

# WebSphere MQ V7.1 and V7.5 - Migration Recommendations and New Features

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## Agenda

- Why Migrate?
- Migration Steps Review
- New Features

## Agenda

- Why Migrate?
  - Maintain Infrastructure
  - Key Enhancements
  - New Functionality
  - New Product Requirements
  
- Migration Steps Review
  
- New Features

## Why Migrate? ...Maintain Infrastructure

- **Supported Versions of WebSphere MQ**
  - V7.0.1.0 is currently available
    - 7.0.1.9 fix pack is available
    - 7.0.1.10 release scheduled for 2Q2013
    - 7.0.0.0 June 2008; 7.0.1.0 Refresh Pack Sep 2009
  
  - V7.1 is currently available
    - 7.1.0.2 fix pack is available
    - 7.1.0.3 scheduled for release 2Q2013
  
  - V7.5. is currently available
    - 7.5.0.1 released 1Q2013
    - 7.5.0.2 scheduled for 3Q2013

## Why Migrate?...Key Enhancements

- **Simplification**
- **Capability**
- **Security**
- **Availability**
- **Performance**

## Why Migrate?...New Functionality V7.1

<b><i>New Feature</i></b>	<b><i>Benefits</i></b>	<b><i>Details</i></b>
<b>Multi-Version Install capability on Distributed platforms</b>	Makes it easier to deploy and upgrade systems and stage version to version migration	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	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	Additional HVE images
<b>Enhanced Clustering</b>	Improves ease-of-use	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	MQ Pub/Sub Topic space can now map to multicast Group Addresses Provides direct interoperability with MQ LLM
<b>Improved Performance on Dist platforms</b>	Improved multiprocessor exploitation	Various code improvements

## Why Migrate?...New Functionality V7.5

<i>New Feature</i>	<i>Benefits</i>	<i>Details</i>
<b>Integrated Installation</b>	Makes it easier to deploy systems Simpler licensing	Combines several products into a single package <ul style="list-style-type: none"> <li>• WebSphere MQ Managed File Transfer</li> <li>• WebSphere Advanced Message Security</li> </ul> Common experience
<b>Enhanced Clustering</b>	Improves ease-of-use Improves application isolation	Split Cluster Transmission Queue
<b>Java Application Identification</b>	Makes it easier to distinguish applications	Applications no longer have the same name
<b>AMS channel interception</b>	Provides a level of message protection even when application environment cannot run AMS	Interception in the SVRCONN still protects messages before hitting queues
<b>FTE Logger Options</b>	Can write FTE audit records to flat file	No longer a requirement for an enterprise database Easier to read data immediately



## Agenda

- Why Migrate?
- Migration Steps Review
  - Before Migrating
  - Migration Mechanics
  - After Migrating
- New Features

## Migration Steps...Before Migrating

- Background
  - Application Compatibility
    - **Goal:**
      - application built on the present version of WebSphere MQ to continue to work, without migration, on future versions of WebSphere MQ
  - Migration Types:
    - Queue manager
    - WebSphere MQ client
    - Application
    - Operating Environment
  - Migration might really mean *system replacement* in your environment
    - This a perfectly valid (perhaps even preferred?) approach

## Migration Steps...Before Migrating

- General Preparation
  - Understand (and verify) what needs to be tested and what's likely to be impacted
  - Catalog your system environment
    - Current version levels of MQ and OS
      - For queue managers and WMQ client systems
    - Installed
      - SupportPacs
      - Customizations (user exits)
      - APARs
    - Co-resident and interacting software versions
    - Distributed queueing topology
      - Clusters
      - Channel security

## Migration Steps...Before Migrating

- General Preparation
  - Catalog your applications environment
    - Language and runtime environment dependencies
    - Messaging patterns
    - Messaging models
      - Point to point (classic queueing)
      - PubSub
    - Transactional environment
    - Interacting systems and software

## Migration Steps...Before Migrating

- **General Preparation**

- Review migration documentation

- **Migration section from InfoCenter**

- **V7.1:**

- [http://publib.boulder.ibm.com/infocenter/wmqv7/v7r1/topic/com.ibm.mq.doc/zm00000\\_.htm](http://publib.boulder.ibm.com/infocenter/wmqv7/v7r1/topic/com.ibm.mq.doc/zm00000_.htm)

- **V7.5**

- [http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/zm00000\\_.htm](http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/zm00000_.htm)

- **Version-specific release notes (README.TXT)**

- **V7.1**

- <http://www.ibm.com/support/docview.wss?uid=swg27023494>

- **V7.5**

- <http://www.ibm.com/support/docview.wss?uid=swg27027476>

## Migration Steps...Before Migrating

- General Preparation
  - Take advantage of previously published collateral on Migration
    - WSTE Webcast Replays (presentations and audio)
      - **Installing WebSphere MQ 7.5 to coexist with MQ 7.0.1 and MQ 7.1 in Unix and Windows**  
<http://www.ibm.com/support/docview.wss?uid=swg27037823>
    - Technotes
      - Upgrading WebSphere MQ V7.0.1 to MQ 7.5 in Linux  
<http://www.ibm.com/support/docview.wss?uid=swg27036692>
      - Installing WebSphere MQ 7.5 to coexist with MQ 7.0.1 in Linux  
<http://www.ibm.com/support/docview.wss?uid=swg27036779>
      - Installing WebSphere MQ 7.5 to coexist with MQ 7.0.1 and MQ 7.1 in Windows  
<http://www.ibm.com/support/docview.wss?uid=swg27036780>
      - Installing WebSphere MQ 7.1 to coexist with MQ 7.0.1.7 in Windows + applying fix pack 7.1.0.1  
<http://www.ibm.com/support/docview.wss?uid=swg27023935>
    - Redbooks
      - IBM WebSphere MQ V7.1 and V7.5 Features and Enhancements  
<http://www.redbooks.ibm.com/abstracts/sg248087.html>

## Migration Steps...Before Migrating

- General Preparation

- Decide what version to migrate to

- **Default: Target latest maintenance release**

- 7.1.0.2 or V7.5.0.1 are (currently) latest fixpack
      - You **definitely** want to target one of these versions, preferably 7.5
      - ...especially if the migration rollout timeframe is long
      - Cases when you do not want to apply the latest
        - N-1 maintenance strategy
        - Stake in the ground at another version

- **WebSphere MQ Recommended Fixes**

- <http://www.ibm.com/support/docview.wss?&uid=swg27006037>

- **And Fix List**

- <http://www.ibm.com/support/docview.wss?&uid=swg27014224>

## Migration Steps...Before Migrating

- General Preparation

- Review APARs

- Search for `APAR` from Support Portal

- [http://www.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere\\_MQ](http://www.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere_MQ)

- sort by *Newest First*

- Select, Review *Alert*, *APARs*

- Fix List for WebSphere MQ V7.1

- <http://www.ibm.com/support/docview.wss?uid=swg27024302>

- Fix List for WebSphere MQ V7.5

- <http://www.ibm.com/support/docview.wss?uid=swg27038184>



## Migration Steps...Before Migrating

- System Preparation

- Multiple versions of WMQ on single OS image (coexistence)
  - Not supported at V7.0.1 or earlier version, except on z/OS
  - Supported at V7.1 and V7.5
- **Must** use WebSphere MQ Server software to install both WebSphere MQ server and client on the same machine
  - V7.5 Clients – SupportPac MQC75
  - V7.1 Clients – SupportPac MQC71
  - MQExplorer – SupportPac MS0T

<http://www.ibm.com/support/docview.wss?rs=171&uid=swg27007197#1>

## Migration Steps...Before Migrating

- System Preparation
  - Ensure your system meets the software and hardware requirements for WebSphere MQ
    - *System Requirements Table:*  
<http://www.ibm.com/support/docview.wss?uid=swg27006467>
    - Pay particular attention to **32-bit vs. 64-bit options** where they exist (Linux, Windows)
    - And to the **Notes!**
    - Software product compatibility reports
      - <http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.jsp>
  - Validate and configure OS resources
    - V7.5 Information Center  
[http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/zi00002\\_.htm](http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/zi00002_.htm)
    - V7.1 Information Center  
[http://publib.boulder.ibm.com/infocenter/wmqv7/v7r1/topic/com.ibm.mq.doc/zi00060\\_.htm](http://publib.boulder.ibm.com/infocenter/wmqv7/v7r1/topic/com.ibm.mq.doc/zi00060_.htm)
    - Shared memory
      - **How to configure UNIX IPC resources for WebSphere MQ**  
<http://www-01.ibm.com/support/docview.wss?uid=swg21271236>

## Migration Steps...Before Migrating

- Environment Preparation
  - Consider HA environment
    - Multi-Instance queue managers (introduced with v7.0.1) vs. Third-party High Availability Software
    - Multi-Instance queue manager functionality is not equivalent to HA
    - HA provides general coordination (failover) of arbitrary resource groups
  - Consider Multi-Version Installation
- Assess Impact of v7 Changes and New Functionality
  - V7.5 Information Center List of changes  
[http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/mi20140\\_.htm](http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/mi20140_.htm)
  - V7.1 Information Center List of Changes  
[http://publib.boulder.ibm.com/infocenter/wmqv7/v7r1/topic/com.ibm.mq.doc/mi20140\\_.htm](http://publib.boulder.ibm.com/infocenter/wmqv7/v7r1/topic/com.ibm.mq.doc/mi20140_.htm)

## Migration Steps...Before Migrating

- **BACKUP**

- Backup plans *should* already be implemented to cover other (non-migration) scenarios
  - If they are not, **now** is the time to develop and test them
- Backup the queue manager (definitions)
  - For example: SupportPac **MS03**
    - Saves all of the objects (queues, channels, etc) defined in a either local or remote queue manager to a file
    - Allows you to recreate a queue manager (without *state*)
    - <http://ibm.com/support/docview.wss?rs=171&uid=swg24000673>

## Migration Steps...Before Migrating

- **BACKUP**

- Backup the queue manager state information

- queue manager must be stopped
    - queue manager and log directories
    - On UNIX's (default):
      - /var/mqm/qmgrs
      - /var/mqm/logs
    - Windows (default):
      - C:\Program Files\IBM\WebSphere MQ\qmgrs
      - C:\Program Files\IBM\WebSphere MQ\logs
      - HKLM\SOFTWARE\IBM\MQSeries\  
CurrentVersion\Configuration\QueueManager

- **Note:** Make sure you track down & capture logs and data stored on other file systems

## Migration Steps...Before Migrating

- Identify Obsolete SupportPacs that will need to be removed
- Migrating a Publish/Subscribe infrastructure from WebSphere MQ V6

[http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/mi21916 .htm](http://pic.dhe.ibm.com/infocenter/wmqv7/v7r5/topic/com.ibm.mq.doc/mi21916.htm)

- Use **separate** clusters for PubSub clusters (clustered TOPICS)
  - PubSub clusters are **fully** interconnected; different model and size constraints than clustered queues

## Migration Steps...the Mechanics

- **Get Ready**

- Quiesce **all** applications, channels, listeners, and queue managers
- (Save queued application messages to disk)\*
- Backup queue manager state data (tranlogs, qmgr data)
- Uninstall obsolete SupportPacs
- Uninstall\* existing version of WMQ

- **Install**

- Install WMQ v7.1 or V7.5 base
- Install WMQ fixpack
- (Install iFixes or PTFs to address APARs)
- (*dltmqlnk*)

- **Post-install**

- Start queue manager
  - Queue manager on-disk upgrade takes place with *strmqm*
- Start listeners **AFTER** the queue manager starts

## Migration Steps...the Mechanics

- Migrating clustered queue managers
  - Migrate the full repositories first
    - [http://www.ibm.com/developerworks/websphere/library/techaricles/0605\\_vanstone/0605\\_vanstone.html](http://www.ibm.com/developerworks/websphere/library/techaricles/0605_vanstone/0605_vanstone.html)
      - Now also available (updated) in the InfoCenter
  - Staged migrations
    - Mixed clusters often persist for long periods of times
    - Mixed versions for specific application queues permit extended live testing with opportunity for selective fallback
  - Cluster member migration steps (next foil)



## Migration Steps...the Mechanics

- Cluster member Migration Steps:
  - Suspend (Remove) queue manager from cluster (Optional)
  - Record objects known by this queue manager.
    - DISPLAY CLUSQMGR(\*), DISPLAY QC(\*)
  - Record full repositories view of the cluster objects owned by this queue manager.
    - DISPLAY CLUSQMGR(<migrated queue manager name>)
    - DISPLAY QC(\*) WHERE(CLUSQMGR EQ <migrated queue manager name>)
  - Stop queue manager.
  - Take a backup of the queue manager.
  - Install the new version of WebSphere MQ.
  - Restart queue manager.
  - Check for successful cluster object migration and communication with full repositories
  - Check that full repositories still know about the migrated cluster queue manager and its cluster queues.
  - Test
    - applications on other queue managers can put messages to the migrated cluster queue manager's queues.
    - applications on the migrated queue manager can put messages to the other cluster queue manager's queues.
  - Resume (Reinstate) queue manager into cluster (Optional)
    - RESUME CLUSTER(<cluster name>)
  - Monitor the queue manager and applications in the cluster

## Migration Steps...the Mechanics

- **Windows Platform Notes**

- Uninstall not required (but recommended)
- Default installation installs only those features previously installed
  - CUSTOM option lets you select the features
- *dcomcnfg* information must be manually restored following migration
- Ensure that the IBM WebSphere MQ Service is stopped
- *msiconfig* installation logging needs to be set up manually

## Migration Steps...the Mechanics

- Unix Platform Notes
  - Uninstall required
    - Except on AIX, but even then... Must remove retired filesets
  - Install with platform-specific installation tool:
    - AIX - SMIT, installp, geninstall or the Web-based System Manager
    - HP-UX - swinstall
    - Linux - rpm (rpm upgrade tools **not** supported)
    - Solaris - pkgadd

## Agenda

- Why Migrate?
- Migration Steps
- New Features
  - Multi-Version Installation
  - Channel Security
  - Other Channel Enhancements
  - SSL Security
  - Non-Local (Clustered) Queues Security
  - Application Activity Reports
  - Split Cluster Transmit Queue
  - Java Application Identity

## New Features...Multi-Version Installation

- MQ on Unix and Windows can install multiple levels on a system
  - Relocatable to user-chosen directories
  - Can have multiple copies even at the same fixpack level
- Simplifies migration
  - Can move applications as needed, not all at once
  - No need for parallel hardware
- Easier for ISVs to embed MQ in solutions
  - Can install in “private” locations without worrying about other copies
  - Reduces support concerns
- Permits a single copy of V7.0.1 to remain on system
  - So existing systems can be migrated
  - Must be 7.0.1.6 or later

## New Features...Multi-Version Installation: Concepts

- Main concept is an **installation**
  - Refers to the directory containing the binaries from a particular version of MQ
  - Can have a descriptive name
  
- One installation can be designated as **primary**
  - Strongly recommended on Windows where some OS-specific elements have to be registered
  - Optional on Unix, creates symlinks to commands and libraries in /usr
    - Not created by default so your PATH will not always find MQ commands
  
- Queue Managers are **owned** by a specific installation
  - Governs the level of function available when the queue manager is running
  - Ownership can be changed to a newer installation for migration

## New Features...Multi-Version Installation: Application Impacts

- Existing applications “know” where the MQ libraries are
  - Embedded path or PATH/LIBPATH/LD\_LIBRARY\_PATH
  - Has always been a fixed location on Unix
- When MQ libraries move, apps will need to know where the new location is
  - /usr cannot be assumed
- New application libraries able to connect to any version of queue manager
  - Libraries such as libmqm, libmqic etc redesigned
  - Dynamically loading dependent libraries associated with the corresponding qmgr
  - If your app can find one V7.1 libmqm, it can connect to any qmgr, including future versions
- **MIGRATION NOTE:** Exits that invoke the MQI will need to be updated
  - Such as API Exits
  - Do not want exits to pull in different libraries than main application
  - Extended interface provides pointers instead for invoking MQI

## New Features...Channel Security: Channel Access Control

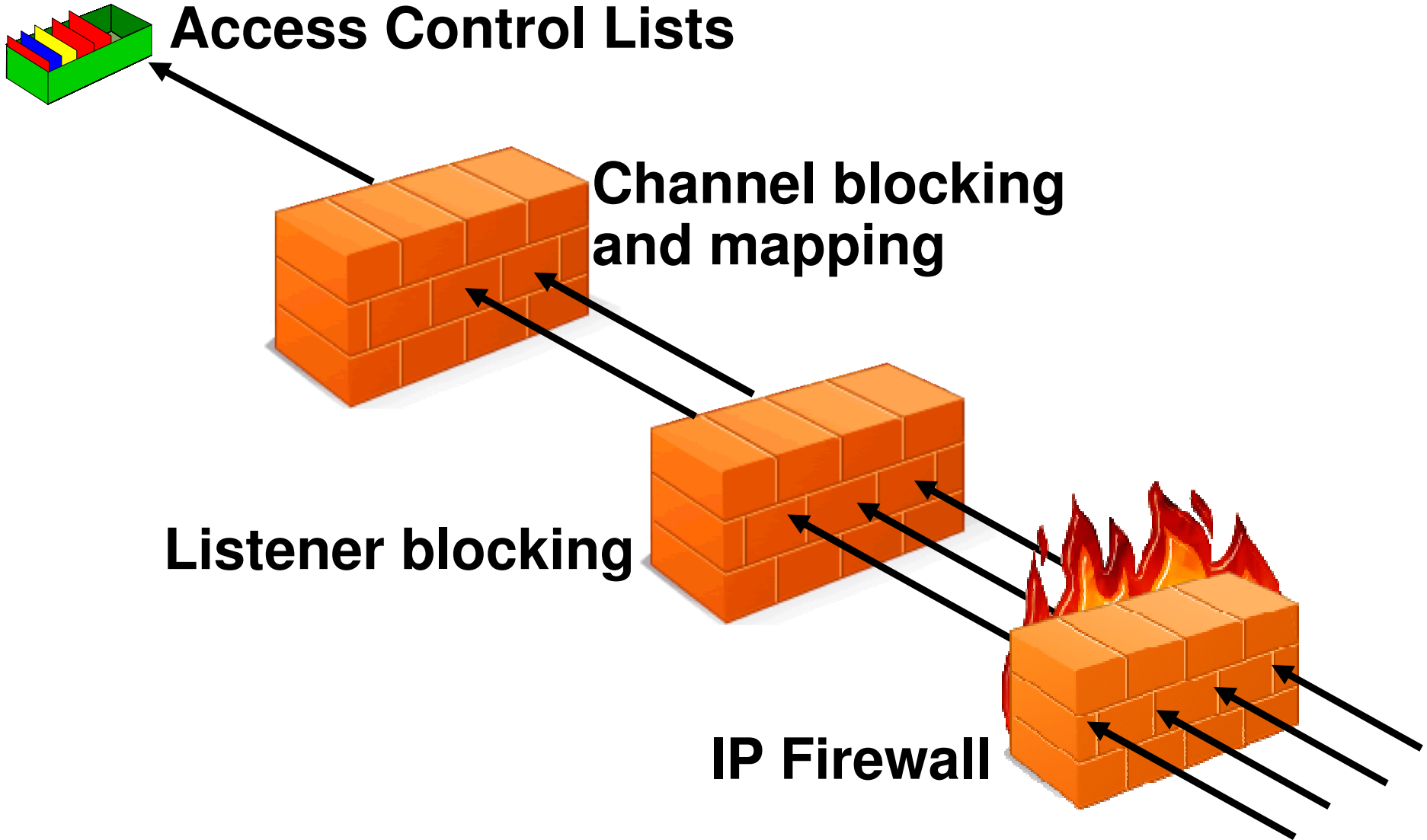
- Simplifying configuration for channel access
  - Clients and queue managers
- SET CHLAUTH definitions control who can use channels
  - Name mapping
  - Access blocking
- Easy to test rules that you define
  - DISPLAY CHLAUTH can “execute” rules
- Rules can be applied in WARNING mode
  - Not actually blocked, but errors generated
- **MIGRATION NOTE:** Standard rules block clients on new queue managers
  - “Secure by default”
  - Migrated queue managers behave as before until you enable the rules
  - Queue manager attribute CHLAUTH(ENABLED|DISABLED) provides overall control



## New Features...Channel Security

- Single list of IP address patterns
- NOT A REPLACEMENT FOR AN IP FIREWALL
  - Temporary blocking
  - Blocking until IP firewall updated
  - Shouldn't be many entries in the list
- Blocked before any data read from the socket
  - i.e. before SSL Handshake
  - Before channel name or userid is known
- Avoiding DoS attack
  - Really the place of the IP firewall
  - Simplistic 'hold' of inbound connection to avoid reconnect busy loop
- Network Pingers if blocked don't raise an alert
  - Immediate close of socket with no data not considered a threat

```
SET CHLAUTH(*) TYPE(BLOCKADDR) ADDRLIST('9.20.*', '192.168.2.10')
```



# New Features...Channel Security

## Channel Blocking and Mapping from MQ Explorer

**Create a Channel Authentication Record**  
Choose whether to allow or block inbound connections.

Use this wizard to create a rule to secure inbound connections on a channel. When complete this rule will be saved as a channel authentication record.

Choose whether inbound connections which match this rule will be allowed access or blocked.

Rule type:

- Allow access  
Select this option if this rule is to be used to allow access to inbound connections.
- Block access  
Select this option if this rule is to be used to block access to inbound connections.
- Warning mode  
Select this option if this rule will run in warning mode and will not actually block access. Matched rules will only be reported.

**Match part of the identity**  
Choose how we match inbound connections to this rule.

Choose which part of the connections identity will be used for matching this rule to block access of this inbound connection to the queue manager.

Identity to match:

- SSL/TLS subject's Distinguished Name  
Select this option if your channels use SSL or TLS and you want this rule to match an SSL/TLS subject's Distinguished Name (the certificate used by the partner).
- Client application user ID  
Select this option if you want this rule to match the user ID of the client application machine.
- Final assigned user ID  
Select this option if you want this rule to match the user ID assigned to the inbound connection, either by other rules or by the channel profile.
- Remote queue manager name  
Select this option if you want this rule to match the queue manager name from the remote machine.
- IP address  
Select this option if you want this rule to match the IP address of the client application machine.

**Matching the channels**  
Identify the channels this new channel authentication rule applies to.

A channel profile identifies which channel or channels this rule applies to, and can contain wildcards to allow the rule to match a number of different channels. Use the button and table below to confirm the correct pattern.

Channel profile: \*  
SYSTEM.\*  
[Show matching channels](#)

Because you have selected Final assigned user ID, this rule applies only to server-connection channels.

Channel name	Channel type	Overall channel status
SYSTEM.ADMIN.SVRCONN	Server-connection	Running
SYSTEM.AUTO.SVRCONN	Server-connection	Inactive
SYSTEM.DEF.SVRCONN	Server-connection	Inactive

Navigation: < Back, Next >, Finish, Cancel

# New Features...Channel Security

## Channel Blocking and Mapping from MQ Explorer

The image displays three sequential screenshots of the 'New Channel Authentication Record' wizard in MQ Explorer.

- First Screenshot (Matching a list of user IDs):** The title bar reads 'New Channel Authentication Record'. The main heading is 'Matching a list of user IDs'. The instruction says 'Specify which user IDs will be matched by this rule.' Below, it explains that to block the final assigned user ID, the user IDs must be specified against the final assigned user ID. A list of possible user IDs is provided: 1. The user ID the inbound client connection flowed, 2. The user ID assigned by another map, 3. The user ID assigned by a security exit. A text box contains '\*MQADMIN'.
- Second Screenshot (Optional attributes):** The title bar reads 'New Channel Authentication Record'. The main heading is 'Optional attributes'. The instruction says 'Configure optional attributes for this rule.' The 'Description of rule:' text box contains 'Block admin attempts on default chl'. Below, there is a section for configuring a custom attribute with guidance from IBM Service, with an empty text box.
- Third Screenshot (Summary):** The title bar reads 'New Channel Authentication Record'. The main heading is 'Summary'. The instruction says 'Channel authentication rule summary and command preview.' It prompts the user to press the finish button to save the rule. The 'Settings to use to create the new channel authentication rule:' section contains a scrollable list with the text: 'Create a rule which applies to channels whose names match the pattern "SYSTEM.\*". Block inbound connections from any of these users "\*MQADMIN".' The 'Command preview:' section shows the command: 'SET CHLAUTH('SYSTEM.\*') TYPE(BLOCKUSER) USERLIST('\*MQADMIN') DESCR('Block admin attempts on default chl') WARN(NO) ACTION(ADD)'.

## New Features...Channel Security

Channel Authority	Command
No Access	<b>SET CHLAUTH(*) TYPE(ADDRESSMAP) ADDRESS('*') USERSRC(NOACCESS)</b>
Access for specific SSL certificates	<b>SET CHLAUTH(BPCHL.*) TYPE(SSLPEERMAP) SSLPEER('O=Bank of Shetland') MCAUSER(BANK123)</b>
Access for specific queue managers with certain ip addresses	<b>SET CHLAUTH(TO.CLUS.*) TYPE(QMGRMAP) QMNAME(CLUSQM*) MCAUSER(CLUSUSR) ADDRESS('9.30.*')</b>
Access granted for specific IP Addresses	<b>SET CHLAUTH(SYSTEM.ADMIN.SVRCONN) TYPE(ADDRESSMAP) ADDRESS('9.20.1-30.*') MCAUSER(ADMUSER)</b>

## New Features...Other Channel Enhancements

- See the MQ version of connecting partner
  - Level of clients and queue managers available in channel status
  - For example a V7.0.0.1 client shows as RVERSION(07000001)
  - Can distinguish Java, C, .Net client programs
  - Helps administrator determine whether partner needs upgrading
- Distributed platforms now use DISCONT to disconnect idle clients
  - ClientIdle qm.ini parameter ignored
  - Consistent with z/OS
- Alternative channel batch control based on byte counts
  - BATCHLIM attribute
  - Useful when a transmission queue holds mix of large and small messages
  - Can make batch time (latency) more consistent
  - Batch is ended when first of either bytes or messages transferred reach configured limit
- Per-channel control of Dead Letter Queue
  - New channel attribute USEDLCQ(YES|NO)

## New Features...SSL Security

- More crypto algorithms supported for SSL
  - Stronger algorithms are now available and recommended
  - MQ V7.0.1 added some SHA-2
  - MQ V7.1 adds more, with support for the NSA “Suite B” standard which includes Elliptic Curve cryptography
- Some older algorithms (eg SHA-1) should be considered deprecated
  - No plans to withdraw older algorithms immediately
  - But expect them to be removed in a future version of MQ
- Newer algorithms supported by gskit8 on Distributed platforms
  - Waiting for z/OS and iSeries SSL implementations before MQ can support them there
- The gskit toolkit is now provided inside the MQ installation
  - Will not clash with alternative levels from other MQ installations or other products

## New Features...Non-Local (Clustered) Queues Security

- Distributed platforms now have authorisations for non-local queues
  - Including clustered queues
  - Making it consistent with z/OS
  - Also consistent with Topic authorisations
- So there is no longer a need to authorise access to the cluster transmit queue
- Grant authorisation to the remote queue manager instead
  - A new pseudo-object known to the OAM

```
setmqaut -m QM1 -t queue -n SYSTEM.CLUSTER.TRANSMIT.QUEUE -p  
mquser +put
```

BECOMES

```
setmqaut -m QM1 -t rqmname -n QM2 -p mquser +put
```



## New Features...Application Activity Reports

- New set of events to report on MQI operations by applications
  - One PCF event may contain multiple MQI operations
  
- Configurable in granularity
  - Amount of data
  - Which applications
  
- Enables scenarios such as
  - Application audit trail
  - Message duplication
  - Resource usage: which queues or topics are actually being used
  - Problem Determination: most recent MQI calls by applications
  - Application Coding Standards: does everyone use the MQI in the recommended way
  - And more ...

## New Features...Application Activity Report (Extract from Report)

```

MonitoringType: MQI Activity Trace
QueueManager: 'V71'
Host Name: 'rockall.hursley.ibm.com'
CommandLevel: 710
ApplicationName: 'WebSphere MQ Client for Java'
ApplicationPid: 18612354
UserId: 'mquser'
ConnName: '9.20.95.106'
Channel Type: MQCHT_SVRCONN
Platform: MQPL_UNIX

```

```

=====
===

```

Time	Operation	CompCode	MQRC	HObj	(ObjName)
10:04:09	MQXF_INQ	MQCC_OK	0000	2	
10:04:09	MQXF_CLOSE	MQCC_OK	0000	2	
10:04:09	MQXF_OPEN	MQCC_OK	0000	4	()
10:04:09	MQXF_INQ	MQCC_OK	0000	4	
10:04:09	MQXF_CLOSE	MQCC_OK	0000	4	
10:04:09	MQXF_OPEN	MQCC_OK	0000	4	(SYSTEM.DEFAULT.LOCAL.QUEUE)
10:04:09	MQXF_INQ	MQCC_OK	0000	4	

# New Features...Application Activity Reports

## SupportPac MS0P – WebSphere MQ Explorer – Extended Management Plug-in

Application Activity Trace for Queue Manager V71\_I1\_A

Application Count : 1

'WebSphere MQ Client for Java' : from 2011-12-06 14:28:05 to 2011-12-06 14:28:

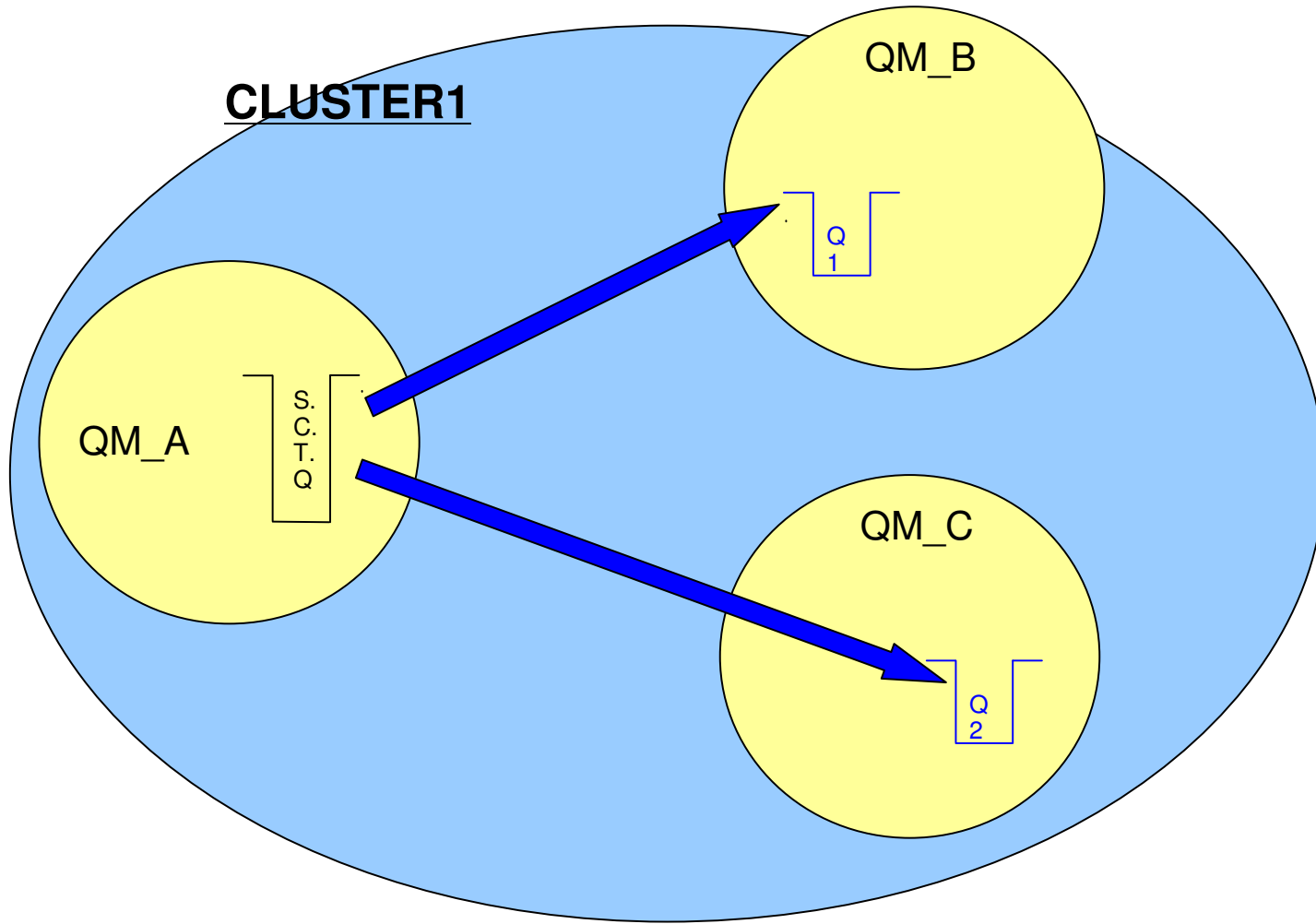
Application Information

Tid	Date	Time	Operation	MQCC	MQRC
004	2011-12-06	14:28:05	Cb	Ok	0000 (NONE)
004	2011-12-06	14:28:05	Callback		
004	2011-12-06	14:28:05	Callback		
004	2011-12-06	14:28:05	Inq	Ok	0000 (NONE)
Object Type Queue Object Queue Manager Name Resolved Queue Name SYSTEM_ADMIN_COMMAND_QUEUE Resolved Queue Manager V71_I1 Resolved Local Queue Name SYSTEM Resolved Local Queue Manager V71_I1 Resolved Type Queue Selector Count 1 Selectors 17					
004	2011-12-06	14:28:35	Connx	Ok	0000 (NONE)
004	2011-12-06	14:28:35	Open	Ok	0000 (NONE)
Object Type Queue Manager Object Queue Manager Name Open Options 0x00000020 [inq ] Object Type Queue Manager Object Queue Manager Name Resolved Type Queue Manager Dynamic Queue Name AMQ.*					

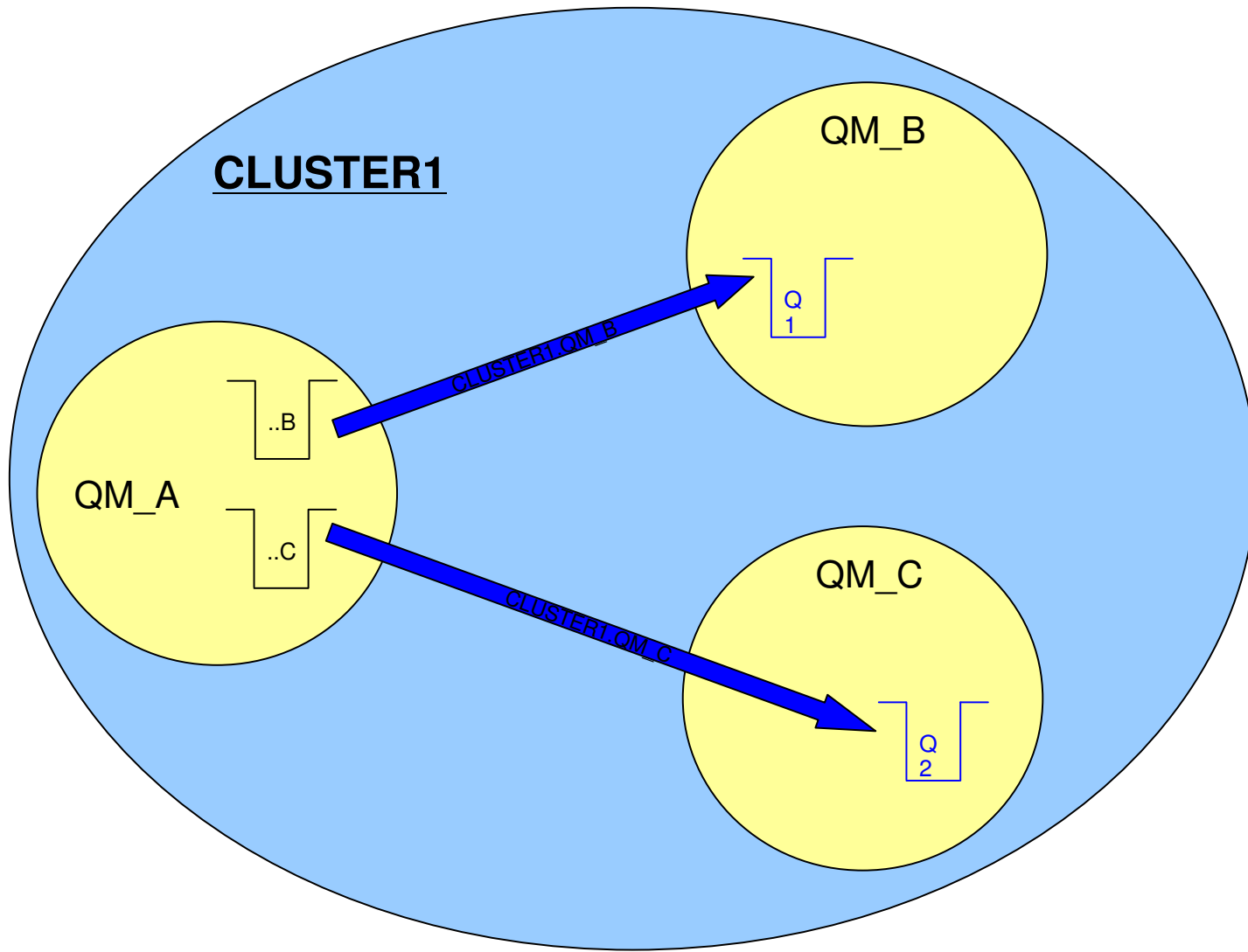
## New Features...Split Cluster Transmit Queue

- Separation of Message Traffic
  - With a single transmission queue there is potential for pending messages for cluster channel 'A' to interfere with messages pending for cluster channel 'B'
- Management of messages
  - Use of queue concepts such as MAXDEPTH not useful when using a single transmission queue for more than one channel
- Monitoring
  - Tracking the number of messages processed by a cluster channel currently difficult
  - Some information available via Channel Status

# New Features...Split Cluster Transmit Queue (Single Transmit Queue)



# New Features...Split Cluster Transmit Queue



## New Features...Java Application Identification

- Java client applications now fill in APPLTAG field
- No longer appear as “WebSphere MQ Client for Java”
- Application-provided property
- Or the Main class



V7 Explorer →

V7.5 Explorer →

V7 - Application Connections		
Applications connected to "V7 on 'rockall(2414)'":		
App name	App type	App description
WebSphere MQ Client for Java	Queue manager	WebSphere MQ Channel
MQ Explorer 7.5.0	Queue manager	WebSphere MQ Channel
runmqchi	Channel initiator	WebSphere MQ Channel Initiator
amqrrmfa	Queue manager	WebSphere MQ Cluster Repository

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  - Submit your feedback



# Deeper Dive

## A Deeper Dive...Scalability & Performance

- Performance measured and improved for a range of scenarios
  - Hardware capabilities have evolved over years to have more CPUs, more memory etc
  - MQ topologies have evolved to have more clients and larger/fewer queue managers
- “Fastest MQ ever”: better performance than V6 and V7
  - AIX - Comparing the Message Rate Graphs for 2K byte **Non-Persistent** messages used in Local, Client, and Distributed Queuing environments, Version 7.1 has 28% higher throughput than V6.0.2.11, 30% higher throughput than V7.0, and 35% higher than V7.0.1.6
  - AIX - Comparing the Message Rate Graphs for 2K byte **Persistent messages** used in Local, Client, and Distributed Queuing environments, Version 7.1 has 64% higher throughput than V6.0.2.11, 36% higher throughput than V7.0, and 48% higher throughput than V7.0.1.
  - AIX Performance Report:  
<http://www.ibm.com/support/docview.wss?uid=swg24031664>

## A Deeper Dive...Scalability & Performance

- Design changes to MQ Explorer reduce its footprint and improve performance
- Now does not include full Eclipse development workbench
  - But Explorer can be easily added to other Eclipse installations and products
- Many Explorer installs are supported within the overall multi-version support
  - But each Explorer only fully manages queue managers associated with its own installation
  - Use client connections for other installation queue managers on same machine

	V7.0.1	V7.1
Time to install MS0T	203 seconds	92 seconds
Startup Time	6 seconds	4 seconds
Connect to 100 queue managers	At least 53 seconds	7 seconds
Enable and disable Sets for 100 queue managers	35 seconds	1 second

## A Deeper Dive...Migration APARs

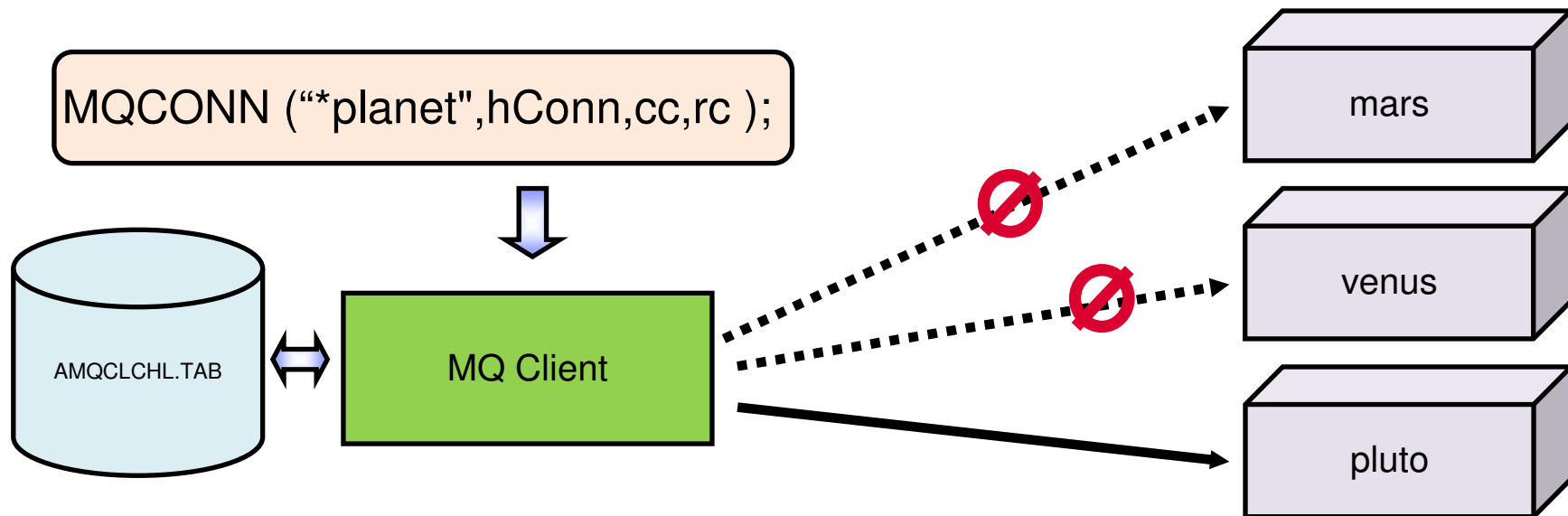
- IV09544 - PROBLEM WITH MIGRATION FROM PRE 6.0.1 TO WEBSHERE MQ 7.1
  - Resolved in Fix Pack V7.1.0.1
  - <http://www.ibm.com/support/docview.wss?uid=swg1IV09544>
- IC87340 - WMQ V7.5, MIGRATION OF A MQ V6 PUBLISH/SUBSCRIBE BROKER TO V7.5 USING STRMQBRK RESULTS IN MESSAGE AMQ5893
  - Resolved in Fix Pack V7.5.0.1
  - <http://www.ibm.com/support/docview.wss?uid=swg1IC87340>

## New Features...Cloud Support: MQ Pre-Connect Exit

- Supports movement by some to “Utility Compute”, Private Cloud configs, etc.
  - Rapid provision of applications allied with need to further decouple Client/Server connectivity
  - Server applications might move location – new addresses or queue managers
- MQ Client connects to a “service” rather than specific Queue Manager
- Can transparently change location of MQ server-side applications
  - No client code changes needed
  - No configuration files need to be updated at the client machine
  - JMS/XMS applications already do this via JNDI lookup
- Exit run during MQCONN queries a repository to discover real location
  - MQ V7.1 incorporates the LDAP implementation from SupportPac MA98

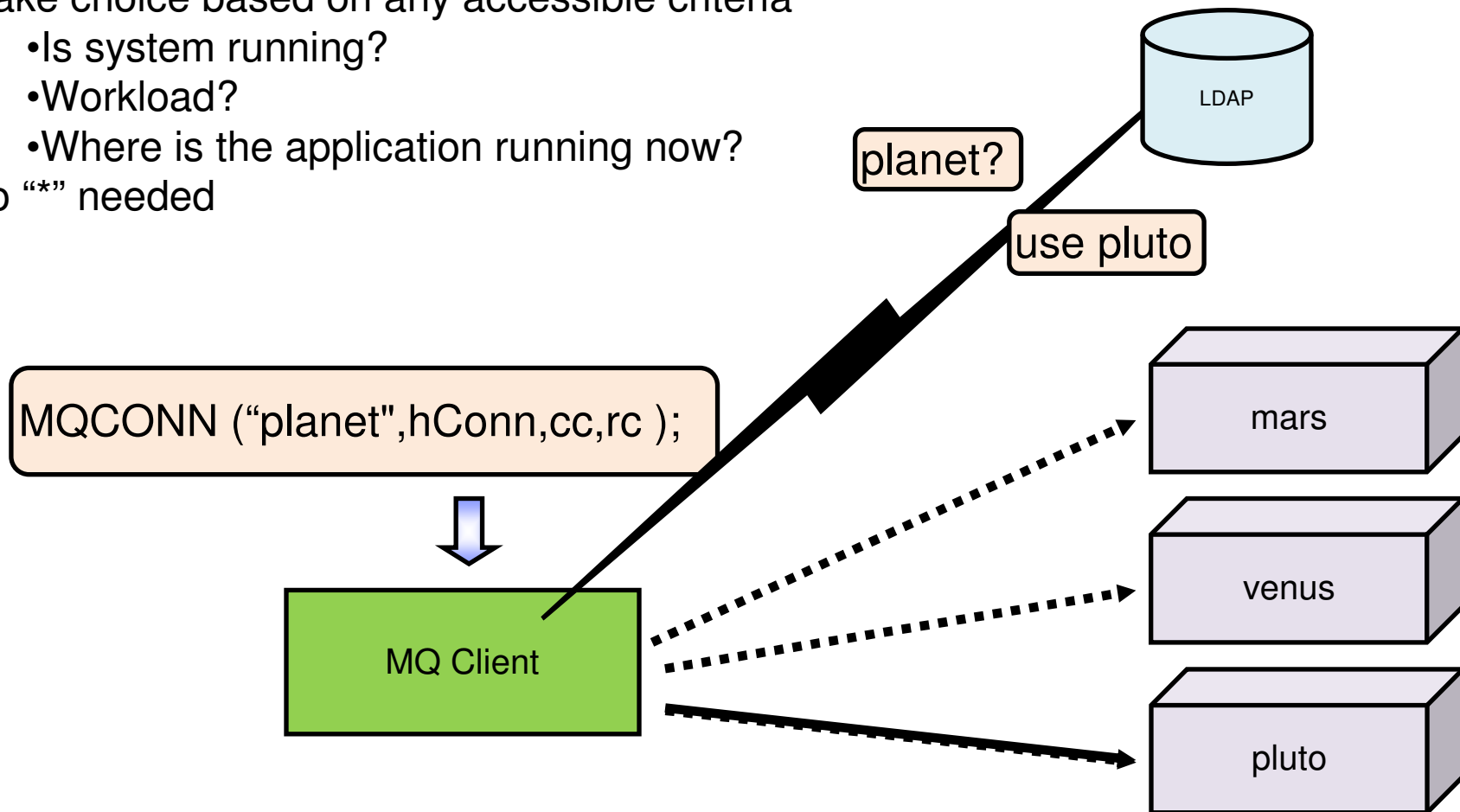
## New Features...Cloud Support: MQ Pre-Connect Exit

- How it used to be done ...
- The CCDT is used to select a queue manager from a list
  - Based on a pseudo-queue manager name prefixed with “\*”
  - CCDT is a locally-accessible file
- CCDT must be distributed to all client systems



## New Features...Cloud Support: MQ Pre-Connect Exit

- Look up in a directory such as LDAP
- Make choice based on any accessible criteria
  - Is system running?
  - Workload?
  - Where is the application running now?
- No "\*" needed



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