MQ for Administrators

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MQ for Administrators

The session builds on the basic introduction to MQ, with a focus on Administrative best practices, system architecture considerations, naming conventions, basic and advanced tools (command line & the explorer, scripting and automation, backup and recovery and basic troubleshooting techniques).

- Agenda
- Assumptions
  - Target Audience
- Role of the MQ Administrator
  - What MQ Admins do
- Quick Review of MQ ?
  - What is MQ ?
  - MQ System Components
- Scope of MQ Administration
  - Architecture
  - Installation & Maintenance
  - Availability, Recovery and Restart
  - Administrative Tasks
  - Tools
  - Troubleshooting Techniques
  - Conclusion

MQ for Administrators

- **Assumptions**
  - Basic understanding of MQ and Message Queueing in an enterprise computing environment
  - Background in Linux, Unix or Windows systems administration
- **Target Audience**
  - Anyone responsible for or interested in MQ systems administration
  - MQ Admins may come from various backgrounds, network engineers, Linux, Unix, and Windows admins, or MQ developers.
- **Goal**
  - Provide a high level overview of the roles and responsibilities of the MQ Administrator.
  - Tips of preforming some regular MQ Administrator activities and overall scope of the MQ Administrator role in an enterprise computing environment.
  - Provide some best practices

Role of the MQ Administrator

Role of the MQ Administrator

- To support business functions, IT operations and application development by assuring the availability, reliability, accessibility, and performance of MQ systems and services.
- MQ Administrators are responsible to ensure not only that MQ systems and services are fully operational, but that they are being utilized effectively and efficiently.
- MQ Administrators may need to work closely with Systems Architects and Application architects to ensure the MQ system is properly considered in the architecture and design stages, when things are new and when they change.
- MQ Administrators should be actively involved in capacity planning and over all IT strategy
- The MQ Administrator is likely to become the Subject Matter Expert for Message Queueing in the Enterprise. No one is better suited.

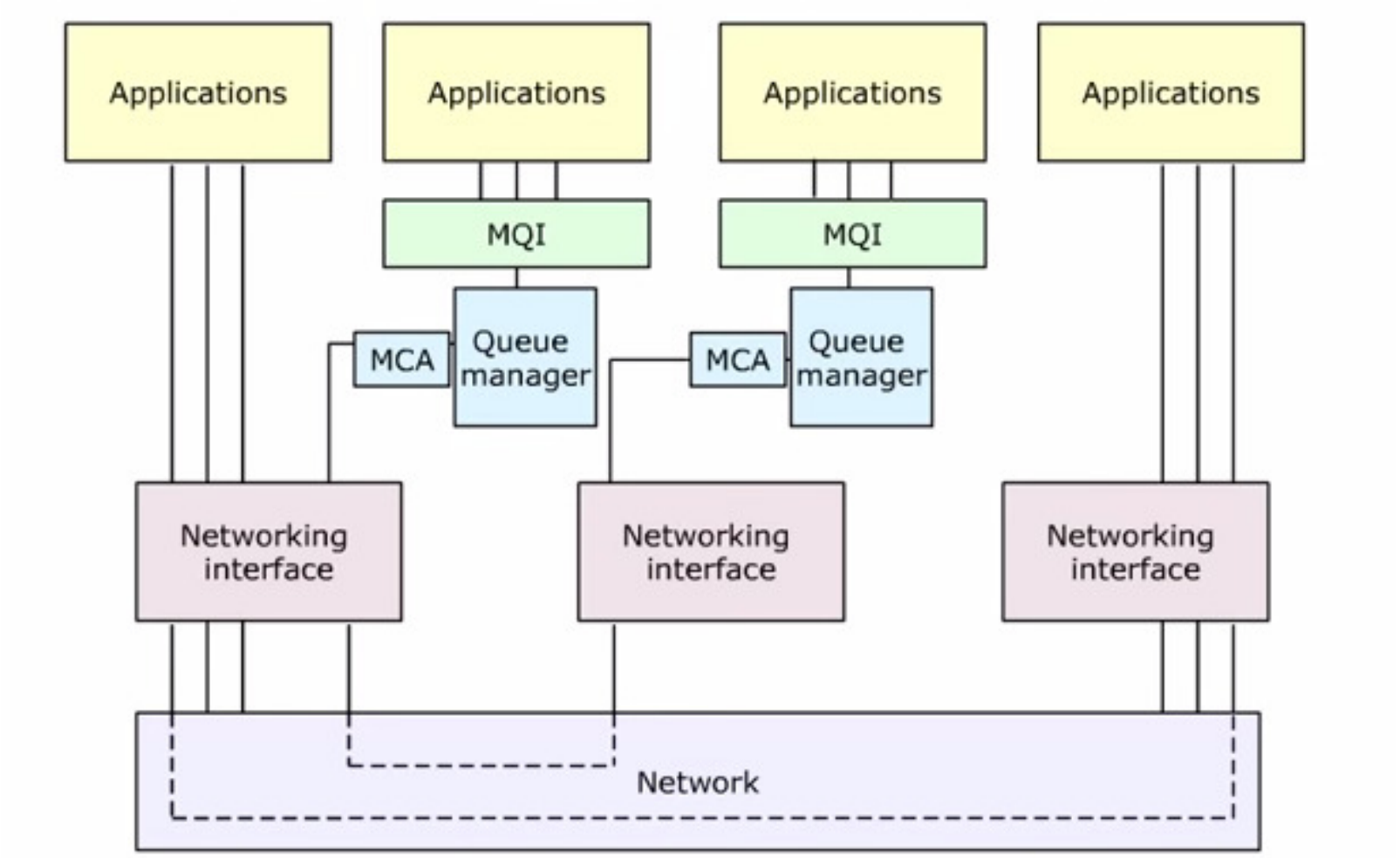
Role of the MQ Administrator

- MQ Administrators need a thorough understanding of the following:
  - The MQ product
  - The Business
  - Functional and non functional requirements
  - Architecture
    - Enterprise Network Architecture
    - Enterprise Systems Architecture
    - Enterprise Application Architecture

Role of the MQ Administrator

- MQ Administrators need a thorough understanding of the following:
  - IT Operations
    - Operating systems set up and tuning
    - Patch Management
    - Backup and Recovery
    - High Availability
    - Disaster Recovery
    - IT Security
  - Shell Scripting
  - Application development standards for MQ related applications
  - MQ Application design and development practices

MQ Review


Applications
Applications
Applications
Applications
MQI
MQI
MCA
Queue manager
MCA
Queue manager
Networking interface
Networking interface
Networking interface
Network

MQ Review – What is MQ ?

- MQ is message oriented middleware
- Industry standard for program-to-program messaging across multiple platforms
- MQ is a programing style – data as messages
- MQ is a store and forward message queueing engine

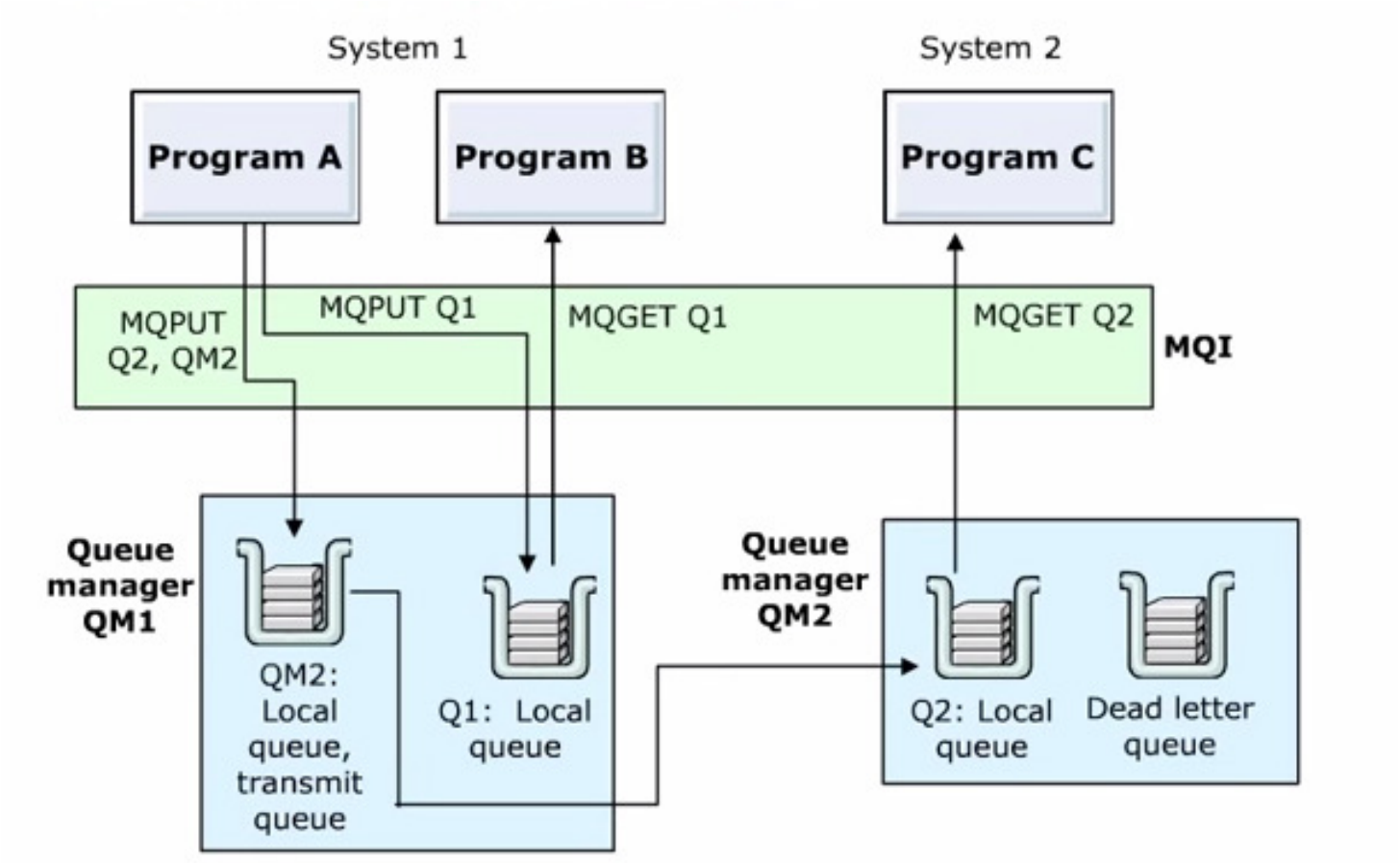
MQ Review – What is MQ ?

- MQ is an enterprise transport
- MQ is a SOA transport
- A JMS Provider
- Transaction Manager

MQ Review – What MQ Provides

- Rapid, seamless connectivity of information
- Secure reliable message delivery
- High Performance and scalability
- High availability
- Simple and robust management and control

MQ Review


System 1
System 2
Program A
Program B
Program C
MQPUT
Q2, QM2
MQPUT Q1
MQGET Q1
MQGET Q2
MQI
Queue
manager
QM1
QM2:
Local
queue,
transmit
queue
Q1: Local
queue
Queue
manager
QM2
Q2: Local
queue
Dead letter
queue

MQ Review – MQ Object Types

- IBM MQ Queue Managers
- Queues
- Topics Objects
- Channels
- Client connection channels
- Namelists
- Authentication Information Objects
- Communication Information Objects
- Listeners
- Services

MQ Object Attributes – Queue Manager

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- Fixed attributes are set at QMGR creation time.
- Fixed attributes include:
  - QMgrNam
    - The name of the queue manager
  - Platform
    - The platform on which the queue manager runs (for example, Windows)
  - CommandLevel
    - The level of system control commands that the queue manager supports
  - The maximum priority that you can assign to messages processed by the queue manager
    - MaxPriority
  - CommandInputQName
    - The name of the queue to which programs can send IBM MQ commands
  - SyncPoint
    - Whether the queue manager supports syncpointing when programs put and get messages

MQ Object Attributes – Queue Manager

N O T E S

- ALTER QMGR mqsc command can be used to change some QMGR attributes.
- Changeable attributes include:
  - QMgrDesc
    - A text description of the queue manager
  - TriggerInterval
    - The time interval that the queue manager uses to restrict the number of trigger messages
  - DeadLetterQName
    - The name of the queue manager's dead-letter (undelivered message) queue
  - DefXmitQName
    - The name of the queue manager's default transmission queue
  - MaxHandles
    - The maximum number of open handles for any one connection
  - ChannelEvent, CommandEvent, ConfigurationEvent, AuthorityEvent, PerformanceEvent
    - The enabling and disabling of various categories of event reporting
  - MaxUncommittedMsgs
    - The maximum number of uncommitted messages within a unit of work

MQ Object Attributes – Queue

N O T E S

- Different types of MQ queues have different attributes. Some of the attributes do not apply to all types of queues.
  - Cluster Queues have special attributes
- Queue Attributes Categories
  - General
  - Extended
  - Cluster
  - Triggering
  - Events
  - Storage
  - Statistics
- MQSC Queue Commands include
  - DEFINE QLOCAL, DEFINE QALIAS, DEFINE QMODEL, DEFINE QREMOTE
  - ALTER QLOCAL, ALTER QALIAS, ALTER QMODEL, ALTER QREMOTE
  - DISPLAY QUEUE
  - DISPLAY QSTATUS
  - DELETE QLOCAL, DELETE QALIAS, DELETE QMODEL, DELETE QREMOTE

MQ Object Attributes – Queue

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- General (These will be different depending on the type or queue)
  - QNAME
  - PUT (Inhibited / Allowed) enable messages to be put on the queue
  - GET (Inhibited / Allowed) messages to be got from the queue
  - DEFPRTY (0-9) default message priority
  - DEFPSIST - default message persistence
  - USAGE – (Normal / XMIT) Determines if queue is a transmission queue
- Extended
  - MAXDEPTH (0 – 999999999) maximum number of messages that are allowed on the queue
  - MAXMSGL (0 – Max set for QMGR) maximum length of a message allowed on the queue
  - MSGDLVSQ (Priority / FIFO) delivery sequence of message from queue
  - SHARE – determines whether the queue can be opened for input multiple times concurrently
  - DISTL – determines whether or not distribution list messages can be put on queue

MQ Object Attributes – Queue

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- Cluster
  - CLUSTER (Cluster Name) queue available to other queue managers in a single cluster
  - CLUSNL (Name of Cluster Name List) queue available to other queue manager in multiple clusters
  - CLWLPRTY (0-9) priority of the queue in the cluster
  - CLWLRANK (0-9) ranking of the queue in the cluster
- Triggering
  - TRIGGER (On / Off) enable triggering on the queue
  - TRIGTYPE (First, Depth, Every) set how triggering reacts to messages put to queue
  - TRIGDEPTH – number of messages that must be present before a trigger event occurs on the queue
  - INITQ – name of initiation queue, a local queue where queue manager puts trigger messages
  - PROCESS – name of process definition for triggered application
- Events
  - QDPMAXEV (Enabled) generates queue full events
  - QDPHIEV (Enabled) generates queue depth high events
  - QDEPTHLO (Enabled) generates queue depth high events

MQ Object Attributes – Queue

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- Storage (configures how MQ deals with messages that are backed out)
  - BOQNAME name of the queue to which a message is transferred if it is backed out threshold is exceeded
  - BOTHRESH number of times that the message can be backed out before it is transferred to the backout queue
- Statistics
  - CRDATE - Read-only. The date when the queue was created
  - CRTIME - Read-only. The time at which the queue was created
  - IPPROCS - Read-only. The number of applications that have the queue open for input (Put)
  - OPPROCS - Read-only. The number of applications that have the queue open for output (Get)
  - CURDEPTH - Read-only. The number of messages currently on the queue
  - ALTDATE - Read-only. The date on which the queue's attributes were last altered
  - ALTTIME - Read-only. This is the time at which the queue's attributes were last altered

MQ Object Attributes – Queue

N O T E S

- Triggering
  - TRIGGER (On / Off) enable triggering on the queue
  - TRIGTYPE (First, Depth, Every) set how triggering reacts to messages put to queue
  - TRIGDEPTH – number of messages that must be present before a trigger event occurs on the queue
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- Storage (configures how MQ deals with messages that are backed out)
  - BOQNAME name of the queue to which a message is transferred if it is backed out threshold is exceeded

  BOTHRESH number of times that the message can be backed out before it is transferred to the backout queue
- 'Statistics

MQ Object Attributes – Channel

NOTES

- Different types of MQ channels have different attributes. Some of the attributes do not apply to all types of channels.
  - Cluster Queues have special attributes
- Channel Attributes Categories
  - General
  - Extended
  - MCA
  - Exits
  - LU6.2
  - Retry
  - Message retry
  - Cluster
  - SSL
  - Load Balancing
  - Statistics

MQ Object Attributes – Channel

NOTES

- Control Commands
  - runmqchi
  - runmqchl
- MQSC Channel Commands include
  - DEFINE CHANNEL
  - ALTER CHANNEL
  - DELETE CHANNEL
  - DISPLAY CHANNEL
  - DISPLAY CHLAUTH
  - DISPLAY CHSTATUS
  - PING CHANNEL
  - PURGE CHANNEL
  - RESET CHANNEL
  - RESOLVE CHANNEL
  - SET CHLAUTH

MQ Object Attributes – Channel

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- General
  - CHANNEL - Read-only. The name of the channel
  - CHLTYPE - Read-only. The type of the channel
  - CONNAME – The connection name for the channel
  - XMITQ – Name of the transmission queue associated with the channel
- Extended
  - MAXMSGL - Maximum length of a message that can be transmitted on the channel
  - MAXINST - Maximum number of simultaneous instances of a server-connection channel
- MCA
  - MCAUSER - The message channel agent user identifier
  - MCATYPE – (Thread / Process) – specifies how the MCA runs
- Statistics
  - ALTDATE - Read-only. This is the date on which the queue attributes were last altered
  - ALTTIME - Read-only. This is the time at which the queue attributes were last altered

MQ Review – Other Considerations

- MQ Server
- MQ Clients
- MQ Applications
- Triggering
- Distributed Queueing
- Clusters
- Multi Instance Queue Mangers
- Security
- Transaction Management
- Pub / Sub
- Multicast
- JMS
- SOAP
- MQ Telemetry
- Managed File Transfer
- MQ Appliance

MQ Review – MQ Application Types

- The Message Queueing Interface (MQI)
  - Procedural Languages
  - C, Visual Basic, COBOL, Assembler, RPG, pTAL, and PL/I
- Object Oriented Languages
  - .NET
  - Active X
  - C++
  - Java
  - JMS
- SOA
  - SOAP over JMS

Scope of MQ Administration

- Scope of MQ Administration
  - Architecture
  - Installation & Maintenance
  - Availability, Recovery and Restart
  - Regular Administrative Tasks
  - Tools
  - Troubleshooting Techniques

MQ Architectures

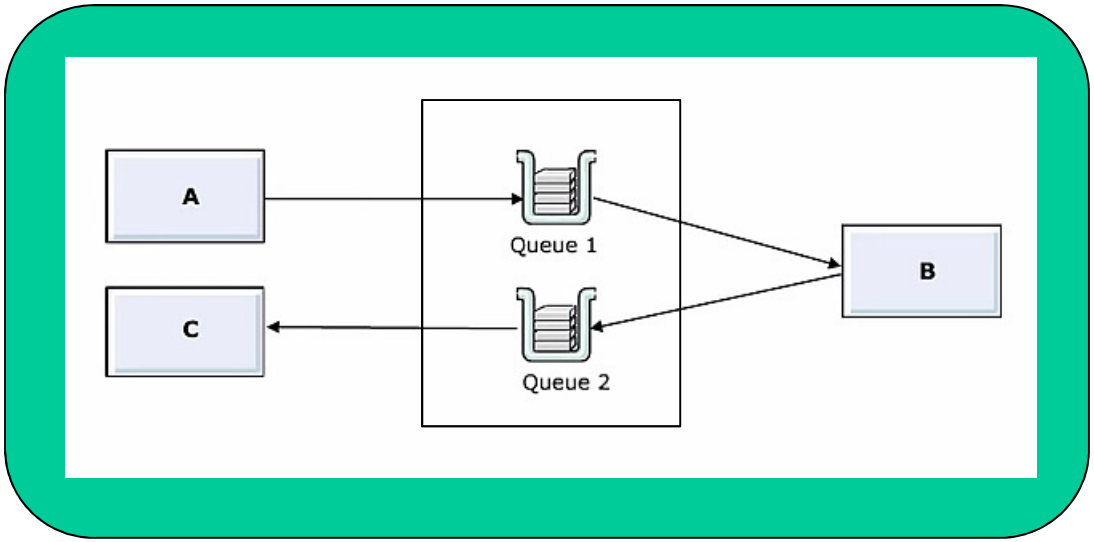
- Architectural Considerations
- Single Queue Manager
  - Local Server Applications
  - Client Applications
- Multiple Queue Managers
  - Distributed Queueing
  - Any to any vs. Hub Spoke
- Queue Manager Clusters
- Naming Conventions

MQ Architectures

- Architectural Considerations
  - Know your business
    - Current state and Future business goals
    - Business requirements, regulations, etc.
    - Partner connections ?
  - Know your network and systems
    - Is data processing done in a central location or distributed to many locations
  - Know your applications
    - What sort of data do you deal with?
  - Know your security requirements
  - Know you product

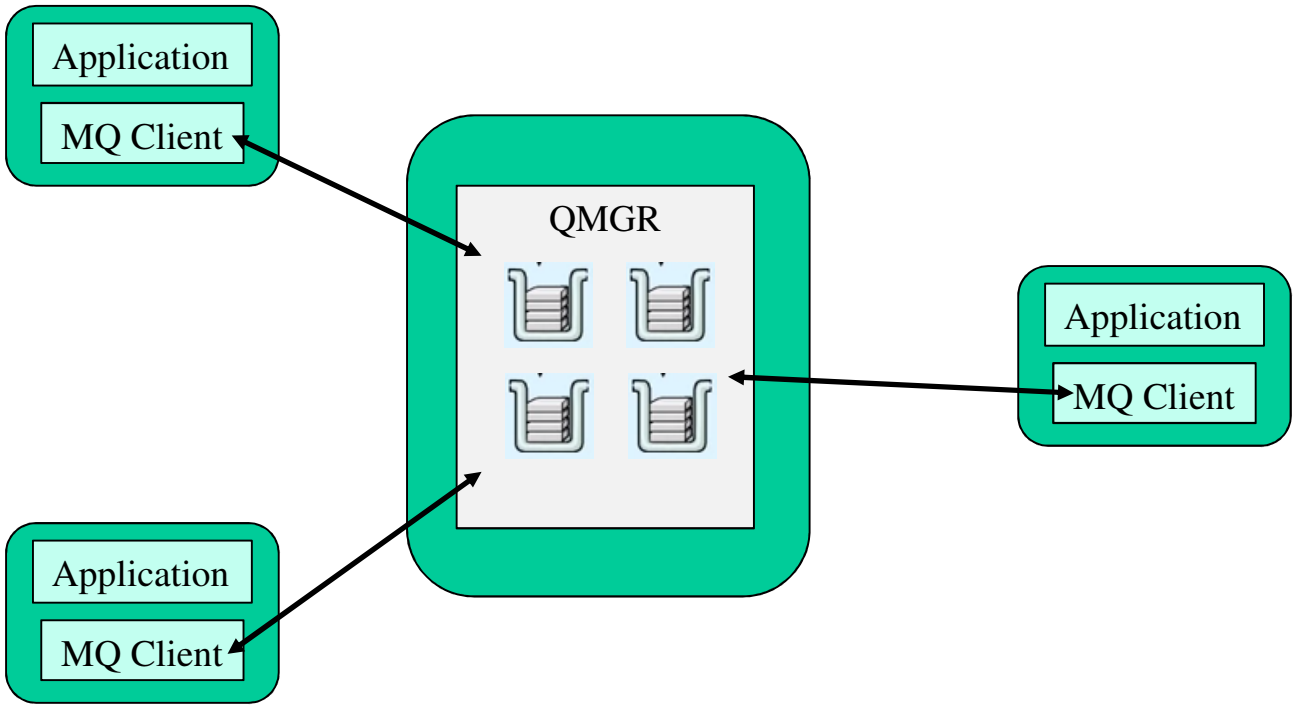
Single Queue Manager

Local Applications
Connect directly to QMGR

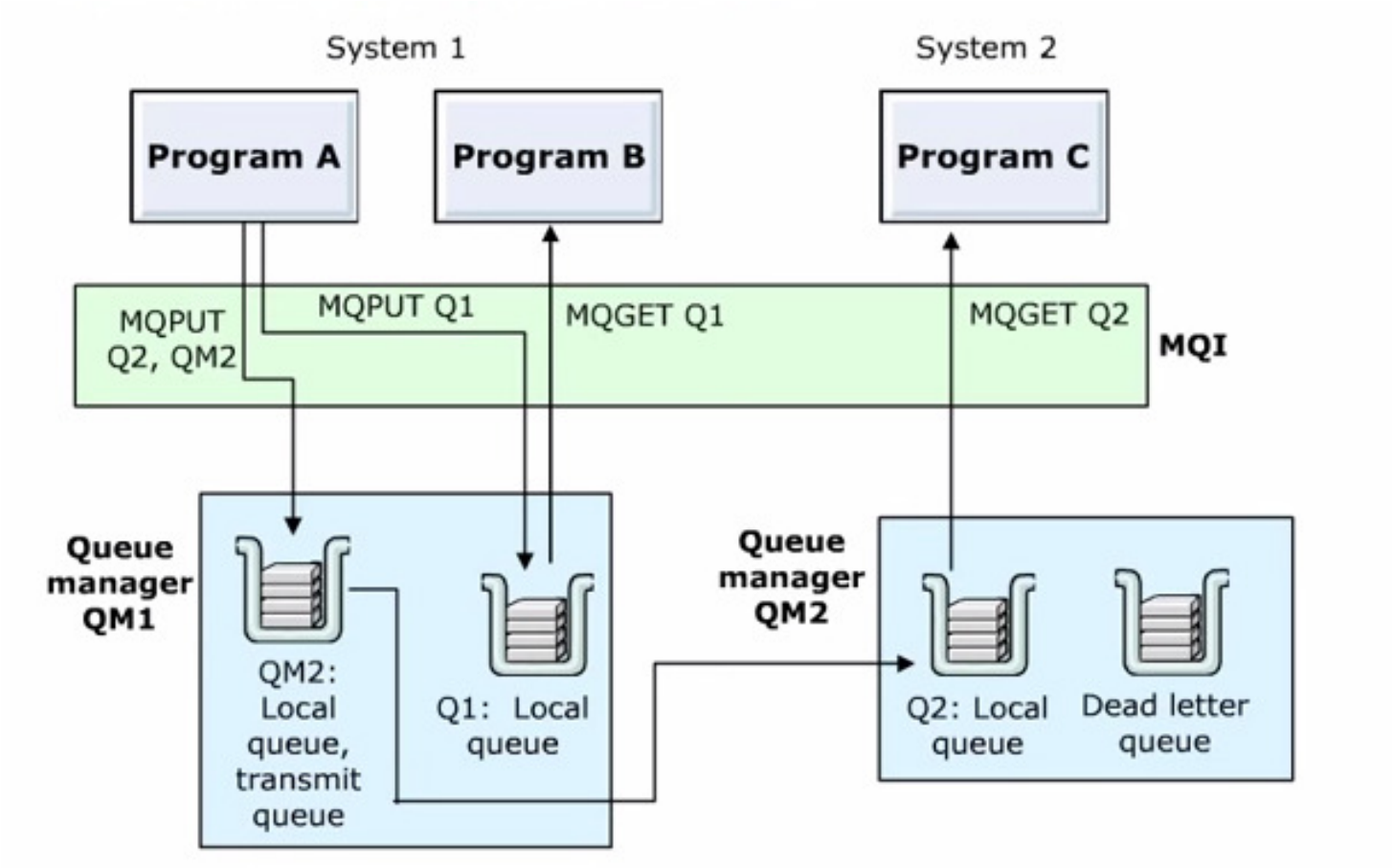


Single Queue Manager

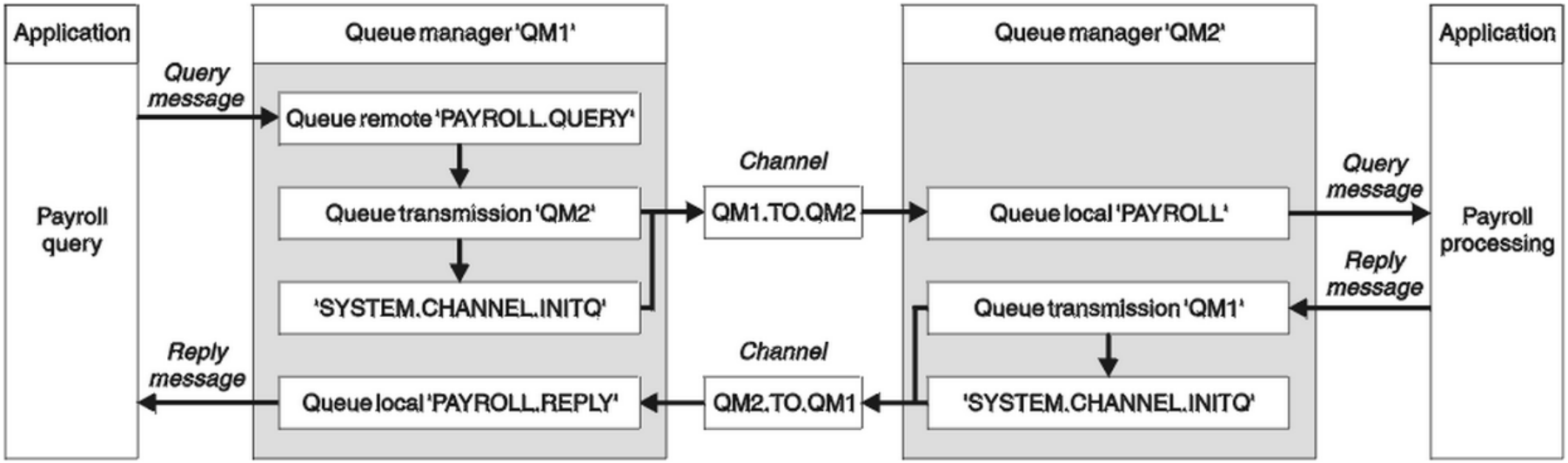
Remote Applications
Client Channel Connection to QMGR



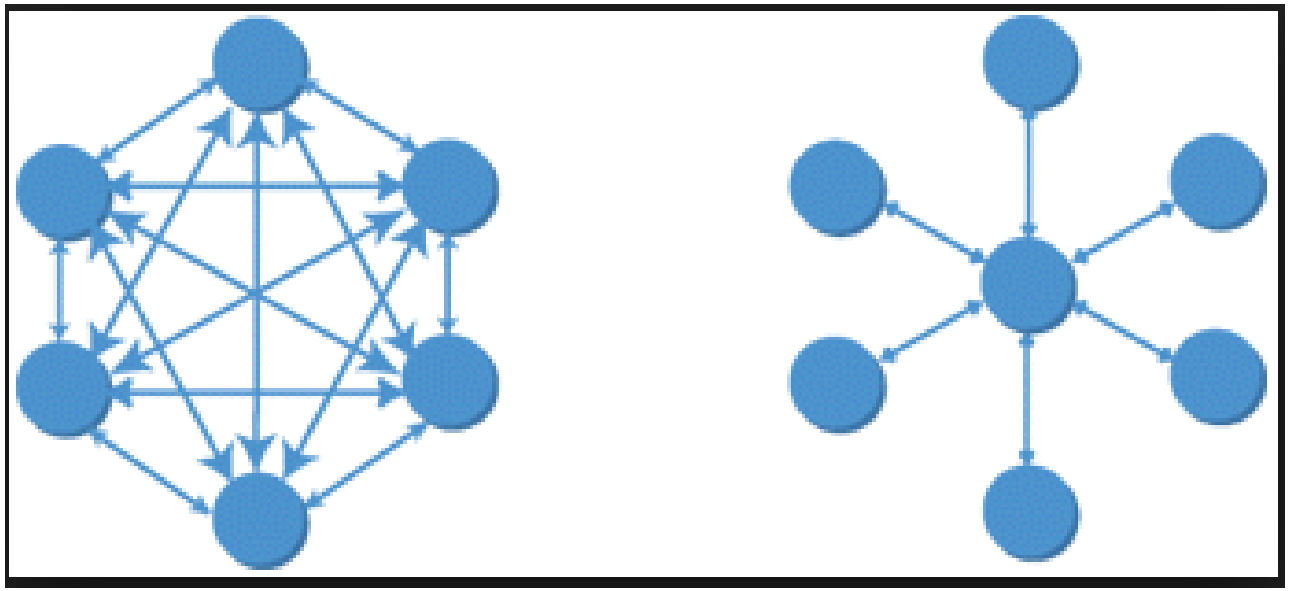
Distributed Queueing



Distributed Queueing



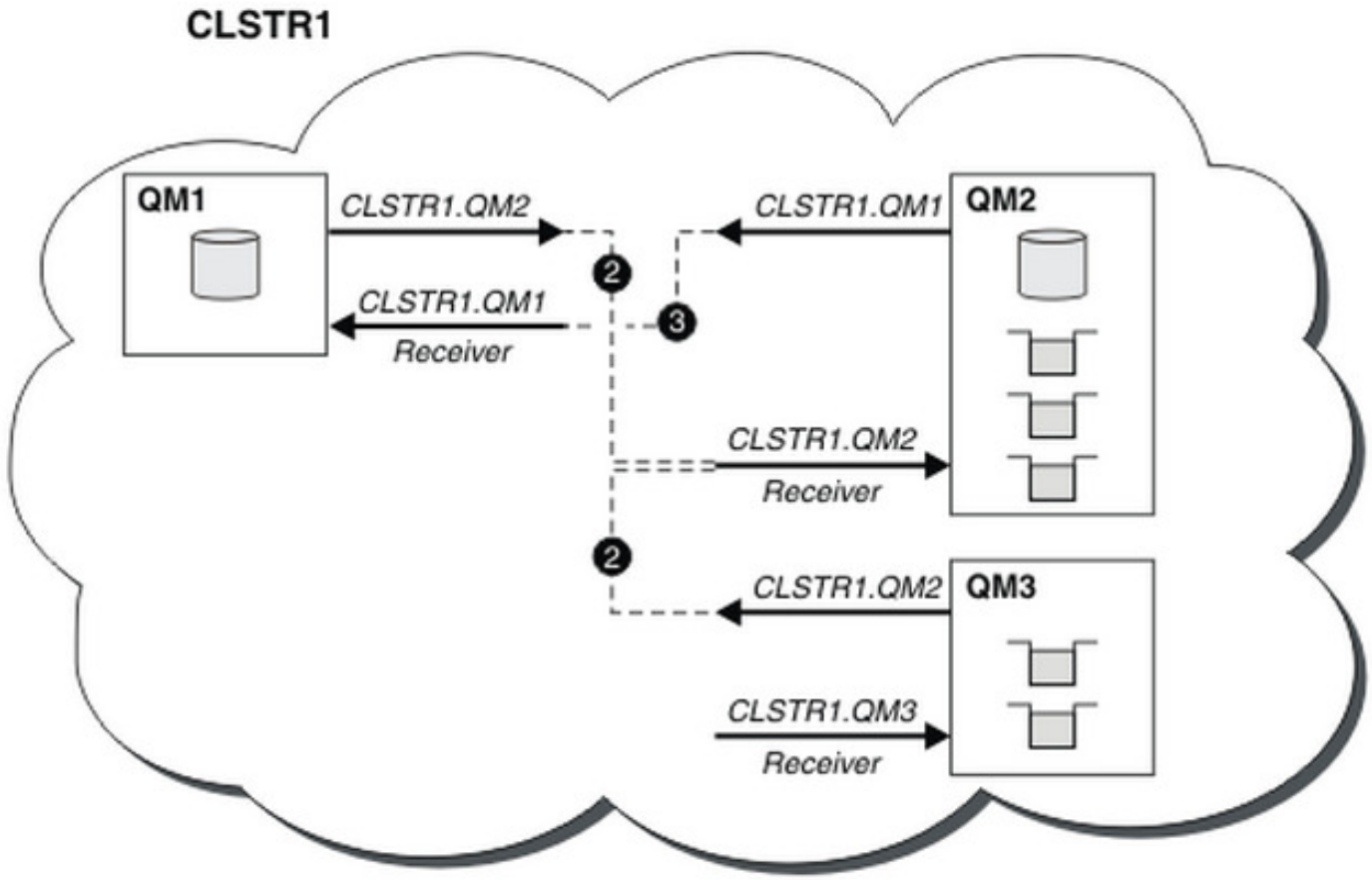
Distributed Queueing



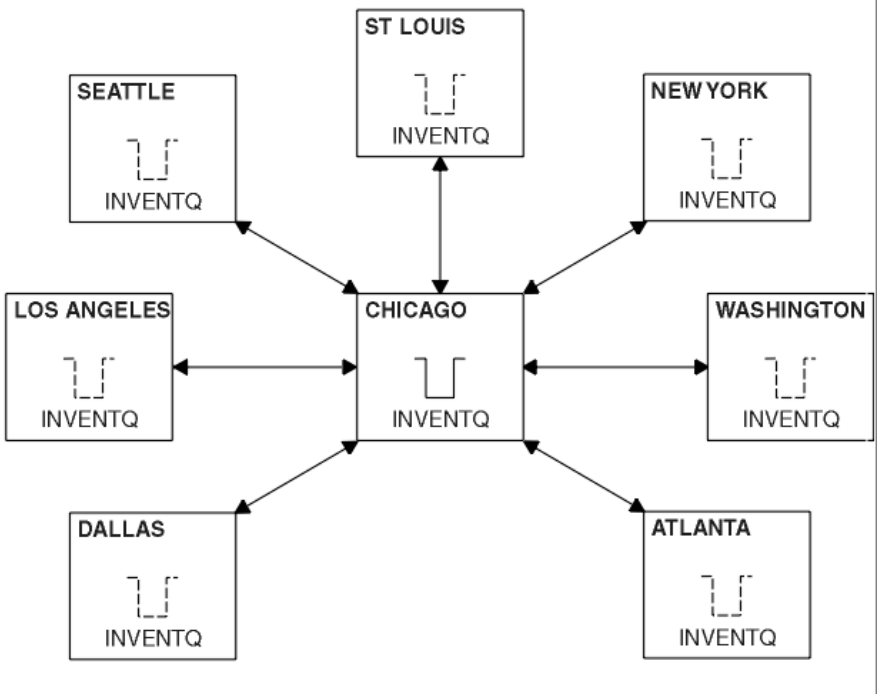
Any to Any

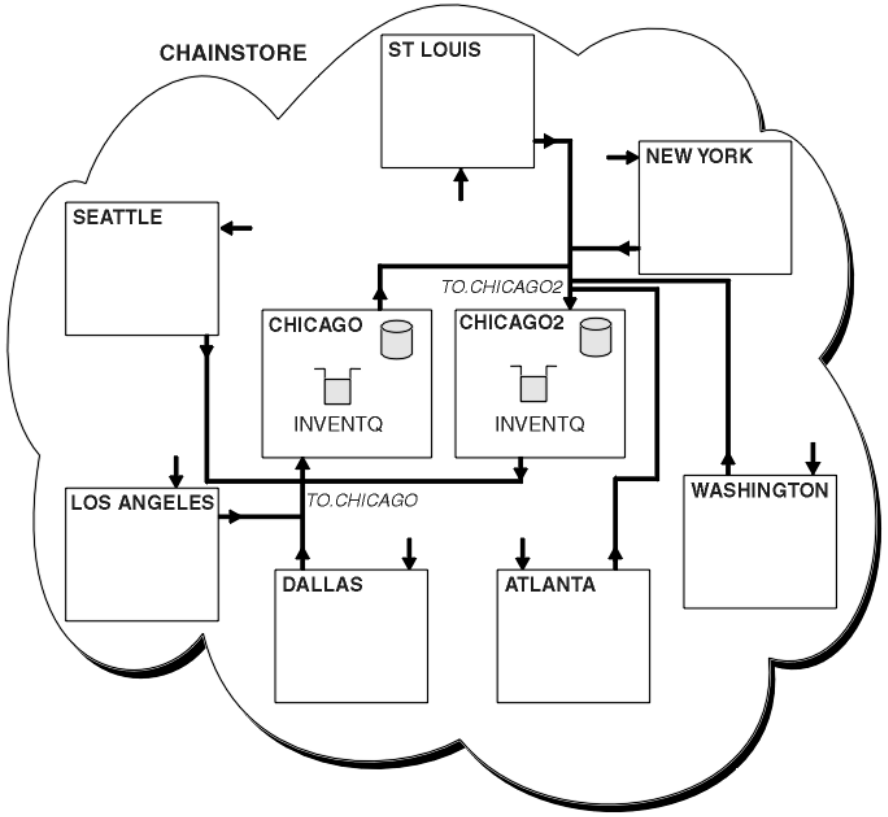
Hub and Spoke

MQ Clusters


CLSTR1
QM1
CLSTR1.QM2
CLSTR1.QM1
Receiver
CLSTR1.QM1
QM2
CLSTR1.QM2
Receiver
CLSTR1.QM2
QM3
CLSTR1.QM3
Receiver
2
3
2

Distributed Queueing or Cluster

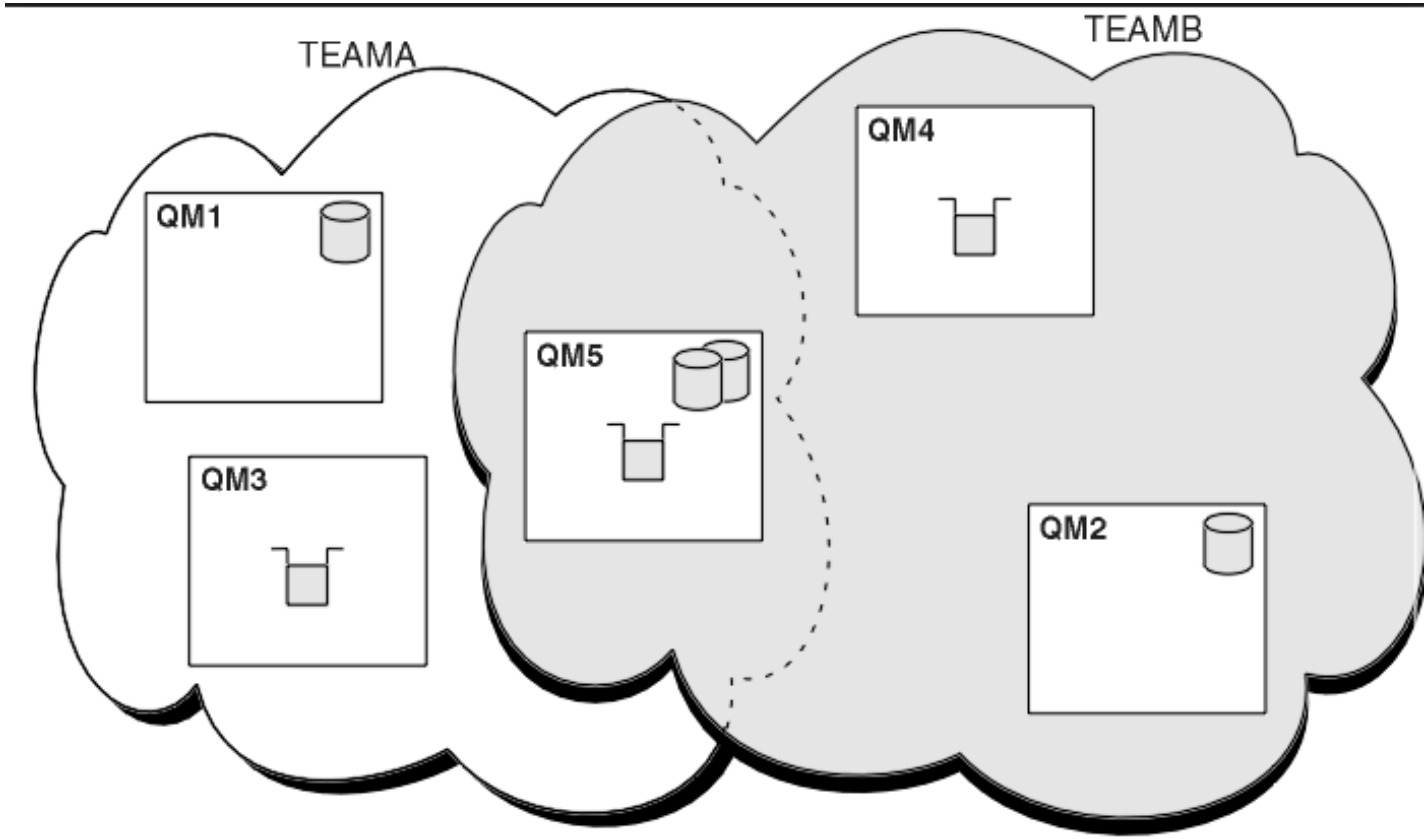




Distributed Hub & Spoke

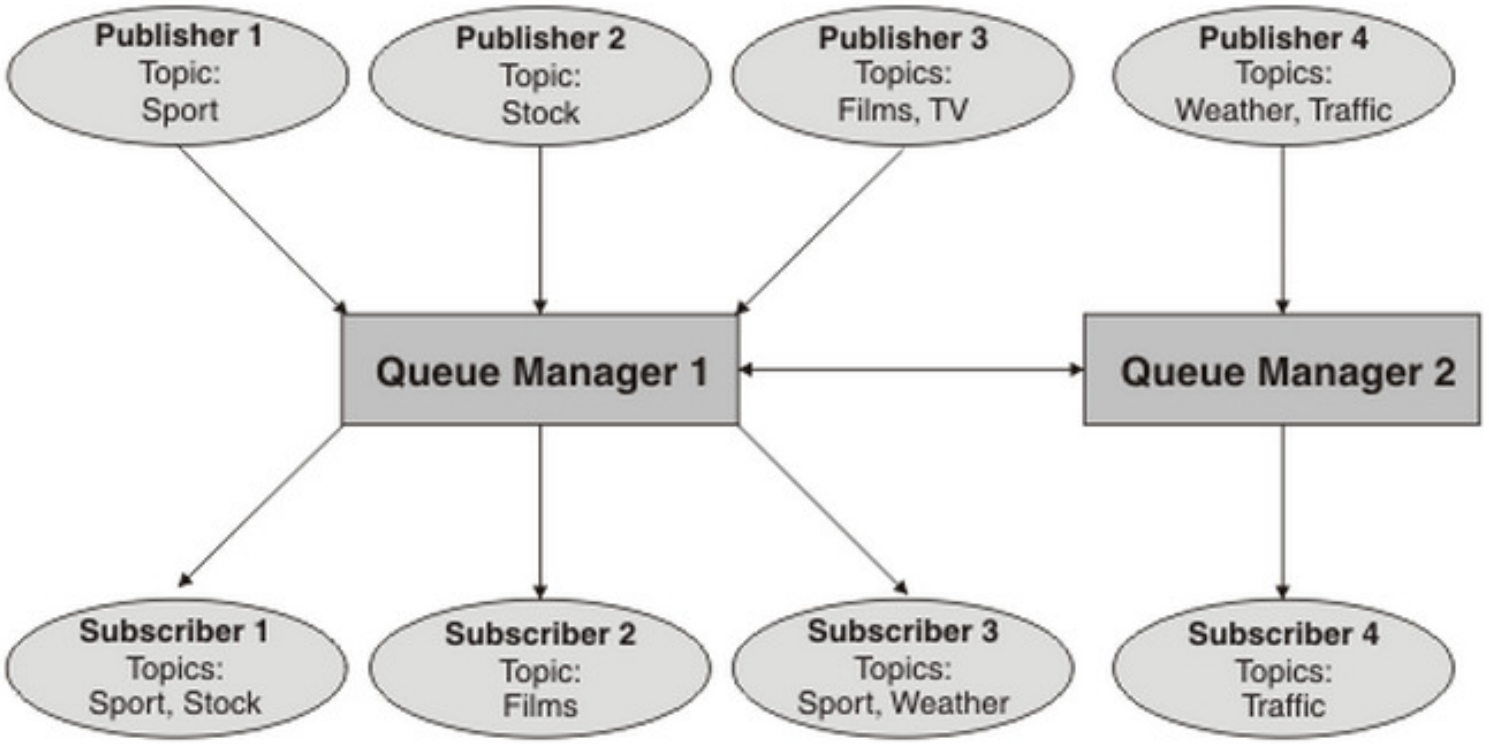
Cluster

Overlapping Clusters



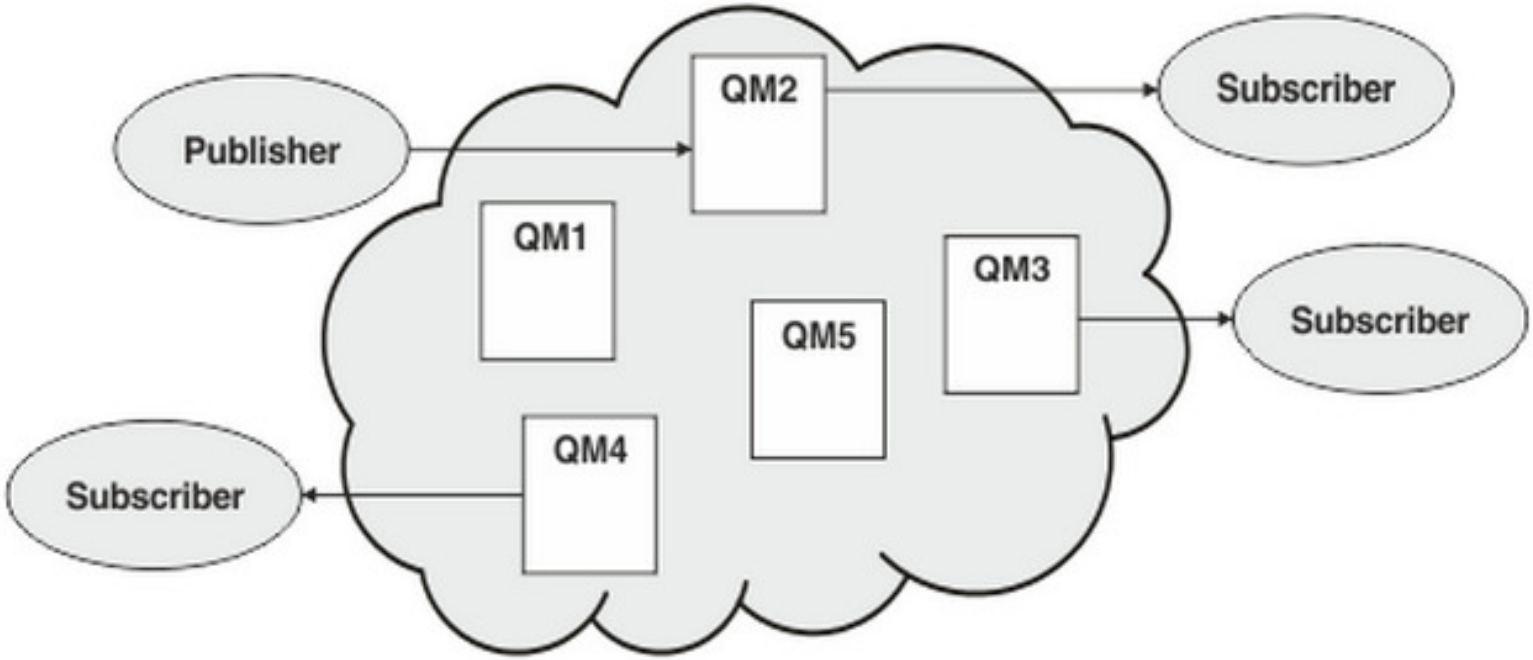
Pub / Sub Architecture

Pub / Sub Distributed



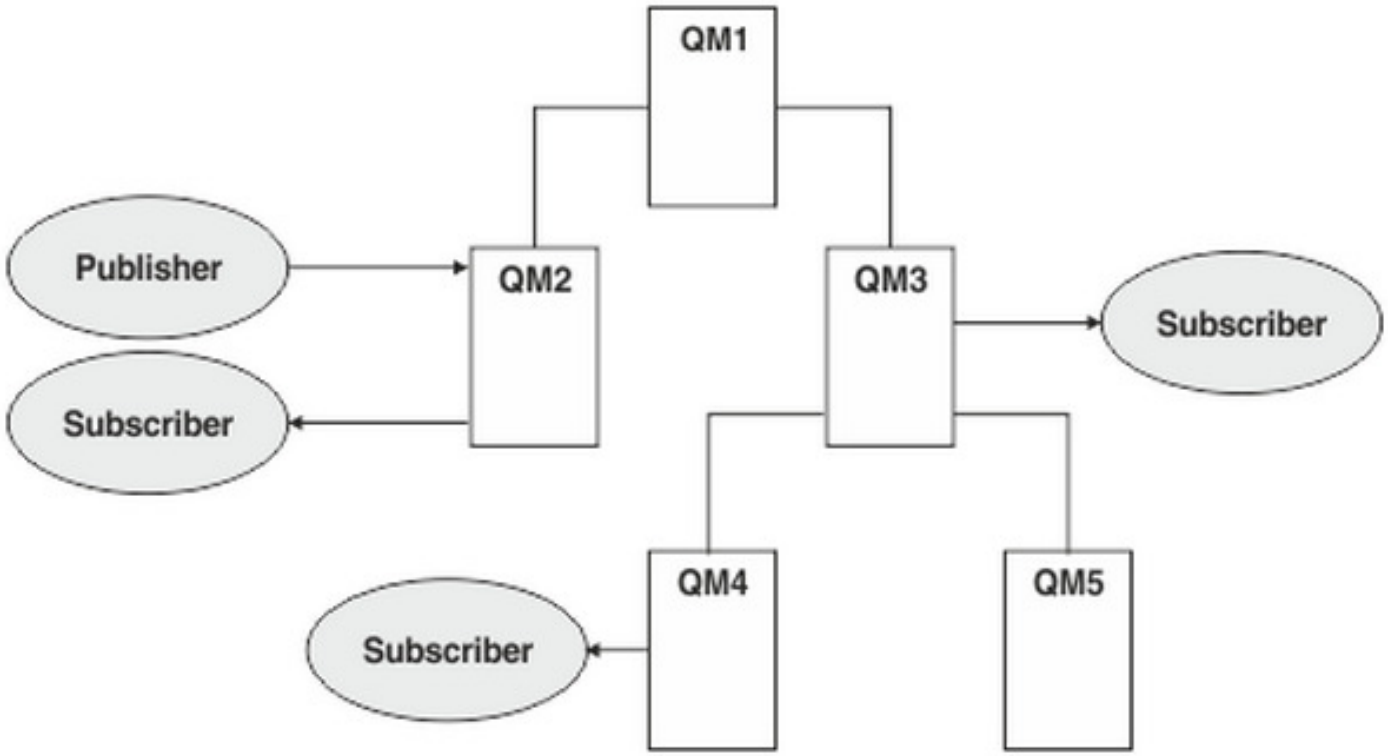
Pub / Sub Architecture

Pub / Sub Cluster



Pub / Sub Architecture

Pub / Sub Hierarchy



Naming Conventions

- Develop meaningful naming conventions for your organization
- Cluster naming conventions
  - Name should be short and meaningful
  - Depends on your cluster architecture
- Queue Manger Naming conventions
  - Name should be short and meaningful
  - Host name is not recommended
- Object Naming Conventions (queues, topics, etc)
  - Should reflect the objects type and purpose
- Channel Naming conventions
  - Should be based on queue manager names

Installation and Maintenance

- Platforms
  - Windows, Linux, Linux Ubuntu, AIX, HP-UX, Solaris, IBM i
- Prerequisites & Pre-installation
- Installation
  - Server Installation
  - Client Installation
- Maintenance
  - Patch Management

Installation and Maintenance

- Planning for installation
  - What OS platform?
  - Interactive or Non Interactive?
  - What components will be installed?
  - Choose an installation name (Default is Instalation1, installation2, etc.)
  - Will you have multiple installations of MQ?
    - Installation location, primary installation, application connectivity, QMGR association, environment setup.
  - Check Requirements
    - Hardware and software
    - Disk space
    - Licensing
    - Security
  - Check the product read.me file

Installation and Maintenance

- Considerations for Windows
  - Do you plan to use System Center Configuration Manager (SCCM)?
  - Are you installing in a Windows Domain Network running Active Directory?
    - IBM MQ services must run under a domain account that has permission to do active directory lookups.
  - You must have local administrator authority to install MQ on Windows
  - User ID's of MQ Admins should be in the MQM group
  - Machine name must not have any spaces
  - User ID's with MQ authorization must be less than 64 characters with no spaces and no @ in the UID

Installation and Maintenance

- Considerations on Unix an Linux
  - On UNIX and Linux systems, MQ requires a user ID of the name mqm, with a primary group of mqm.
    - The mqm user ID owns the directories and files that contain the resources associated with the product.
  - Before installing MQ Version, you might need to create file systems for both the product code and working data to be stored.
    - There are minimum storage requirements for these file systems.
    - The default installation directory for the product code can be changed at installation time, but the working data location cannot be changed.

Installation and Maintenance

- Operating System configuration and tuning for AIX
  - Increase the process limit for the number of file descriptors
    - nofiles_hard=10240 mqm
    - nofiles=10240 mqm
  - Set the system resource limit for data segment and stack segment to unlimited
  - You can check your system configuration with the ‘mqconfig’ command

Installation and Maintenance

- Operating System configuration and tuning for HP-UX
  - It is possible that the default kernel configuration is not adequate because IBM MQ uses semaphores and shared memory
  - Check the product documentation for kernel configuration and resource limits and ulimit
  - You can check your system configuration with the ‘mqconfig’ command.

Installation and Maintenance

- Operating System configuration and tuning for Linux
  - If any user other than mqm is used to start a queue manager on a Linux system, the NOFILE and NPROC entries must be set for that user as per the manual
  - /bin/sh shell must be a valid shell interpreter compatible with the Bourne shell
  - Set System V IPC kernel configuration as per the product documentation
  - Set TCP/IP configuration as per the product documentation
  - Set and tune Maximum open files as per the product documentation
  - Set and tune Maximum processes as per the product documentation
  - You can check your system configuration with the ‘mqconfig’ command.

Installation and Maintenance

- Operating System configuration and tuning for Solaris
  - IBM MQ uses semaphores, shared memory, and file descriptors, and it is probable that the default resource limits on Solaris Systems are not adequate.
  - To set new default limits for all users in the mqm group, set up a project for the mqm group in each zone, or update an existing project if one exists. See the product documentation for details.
    - The attributes must include the following minimum values:
      - process.max-file-descriptor=(basic,10000,deny)
      - project.max-sem-ids=(priv,128,deny)
      - project.max-shm-ids=(priv,1024,deny)
  - You can check your system configuration with the ‘mqconfig’ command

Installation and Maintenance

- Operating System configuration and tuning for IBM i
  - Several system values on IMB i need to be checked using the DSPSYSVAL command.
    - If necessary, reset the values using the CHGSYSVAL command as per the product documentation
    - QCCSID
    - QSYSLIBL
    - QALWOBJRST
    - QSHRMEMCTL
    - QFRCCVNRST
    - QMLTTHDACN

Installation and Maintenance

- Installable components Windows
  - Sever
  - Standard Client
  - SDK
  - Java Messaging (includes .net)
  - IBM GSK
  - Telemetry Service (MQTT)
  - IBM MQ Explorer
  - Managed File Transfer
  - Advanced Message Security

Installation and Maintenance

- Installable components Linux / Unix
  - Runtime
  - Sever
  - Standard Client
  - SDK
  - Sample Programs
  - Java Messaging
  - Man Pages
  - Java JRE
  - Message Catalogues
  - IBM GSK
  - Telemetry Service (MQTT)
  - IBM Explorer
  - Managed File Transfer
  - Advanced Message Security

Installation and Maintenance

- Installable components IBM i
  - Sever (Base)
  - Command Reference
  - Samples
  - Advanced Message Security
  - Documentation
  - Managed File Transfer

Installation and Maintenance

- Once system preparation is complete, install your MQ product components on your chosen platform
- Be sure you have your installation media ready
  - Downloaded from Passport Advantage
  - Unpacked in known location / network or local
- Do you have a documented installation plan?
  - Each platform has its own considerations
  - Did you have to go through Change Control?
  - Do you have a roll back plan if problems occur?
  - Do you have a validation plan?
- You will need to accept the license agreement on each platform

Installation and Maintenance

- Installation on Windows
  - Interactive using the Launchpad
    - From the installation image run ‘setup.exe’ with elevated privileges
    - Follow the Launchpad instructions shown on the screen
  - Non-Interactive
    - Unintended installation uses the msiexec command
      - Parameters can be given through the command line, a transform file, a response file, or a combination of the three
    - MQParms command can be used to start the installation
      - This comment allows the creation of parameter file with all necessary parameters to invoke mqsiexec

Installation and Maintenance

- Installation on AIX
  - Interactive using smit
    - Install as root
    - Follow the steps listed in the product documentation to install the components needed
  - Non–Interactive
    - Install as root
    - Use the AIX installp command
      - installp -acgXYd . all
      - installp -acgXYd . list of file sets
      - installp -R USIL_Directory -acgXYd . all
      - linstallp -R USIL_Directory -acgXYd . list of file sets

Installation and Maintenance

- Installation on HP-UX
  - Interactive
    - Install as root
    - swinstall -s / installation_file
    - Follow the steps listed in the product documentation to install the components needed
  - Non–Interactive
    - Install as root
    - Use the swinstall command
      - » swinstall -s /installation_file.v11 MQSERIES,l=/opt/customLocation
      - » swinstall -x allow_multiple_versions=true -s /installation_file.v11

      MQSERIES.MQM-RUNTIME MQSERIES.MQM-BASE MQSERIES.MQM-SERVER

Installation and Maintenance

- Installation on Linux
  - Interactive
    - Install as root
    - use the rpm -ivh command to install each component
    - Follow the steps listed in the product documentation to install the components needed
  - Non–Interactive
    - On Linux you can write a script for unattended installation using rpm
  - Linux Ubuntu may not have rpm installed
    - Check Ubuntu for rpm
      - dpkg-query -W --showformat '${Status}\n' rpm
    - Install rpm on Ubuntu
      - sudo apt-get install rpm

Installation and Maintenance

- Installation on Solaris
  - Interactive
    - Install as root
    - use the pkgadd command to install each component
    - Follow the steps listed in the product documentation to install the components needed
  - Non–Interactive
    - On Solaris you can use the silent.sh sample supplied with the product for a silent installation
    - Follow the steps listed in the product documentation to prepare your silent installation

Installation and Maintenance

- Installation on IBM i
  - Interactive and non-interactive
    - Follow the steps listed in the product documentation to install the components needed

Installation and Maintenance

- Maintenance, Upgrade and Migration
  - Maintenance is a reversible change to the code level of MQ and requires no migration
  - Upgrading is the application of a new code level of MQ
  - Migration in the process of updating queue managers and other objects to run on the new code level
  - 3 types of migration to consider
    - Single stage migration
      - installation of the latest version of the product to replace an earlier version in the same installation location
    - Side by side migration
      - Installation of the new code level along side the earlier version on the same server, then migrating all components
    - Multistage migration
      - Side by side migration, with staged migration of components

Installation and Maintenance

- Applying Maintenance
  - IBM regularly releases Interim Fixes and Fix Packs for each release of MQ
  - Each platform has its own procedures like with installation
  - No migration needed for maintenance

- Every IT department should have a patch management plan
  - Fix Packs should be installed according to your organization's patch management plan
    - At a minimum apply Fix Packs Annually
    - Latest -1 is recommended
    - Be sure you have a rollback plan

Installation and Maintenance

- Interim fixes and Fix Packs may need to be applied outside of the normal patching schedule to address specific issues with the product or in your environment

- Multi-Instance queue managers
  - Allows a queue manager to run during the application of maintenance
  - You must upgrade all installations where a multi-instance queue manger can run
  - Follow the steps listed in the product documentation to install maintenance for multi-instance queue managers

- Use the dspmqver command to check the maintenance level on any installation of MQ

Migration and Upgrade

- Start by creating an upgrade and migration plan, based on the information in the migration guide provided in the product documentation.
- To migrate an existing queue manager to run on a new level of code, first upgrade MQ to install the new code level
- Once the upgrade has been verified as successful, migrate the queue manager and all the applications and resources associated with it
- When migrating a system to V 8.0 your existing system must be at V 7.0.1 or later.
  - If you need to migrate from a version of MQ prior to Version 7.0, first migrate the system to Version 7.0, Version 7.0.1, or Version 7.1 before migrating to Version 8.0.
- Validation and test plans are needed for each phase of the upgrade and migration
  - Coordinate with developers and QA testing teams

Upgrade and Migration

- Considerations for Upgrade and Migration
- Applications
- Multiple installations
- HA configurations
  - Multi-Instance queue managers
- MQ Clients
- MQ Clusters

Availability, Recovery and Restart

- Clusters
- High Availability
  - Standard HA
  - Multi Instance Queue Managers
- Automatic Client Reconnection
- Logging
- Backup and Restore

Availability, Recovery and Restart

- Clusters
  - Part of an HA configuration
  - Clustered objects are available in
- High Availability
  - Standard HA
    - MS Cluster Server
    - HACMP
    - RedHat Cluster Server
  - Multi Instance Queue Managers
    - Requires Networked File system
- Automatic Client Reconnection

Availability, Recovery and Restart

- Automatic Client Reconnection
  - Set DefRecon attribute in channels stanza of mqclient.ini
  - Application can enable by setting MQCONNX MQCNO Option MQCNO_RECONNECT or MQCNO_RECONNECT_Q_MGR
- Logging
  - Circular – restart recovery
  - Linear logging – restart and media recovery
    - Use check pointing
    - Delete old log files when appropriate to free diskspace
    - Use rcdmqimg to record a media image for recovery from a media failure

Availability, Recovery and Restart

- Backup and Restore
  - Backup Queue Manager Configuration
    - Use Dump MQ Configuration command (dmpmqcfg)
    - Creates an MQSC file that can be used to restore config
  - Restore Queue Manager Configuration
    - runmqsc MYQMGR < /mq/backups/MYQMGR.mqsc
  - Backup Queue Manager Data
    - Shut down the queue manager
    - Backup the queue manager data and log file directories
    - Ensure file ownership is maintained
  - Restore Queue Manager Data
    - QMGR must be shut down
    - Empty the existing data an log directories
    - Restore the queue manager data and log file directories

Regular Administrative Tasks

- Configure and Manage Queue Managers
  - Create Queue Managers
  - Queue Manager Availability
    - Multi-Instance Queue Managers
- Configure and manage MQ Clusters
  - Cluster Workload Management
- Configure and manage MQ Objects
  - Queues
  - Channels
  - Triggered applications and channels
- Configure and manage Pub / Sub
- Configure and manage JMS

Regular Administrative Tasks

- Configure and manage Security
  - Object Security
  - Chanel Security (SSL/TLS)
  - Channel Authentication
- Configure and manage Monitoring
- Configure and manage Events
- Configure and manage Statistics

Be the SME

- MQ Subject Matter Expertise
- Development Support
  - Design reviews, code reviews
- Architecture Support
- Configuration Management
- Patch Management
- MQ Performance
  - Application Performance
- System Availability and Reliability

Tools

- The MQ Explorer
- Command Line
  - Control Commands
  - RUNMQSC
- IBM MQ Administration Interface (MOAI) & PCF Commands
- Shell Scripting
  - Create scripts for common tasks
- 3rd Party tools for monitoring and management

Troubleshooting

- Message Delivery Problems
- Authentication Problems
- Channel Connection Problems
- Queue Manager Problems
- Cluster Problems
- JMS Problems
- Pub / Sub (Problems)

Troubleshooting

- Know your system
- Know your applications
- Useable documentation is a big help
- Standard Troubleshooting techniques
- Initial system checks
- Keep a knowledgebase of issues as they occur and their resolution

Troubleshooting

- Understand the problem you are having
  - What are the symptoms?
  - What is being reported?
  - What is being reported in the logs?
  - Initial System Checks
- Can the problem be recreated?
- Determine and eliminate possible causes for the problem
  - Search you knowledgebase
  - Search online forums
  - Change logging levels
  - Use trace
- Opening a PMR

MQ for Administrators

- Know your product
- Know your business
- Know your architecture
- Know you applications
- Take ownership
- Set and maintain standards
- Be the SME

Questions & Answers