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IBM MQ Appliance

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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

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Expected Usage Patterns

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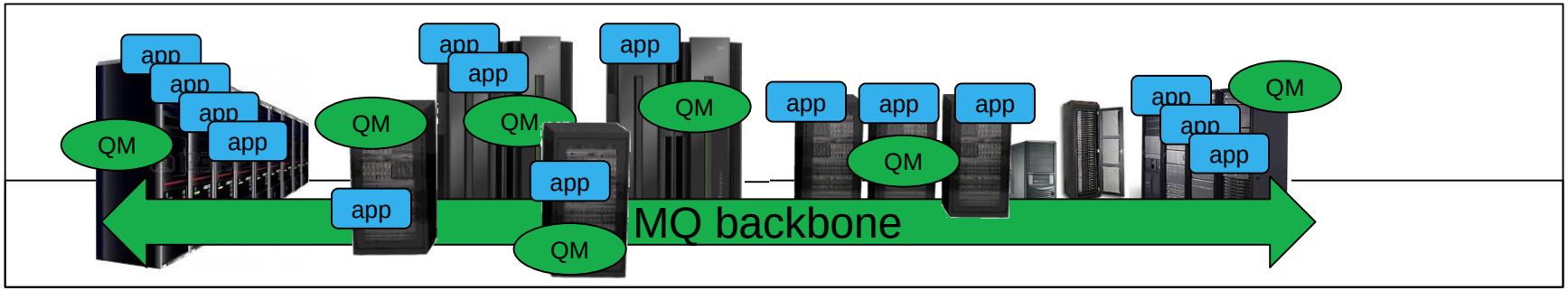
Expected uses of the IBM MQ Appliance

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

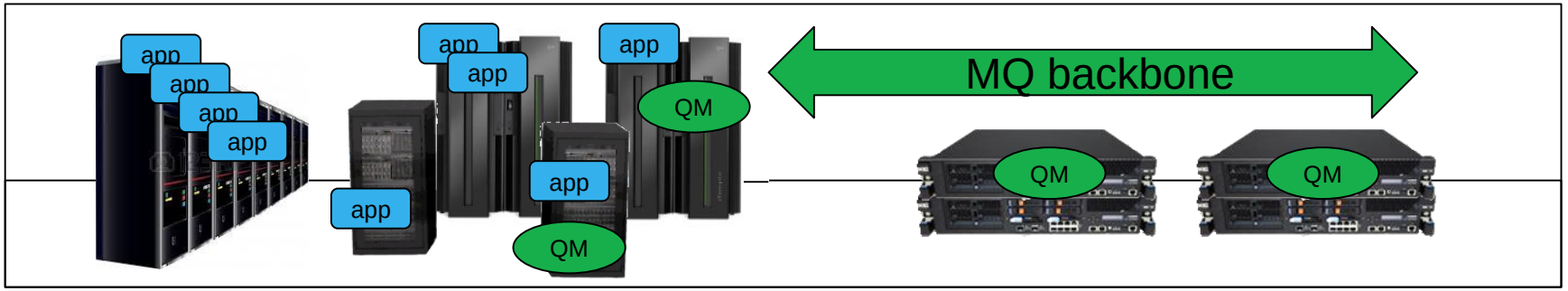
Simplify Complex Messaging Estate

- 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



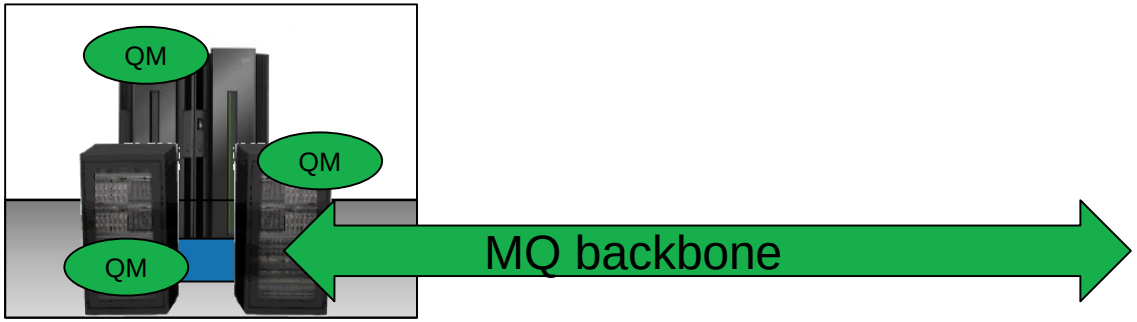
Messaging Hub using the IBM MQ Appliance

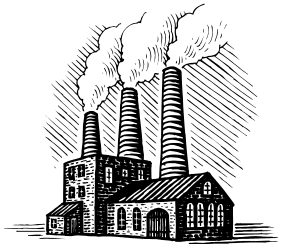
- Benefits
  - The appliance is easy to deploy, has familiar MQ admin interfaces, supports existing MQ definitions and security
  - The firmware has fewer POVs and supports rapid migrations
  - Downtime reduced by separating applications and middleware
  - Appliance HA avoids external dependencies such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



Provision connectivity to a remote location

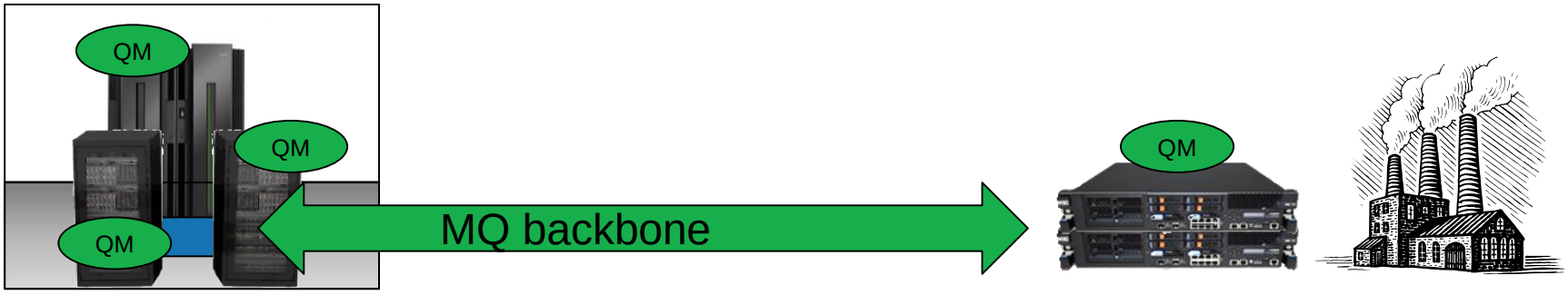
- Objective
  - You need resilient connectivity to a remote part of your organisation, e.g. a branch, factory, warehouse
  - Extend MQ messaging beyond your datacenter to a remote location with limited infrastructure…and scarce local MQ skills
- Challenges
  - Geographic remoteness suggests that you 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





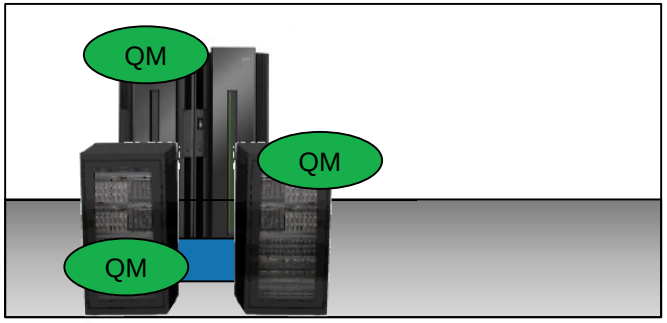
Messaging Outpost using the IBM MQ Appliance

- 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

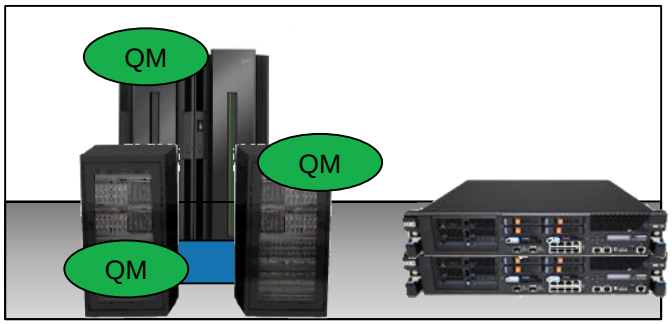
- Objective
  - You need to extend connectivity to an external business partner and want to tightly control what the partner can connect to and the resources affected by partner traffic
  - You decide to deploy an MQ gateway to which the partner channel will connect
- Challenges
  - You don't want to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

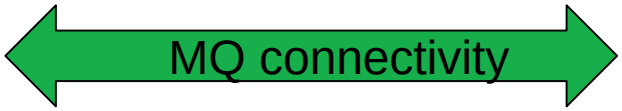


MQ connectivity

Messaging Gateway using the IBM MQ Appliance

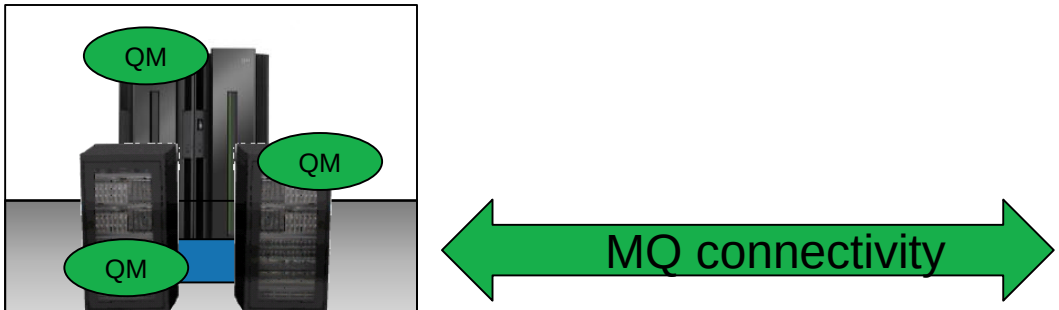
- Benefits
  - The MQ appliance is easy to deploy and manage with familiar MQ admin interfaces
  - A pair of appliances can provide HA without introducing external dependencies





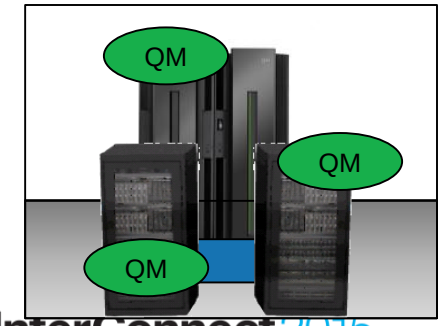
Remote Partner Connectivity

- 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



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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

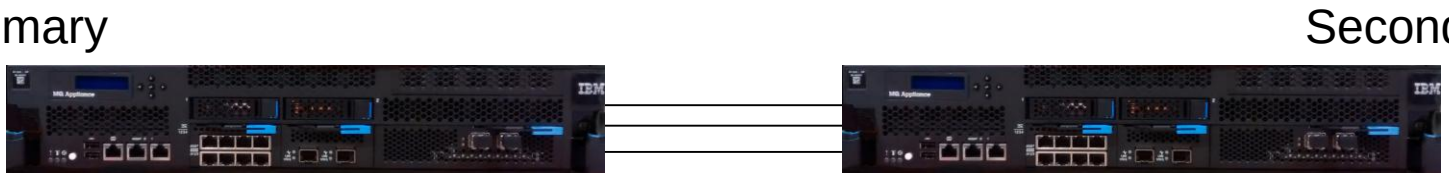
- An appliance administrator can be authorised to perform MQ administration
  - Can separate roles of appliance administrator and messaging administrator
  - Both are separate from messaging users
- The appliance supports secure connectivity over SSL/TLS
  - Certificates can be imported to the appliance
- 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

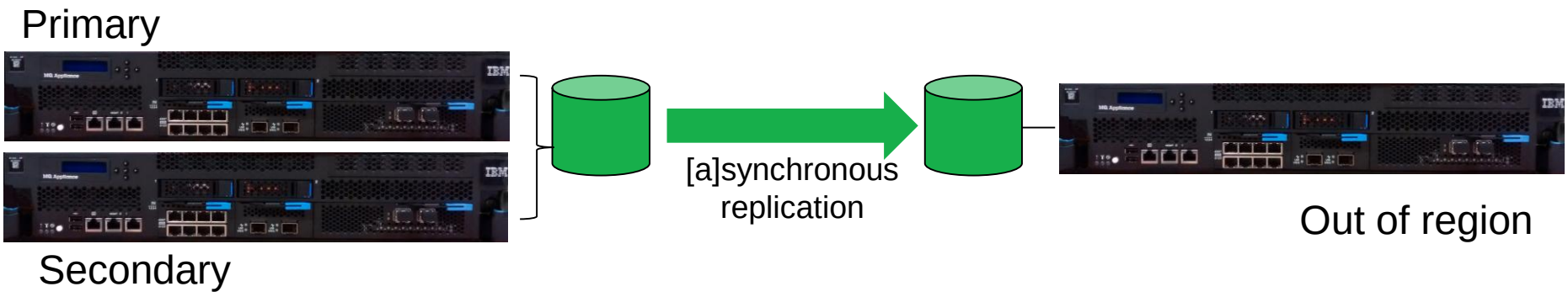


- A pair of MQ Appliances can be deployed as an HA group
  - HA group manage availability of HA queue managers
  - Automatic failover of HA queue managers
  - Failure detection for hardware and software problems
  - Supports manual failover for rolling upgrades
- Easier to set up than other HA solutions (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 – optimize messaging and separate applications
  - Messaging outpost – easily deploy remote messaging server
  - Messaging gateway – managed endpoint for inbound connectivity
  - Messaging partner – confidently deploy remote connectivity

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