IBM MQ

MQ Appliance High Availability Setup and Demonstration

Presented by

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Presentation Overview

- **Intermediate – assumes you know what an MQ Appliance is used for and have some background with MQ.**

- **We will cover the hardware set up and Appliance configurations needed to enable and test High Availability.**

- **We will then demonstrate a High Availability failover event and an Appliance Resume event with active clients.**

- **Along the way we will point out some "Gotchas" and how to deal with them**

# New Form Factor: *MQ Appliance*

Released in March 2015

- An optimized version of IBM MQ v9 that runs in a hardware appliance
- Reduce the demand on IT skillset to administer and support MQ as a communications backbone for an organization

- ✓ Easy to install
- ✓ Easy to configure
- ✓ Lower administrative overhead
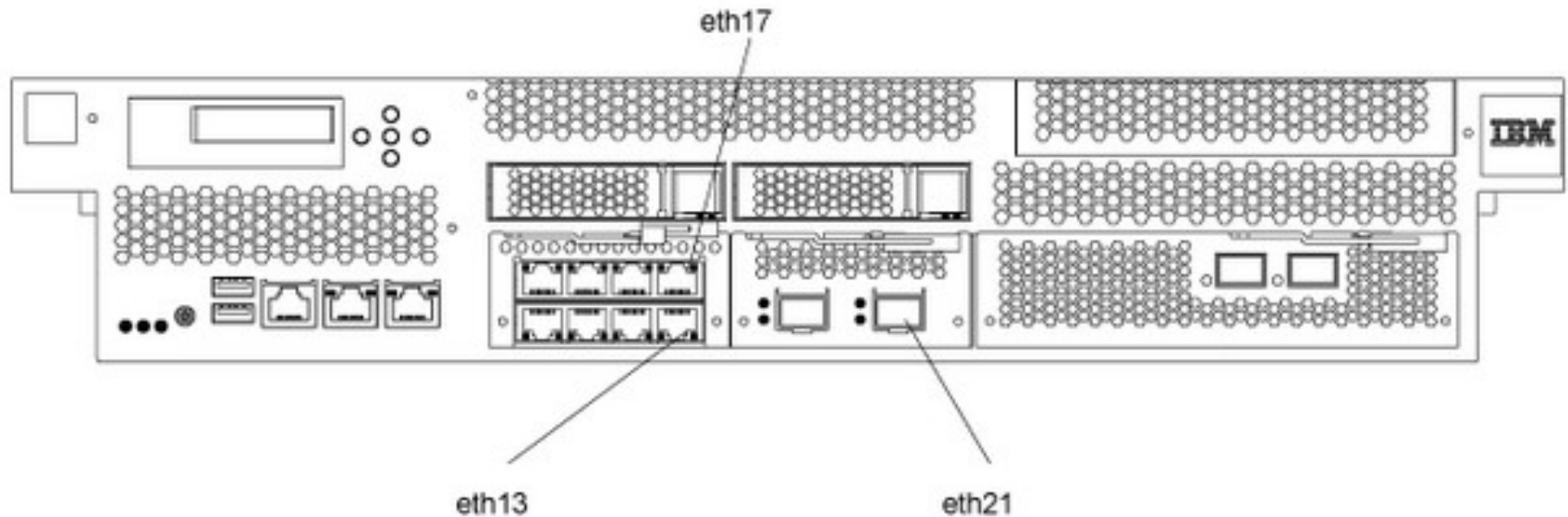- ✓ Upgrades delivered as firmware

Demo: MQ Appliance HA Scenario

MQPUT
APPLICATION

MQGET
APPLICATION
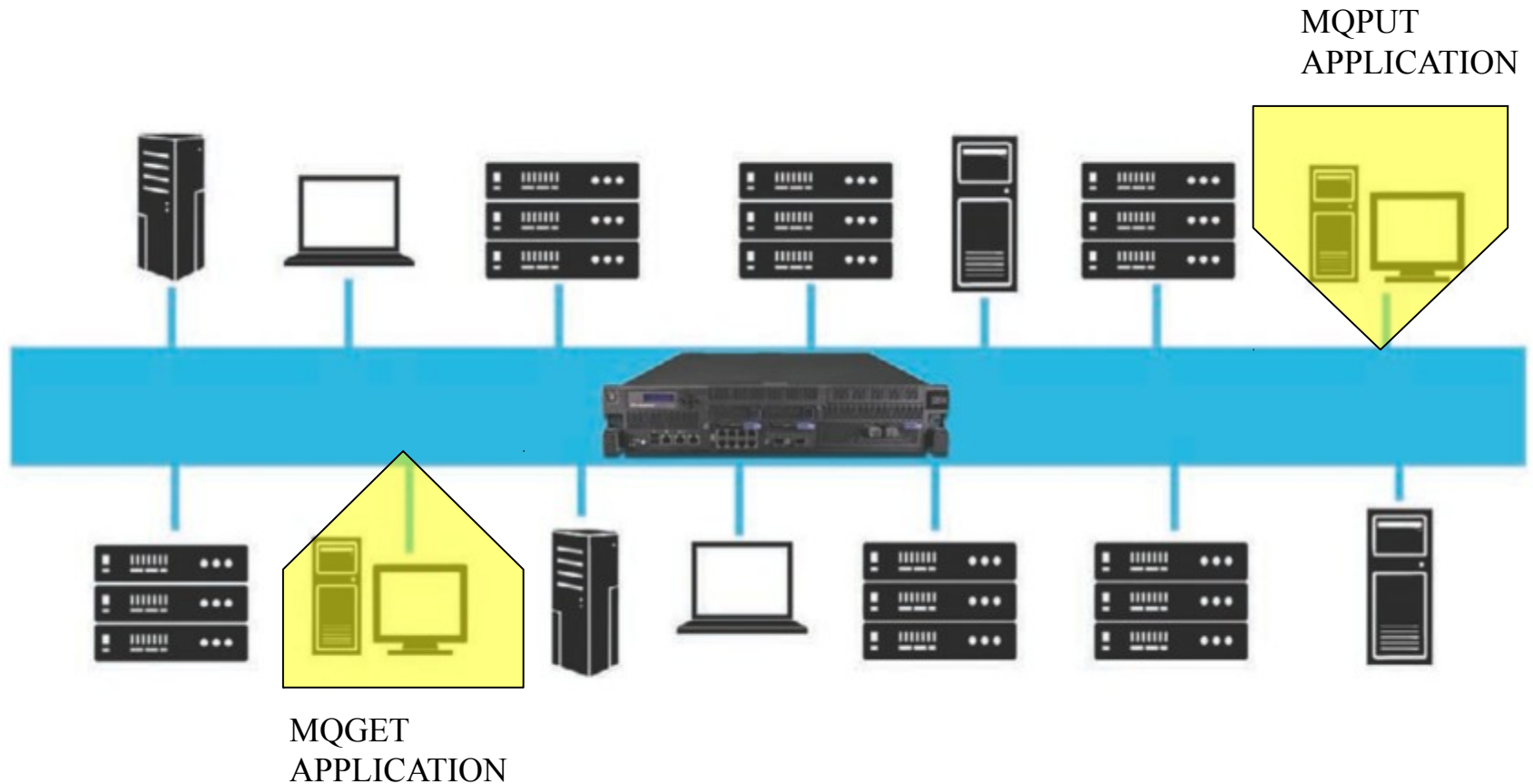
Hardware Setup

What is needed:

- **2 – MQ Appliances attached to your Network**

- **2 – 1Gb Ethernet straight-through cables**

- **1 – 10Gb Ethernet cable (OM3 or OM4 fiber cable recommended)**

Hardware Setup

- **Connect an Ethernet cable between port eth13 on Appliance 1 and eth13 on Appliance 2. This connection is the HA group primary interface.**

- **Connect an Ethernet cable between port eth17 on Appliance 1 and eth17 on Appliance 2. This connection is the HA group alternate interface.**

- **Connect 10Gb Ethernet cable between port eth21 on Appliance 1 and eth21 on Appliance 2. This connection is the replication interface.**

Hardware Setup

Hardware Setup

Ethernet Interface: eth13

⊘ **Ethernet Interface**
eth13

↻ ⊘ Actions ▼

* Name: eth13

▼ Main

Basic configuration

Enable administrative state: ⓘ   ☑

Comments: ⓘ

IP address configuration
mode: ⓘ   ☑ Static
                                   ☐ DHCP
                                   ☐ SLAAC

Enable for link aggregation: ⓘ   ☐

IP addressing

Primary IP Address: ⓘ   192.168.101.1/24

Apply   Cancel

Hardware Setup

Hardware Setup

Gotchas and things to know:

- **You must not disable or disconnect Ethernet links that are used for high availability configurations. If you do disable such links, high availability operation is no longer available, and you might have to set up the configuration again.**

- **You must not change IP addresses for Ethernet links that are used for high availability configurations. If you do change IP addresses, high availability operation is no longer available, and you might have to set up the configuration again.**

- **You must not aggregate Ethernet links that are used for high availability configurations. If you do aggregate such links, high availability operation is no longer available, and you might have to set up the configuration again.**

MQ Appliance HA Setup

■ **Create HA Group**

■ **Create HA Queue Manager**

■ **Create Queue, Channel, Listener and Client-connection for Queue Manager**

■ **Set security using Command Line Interface**

MQ Appliance HA Setup

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Add a new widget

Local Queue Managers Manage local queue managers

Chart Monitor your MQ platform

Add a widget to display MQ object information for the specified queue manager

Queue manager: QM1 ▼

Queues Configure destinations for messages

Topics Administrative objects for assigning attributes to topics

Listeners Configure processes to accept network requests

Channels Queue manager communication paths

Client-connection Channels Client connectivity details

Authentication Information Configure authentication mechanisms

Subscriptions Configure how subscriptions to topics are handled

Channel Authentication Records Control access to channels

Close

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```
mqa(mqcli)#
mqa(mqcli)# usercreate -u cindy -p passw0rd
mqa(mqcli)# runmqsc QM1
5724-H72 (C) Copyright IBM Corp. 1994, 2017.
Starting MQSC for queue manager QM1.


SET CHLAUTH('CLNTCHL') TYPE(ADDRESSMAP) ADDRESS(10.100.50.165) MCAUSER('cindy')
    1 : SET CHLAUTH('CLNTCHL') TYPE(ADDRESSMAP) ADDRESS(10.100.50.165) MCAUSER('cindy')
AMQ8877: IBM MQ Appliance channel authentication record set.
SET AUTHREC OBJTYPE(QMGR) PRINCIPAL('cindy') AUTHADD(CONNECT,INQ)
    2 : SET AUTHREC OBJTYPE(QMGR) PRINCIPAL('cindy') AUTHADD(CONNECT,INQ)
AMQ8862: IBM MQ Appliance authority record set.
SET AUTHREC PROFILE('Q1') OBJTYPE(QUEUE) PRINCIPAL('cindy') AUTHADD(PUT,GET,INQ,BROWSE)
    3 : SET AUTHREC PROFILE('Q1') OBJTYPE(QUEUE) PRINCIPAL('cindy') AUTHADD(PUT,GET,INQ,BROWSE)
AMQ8862: IBM MQ Appliance authority record set.
REFRESH SECURITY
    4 : REFRESH SECURITY
AMQ8560: IBM MQ Appliance security cache refreshed.
END
    5 : END
4 MQSC commands read.
No commands have a syntax error.
All valid MQSC commands were processed.
mqa(mqcli)#
```

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MQ Appliance HA – Failover Demo

- **Demo – transition over to laptops to view MQ Appliance in action**
  - Connect to MQ consoles on both Appliances
  - Start Sender application on Laptop A
  - Demo messages going from A to Appliance A via looking at MQ console
  - Start Receiver application on Laptop B
  - Create an IT disaster – HA event
  - Verify messages still flowing and observe failover pause
  - Resume after an IT disaster
  - Verify messages still flowing and observe resume pause

MQ Appliance Wrap-Up Discussion

- **HA Discussion items:**
    - MQ Appliance Setup does require two appliances and cabling between the two
    - Easy to configure – works as expected
    - Review Gotchas

Resources

- **https://www.ibm.com/support/knowledgecenter/en/SS5K6E_9.0.0/com.ibm.mqa.doc/configuring/co00240_.htm [Configuring the hardware for high availability]**

- **https://www.ibm.com/support/knowledgecenter/SS5K6E_9.0.0/com.ibm.mqa.doc/configuring/co00101_.htm [Configuring Ethernet interfaces by using the IBM MQ Appliance web UI]**

- **https://www.ibm.com/support/knowledgecenter/SS5K6E_9.0.0/com.ibm.mqa.doc/configuring/co00251_.htm [Creating a high availability group]**

- **https://www.ibm.com/support/knowledgecenter/SS5K6E_9.0.0/com.ibm.mqa.doc/configuring/co00261_.htm [Creating a high availability queue manager]**

Resources

- **http://www.redbooks.ibm.com/abstracts/sg248283.html [IBM Redbook: Integrating the IBM MQ Appliance into your IBM MQ Infrastructure]**

- **http://www.redbooks.ibm.com/abstracts/redp5307.html [IBM Redbook: Enabling IBM MQ Messaging with the IBM MQ Appliance]**

- **https://www.ibm.com/developerworks/community/blogs/messaging/entry/Configuring_client_connection_to_a_IBM_MQ_Appliance_queue_manager_using_Client_Channel_Definition_Table_CCDT?lang=en**

Questions & Answers

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