# “Understanding MQ Deployment Choices and Use Cases”

# a.k.a. Introducing the IBM MQ Appliance

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**Session # 17060**


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# Introduction


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# Introducing IBM MQ Appliance


- **The scalability and security of IBM MQ V8**
  - Integrates seamlessly into MQ networks and clusters
  - Familiar administration model for administrators with MQ skills
- **The convenience, fast time-to-value and low total cost of ownership of an appliance**
- **Ideal for use as a messaging hub running queue managers accessed by clients, or to extend MQ connectivity to a remote location**
- **General availability 13 March 2015**

# Why an appliance?

- **Fixed hardware specification allows IBM to tune the firmware**
  - Having fewer POVs makes it easier to deploy and manage
  - Less performance tuning should be needed
- **Standardisation accelerates deployment**
  - Repeatable and fast, less configuration/tuning required
  - Post-deployment resource definition or lock down before deployment
- **“Hub” pattern separates messaging from applications/middleware**
  - Organisational independence from application teams
  - Improved availability, due to reduction of downtime
  - Predictable performance, simpler capacity planning
- **Simplified ownership**
  - Self-contained: avoids dependencies on other resources/teams
  - Licensing: Simpler than calculating licensing costs (e.g. by PVU)
  - Security: Easier to assess for security compliance audit

# Key characteristics of the IBM MQ Appliance

- **"MQ V8" (+/-) delivered as a state-of-the-art appliance**
- **Built using the latest DataPower appliance hardware and OS**
- **Firmware includes the MQ V8 product and capabilities**
  - Participates in MQ networks or clusters
  - Existing MQ applications connect as clients, with no code changes
- **Two models, to suit different uses and performance requirements**
  - Either model of appliance can run multiple queue managers, subject to overall throughput
- **Familiar administration concepts and syntax, with a choice of interfaces**
- **Familiar security model for authentication and authorisation of messaging users, with greater flexibility for scalable administration**
- **Built-in High Availability**
  - Per queue manager monitoring and automatic restart/failover
  - Without external dependencies like shared file systems or disks

# Comparison between IBM messaging appliances

Two separate appliances for two different environments


## IBM MessageSight

Supports edge, mobile and M2M device messaging

For deployment in the DMZ or behind the firewall

Physical and virtual appliance


## IBM MQ Appliance

MQ v8 to support enterprise messaging

For deployment behind the enterprise firewall

Physical appliance only

# Expected Usage Patterns


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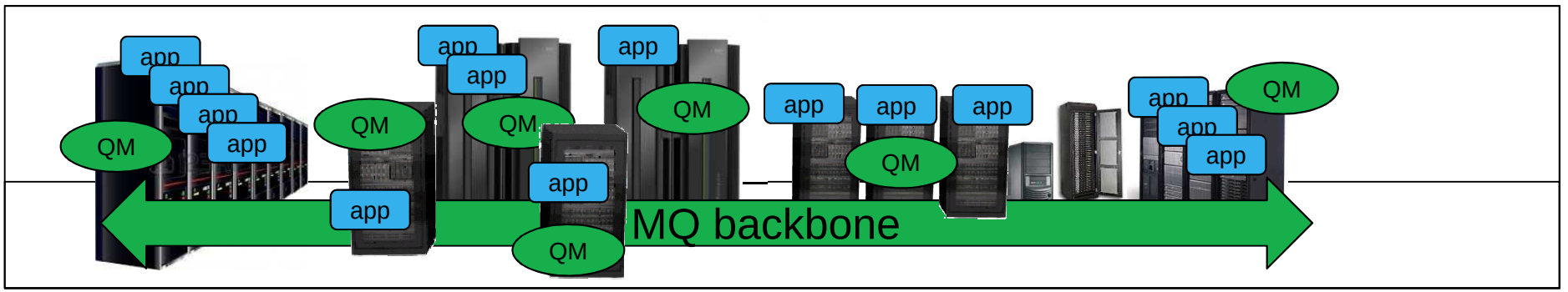
# Expected uses of the IBM MQ Appliance

- **How an appliance may help to achieve the following requirements**

| | |
|---|---|
| **Messaging Hub** | One or more dedicated messaging servers to which applications connect |
| **Messaging Outpost** | A messaging server located in a remote location with limited skills and facilities |
| **Messaging Gateway** | A dedicated server that handles all traffic from a remote messaging system |
| **Messaging Partner** | A messaging server located in a business partner that needs to resilient and safe connectivity to your MQ infrastructure |

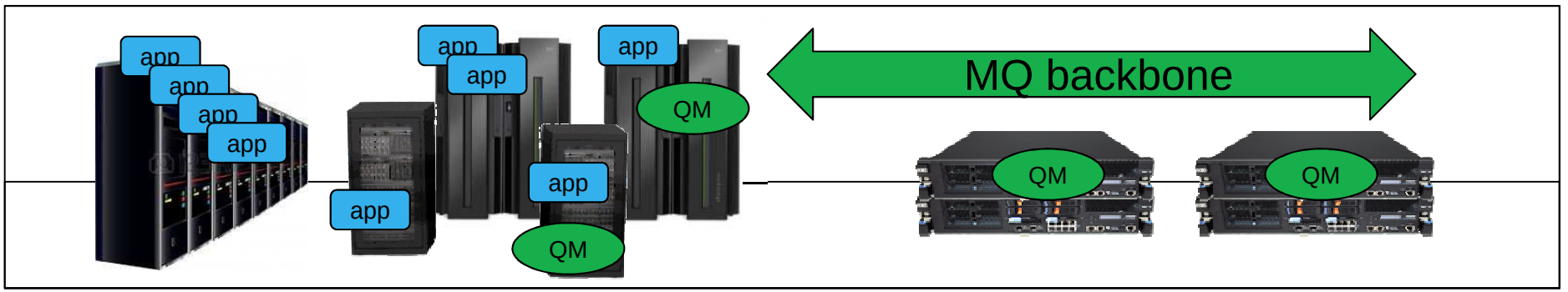
# Simplify Complex Messaging Estate

- **Objective**
  - You need to reduce overall costs and want to reduce the number and diversity of servers that are running MQ, standardising for efficiency and ease of future migration
- **Challenges**
  - Mixture of platforms and versions
  - Complex dependencies; impact analysis is difficult
  - Migrations are difficult due to lack of standardisation
  - Application downtime impacts messaging – and hence other applications



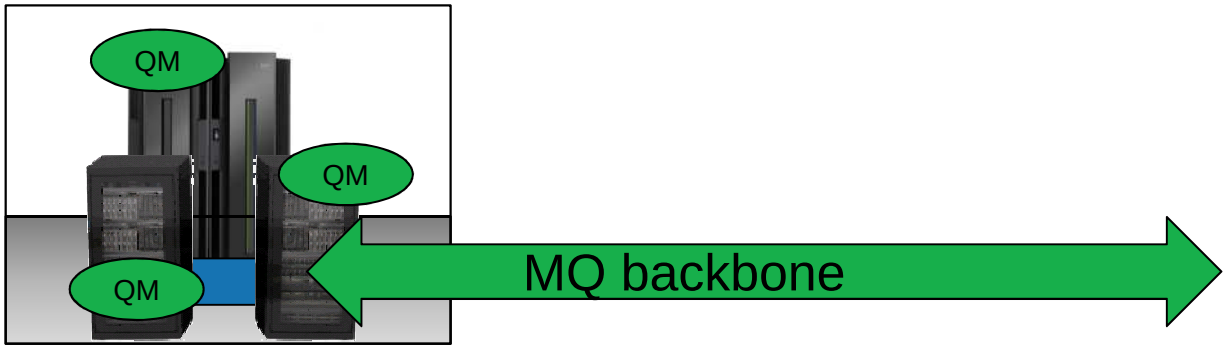
# Messaging Hub using the IBM MQ Appliance

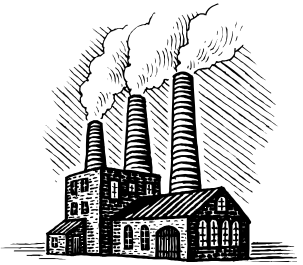
- **Benefits**
  - The appliance is easy to deploy, has familiar MQ admin interfaces, supports existing MQ definitions and security
  - The firmware has fewer POVs and supports rapid migrations
  - Downtime reduced by separating applications and middleware
  - Appliance HA avoids external dependencies such as storage team



# Provision connectivity to a remote location

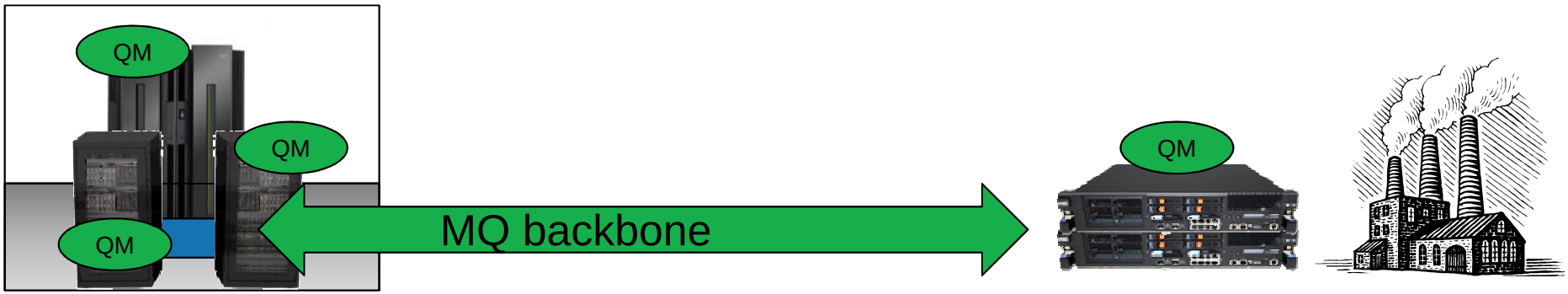
- **Objective**
  - You need resilient connectivity to a remote part of your organisation, e.g. a branch, factory, warehouse
  - Extend MQ messaging beyond your datacenter to a remote location with limited infrastructure…and scarce local MQ skills
- **Challenges**
  - Geographic remoteness suggests that you may have to rely on getting outside assistance
  - It would be very difficult or impossible to support failover due to the difficulty of provisioning a shared file system, shared disk or SAN in the remote location



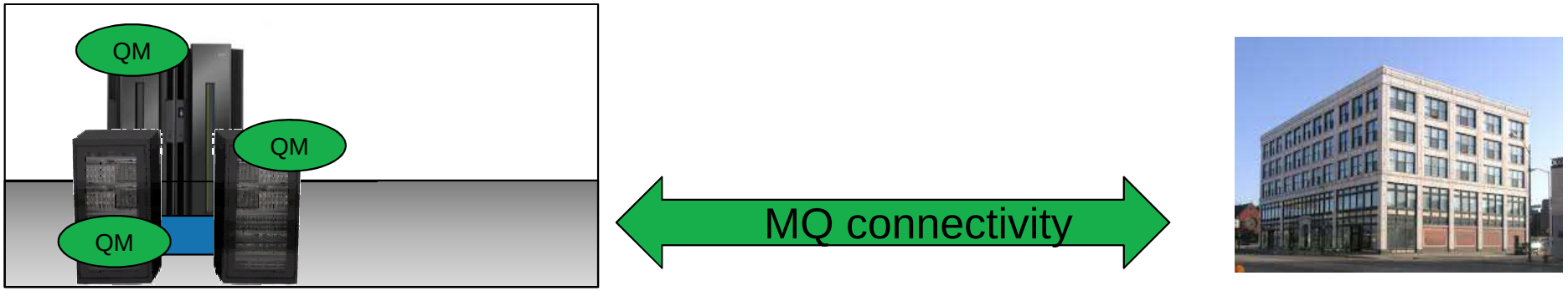
# Messaging Outpost using the IBM MQ Appliance

- **Benefits**
  - Order one or a pair of appliances to be delivered on-site, or pre-configure appliances and dispatch them to the remote site
  - Following simple physical deployment, remotely configure and manage the appliances
  - HA without external dependencies



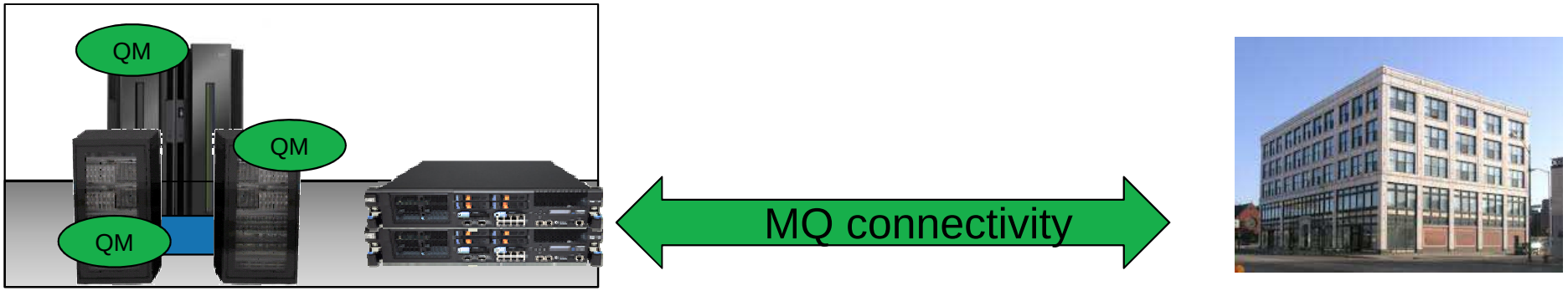
# Isolation of Partner Connection

- **Objective**
  - You need to extend connectivity to an external business partner and want to tightly control what the partner can connect to and the resources affected by partner traffic
  - You decide to deploy an MQ gateway to which the partner channel will connect
- **Challenges**
  - You don’t want to spend the cost/time it would take to build a server, with operating system, utilities and middleware and provision for HA



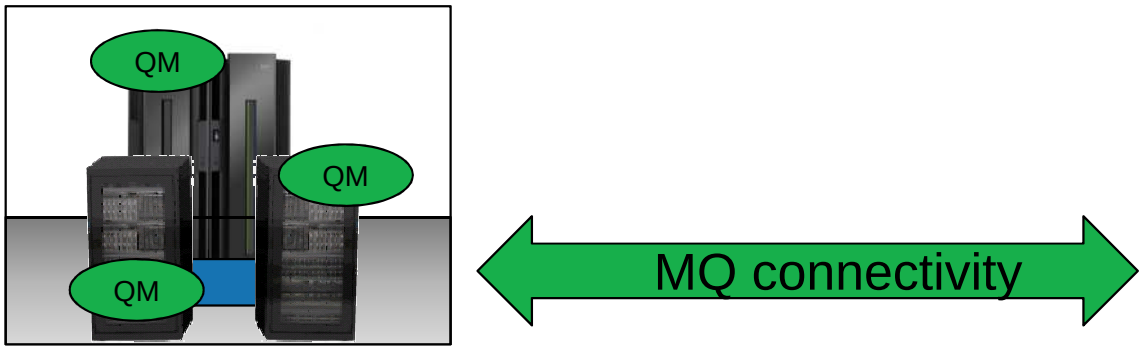
# Messaging Gateway using the IBM MQ Appliance

- **Benefits**
  - The MQ appliance is easy to deploy and manage with familiar MQ admin interfaces
  - A pair of appliances can provide HA without introducing external dependencies



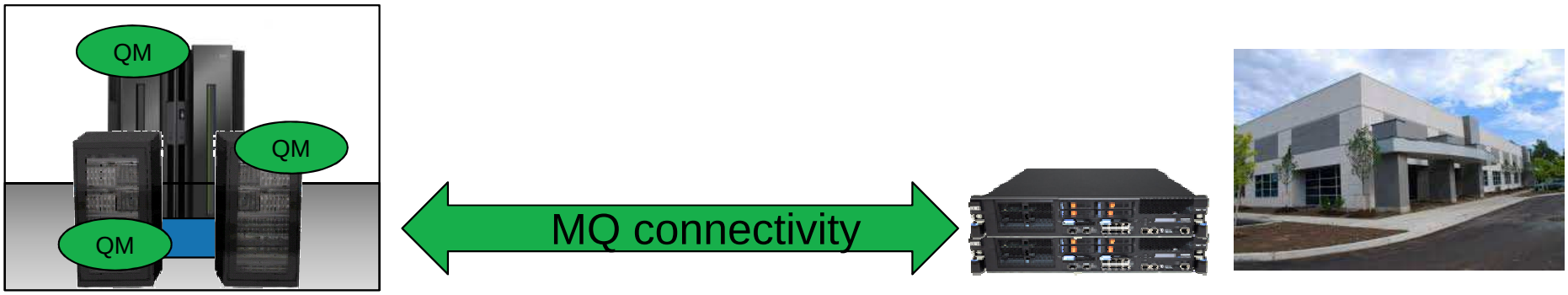
# Remote Partner Connectivity

- **Objective**
  - Your organisation wants to on-board a business partner as quickly as possible
  - The business partner needs to connect to your organisation using MQ; but the partner does not have MQ skills
  - You want to be confident that the MQ configuration (which is outside your domain) is correct and meets your organisation's standards
- **Challenges**
  - The partner could use a 3rd party vendor, but ideally you'd like to verify yourself that the solution meets your standards




# Messaging Partner using the IBM MQ Appliance

- **Benefits**
  - The MQ appliance is easy to physically deploy and you can pre-configure it so all the partner need do is plug in and go
  - A pair of appliances could provide HA at the partner location without requiring external dependencies that the partner might struggle to provide



# MQ Appliance Capabilities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# Administration

- **Command-line Interface**
  - Supports appliance-specific commands such as configuring network interfaces, importing certificates, …
  - Also offers a familiar subset of MQ control commands
  - You can also use MQSC interactively, or run scripts remotely
- **MQ Console**
  - Browser-based UI for administering the appliance
  - Avoids maintenance of rich client installations
  - Very convenient for proofs-of-concept and developer use
- **MQ Explorer**
  - Essential for existing administrators
- **PCF**
  - Supports remote administration using all of the existing MQ tools

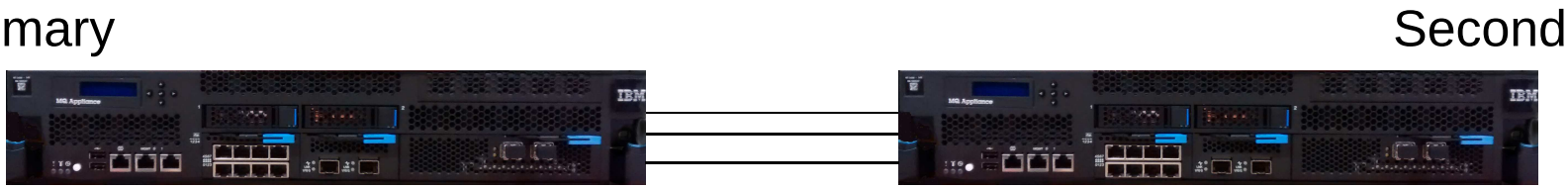
# Security

- **An appliance administrator can be authorised to perform MQ administration**
  - Can separate roles of appliance administrator and messaging administrator
  - Both are separate from messaging users
- **The appliance supports secure connectivity over SSL/TLS**
  - Certificates can be imported to the appliance
- **The appliance supports scalable security administration**
  - For a small number of messaging users, you can define them locally
  - For larger communities, you can use an off-board repository
    - Using external LDAP repository
    - Authorization checks can include group memberships from LDAP
    - Messaging users don't need to be defined in each server/appliance
- **IBM does not recommend deploying a queue manager in the DMZ**
  - "MQ Internet Pass-Thru" (MS81: MQIPT) provides tunnelling or proxy
  - IBM may add appropriate hardening in a future version of the appliance

# Connectivity

- **The IBM MQ Appliance supports a number of protocols for message transmission**
  - MQ client protocol – for connectivity from applications
    - Client libraries available in the usual places, not shipped with the appliance
  - MQ server protocol – for connectivity with queue managers
    - This will support sender-receiver channels and server-requester channels, including cluster flows
- **Subject to customer interest we may add further protocols such as:**
  - MQTT – for internet of things and mobile/web messaging
  - AMQP – for MQ Light API client connectivity

# High Availability

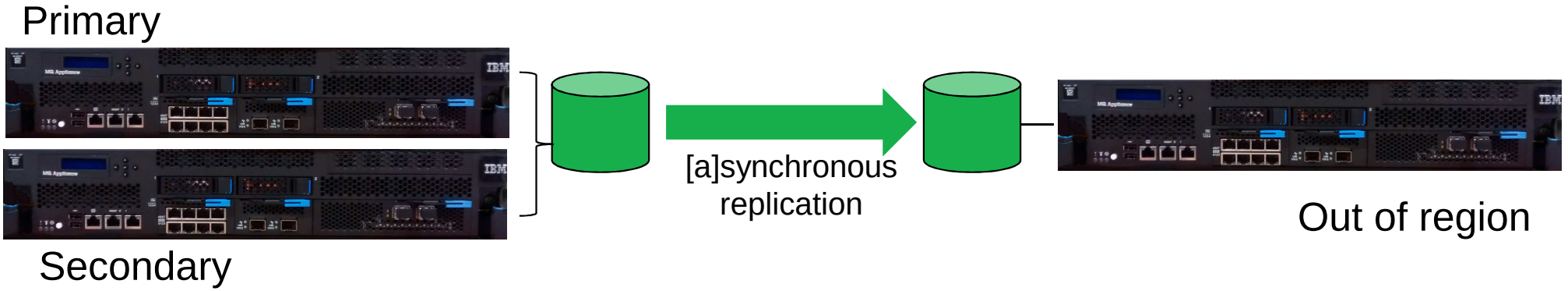



- **A pair of MQ Appliances can be deployed as an HA group**
  - HA group manage availability of HA queue managers
  - Automatic failover of HA queue managers
  - Failure detection for hardware and software problems
  - Supports manual failover for rolling upgrades
- **Easier to set up than other HA solutions (no shared file system/disks)**
- **Replication is synchronous over Ethernet, for 100% fidelity**
  - Routable but not intended for long distances

# External Storage (Statement of Direction)

- **In a future version of the IBM MQ Appliance, IBM intends to support Fibre Channel connection to external storage**
- **This will enable additional capabilities, such as:**

1. **Use of an external storage for QM data and log files**
   - Continues to support internal storage for HA
   - Storage can also be replicated for out-of-region recovery




2. **External storage may be used to expand storage for SLAs with a very long outage requirement**
   - Such as a consuming application down for an extended maintenance period

# Performance and capacity

- **The IBM MQ Appliance will be available in two models, to suit a range of performance and capacity requirements**
  - Not priced on a PVU-basis
  - Approximately 420 and 1400 PVUs
- **Appliance is dedicated to running messaging server workload**
  - No other workload (applications or middleware)
  - Performance should be predictable
  - Capacity planning should be easier

# Key differences compared with installable MQ

- **"Hub" pattern; no applications deployed to the appliance**
  - Applications must connect as remote clients
- **No user exits can be run on the appliance**
  - CHLAUTH and application activity trace
- **Appliance-specific HA technology**
  - With no shared file system or shared disk
- **Authentication and authorisation via on-board or central repository**
- **Command-line interface on the appliance is not a general-purpose shell**
  - Has familiar commands for things you need
  - e.g. no runmqlsr, because MQ listeners run under QM control

# Summary

- **IBM MQ Appliance will be available on 13 March 2015**
- **Two models to suit different use cases and performance requirements**
- **Existing MQ features with simple deployment and administration**
  - Including built-in HA support
  - Without customisation via exits
- **Four expected usage patterns:**
  - Messaging hub – consolidate messaging and separate applications
  - Messaging outpost – easily deploy remote messaging server
  - Messaging gateway – managed endpoint for inbound connectivity
  - Messaging partner – confidently deploy remote connectivity

# This was Session # 17060. The rest of the week ……

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| 08:30 | | | 17060: Understanding MQ Deployment Choices and Use Cases | 17051: Application Programming with MQ Verbs [z/OS & Distributed] | 16544: Why Shouldn't I Be Able To Open This Queue? MQ and CICS Security Topics Room: Willow B |
| 10:00 | 17036: Introduction to MQ - Can MQ Really Make My Life Easier? [z/OS & Distributed] | | 17052: MQ Beyond the Basics - Advanced API and Internals Overview [z/OS & Distributed]<br>17035: MQ for z/OS, Using and Abusing New Hardware and the New V8 Features [z/OS] Room: Willow B | 17054: Nobody Uses Files Any More do They? New Technologies for Old Technology, File Processing in MQ MFT and IIB [z/OS & Distributed] | 17057: Not Just Migrating, but Picking up New Enhancements as You Go - We've Given You the Shotgun, You Know Where Your Feet Are [z/OS & Distributed] |
| 11:15 | 17041: First Steps with IBM Integration Bus: Application Integration in the New World [z/OS & Distributed] | | 16732: MQ V8 Hands- on Labs! MQ V8 with CICS and COBOL! MQ SMF Labs! Room: Redwood | 17046: Paging Dr. MQ - Health Check Your Queue Managers to Ensure They Won't Be Calling in Sick! [z/OS] | 17053: MQ & DB2 – MQ Verbs in DB2 & InfoSphere Data Replication (Q Replication) Performance [z/OS] |
| 01:45 | 17037: All About the New MQ V8 [z/OS & Distributed] | 17034: MQ Security: New V8 Features Deep Dive [z/OS & Distributed] | 17040: Using IBM WebSphere Application Server and IBM MQ Together [z/OS & Distributed] | 17062: End to End Security of My Queue Manager on z/OS [z/OS] | All sessions in Seneca unless otherwise noted. |
| 03:15 | 17042: What's New in IBM Integration Bus [z/OS & Distributed] | 17065: Under the hood of IBM Integration Bus on z/OS - WLM, SMF, AT-TLS, and more [z/OS] | 17043: The Do's and Don'ts of IBM Integration Bus Performance [z/OS & Distributed] | 17039: Clustering Queue Managers - Making Life Easier by Automating Administration and Scaling for Performance [z/OS & Distributed] | |
| 04:30 | 17059: IBM MQ: Are z/OS & Distributed Platforms like Oil & Water? [z/OS & Distributed] | 17055: What's the Cloud Going to Do to My MQ Network? | 17044: But Wait, There's More MQ SMF Data Now?!?! - Monitoring your Channels Using V8's New Chinit SMF Data [z/OS] | 17068: Monitoring and Auditing MQ [z/OS & Distributed] | |

# Any questions?

**Please fill in evaluations**

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