



# IBM zEnterprise Technology Summit

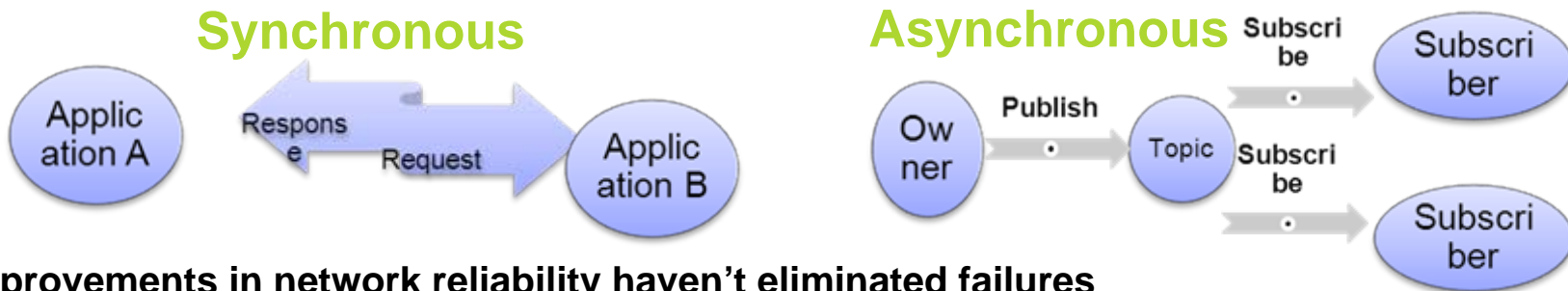
## WebSphere MQ Technical Update

Presenter – Title

Date



## Why is Messaging still important?



### ▪Improvements in network reliability haven't eliminated failures

- Users have no toleration for failure or inconsistent behaviour
- The growth in cloud and mobile are introducing more points of failure

### ▪Failure handling still more effective and simpler to implement by separating it out from business and application logic

- Connectivity interruptions handled seamlessly without needing expert application integration skills
- Reduces cost and complexity in change/maintenance

### ▪Consistent interfaces, no matter the system, or the application programming language

### ▪Moves any type of data and any type of system, device or environment

- Can provide management/audit layer

### ▪Can provide variety of qualities of service

- Persistence, non-persistence
- High performance
- Move from batch and offline processing, to real-time event driven architectures

# What key pain points drive customers using Messaging today?

## Business transactions happen exactly once

- Ensure all the systems involved in that transaction do their job, exactly once
- No loss, no duplication, and no complex recovery/compensation if individual systems fail

## Adoption of new services is unpredictable, and change is relentless

- Scale your applications rapidly to any volume, without downtime
- Roll out new applications and features quickly and safely, without downtime

## Adopting industry standards can help you become more agile

- Ensure applications and processes remain event-driven when integrated via industry standards
- Connect systems on virtually any platform into a standards-based SOA

## Losing sensitive data, or failing to comply with regulations, costs time, money and reputation

- Protect your sensitive data and files from loss
- Audit movement of data, and completion of transactions

## Business insight is key to competing in today's consumer-driven market

- Every new customer, every transaction, every service interaction contains valuable business data
- Capture and distribute this business data, at any volume

## You can achieve an event-driven business

- Apply your business insight at real time to your business data – wherever it comes from
- Use an event-driven model to complete the feedback loop, and trigger your business processes

# WMQ V7.0.1 – Content Summary

<i>New Feature</i>	<i>Benefits</i>	<i>Details</i>
Multi-Instance Queue Managers	<b>Increases availability</b> <b>Does not require specialist skills</b> <b>Can help ease system maintenance</b>	<b>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</b> <b>Simplifies programming</b>	<b>Provides Client-connected applications with automatic detection of failures and reconnects to alternative Queue Managers</b>
Enhanced Governance	<b>Increases visibility of changes</b> <b>Enables SOA Governance</b>	<b>Emits events whenever configuration changes are made or commands are run</b> <b>Service Definition wizard generates WSDL describing MQ apps</b>
Enhanced SSL Security	<b>Simplifies security certificate management</b>	<b>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</b>	<b>Provides IBM Message Service Client for .NET developers</b> <b>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</b> <b>Provides constraint relief for virtual storage</b>	<b>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</b> <b>Increased log performance &amp; bandwidth</b>	<b>Compresses message logs produced by persistent messages</b>
z/OS Group Units of Work	<b>Increased resilience</b>	<b>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</b> <b>Simplified integration for Message Broker</b>	<b>Exit point to dynamically modify routing and content</b> <b>Tools to migrate pub/sub state from MB to MQ</b>

# Reliable, Flexible and Secure Messaging IBM WebSphere MQ v7.1

## Target Audience

- Existing and new customers looking to connect systems and applications simply, securely and at high performance
- New opportunities around multi-cast for low latency requirements, and Telemetry for mobile or device connectivity



## IBM WebSphere MQ v7.1 highlights

## IBM WebSphere MQ v7.1

Enhanced!

- **Configurable Security**
  - Uses new improved security standards
  - Eliminates the need for homegrown security coding
- **Multi-version or relocation install**
  - Determine where to install versions of MQ
  - Bridge Applications on the same machine
- **Publish/Subscribe Multi-cast**
  - Broadcast to all systems on the network level speeding up data delivery
- **Reduced TCO through enhanced performance and scale**
  - Fastest and best scaling MQ release ever



## Key new enhancements extend WebSphere MQ V7.1 Capabilities

### 1. Improved Security

- Replaced requirement for externally written exits with IBM provided security functions
- Policy based access to WMQ resources
- Support for more secure encryption

### 2. Easier install & migration

- Install WMQ in a chosen location
- Multiple versions of WMQ can be installed and running simultaneously
- Migration between releases and to fixpacks less disruptive to ongoing deployments

### 3. Increased performance & scaling

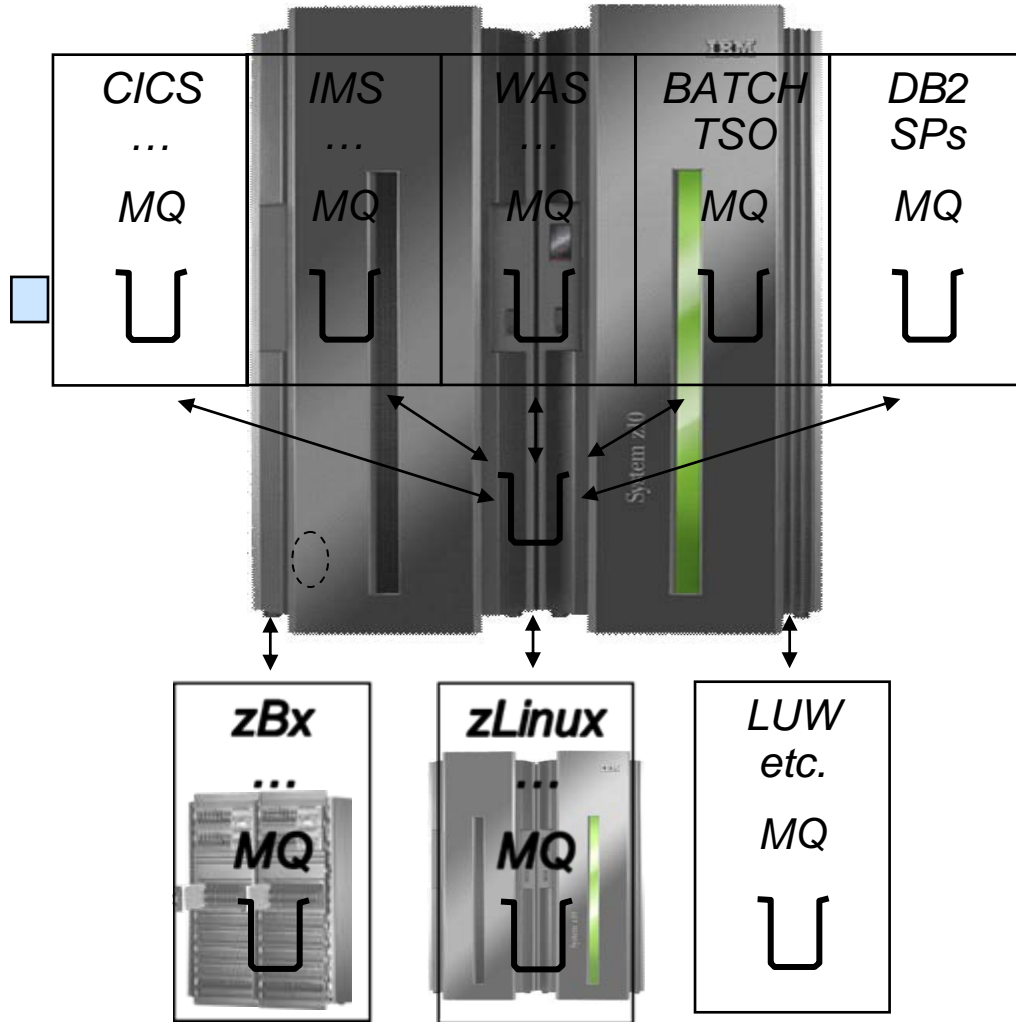
- Fastest WMQ release ever, inc. on Z
- Able to scale successfully with multiple core deployments
- Dramatic increases in throughput for both persistent and non-persistent messages for many platforms

### 4. Telemetry and Multicast Options

- Included new functions offer extended reach and new quality of service option
- Allows new use cases for WMQ to be developed
- Good news for multiple endpoints



# Connectivity to, from and within zEnterprise



## Sysplex Shared Queue Message Availability:

Goal is to provide as near as possible continuous message data access under ALL failure scenarios (These scenarios include Application/Transaction failures, Application Execution Env. failures, Qmgr failures, CF failures, DASD failures, Network failures, CEC failures)

## Sysplex Shared Queue Message Capacity:

Goal is to provide Terabytes of affordable message capacity such that MQ is capable of meeting all business requirements for reliable message storage when processing applications are unable to run for whatever reason

# WebSphere MQ V7.1: Feature Summary – Simplification

## WebSphere MQ V7.1

Announced: 4 October 2011

Availability: eGA 11 November 2011; pGA 25 November 2011

<i>New Feature</i>	<i>Benefits</i>	<i>Details</i>
Multi-Version Install capability on Distributed platforms	<b>Makes it easier to deploy and upgrade systems and stage version to version migration</b>	<b>Unix and Windows support for multiple versions of MQ V7.x (AND one copy of MQ V7.0.1) down to fixpack levels. Relocatable installation support. Applications can connect to any Qmgr</b>
Enhanced Security	<b>Simplified Configuration Enhanced Authorisation and Auditing</b>	<b>IP address Authorisation capability Additional crypto algorithms More granular authorisation for non-local queues Application Activity Reports</b>
Cloud Support	<b>Simplifies and support Cloud deployments</b>	<b>Additional HVE images</b>
Enhanced Clustering	<b>Improves ease-of-use</b>	<b>Authorisation on Cluster Q rather than XMIT Q on Dist. Platforms Bind-on-Group Support</b>
Multicast capability	<b>New messaging QoS provides low latency with high fan-out capability</b>	<b>MQ Pub/Sub Topic space can now map to multicast Group Addresses Provides direct interoperability with MQ LLM</b>
Improved scalability and availability on z/OS	<b>Further exploitation of z196 Customer control over CF storage use CF Connectivity Loss improvements</b>	<b>Code contention reduced to improve multi-processor linear scaling Use of MQ Datasets rather than DB2 significantly improves “large” message capability Structure rebuild capability for CF Connectivity Loss scenarios</b>
Improved Performance on Dist platforms	<b>Improved multiprocessor exploitation</b>	<b>Various code improvements, delivering some substantial message throughput enhancements</b>



# Reduced Total Cost of Ownership IBM WebSphere MQ v7.1



## Security Enhancements

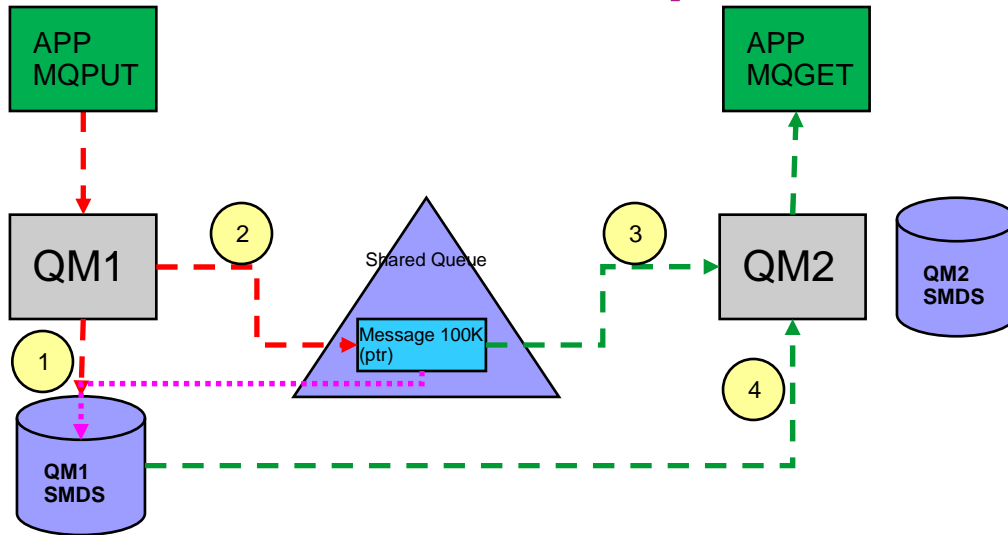
- “*Out of the box*” rules for controlling Channel access to Queue Managers eliminating the need for customer or vendor supplied exit code to provide popular security controls. Rules can be based on
  - Partner IP Address,
  - Partner Queue Manager Name,
  - SSL Distinguished Name (DN)
  - Asserted Identity,
  - Derived identity from DN mapping
- *Addition Channel Security* using stronger SSL Crypto algorithms from SHA-2 and NSA Suite B
- Distributed platforms now have *direct authorisation capability* for non-local queues
  - No longer require access to Cluster Xmit queue for (remote) Cluster queues
  - Access control now consistent with existing MQ on z/OS capability

- MQ v7.1 on Unix and Windows can support *multiple installations on a single OS image*
- MQ instances can be relocatable to user-chosen directories
- Can have multiple copies even at fixpack level
- Greatly simplifies and eases *migration/testing*
- Can move applications as and when needed
- No need for parallel hardware
- Enables full utilisation of large capacity H/W
- Easier for ISVs to *embed MQ in solutions*
- Can install in “private” locations without worrying about other copies of MQ
- Reduces support concerns
- Support for *coexistence of MQ v7.0.1* on same system
- Assists migration of existing MQ v7.0.1 systems

## Install and Migration



# Specific Enhancements for System z IBM WebSphere MQ v7.1 on z/OS



## Performance Enhancements

- Scaling improvements for multi-way configurations –
- Over **ONE MILLION messages/sec** (2KB non-shared) through a **single** Queue Manager on a 30-way z196
- Over 150,000 messages/sec (2KB shared) using a 3 Queue Manager QSG on a 30-way z196
- New Shared Message DataSets (SMDS) for storing large shared messages provide significant performance and capacity improvements over DB2

- Automatic recovery capability for connectivity loss to MQ Shared Queue Structures in a Coupling Facility improves the already highly-available MQ Sysplex shared queues
- New Shared Message Datasets (SMDS) feature for large shared queue messages allow “large” to be customisable providing much greater customer control over usage of Coupling Facility storage

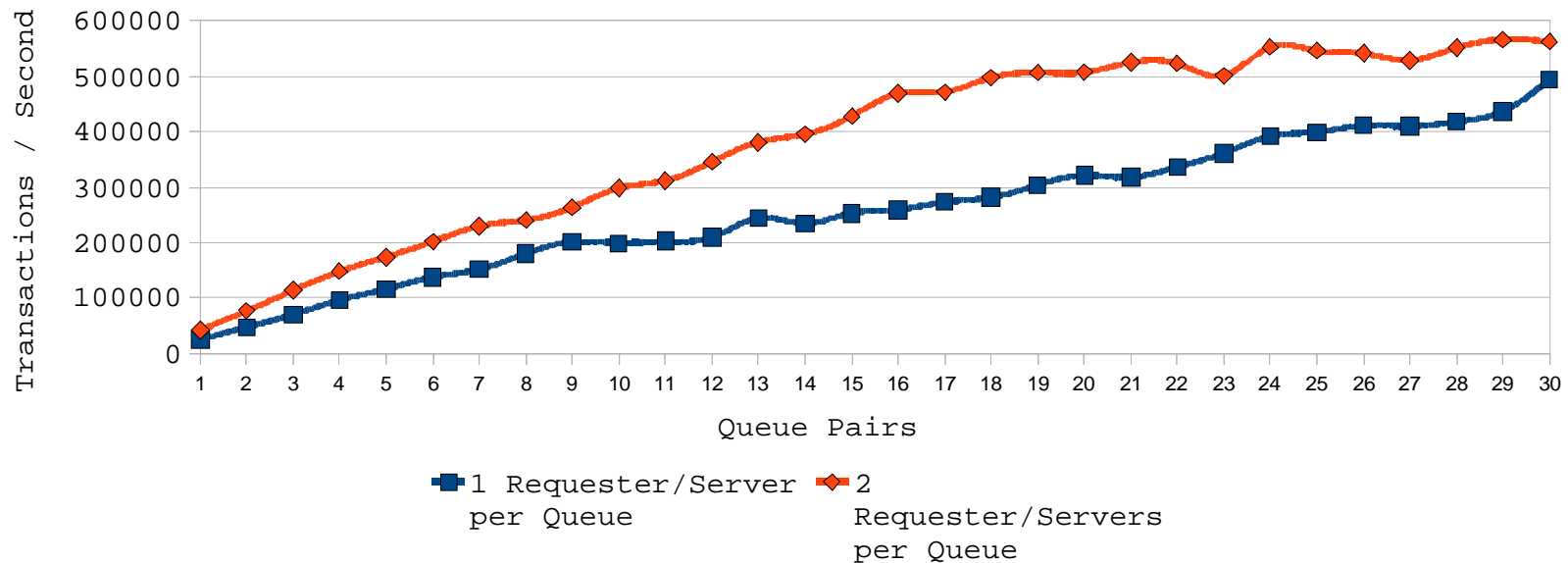
## Availability Enhancements



# Private Queue, non-persistent, Out-of-Syncpoint

Achieved Transaction Rate, Private Queue 2KB Non-Persistent Workload Out-of-Syncpoint, Low-Contention

z196 30-way, z/OS v1r12, Hiperdispatch(ON), RMF(OFF), TRACE(A)



This measurement shows that MQ is able to exceed 550,000 transactions per second on a single queue manager running on a 30-processor LPAR

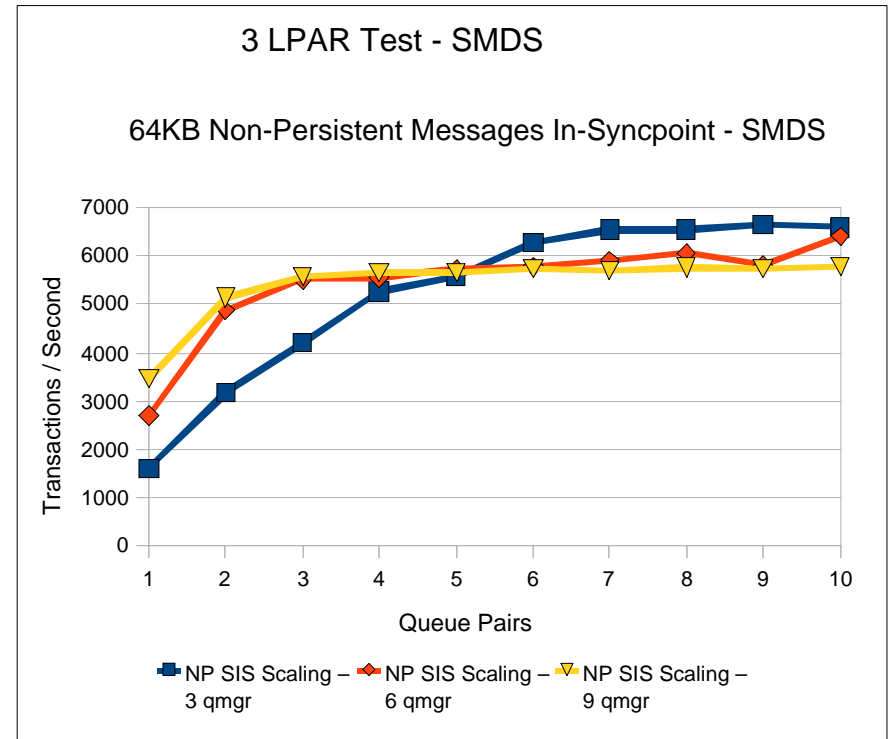
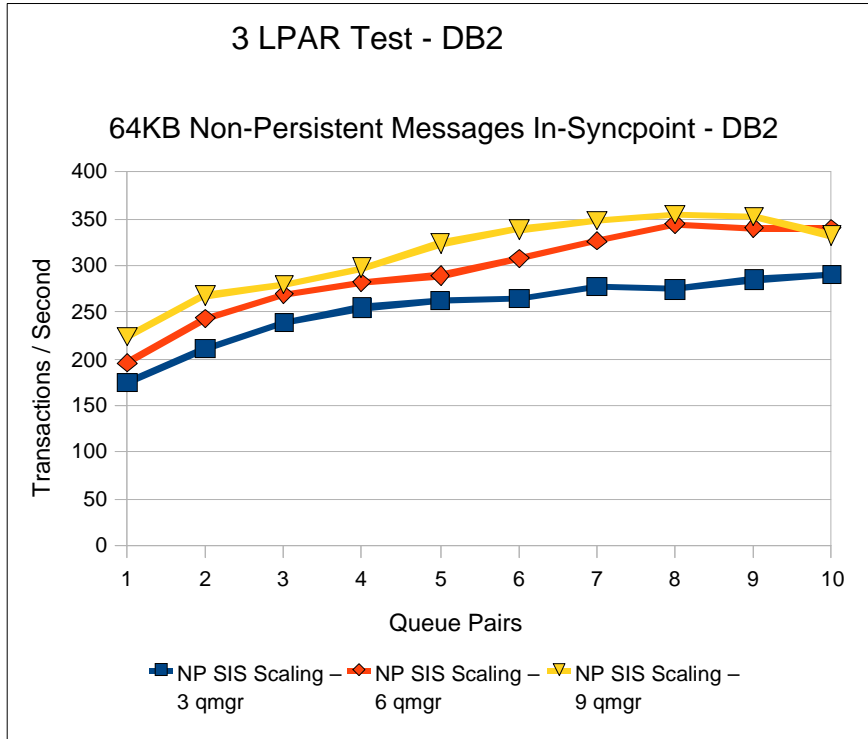
– and was repeated with similar results on a 64-processor LPAR.

**(Note that with current MQ V7.0.1, we max out in this scenario at 330,000 tps)**

Each transaction involves a requester task putting a message, a server getting the message and putting a reply and the requester getting the specific reply message - i.e. 2 MQPUT/MQGET pairs.

So a single queue manager is able to support a message rate of **1.1 million messages / second !!**

# SMDS Performance Improvement



- **Early Test Results on z196**
- **Tests show comparable CPU savings making SMDS a more usable feature for managing your CF storage**
- **SMDS per CF structure provides better scaling than DB2 BLOB storage**

# WebSphere MQ and other assets on System z

- **CICS and WMQ**
  - Need to apply maintenance for CICS TS 3.2 & 4.1 to allow exploitation later WMQ releases
  - CICS 4.1 provides MQ Group Attach (a la DB2) with WMQ V6 and upwards
  - CICS 4.2 will provide extended MQ Group Attach (GroupUR support - a la WMQ V7.0.1) when used with WMQ V7.1
  - WMQ V7.1 provides 64-bit support for Java Classes for CICS
- **IMS and WMQ**
  - Transaction Expiration (IMS Bridge)
  - IMS Resource Monitoring (IMS Bridge Flood Prevention)
- **WAS (z) and WMQ**
  - WAS can take advantage of WMQ V7.0.1 GroupUR support via Client attach
  - JMS fix (WMQ V7.0.1.5) provides single phase commit optimisation for MDBs where WMQ is the only Resource Manager touched by the MDB (needs WAS 7.0.0.19)

## Challenge of Regulatory Compliance – securing data being moved

*Large  
Food & Drug  
Retailer in  
North  
America*

- Company had exposure to loss of customer personal healthcare information and personal credit card data
- A level 1 retailer with large volumes of personal data to deal with the need to secure their systems across multi-channels

### **Solution:**

- **Implementing WMQ AMS for encryption of data at rest in queues.**

### **Solution Benefit:**

- **No need to modify applications, able to leave existing systems intact and add security updates quickly at the same time as continuing normal operation.**
- **By encrypting the data and limiting access to the applications the possibility of personal data being stolen and will be minimized.**



# Add Security Protection to Messages

## IBM 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*

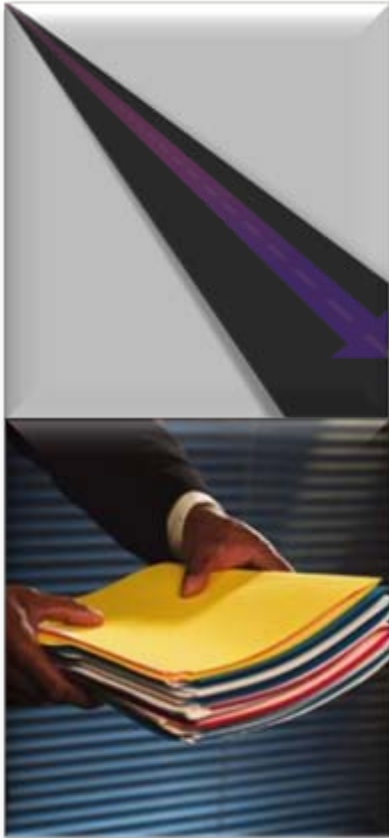


### New in v7.0.1.1:

- *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
  - Improved customer's ability to meet regulatory *compliance* obligations, such as key PCI DSS requirements
  - *Simplified administration* with Eclipse-based tooling to administer policies across the entire network from a single desktop
  - Supports Hardware Security Modules



## Add Security Protection to Messages IBM WebSphere MQ Advanced Message Security for z/OS



### End-to-End Security

- Protect *data at rest* in queues, detects and removes rogue messages
- *Authenticate* and protect messages across the enterprise
- *Apply* end-to-end encryption to existing systems with *minimal* disruption

### Administrative Logging

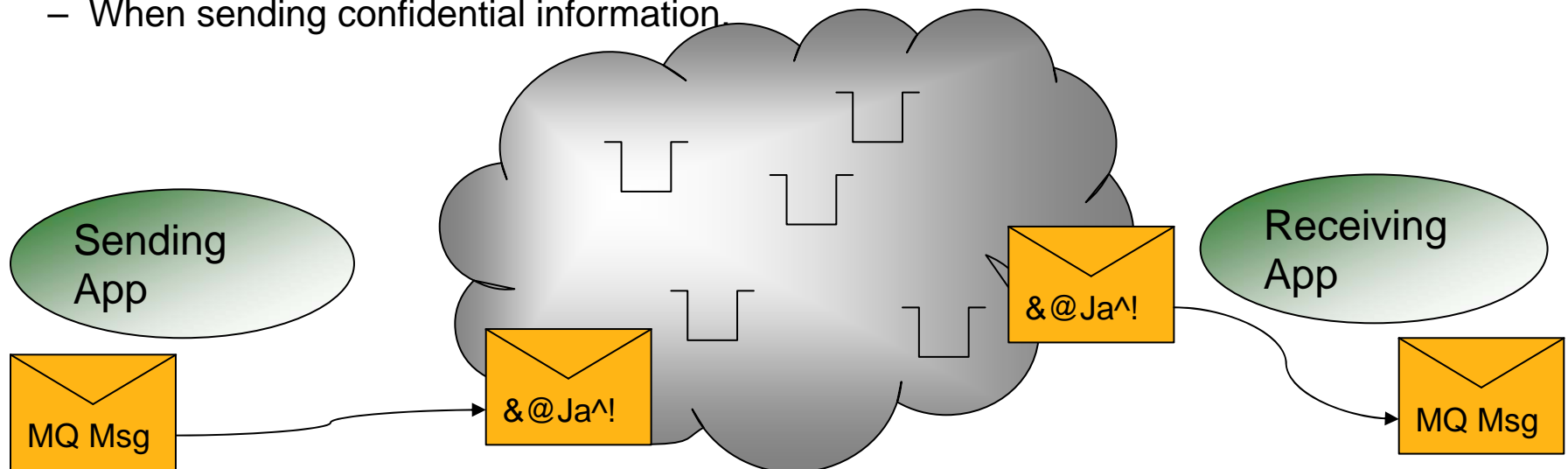
- *Reduce* the *scope* and *costs* of audits
- Prove *data is not* captured in *logs*, *dumps* and *traces*
- Provide *separation of duties* for *administrators*

***Reducing the time and skills needed to comply with aspects of common security standards (including PCI-DSS etc.)***

**Entitlement for WMQ AMS included within WebSphere MQ Advanced**

## Message Level Protection with WebSphere MQ Advanced Message Security

- **Enables secure message transfers at application level**
- **Assurance that messages have not been altered in transit**
  - When issuing payment information messages, ensure the payment amount does not change before reaching the receiver
- **Assurance that messages originated from the expected source**
  - When processing messages, validate the sender
- **Assurance that messages can only be viewed by intended recipient(s)**
  - When sending confidential information



# Shortcomings of Basic FTP

## Limited Reliability



- ❑ Unreliable delivery – Lacking checkpoint restart – Files can be lost
- ❑ Transfers can terminate without notification or any record – corrupt or partial files can be accidentally used
- ❑ File data can be unusable after transfer – lack of Character Set conversion

## Limited Security



- ❑ Often usernames and passwords are sent with file – as plain text!
- ❑ Privacy, authentication and encryption often not be available
- ❑ Non-repudiation often lacking

## Limited Flexibility



- ❑ Changes to file transfers often require updates to many ftp scripts that are typically scattered across machines and require platform-specific skills to alter
- ❑ All resources usually have to be available concurrently
- ❑ Often only one ftp transfer can run at a time
- ❑ Typically transfers cannot be prioritized

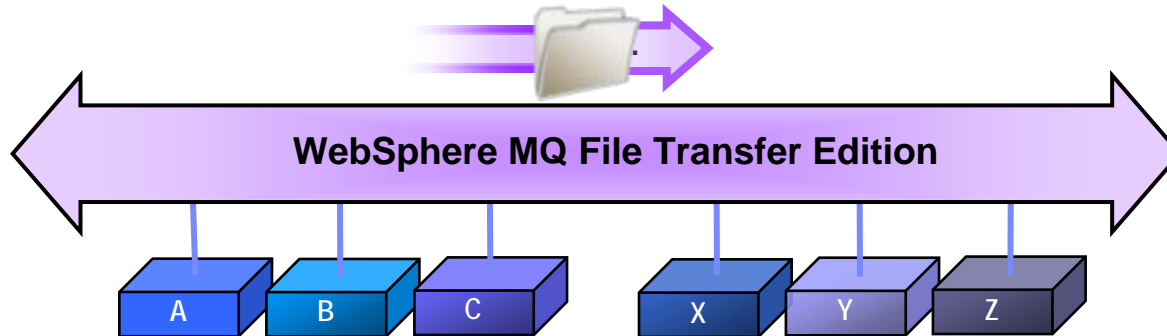
## Limited visibility and traceability



- ❑ Transfers cannot be monitored and managed centrally or remotely
- ❑ Logging capabilities may be limited and may only record transfers between directly connected systems
- ❑ Cannot track the entire journey of files – not just from one machine to the next but from the start of its journey to its final destination

# What is WebSphere MQ File Transfer Edition?

*Adds managed file transfer capabilities to WebSphere MQ*



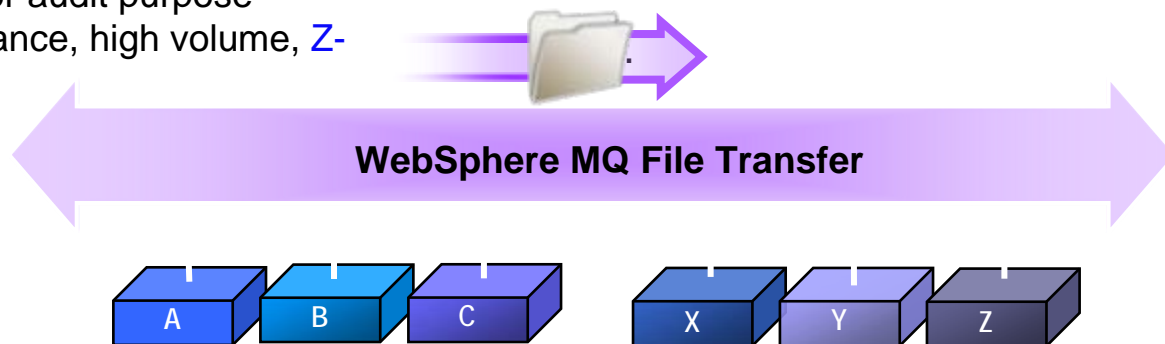
<input checked="" type="checkbox"/> Auditable	Full logging and auditing of file transfers + archive audit data to a database
<input checked="" type="checkbox"/> Reliable	Checkpoint restart. Exploits solid reliability of WebSphere MQ
<input checked="" type="checkbox"/> Secure	Protects file data in transit using SSL. Provides end-to-end encryption using AMS
<input checked="" type="checkbox"/> Automated	Providing scheduling and file watching capabilities for event-driven transfers
<input checked="" type="checkbox"/> Centralized	Provides centralized monitoring and deployment of file transfer activities
<input checked="" type="checkbox"/> Any file size	Efficiently handles anything from bytes to terabytes
<input checked="" type="checkbox"/> Integrated	Integrates with MB, WSRR, ITCAMs for Apps, DataPower + Connect:Direct
<input checked="" type="checkbox"/> Cost Effective	Reuses investment in WebSphere MQ. Wide range of support (inc. z/OS and IBM i)

## Managed File Transfer for z/OS with MQ

- Add managed file transfer services to WebSphere MQ
- Enables reliable, secure and traceable file transfers from within the MQ environment
- Replaces costly, home-grown solutions that lack management controls – reuses the MQ Explorer console for management

### Capabilities:

- Any file size (Kb, Mb, Gb, Tb...)
- Web UI for "ad hoc" file exchange & tracking between users
- No need for programming
- Reliable delivery leveraging MQ
- Full logging for audit purpose
- High performance, high volume, Z-optimized
- Industry standard SSL security
- Multi-purpose File-to-message(s) and Message-to-file modernizes batch applications
- XML scripting for distributed job automation
- Supports many platforms (11 OSs)



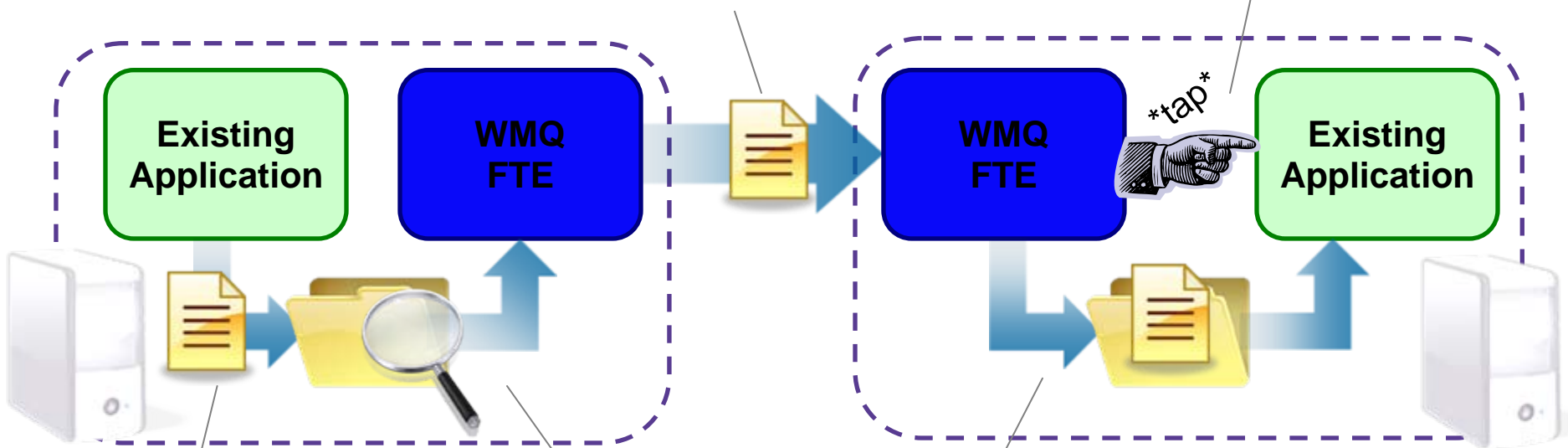
**Entitlement for WMQ FTE included within WebSphere MQ Advanced**



# Managed File Transfer with WMQ FTE

3. FTE transports file to destination

5. FTE can also start another application to process the file

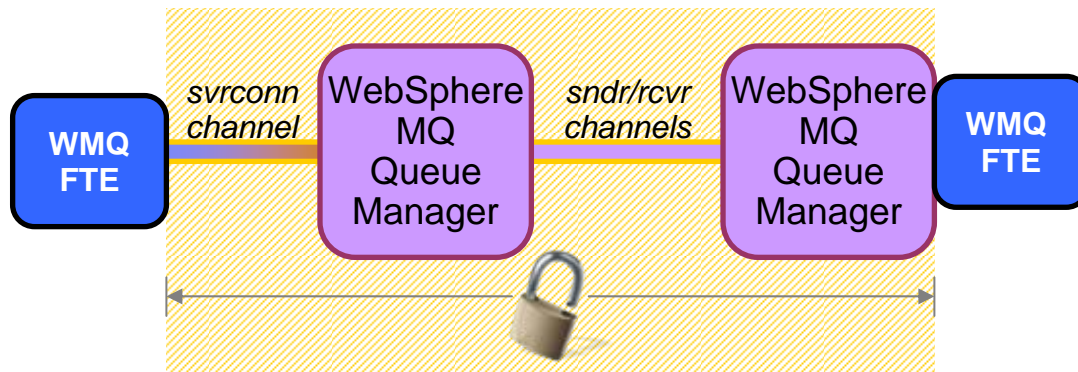
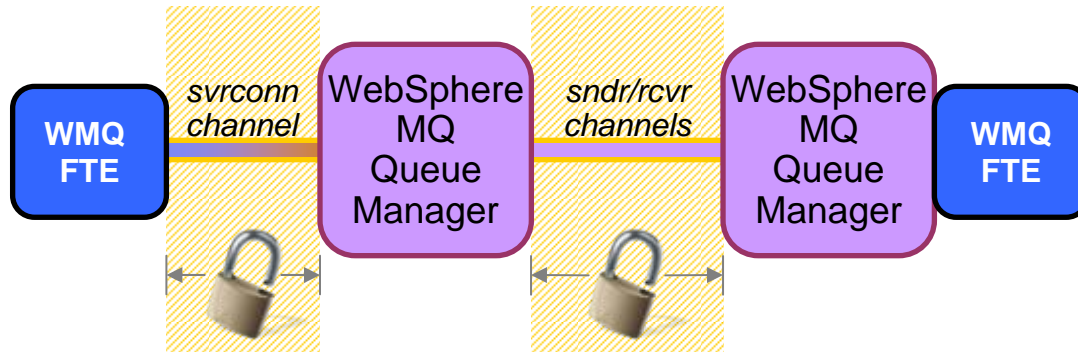


1. Application writes file to file system

2. Agent monitors file system, spots arrival of file and based on rules, transfers the file

4. At destination MQ FTE writes file to file system

## Securing file data with SSL and WMQ AMS



- WMQ FTE supports transport level encryption using SSL
- Data is encrypted before it is sent over a channel and decrypted when it is received
  
- When combined with WMQ Advanced Message Security
  - Allows file data to be encrypted at the source system and only decrypted when it reaches the destination system
  - Data is secure even when at rest on a queue

## MQ Advanced: For customers who want to get serious about real integration but still demand a simplified package...

### What's New

- Messaging layer enhanced with advanced message security and managed file transfer solution
- Single pricing for all OTC MQ based function
- All enabled projects get immediate access to all capabilities

### Client Benefits

- Quickly and cost-effectively address integration requirements from new technologies
- Increase infrastructure agility and rapidly pursue new market opportunities



Convenience of a single, integrated offering  
All functions available to all projects

Enhanced!

**IBM WebSphere MQ Advanced V7.5**  
**IBM WebSphere MQ Advanced for z/OS v7.1**

## Delivering more for z/OS customers with WebSphere MQ Advanced for z/OS V7.1

- Customers run WMQ on z/OS to gain the most high performing connectivity between z/OS applications
- WMQ on z/OS can be extended with additional functions to drive more value from the messaging layer that provides connectivity, reliability, manageability
  - WebSphere MQ File Transfer Edition delivers Managed File Transfer
    - Moves files reliably and securely throughout the enterprise
    - Makes use of WebSphere MQ
    - Provides a single point of control for visibility and reporting
  - WebSphere MQ Advanced Message Security delivers end to end encryption
    - No programming changes requires
    - Policy based
    - Supports Managed File Transfer as well
- WMQ Advanced for z/OS V7.1 is a combined package of WMQ AMS and WMQ FTE
  - Requires existing WMQ for z/OS entitlement
  - Customers can trade up to WMQ Advanced for z/OS if they own either WMQ AMS or WMQ FTE

WMQ

5655-R36 (MLC)

WMQ AMS

5655-W50 (OTC)

WMQ FTE

5655-U80 (OTC)

WMQ AMS

**5655-W98**  
(WebSphere MQ  
Advanced for z/OS)

WMQ FTE

# Messaging Optimized for Smart Sensors and Telemetry Devices

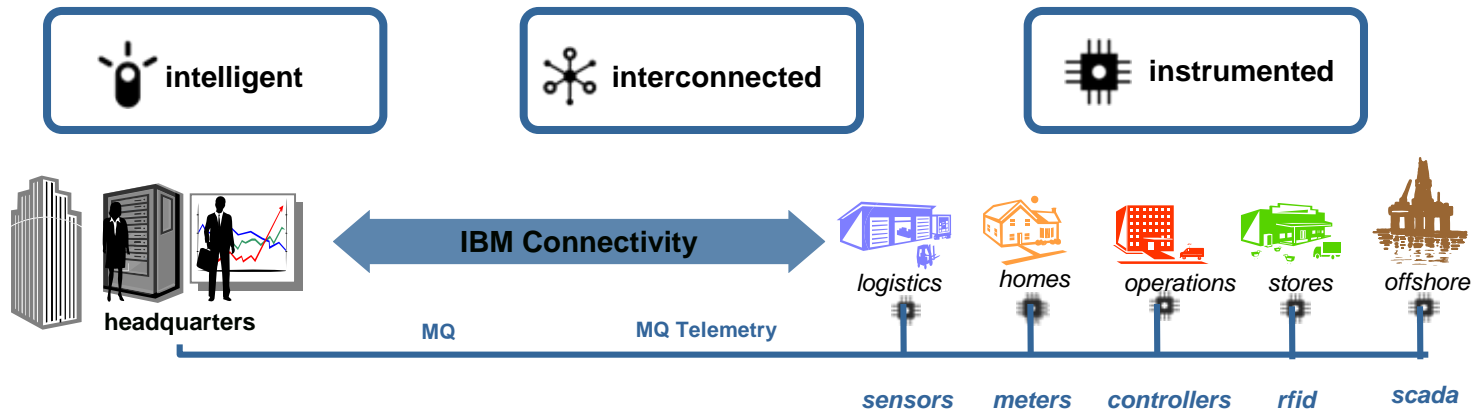
## IBM WebSphere MQ Telemetry (included in WMQ V7.1\*)

\* Windows, Linux, AIX,  
Licensed separately if used

- 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 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



## WMQ V7.5/V7.1 for Distributed Platforms (includes zLinux and AIX, xLinux and Windows – which run on zBx)



### General Capabilities

- Customer choice to run WMQ Distributed on the zLinux platform, on the zBx or on both
- Many customers run WMQ on zLinux as Gateway/Concentrator into WMQ Sysplex Shared Queues running on z/OS
- WMQ Telemetry Transport server component can run on either zLinux or zBx to provide extended MQ reach support for any application running on z/OS, zLinux or zBx
- Distributed applications (AIX, xLinux, Windows) using WMQ can run completely unchanged on zBx and benefit from close communication and management integration with z196

- WMQ V7.5 improves the integration between the discrete WMQ offerings – WMQ Base, WMQ Managed File Transfer, WMQ Advanced Security Edition, WMQ Telemetry and provides for easier installation
- Improved scaling in multi-core environments
- Provides 25% improvement in Throughput for typical message sizes
- Provides 50% improvement in Logging rates for typical message sizes
- Multicast support (also provided in WMQ V7.1 for z/OS) provides up to 5x improved throughput for “One-to-Many” Publication scenarios
- “Out of the box” security improvements more easily protects your MQ network (also in V7.1 for z/OS)
- HVEs for xLinux and AIX

### V7.5 specific enhancements



# Universal Messaging

*Dynamic network that gets right data to right place, right when needed*



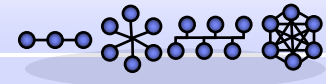
**Any Skills**



**Any End-Points**



**Right Quality-of-Service**



**Any Deployments**

- Languages**  
*COBOL, C/C++, RPC  
 Java, JEE, JMS  
 .NET, C#, VB, WCF  
 AJAX, Perl, Python...*
- Orientations**  
*Services  
 Batches  
 Files  
 Messages  
 Resources...*
- Mindsets**  
*WSDL, XML, WS-\*  
 REST, MEST, KISS*

- Vendor Platforms**  
*JEE, .NET, etc*
- Operating Systems**  
*Exploitation & Support*
- Applications**  
*SAP, Siebel, etc...*
- Devices**  
*Mobile, Wireless, PoS,  
 Sensor, Actuator, RFID...*
- Web services**  
*SOAP, WSDL, SOAP/JMS*
- Web 2.0**  
*HTTP, AJAX, REST,...*
- Appliances**

- Transactional**
- Guaranteed**
- Persistent**
- At-Most-Once**
- Replay**
- At-least-once**
- Best-Effort**
- Fire-and-Forget**
- Request-Reply**
- Fastest speed**
- Lowest Latency**

- Client-Server**
- Backbone**
- Point-to-Point**
- Peer-to-Peer**
- Publish/Subscribe**
- Grid**
- Bus**
- Multicast**
- Unicast**
- Appliance**
- Cloud**

**IBM UNIVERSAL MESSAGING**

**Get Universal Messaging with WebSphere MQ Advanced**

## Your value of using WebSphere MQ V7.1

Competitive Advantage	Business Value Delivered
<p><b>Performance improvements of 50% or more for some configurations</b></p>	<p><b>Improved hardware utilisation, reducing overheads, improving ROI</b></p>
<p><b>Stronger, more configurable security, supported by a new security wizard</b></p>	<p><b>Easier to secure your WMQ environment with fewer skills and less cost</b></p>
<p><b>Migrate to new releases faster and with less impact to operations</b></p>	<p><b>Newer releases and fixpacks available for use by business faster, delivering more value</b></p>
<p><b>Integrated support for WMQ Telemetry using MQTT protocol</b></p>	<p><b>Extends the reach of WMQ to include mobile, devices, sensors, creating universal messaging</b></p>
<p><b>Multicast option for pub-sub messaging, for low latency distribution to multiple clients on distributed</b></p>	<p><b>Reduces time and costs to provide updated information to multiple clients at once</b></p>
<p><b>Enterprise messaging solution available across platforms including leading implementation on Z</b></p>	<p><b>Leverage strength of messaging on Z, and extend connectivity throughout enterprise</b></p>



# Why WebSphere MQ ?

**20 years of proven experience**

Leader in Messaging technology & innovation

**Connect virtually anything**

Broad coverage of platforms, technologies, languages  
 Draw skills from a larger pool – use who you have today  
 Over 9,300 certified developers for IBM Messaging alone

**Most widely deployed Messaging Backbone**

Over 10,000 customers using IBM Messaging Backbone  
 Over 90% of the Fortune 50 and 9 of the Fortune 10  
 Over 80% of the Global 25 and 7 of the Global 10

**Scales and performs to the highest levels –  
 Entrusted with 10s of billions of messages  
 each day**

Government client sends 675 million messages per day\*  
 Banking client handles over 213 million messages per day on  
 z/OS alone\*

**Relied on as the mission-critical backbone**

Financial Markets client handles \$1 trillion worth of traffic per  
 day on one MQ network\*  
 Banking client sends \$7-\$35 trillion worth of traffic per day on  
 just one MQ-based SWIFT gateway\*

**Continually investing and innovating**

Over 120 patents and filings within messaging space  
 New WebSphere MQ family products  
 Regular enhancements, updates and new releases

❖ **Results reported from actual MQ implementations**

# WebSphere MQ Value: Connectivity to, from and within an Enterprise

- **A Universal Message Bus for access to data wherever it exists to support your business**
- **Provides a comprehensive range of Messaging capabilities to support your Business requirements for data integration**
  - Managed File Transfer
  - Messaging integration patterns
  - Reliability and availability QoS
  - SOA foundation
- **Provides appropriate data access and data privacy controls to help meet audit and regulatory requirements**
- **WMQ Telemetry is one step in extending the reach of WMQ to a wider world of data relevant to your business**
- **Recent additions of Mobile Messaging clients supporting Android and iOS extend this further**

