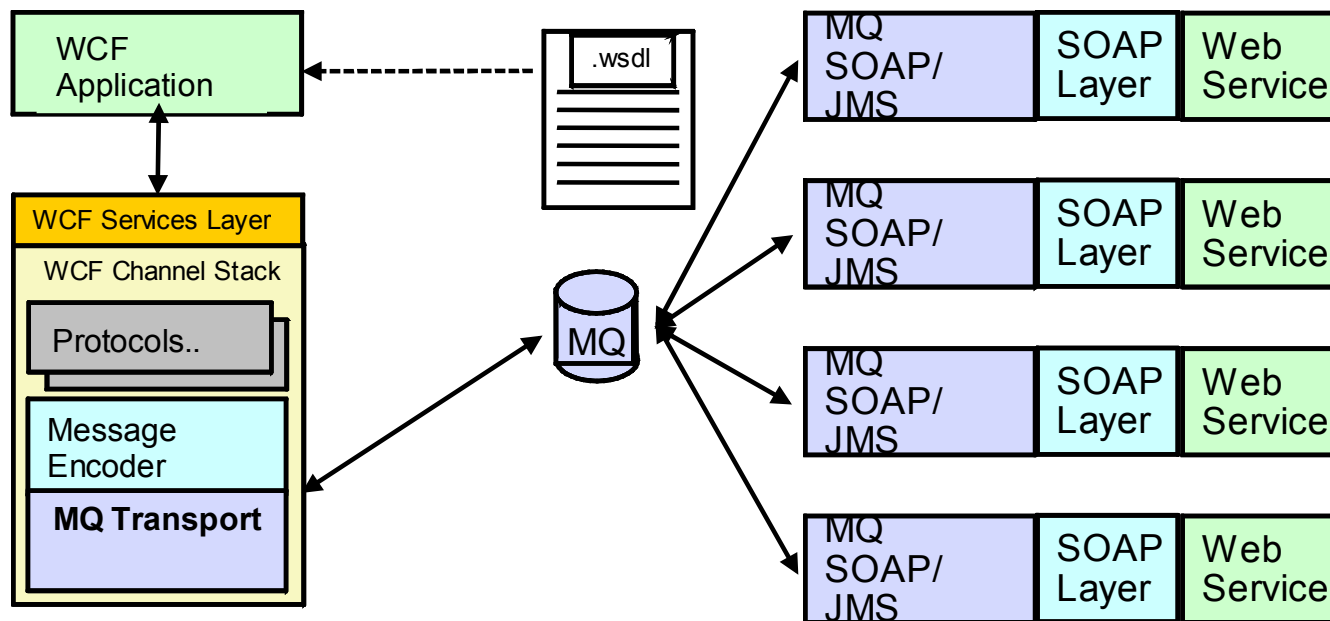
- Tries to hide queue manager failures by restoring current state automatically
  - For example, if MQPUT returns error, client reruns MQCONN/MQOPEN/MQPUT internally
  
- Uses the list of addresses in CONNAME to find queue manager
  - MQSERVER environment variable also understands list
  - MQSERVER=SYSTEM.DEF.SVRCONN/TCP/host1(1414),host2(1414)
  
- Can reconnect to the same or different Queue Manager
  
- Re-opens queues and other qmgr objects, re-establishes subscriptions
  
- Reconnection interval is backed off exponentially on each unsuccessful retry
  - Total timeout is configurable – default 30 minutes.

# Windows Communication Framework

- Windows Communication Framework (WCF)
  - Underpins .NET Web Services and Messaging
  - Built-in Transports – e.g. MSMQ, HTTP(S), Named Pipes, TCP/IP, etc.
  - Transports can be extended with “custom channels”
  - Allows alternative transports (like MQ) to be slotted into WCF seamlessly
  
- WCF support now included in product
  - Previously an Alphaworks prototype
  
- Built on XMS .Net classes
  - Now shipped as part of the product instead of SupportPac
  - Internally, it exploits V7 API, in same way as JMS implementation

## WCF: Usage within MQ

- Interface to web services hosted over MQ using SOAP/JMS
- Extending to other application servers with adoption of W3C SOAP/JMS standard (BEA, Sonic, TIBCO, Axis)



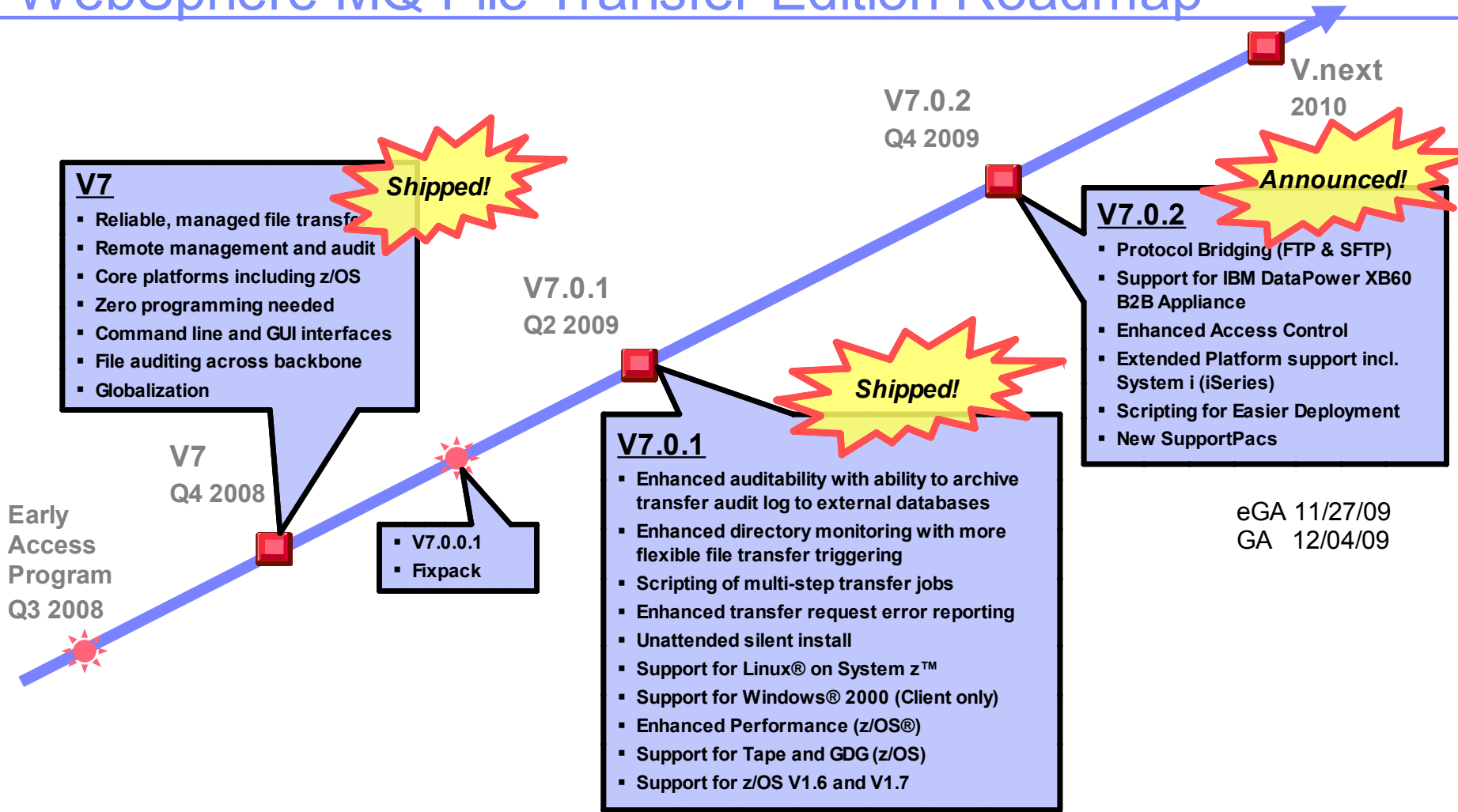
# Publish/Subscribe Enhancements

- 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

# WMQ V7.0.1 Content Summary

<b><i>New Feature</i></b>	<b><i>Benefits</i></b>	<b><i>Details</i></b>
<b>Multi-Instance Queue Managers</b>	Increases availability Does not require specialist skills Can help ease system maintenance	Enables automatic failover to a standby Queue Manager instance in the event of an incident or planned outage
<b>Automatic Client Reconnect</b>	Increases availability Simplifies programming	Provides Client-connected applications with automatic detection of failures and reconnects to alternative Queue Managers
<b>Enhanced Governance</b>	Increases visibility of changes Enables SOA Governance	Emits events whenever configuration changes are made or commands are run Service Definition wizard generates WSDL describing MQ apps
<b>Enhanced SSL Security</b>	Simplifies security certificate management	Supports certificate checks with Online Certificate Status Protocol (OCSP) as well as to Certificate Revocation Lists (CRL)
<b>Enhanced .NET support</b>	Increases ease-of-use for .NET developers	Provides IBM Message Service Client for .NET developers Supports use of WebSphere MQ as custom channel within Windows Communication Foundation
<b>Increased 64-bit z/OS exploitation</b>	Increased use of z/OS system resources Provides constraint relief for virtual storage	Extends use of 64-bit storage by Queue Manager enabling more capacity such as number of open queues
<b>z/OS Log Compression</b>	Increased use of z/OS system resources Increased log performance & bandwidth	Compresses message logs produced by persistent messages
<b>z/OS Group Units of Work</b>	Increased resilience	Enables Units of Work to be owned collectively by Queue Sharing Groups so that any Queue Manager in the group can process two-phase transactions from clients
<b>Publish/Subscribe Interfaces</b>	Additional control of pub/sub behaviour Simplified integration for Message Broker	Exit point to dynamically modify routing and content Tools to migrate pub/sub state from MB to MQ

# WebSphere MQ File Transfer Edition Roadmap

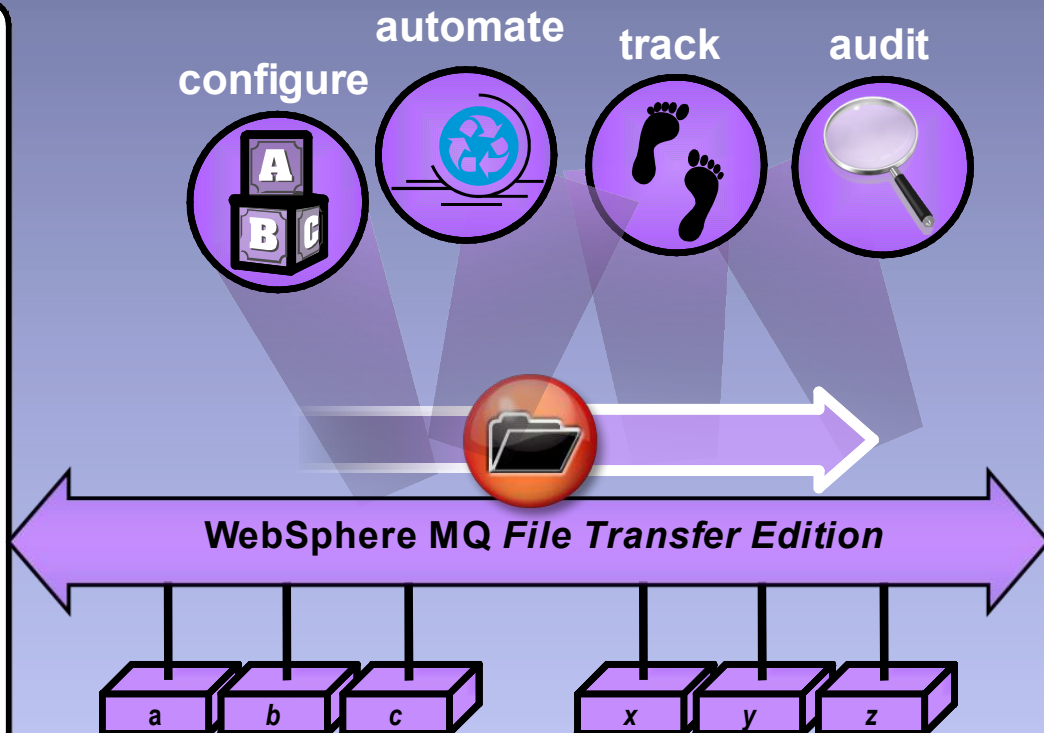




# WebSphere MQ File Transfer Edition

- Adds file transfer services to WebSphere MQ to enable managed file transfer
- Multi-purpose solution combining file transfer and messaging
- V7 Shipped Dec 2008, V7.0.1 Shipped June 2009, V7.0.2 Ships December 4, 09

- ✓ **Reliable** – leveraging the WebSphere MQ transport
- ✓ **Multi-purpose** – transfers both messages and files
- ✓ **Auditable** – logging subsystem tracks transfer at source and destination for audit purposes
- ✓ **Centralized** – monitoring, control and configuration
- ✓ **No need to program** – no MQ skills required
- ✓ **Graphical tooling** – visual configuration and status
- ✓ **Moves Massive files** – no size limit, Kb, Mb, Gb...
- ✓ **Command line interface** – for advanced users
- ✓ **Scripting support** – enables automation via scripting of complex multi-step transfers in XML using Apache Ant
- ✓ **Flexible backbone** – moves files from anywhere to everywhere in network
- ✓ **Integration** with MQ-enabled apps and ESBs
- ✓ **Automatic** file character conversion
- ✓ **Security** of file payload using SSL
- ✓ **Support** for wide range of platforms



# WebSphere MQ File Transfer Edition V7.0.1

Available since June 2009

## Enhanced managed file transfer capabilities

- Advanced transfers with multi-step, scripted jobs
- Enhanced directory monitoring
- Enhanced management and audit capabilities
- Expanded environments supported

Multi-step Job  
Automation

Enhanced  
Directory Monitoring

Enhanced  
z/OS Performance

Enhanced  
Error Reporting

GDG and Tape  
support for z/OS

Expanded  
Operating Platforms

Audit Log  
Archiving

WebSphere MQ File Transfer Edition V7.0.1

Messaging

# WebSphere MQ File Transfer Edition V7.0.2

Available November 2009

## Enhanced managed file transfer capabilities

- Increased ability to transfer across range of protocols
- Increased access control
- Broader platform coverage

Protocol Bridging  
(FTP & SFTP)

Support for IBM  
DataPower XB60  
B2B Appliance

Enhanced  
Access Control

Extended  
Platform Coverage

Scripting for  
Easier Deployment

New  
SupportPacs

## WebSphere MQ File Transfer Edition V7.0.2

Messaging

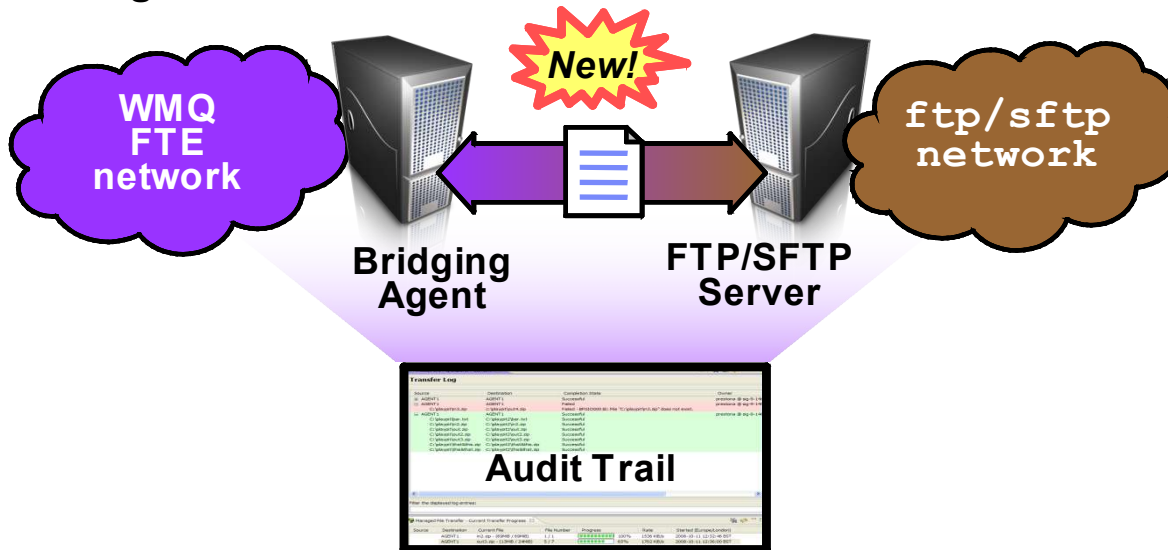
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# New in WMQFTE V7.0.2: Protocol Bridging

Available Nov 2009

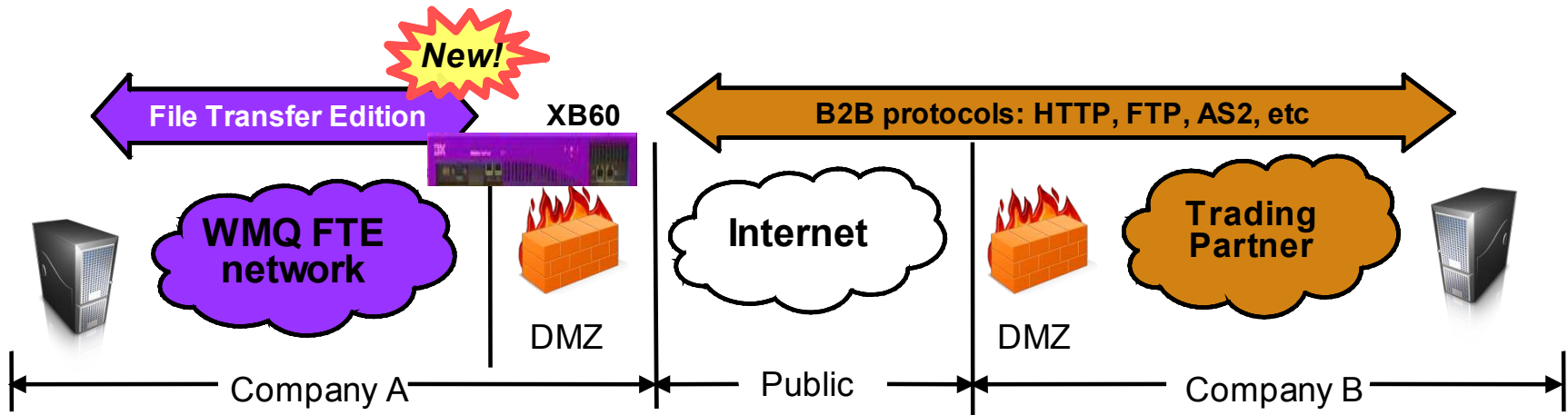
- Support for transferring files located on FTP or SFTP servers
  - The source and/or destination for a file transfer can be an FTP or SFTP server
- Enables incremental modernization of FTP-based home-grown solutions
  - Provides auditability of transfers across FTP/SFTP to central audit log
  - Ensures reliability of transfers across FTP/SFTP with checkpoint restart
- Fully integrated into graphical, command line and XML scripting interfaces

## *Managed file transfers between MQ and FTP/SFTP networks*



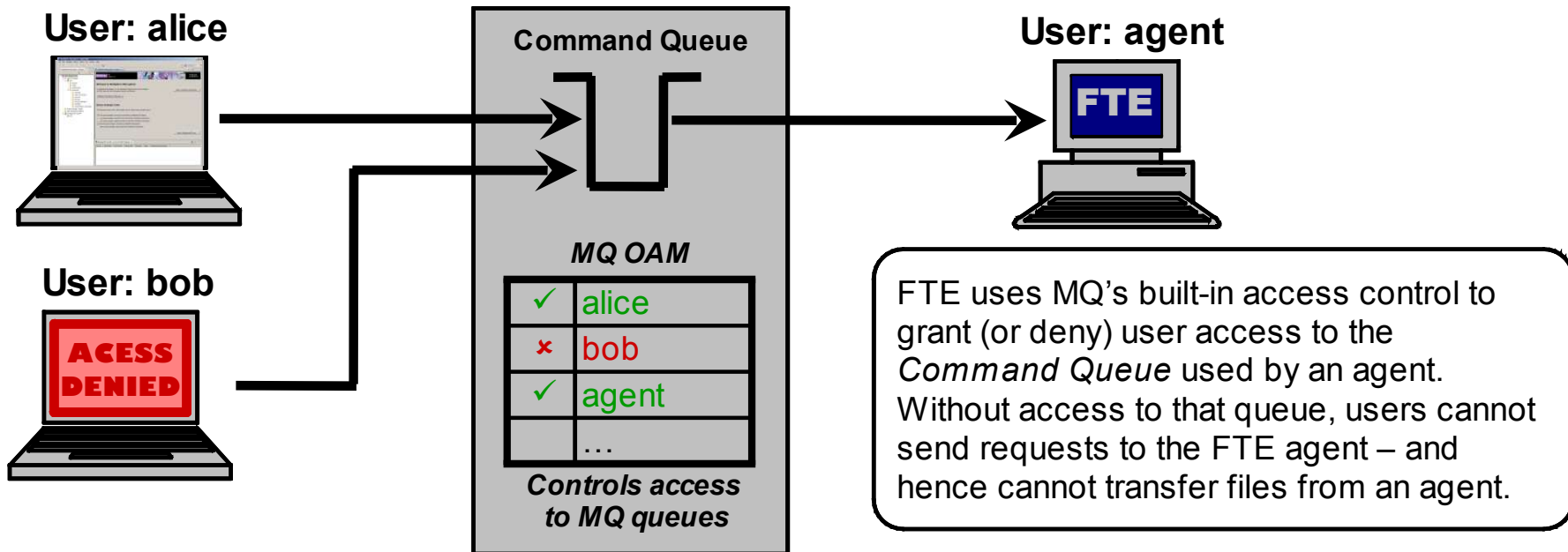
# New in WebSphere MQ File Transfer Edition V7.0.2

- Documented and tested configurations for integrating with DataPower Appliances
    - WebSphere DataPower XB60 B2B Appliance – for B2B connectivity
    - WebSphere DataPower IX50 Integration Appliance – for ESB connectivity
  - Enables sending files to trading partners over a range of protocol transports
    - via DataPower Appliances acting as B2B gateways
  - Sample configuration files supporting the documented reference implementations
- Multi-protocol transfers to B2B trading partners**



# Security Enhancements in WebSphere MQ File Transfer Edition V7.0.2

- Ability to easily configure finer grain access control to agent resources
- User and group based control of who can:
  - Transfer files to a particular agent
  - Transfer files from a particular agent
  - Perform operational and administrative agent functions



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## Security Enhancements in WebSphere MQ FTE V7.0.2 (cont)

- New “-ac” argument on fteCreateAgent command :
- `fteCreateAgent -agentName AGT2WIN -agentQMgr QM_AGENTHOST1 -agentDesc "WMQFTE V702 Agent" -ac`
  
- New WebSphere MQ Authority Queues need to be defined:
  - SYSTEM.FTE.AUTHAGT1.<agentname>
  - SYSTEM.FTE.AUTHTRN1.<agentname>
  - SYSTEM.FTE.AUTHOPS1.<agentname>
  - SYSTEM.FTE.AUTHSCH1.<agentname>
  - SYSTEM.FTE.AUTHMON1.<agentname>
  - SYSTEM.FTE.AUTHADM1.<agentname>
  
- New Agent Properties entry to support enhanced security:
  - #
  - #Fri Oct 23 15:36:48 CDT 2009
  - agentQMgr=QM\_AGENTHOST1
  - agentDesc=WMQFTE V702 Agent
  - `authorityChecking=true/false`
  - `logAuthorityChecks=None/Failures/All`
  - `userIdForClientConnect=<client_userid>`
  - agentName=AGT2WIN



## V7.0.2 Themes: Extended Platform Coverage

- IBM i (iSeries)
- HP-UX 11.11 on PA-RISC
- Solaris 8 and 9
- Linux on P-Series
- Extension of support for the database logger on to z/OS, Linux (*and possibly Solaris*)
- Support for installing the WebSphere MQ Explorer plug-in into the stand-alone WebSphere MQ Explorer SupportPac (MS0T)

# New in WebSphere MQ File Transfer Edition V7.0.1

Available since June 2009

See [Distributed Announce letter](#) and [z/OS Announce letter](#)

<b><i>Feature</i></b>	<b><i>Benefits</i></b>
<b>Ability to archive audit log</b>	Enables transfer audit log data to be transactionally stored in external relational databases for audit and archiving purposes
<b>Enhanced directory monitoring</b>	More flexible triggering of file transfers based on directory activity (including continuous polling of file systems) without need to define a repeating schedule
<b>Ability to script multi-step file transfer jobs</b>	Enables XML scripting in transfers using standards-based Apache Ant Scripts can drive multiple steps across platforms with complex conditional logic Can also perform tasks e.g. sending e-mails when transfers don't succeed All actions performed by Ant scripts are captured in audit log
<b>Enhanced error reporting</b>	Improves ease-of-use for users and administrators
<b>Unattended silent install</b>	Helps ease the rollout of large-scale deployments
<b>Extended platforms</b>	Support for Linux on System z and Windows 2000 (client only)
<b>Improved z/OS performance</b>	WebSphere MQ File Transfer Edition for z/OS V7.0.1 can increase performance of file transfers compared to the previous release <ul style="list-style-type: none"> <li>• Up to 50% faster for file transfers in text conversion mode **</li> <li>• Up to 7 times faster for file transfers in binary mode **</li> </ul>
<b>Support for GDGs</b>	Provides support for transfers of files to and from z/OS generation data groups Absolute and relative names are supported
<b>Support for tape media</b>	Support for transfers to and from magnetic tapes drives that optimizes seek time during transfer

# New in WebSphere MQ File Transfer Edition V7.0.2

Available Nov 2009

See [Announce letter](#)

<b><u>Features</u></b>	<b><u>Benefits</u></b>
<b>Support for IBM System i™ (iSeries)</b>	Further extends the range of supported platforms
<b>Ability to bridge to FTP and SFTP (SSH) Servers</b>	Can help ease migration from a non-managed (FTP/SFTP) network to a managed network based on WebSphere MQ File Transfer Edition. Enables file to be transferred between WebSphere MQ File Transfer Edition and FTP or SFTP servers. No need to install MQ technology at the FTP or SFTP location.
<b>Enhanced security with more granular access control for users and groups</b>	Provides ability to easily configure fine-grained access control to agent resources at a user and group level.
<b>Extended platform coverage for database archiving of file transfer audit log</b>	Enables archiving of transfer audit log to databases running on z/OS, Solaris and Linux x86 platforms.
<b>Scriptable interface for creating file transfer artefacts</b>	Helps ease deployment between test and production configurations. Enables configuration information to be stored in a repository.
<b>Samples for configuring transfers through the B2B gateway provided by IBM WebSphere DataPower B2B Appliance XB60</b>	Enables file transfers to be received exchanged through the DataPower B2B gateway with trading partners using a range of transports such as FTP or AS2

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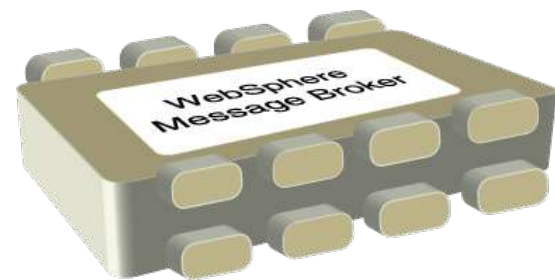
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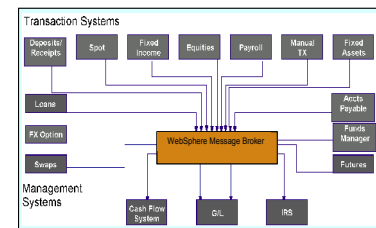
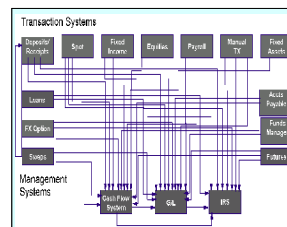
## Gartner 2009 Magic Quadrant for MFT

- *Gartner's 2009 Magic Quadrant for Managed File Transfer has published, and **IBM is in the Leader's Quadrant** in their first inclusion for this research.*
- Of the 15 new vendors added to the 2009 MQ for MFT, only IBM makes it to the Leaders Quadrant!
- The 2008 Quadrant leader - Sterling Software, *falls considerably* - and Gartner cites "While still a fixture on most RFPs and RFIs, the vendor has not shown thought leadership consistent with a mature vendor that has a large customer base of MFT users."
- While IBM is just as strong as this year's quadrant leader Axway for the ability to execute, Gartner's perception of IBM's vision was relegated to the Spring 2009 release and points out that IBM is already addressing the next steps in planned releases. IBM should be better positioned with regards to "Vision" moving forward.
- *"IBM is closing ground on the other leaders for MFT..."*

# What's New in WebSphere Message Broker V7



# WebSphere Message Broker



- **Universal Connectivity**
  - Simplify application connectivity to provide a flexible and dynamic infrastructure
  
- **Routes and transforms messages FROM anywhere, TO anywhere**
  - Supports a wide range of protocols
    - MQ, JMS 1.1, HTTP(S), Web Services (SOAP, REST), File, ERP (SAP, SEBL...), TCP/IP, SCA
  - Supports a broad range of data formats
    - Binary (C/COBOL), XML, SOAP, CSV, Industry (SWIFT, EDI, HL7...), IDoc, User Defined
  - Interactions and Operations
    - Route, Filter, Transform, Enrich, Monitor, Distribute, Decompose, Sequence, Correlate, Detect
  
- **Simple programming**
  - Patterns based for top-down, parameterized connectivity of common use cases
    - e.g. Web Service façades, Message oriented processing, Queue to File...
  - Construction based for bottom-up assembly of bespoke connectivity logic
    - Message Flows to describe application connectivity comprising...
    - Message Nodes which encapsulate required integration logic which operate on...
    - Message Tree which describes the data in a format independent manner
    - Transformation options include Graphical mapping, PHP, Java, ESQL, XSL and WTX
  
- **Operational Management and Performance**
  - Extensive Administration and Systems Management facilities for developed solutions
  - Wide range of operating system and hardware platforms supported
  - Offers performance of traditional transaction processing environments
  - Available in Trial, Remote Deployment, Get Started and Enterprise deployment options

# Message Broker 7 Overview

## ■ **Simplicity and Productivity**

- Radically **streamlined product prerequisites and components**
- Simplified connectivity solution development using IBM **pre-supplied patterns**
- Impact Analysis to manage development artefact changes including ESQL, Maps and Message sets
- MB Explorer for dedicated administration tooling
- **SCA nodes for WPS Interoperability**

## ■ **Universal Connectivity for SOA**

- Extended & integrated publish subscribe: common management & security with new MQ capabilities
- **PHP nodes** for Web 2.0 support
- **Enhanced SAP, Siebel, PeopleSoft** packaged application support
- **New Sequence and Resequence nodes**

## ■ **Dynamic Operational Management**

- New operational facilities for audit and monitoring, including WBM
- Enhanced statistics to understand broker performance, including memory usage
- Improved user trace to easily understand message flow behaviour
- Enhancements for WSRR processing
- Support and **Exploit MQ Multi-instance Queue Managers for High Availability**

## ■ **Platforms, Environments and Performance**

- Exclusively 64bit Broker support
- Performance monitoring tools and very reduced memory footprint



# A Simple Product for New and Existing Users

## ■ Minimal prerequisites to get up and running

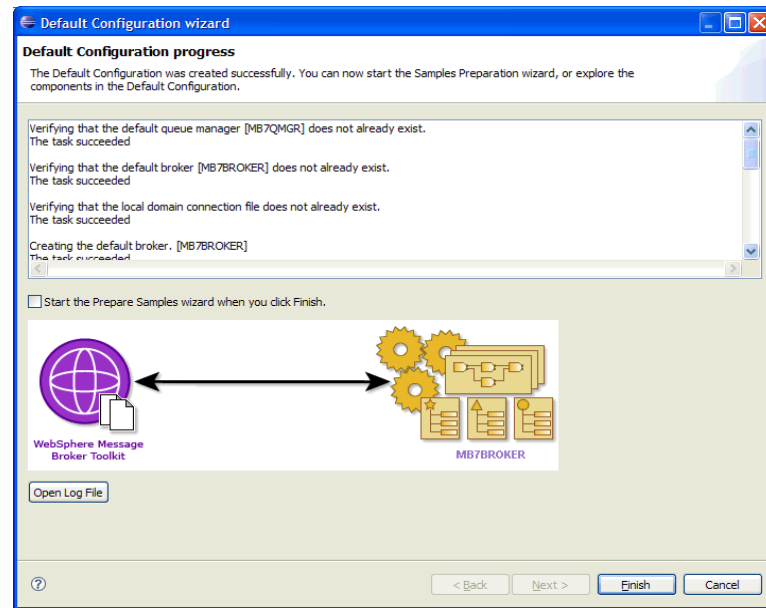
- MQ 7.0.1 is only pre-requisite product
- Previous components no longer necessary
  - Broker database, Config Mgr, User Name Server

## ■ File based deployment and configuration

- File system for deployed resources/configuration
  - Backup (online) and restore entire configuration
    - `mqsic [backup | restore] broker`
- Transient state (aggregation, collections...) in MQ

## ■ Components from Previous Versions of Message Broker

- Removal of Broker database does not affect User database access; simplifies operations
- Configuration manager functionality entirely subsumed by Broker component
  - Toolkit and Explorer can manage multiple Brokers
  - Publish subscribe topology defined with MQ7 facilities
- User Name Server no longer necessary (removed)
  - Publish/ subscribe security defined with MQ7 facilities



# High Availability with MQ Multi-Instance Brokers

- **MB Exploits New MQ7.0.1 Multi-instance queue manager capability**
  - MQ7.0.1 provides basic failover without HA coordinator
  - HACMP, VCS, HA Linux no longer required in many scenarios to restart MQ and MB!
  - MB SAP Input node exploits for state management to give multi-broker and HA SAP support
  
- **Active and Stand-by Queue Manager and Brokers**
  - Start multiple instances of a queue manager on different machines
  - One is “active” instance; other is “standby” instance
  - Shared data is held in networked storage (NAS, NFS, GPFS) but owned by active instance
  - Automatic MQ Client reconnect will attempt to make failures transparent as possible

V53	Unknown	Unknown	Unknown	Stopped	Unknown
V7	2414	V7_2009-04-21_12.3...	Yes	Running	rockall(Active)
V7B	2415	V7B_2009-04-21_12....	Yes	Running	rockall(Active)
V7C	Unknown	Unknown	Unknown	Running as standby	llareggub(Active), rockall(Standby)

- **MB Exploitation**
  1. Standby MB not running; MQ will restart MB once MQ recovery complete
  2. Standby MB is running, but not fully initialized until MQ recovery complete

# Powerful Application Development Environment

## Comprehensive AD perspective

- Support all AD life cycle tasks
- Visually consistent with MBX

## Create, modify, delete brokers

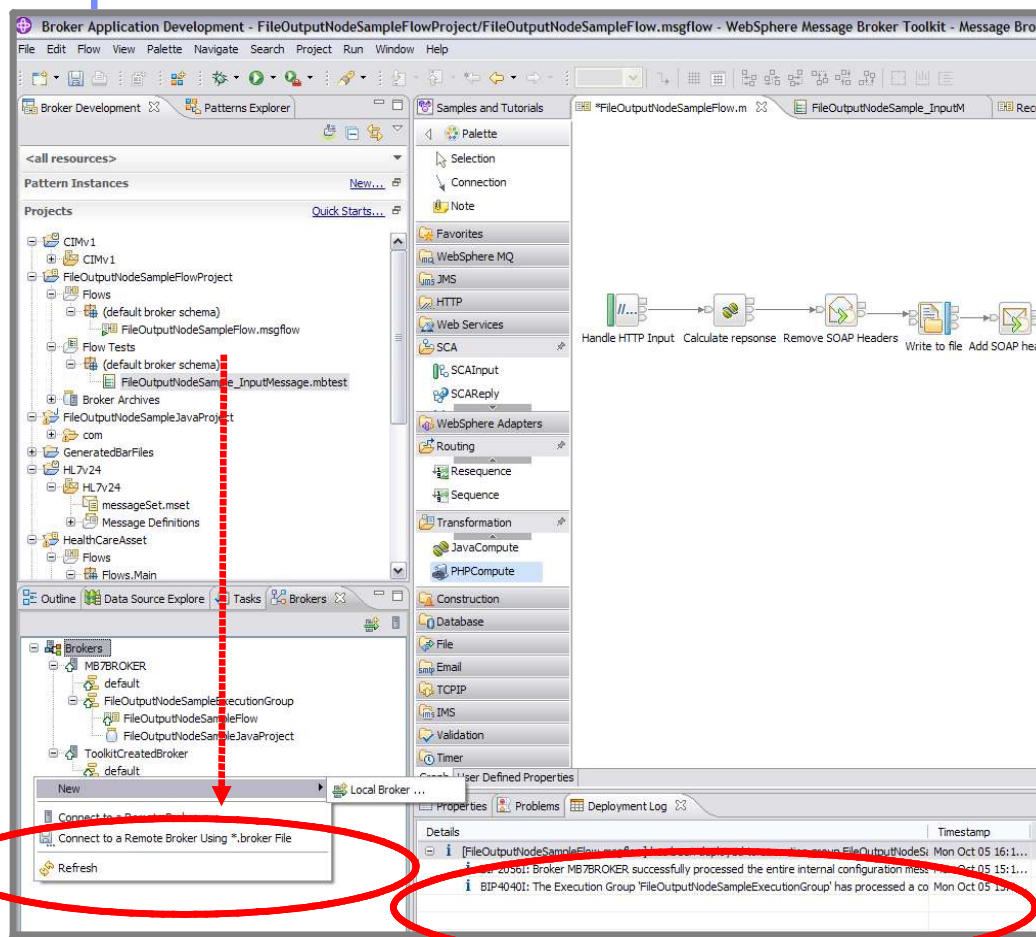
- Create local brokers & remote connect
- Create local and remote exec groups
- Start and stop brokers, execution groups
- Auto configure/configure debug ports
- Auto populated from unit test (.mbtest)

## Quickly Compile, Debug, Test (CDT)

- Debug local and remote brokers
- Drag and drop message flows directly
- Test message flow directly or .mbtest
- Drag and drop BARs from file system
- Synchronous deployment status log

## Navigation Enhancements

- Quick Start and Patterns hot links



# Patterns for Simplified Development

## ■ Patterns Based Development

- Create top-down, parameterized connectivity solutions
  - e.g. Web Service façades, Message oriented processing, Queue to File
- IBM pre-supplied patterns
  - Simplifies creation of most common scenarios according to best practices
- Complements existing bottom-up constructional approach for connectivity

## ■ Patterns Explorer

- Inventory of key Broker patterns available for solution generation
- Each Pattern contains clear help to explain context and applicability

## ■ Pattern Generation

- Enables simple creation of message flows, sets and mappings from pre-supplied pattern
- Pattern Properties allow configuration of behaviour

# Message Broker Patterns – Demo

**Broker Application Development - Pattern Specification - WebSphere Message Broker Toolkit - Message Broker - C:\Data\workspaces\runtime\WBIMB-7.0\Patterns**

File Edit Navigate Search Project Run Window Help

Broker Development Patterns Explorer

- Patterns
  - Application Integration
    - SAP
    - MQ one-way (IDoc)
  - File Processing
    - Record Distribution
    - MQ one-way
  - Message-based Integration
    - Message Correlator
      - MQ request-response with persistence**
      - MQ request-response without persistence
    - Message Splitter
      - MQ one-way (XML)
  - Service Enablement
    - Service Facade
      - MQ one-way with acknowledgment
      - MQ request-response
  - Service Virtualization
    - Service Proxy
      - Static endpoint

**View Pattern Specification**

View information about the selected pattern and click the "Create New Instance" button or click [here](#) to start using a pattern.

## Message Correlator for WebSphere MQ: request-response with persistence pattern

Use the Message Correlator for WebSphere MQ: request-response with persistence pattern to accept requests from many client applications on a single queue, and to return responses to the correct client by using transactional flows and persistent WebSphere MQ messages.

Because this pattern uses reliable communications with persistent messages and transactional flows, it is appropriate to use when the message interchanges result in updates that require no loss of data.

**Solution**

**Create New Instance**

Outline: An outline is not available.

Not connected <No Current Work>



# Message Broker Patterns – Demo

Provide values for pattern parameters. Click the "Generate" button or click [here](#) to generate a pattern instance.

Pattern parameters are ready. Click the "Generate" button to generate a pattern instance.

**Pattern Parameters**

- Input information**
- Response information** 

Response queue and validation requirements

Response queue \*

Validation of response messages

Response data type

Response message set \*

Response message type \*

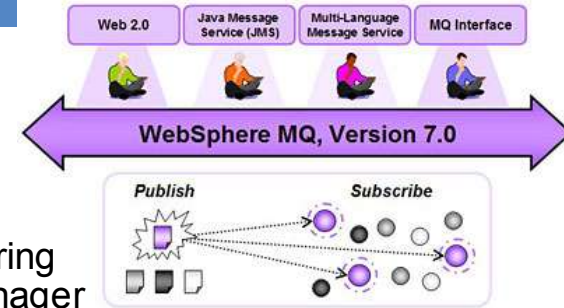
Response message format \*
- Provider information**
- Logging**
- Error handling**
- General**

**Pattern Parameters Details**

Pattern parameter	Description
<b>Response queue</b>	This pattern parameter identifies the broker queue on which client requests are received.
<b>Validation of response messages</b>	This pattern parameter identifies the level of validation required for response messages. Valid values are: <ul style="list-style-type: none"> <li>• None</li> <li>• Content</li> <li>• Content and value</li> </ul> This property is configurable in the bar file. You can configure this property to switch off validation. You should not use this property to switch on validation unless the request message

**Generate**

# MB7 Extends MQ7 Publish Subscribe



- **MB7 and MQ7 provide a comprehensive Publish Subscribe facility**
  - MQ7 adds new Publish Subscribe capabilities as IBM's strategic offering
  - MB7 incrementally adds capability to an MQ 7.0.1 PubSub queue manager
  - Connects MB's comprehensive transport and format support to MQ's messaging backbone
  - Allows any MB connectivity to be published as an MQ publication!
  
- **MB incrementally extends MQ Publish subscribe with advanced Publish Subscribe**
  - Content based Publish Subscribe with an enhanced Publication node
    - Publication node always uses underlying MQ engine
    - Add an MB to a single queue manager to enable subscribers content based filtering
      - `<publish> if msg.Price>100`
    - New 'noHit' terminal explicitly for no publication recipients
  
- **MB and MQ share a common publish subscribe domain for topic and content based operations**
  - Common MQ administration and connection management, including MQ Explorer as control point
  - Common Publish subscribe topology exploits MQ clusters
  - MB exploits multiple QoS including assured delivery and many varieties of non persistent messaging
  - Single security model (OAM/SAF) for all publishers and subscribers
  
- **Straightforward migration process from previous versions of Message Broker and Event Broker**
  - Fully MQRFH2 format compatible, and use same SYSTEM.BROKER.\* queues for administration
  - MQTT and multicast publisher and subscriber migration enabled post GA

# SCA nodes for WPS Interoperability

## WPS Interoperability

- Supports both WPS->MB inbound and MB->WPS outbound scenarios
  - WPS 6.2 and MB7.0 interoperability support statement
- “Bottom up” integration : export SCA SCDL from message flow definition for use by WPS
- “Top down” integration : import SCA SCDL from WPS to kick-start message flow creation



SCA Input



SCA Reply

## New nodes to allow MB to interoperate with WPS/SCA systems

- MB flow as SCA endpoint
  - SCA Input and SCA Reply nodes
- MB flow calling SCA endpoint
  - SCA Request nodes, including asynchronous variants



SCA Asynchronous Request



SCA Asynchronous Response

## Connectivity via standard remote bindings

- Initially Web Services & MQ bindings, JMS to follow
- Native SCA binding for local invocation not necessary, MB will always be remote
- Security credentials will flow with the transport and be handled as other transports

## Development toolkit support

- SCDL import / drag-drop to create skeleton flow
- Message flow export wizard to create SCDL from MB flow



# PHP Compute Node for Dynamic Scripting



## ■ What is PHP?

- PHP is a dynamic scripting language well suited to message transformation
- Large base of PHP skills and assets can now be used in Message Broker
- Excellent complement to existing ESQL, Java, Mapping, XSLT and WTX options

## ■ PHPCompute node

- Allows users to quickly and naturally express message transformation with scripting

```
$message->a->b->c = $input_body->Message;
```

```
for ($index = 0; $index < $output_root->Menu->Food->count; $index++) {
```

```
    $item = $output_root->Menu->Food[$index];
```

```
}
```

- Exploits IBM P8 Runtime for PHP; fully compliant with PHP version 5.2
- Many advanced features: XPath 1.0, dynamic output terminals, arrays, extension library...

## ■ Integrated Deployment

- Automatic deployment of PHP code, like Java
- PHP Development Toolkit 2.0 or 2.1 required (2.0 can shell-share with MB toolkit)

## ■ Platform Support and Performance

- Good performance characteristics, JIT compilation is focus item
- All platforms supported (Solaris Opteron will follow post GA)

# Significant Extensions for Packaged Applications

## ■ SEBL and PeopleSoft Operational Reconfiguration Enhancements

- Eases promotion of SEBL and PSOFT message flows through Test, QA, Product lifecycle
- New configurable service provides reconfiguration of key adapter node properties
  - Hostname, Client ID, System number, Userid, Password
- Also supports wholesale replacement of adapter connection



Siebel Request

## ■ Specific SAP Enhancements

- Single Program ID to allow multiple IDocs to be handled by different flows without PeopleSoft Input disruption
- SCI (Synchronous Call Interface) support with SAP Reply node
- High Availability for SAP Input nodes allows multi-broker failover with MQ HA store
- BAPI commit wait processing



PeopleSoft Input



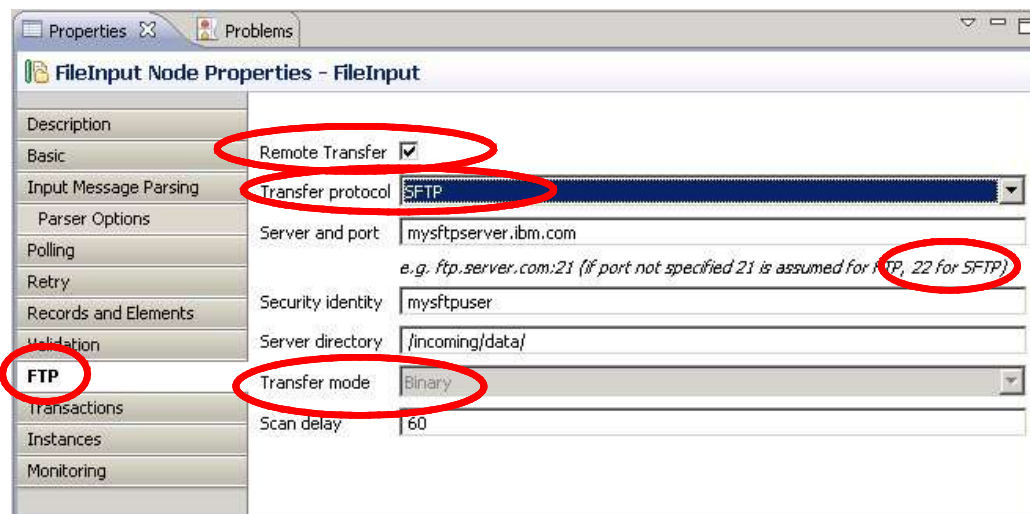
SAP Reply

## ■ General Enhancements

- Incremental Deployment to easily add new definitions to existing deployments
  - Very important for addition of new artefacts in SEBL and SAP scenarios
  - Multiple adapters can use same connection configuration
- Adapter Connection wizard 'Iterative Discovery' to only add \*new\* definitions to existing project
- User defined operations in addition to existing Create, Read, Update, Delete operations
  - More expressive operations can be declared in addition to standard suite

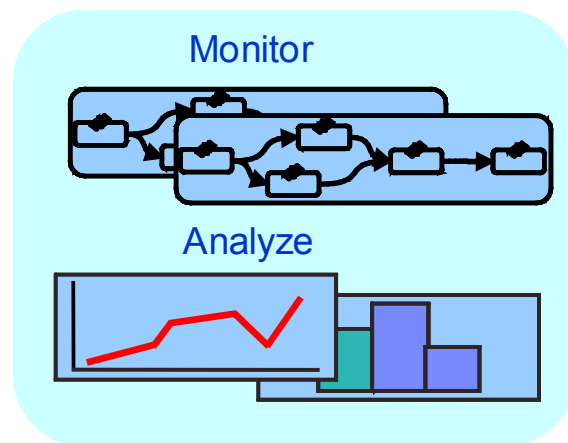
# SFTP Support for File Nodes

- **SFTP Support now available for File Input and File Output nodes**
  - Provides secure file transfers using industry preferred protocol
  - SFTP is a protocol designed from the ground up by the IETF SECSSH group
    - Note: SFTP is not FTP over SSH, and different to FTP over SSL
  
- **Easy to identify SFTP request**
  - Simple changes to FTP tab identify request as SFTP rather than FTP or local file
  - Binary transfer, Port 22 is default
  
- **FTP Configurable Service**
  - Overloads server and port property, i.e. if not IP address, is configurable service
  - Allows most (S)FTP properties to be overloaded at runtime
  
- **Authentication and other Facilities**
  - User name/password
  - Public Key Authentication
  - Ciphers and MAC support
  - Authentication codes and compression
  - Known Hosts, including strict variants



# Monitoring and Auditing

- **Generate Monitoring and Audit Events from Message Flow**
  - Easily gain insight into application and service connectivity
  - Business Monitoring & Intelligence and audit scenarios
- **Administration and Development time Configuration**
  - Every MB nodes includes a 'Monitor' tab to generate events
    - **Transaction:** Start, End, Rollback issued from input nodes
    - **Terminal:** from any terminal on any node
  - Configure payload data, content style, identity, correlation & sequencing data
  - Non-invasive nature allows monitoring profile to be applied to existing flows
  - Event Filters to limit exact conditions for event creation e.g. `msg.Price>100`
- **Operational Control**
  - Operationally enable, disable, change event production: `mqsichangeflowmonitoring` command
  - Events are published on well known topic over MQ transport for multiple concurrent consumers
  - Events optionally produced within same transaction syncpoint for optimum performance
- **WebSphere Business Monitor integration**
  - Monitor and analyze KPIs
  - Automatic generation of MAD model
  - Comprehensive sample built-in
- **WMBTM offering**
  - For audit, repair and replay



Enabled	Event Source	Event Name
<input checked="" type="checkbox"/>	Transaction start (transaction.Start)	MQInputTransactionStart
<input checked="" type="checkbox"/>	Transaction end (transaction.End)	MQInputTransactionEnd
<input checked="" type="checkbox"/>	Transaction rollback (transaction.Rollback)	MQInputTransactionRollback
<input checked="" type="checkbox"/>	Out terminal (terminal.out)	MQInputOutTerminal
<input checked="" type="checkbox"/>	Catch terminal (terminal.catch)	MQInputCatchTerminal
<input checked="" type="checkbox"/>	Failure terminal (terminal.failure)	MQInputFailureTerminal

# Service Registry and Repository Enhancements

## ■ Integrated support for WSRR

- Registry contains variety of “entities” (documents) such as WSDL, XSD...
  - Includes entity category, its relationships and its associated user properties
- MB can use this information for arbitrary processing in up-to-date memory cache
  - Examples include routing, dynamic transformation, and other “policy”



RegistryLookup

## ■ MQ Services \*and\* Web Services

- MQ Service Definition: WSDL based description of MQ application/service
- Defines application location, message properties and interaction style

```
wmq: /msg/queue/INS.QUOTE.REQUEST?connectQueueManager=MOTOR.INS
&replyTo=msg/queue/INS.QUOTE.REPLY
&persistence=MQPER_NOT_PERSISTENT
```

- WSRR nodes fully enabled for Web Services; now also support MQ service definition

## ■ Processing Enhancements for Web Services and MQ Services

- Registry Lookup node queries MQ and WS definitions matching specific criteria
  - Deep Query support optionally returns matching artefact and related objects
- Simplified tree structure for queried data
  - Strips white space etc to present more readable data from WSRR
- Query timeout support
  - For very long running queries
- Dynamic classifications allow variable classification queries according to message content
  - Particularly helpful moving between Test, QA and Prod environments



EndpointLookup

# Sequencing and Re-sequencing Nodes



Resequence

## ▪ New Sequence and Resequence nodes

- Messages arrive in **any** order, propagated according to monotonic sequence number
- Sequences groups have defined start and end, propagated in order within group
- Strong synergy with aggregation and collector nodes

## ▪ Resequence node collects messages according to

- Sequence number location within message
- Optional group location for sequences from different origins (e.g. account identifier, date ,
- Flexible sequence start and end definition mechanism
  - Literal value, predicate or timer based
  - e.g. (0,10) (\$Root/FirstMsg, \$Root/LastMsg) (5, 50s)
- Message propagation uses additional threads



Sequence

## ▪ Comprehensive timeout handling

- Missing message timer monitors sequence gaps
- Late messages propagated
- Duplicate messages raise exceptions

## ▪ Complemented by Sequence node

- Users can create new sequences and groups
- Use existing or create new sequence fields
- Synchronized groups ensure true processing order

**Resequence Node Properties - Resequence**

Description Path to sequence number: The Body schema element was not found

Basic

Path to sequence number\*

Path to sequence group identifier

Missing message timeout

Start of sequence definition

Literal

Predicate

Automatic

End of sequence definition

Literal

Predicate

Automatic

# Enhanced Statistics for Measurements and Reporting

## Graphical Performance Monitor

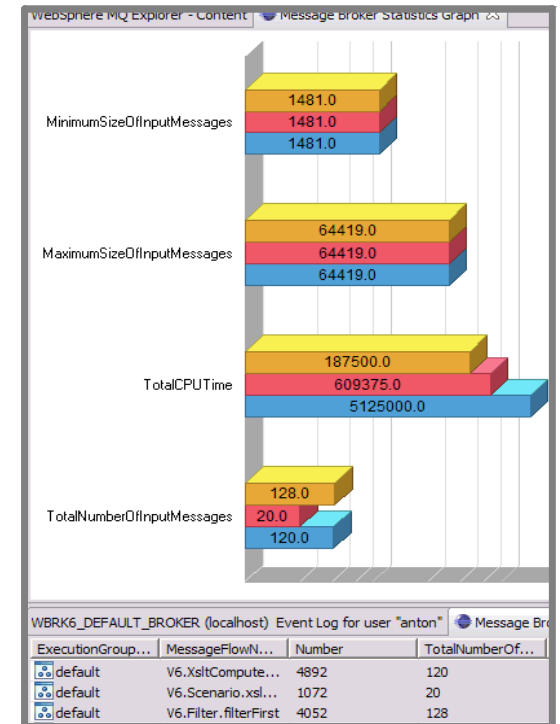
- Allows operational personnel to understand behaviour of deployed solutions
- Reports comprehensive usage according of well known resources, rather than internal data structures
  - Message Flows, Nodes, Parsers, JVM, HTTP, SOAP/HTTP sockets
  - Will grow to include all resources: File, Database, MQ, SAP...
  - Optionally partitioned by Broker, Execution Group and Message Flow

## Reporting Mechanisms

- Graphically reported through MB Explorer
  - Sort, filter and chart performance characteristics
  - View CPU, IO and other metrics
  - Log data to file in CSV/Excel readable format for post processing
- User Configurable Reporting Interval
  - XML report messages consumed by any end user application

## Examples of Available Resource Report Metrics

- **JVM:** Memory used, thread count, heap statistics...
- **Parser:** Memory usage; message elements created/deleted; parser count
- **SOAP/HTTP:** Socket host/port open; bytes sent, bytes received
- **File:** File handles opened, closed, in-use; bytes written, bytes read
- **Database:** Selects, Inserts, Updates, Deletes; Handles opened, closed
- **SAP:** Number of inbound/outbound requests, IDOC size
- **MQ:** MQ API count; messages count; MQ handles opened, closed, in-use
- **SOAP:** Requests processed; Sessions opened, closed, in-use



name	Initial	Used	Committed	Max
HeapMemory(bytes)	4194304	643496	4194304	1601292288
Non-HeapMemory(bytes)	0	2420924	2420924	9
Summary	4194304	3064420	6615228	54



# WebSphere Message Broker Version 7 Summary

- **Message Broker Version 7 is major release**
  - Builds on continued success of Versions 6 and 6.1
  - Enhances and extend universal connectivity capabilities for wide range of scenarios
  - Architectural, Functional, Operational improvements
  - Significant enhancements planned post MB7 GA
  - More nodes to come in MB7 post GA!
  
- **Broad range of themes to appeal to diverse user community**
  - Simplification & Productivity
  - Dynamic Operational Management
  - Platforms, Environments & Performance
  
- **Message Broker is a key IBM connectivity technology**
  - Unparalleled range of connectivity options and capabilities
  - Supports users' range of experience and needs
  - Industry leading performance in a broad range of scenarios



## Summary :

# Universal (SOA) Connectivity and Application Integration

### **Websphere MQ V7.0.1**

- *Multi-Instance Queue Managers*
- *Automatic Client Reconnect*
- *Enhanced Governance*
- *Enhanced SSL Security*
- *Enhanced .NET support*

### **MQ FTE V7.0.2**

- *Increased ability to transfer across range of protocols*
- *FTP, SFTP Protocol Bridging / DP XB60*
- *Increased access control*
- *Exploit MQ Multi-instance Queue Managers for HA*

### **WebSphere Message Broker V7.0**

- *Streamlined product prerequisites and components*
- *IBM pre-supplied patterns for development*
- *SCA nodes for WPS Interoperability*
- *PHP nodes for Web 2.0 support*
- *Enhanced SAP, Siebel, PeopleSoft support*
- *New Sequence and Resequencing nodes*
- *Exploit MQ Multi-instance Queue Managers for HA*

## Weitere Infos und Links

- **Business Agility**
- **WebSphere MQ**
- **WebSphere MQ File Transfer Edition**
- **WebSphere Message Broker**
- **WebSphere SupportPacs**
- **WebSphere auf YouTube**
- **WebSphere auf Twitter**
- **WebSphere auf Facebook**
- **MQ und MQ FTE Workshop 15.12.09 in Ehningen**



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