

# IBM MQ

## What's New in v9.3.5

Martin Evans  
IBM MQ Technical Product Manager

Jacob Uzzell  
IBM MQ Product Manager

[martin.evans1@ibm.com](mailto:martin.evans1@ibm.com)  
[jacob.uzzell@ibm.com](mailto:jacob.uzzell@ibm.com)



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# Agenda

## Introduction

Etsefania Mendoza

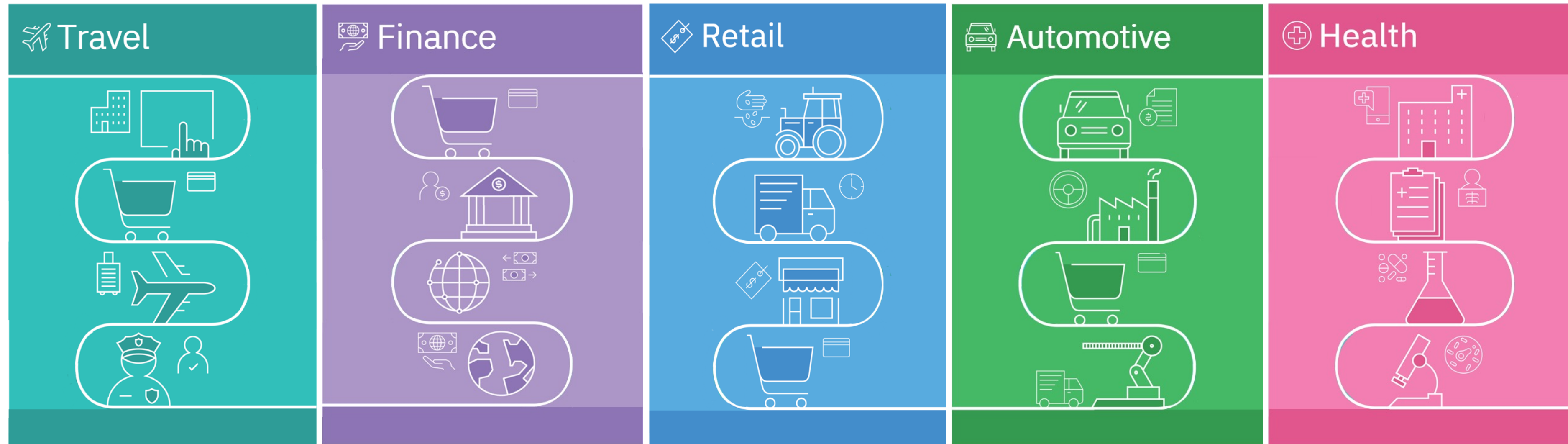
## Latest Features in 9.3.5

Martin Evans and Jacob Uzzell

## Summary

## Q&A

# IBM MQ | Best-in-class enterprise messaging



The world depends on reliable, secure messaging and 85% of the fortune 100 depend on IBM MQ:

- 98 of the top 100 global Banks using IBM MQ
- 9 of the top 10 global Healthcare providers
- 6 of the top 10 global Retailers
- 9 of the world's top 10 global Airlines
- 9 of the top 10 global Insurers
- 9 of the top 10 global IT Services companies

*“Financial institutions use MQ heavily, it’s very good at what it does; MQ is by far the biggest product from the messaging space”*

- [The Bank of New York Mellon](#)

# IBM MQ | Best-in-class enterprise messaging

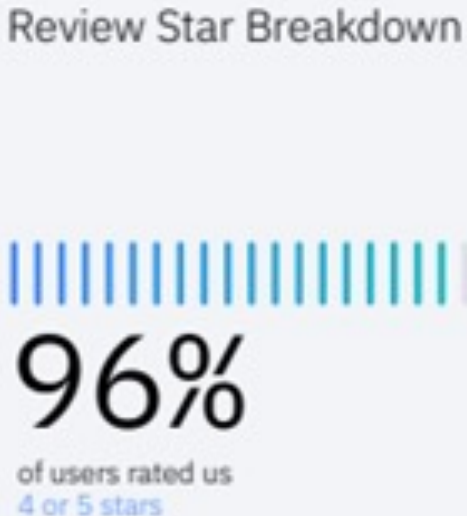


**IBM MQ**  
 ★★★★★ 148 reviews | 5 discussions

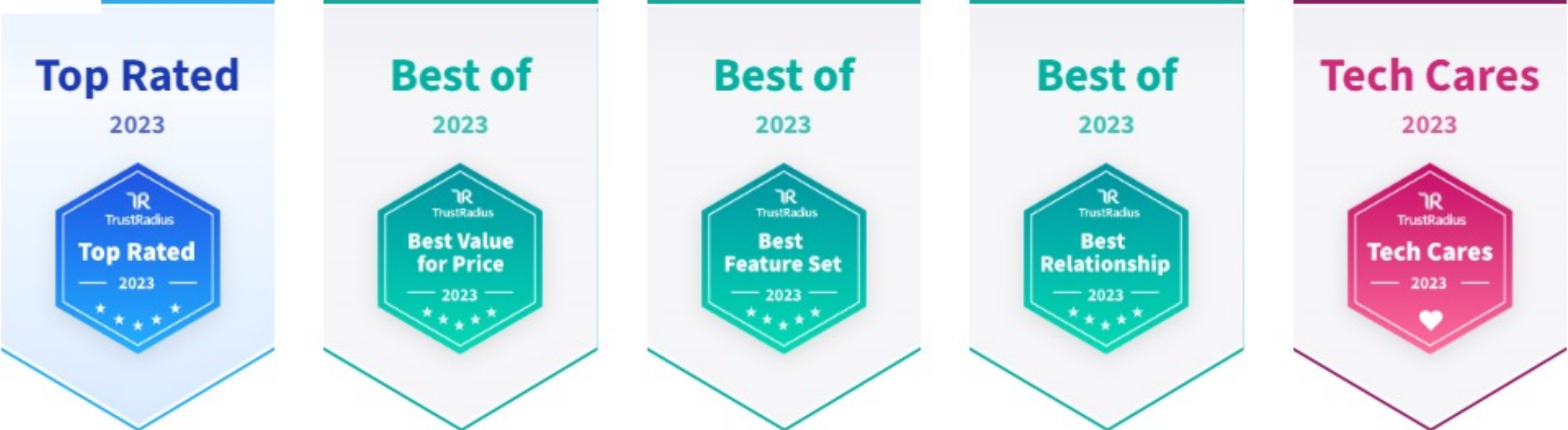


**IBM MQ** ✓ ★ Top Rated  
 ★★★★★ **Score 9.0 out of 10**  
 116 Reviews and Ratings • Message Queue

"Easy queue management, the platform practically works by itself after correct configuration."  
 - G2 Reviewer ★★★★★

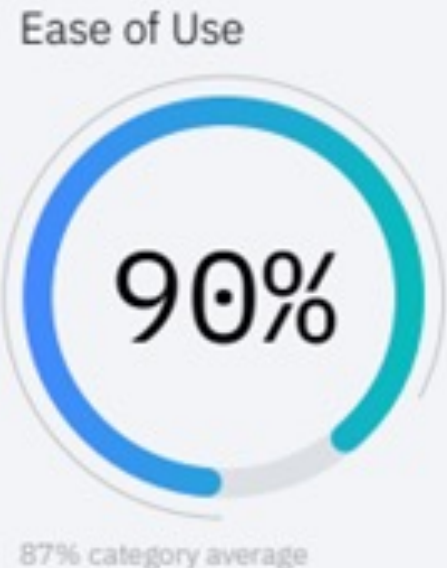


"Good message browser features that we don't find in the same way in competitors."  
 - G2 Reviewer ★★★★★



Meets Requirements  
**93%**  
 90% category average

"IBM MQ is easy to use and is scalable that makes it the best among all."  
 - G2 Reviewer ★★★★★



- A "reliable and dependable messaging system with broad deployment options"
- "IBM MQ is a very powerful tool for asynchronous messages exchange across different platforms"
- "Easy to install and manage the QM and Queues. Ensures Message delivery"
- "IBM Messaging Queue Service is reliable, robust and secure."

# IBM MQ | Choice with consistency

## On Premises

Software for hybrid cloud deployments (VMs & containers), for IBM Z, and MQ Appliance

Software for IBM Z



MQ Appliance



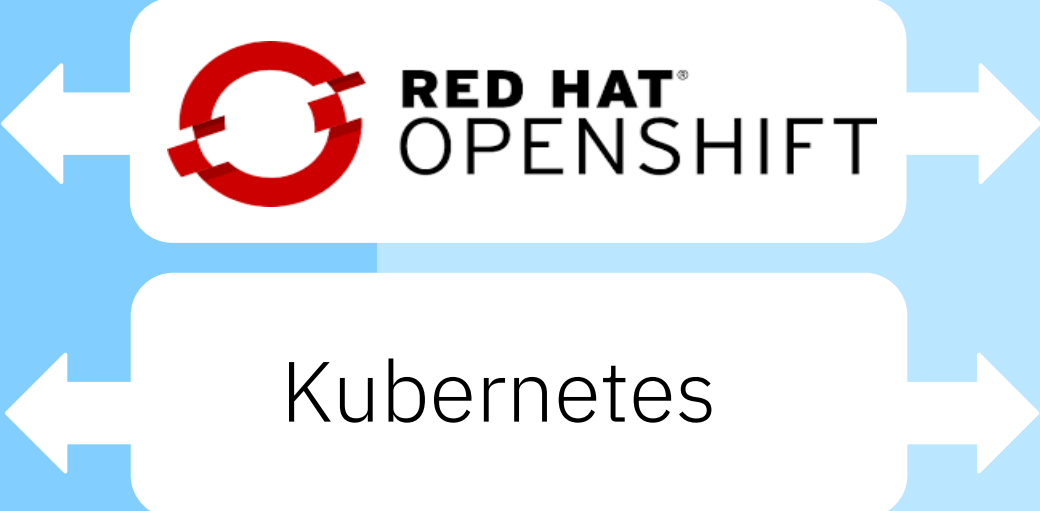
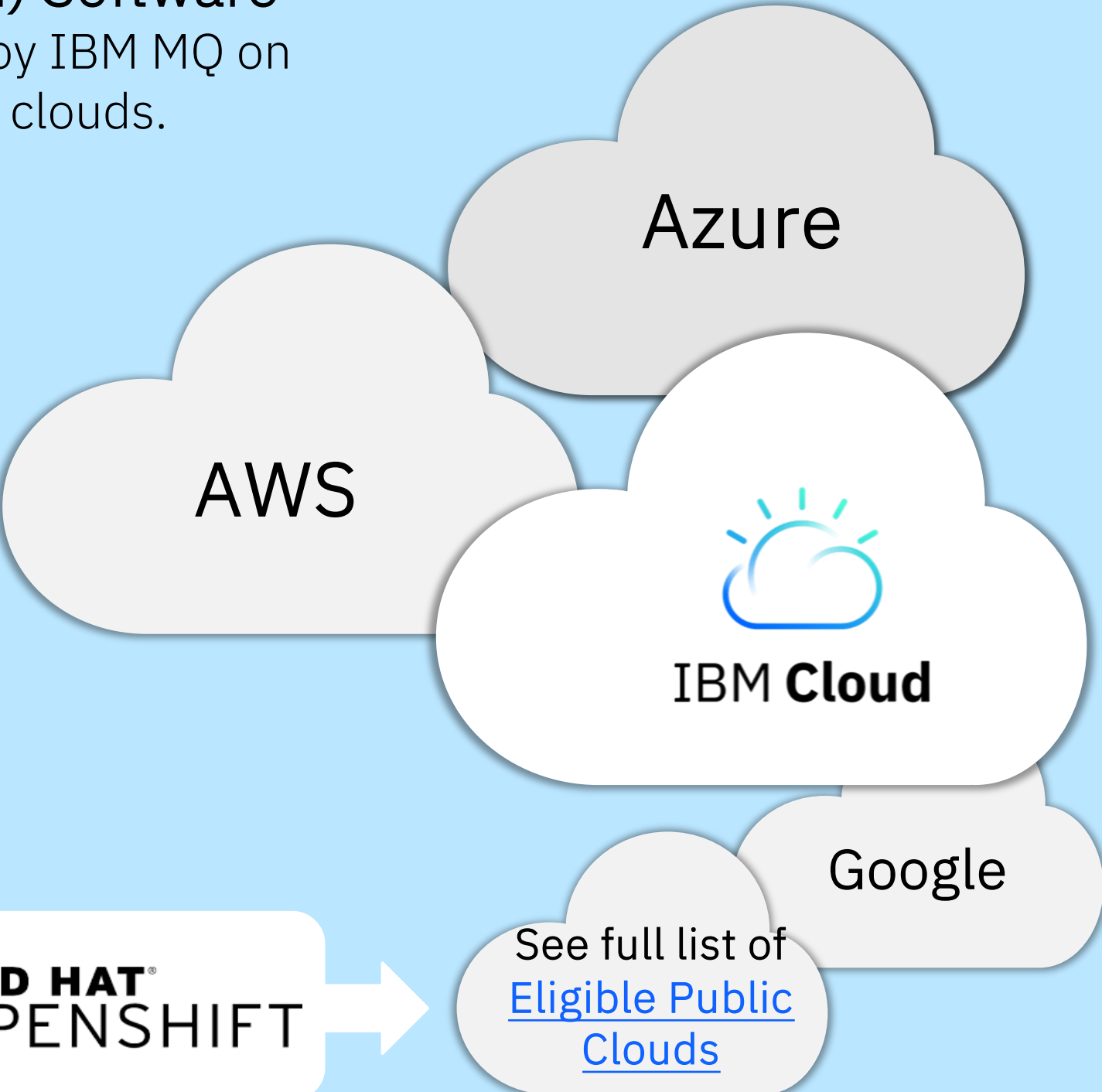
HPE NonStop / Virtualized NonStop

## Public cloud

Customer-managed software deployed to VMs or in containers

Hybrid Cloud (Distributed) Software  
Use the same licenses to deploy IBM MQ on premises and in eligible public clouds.

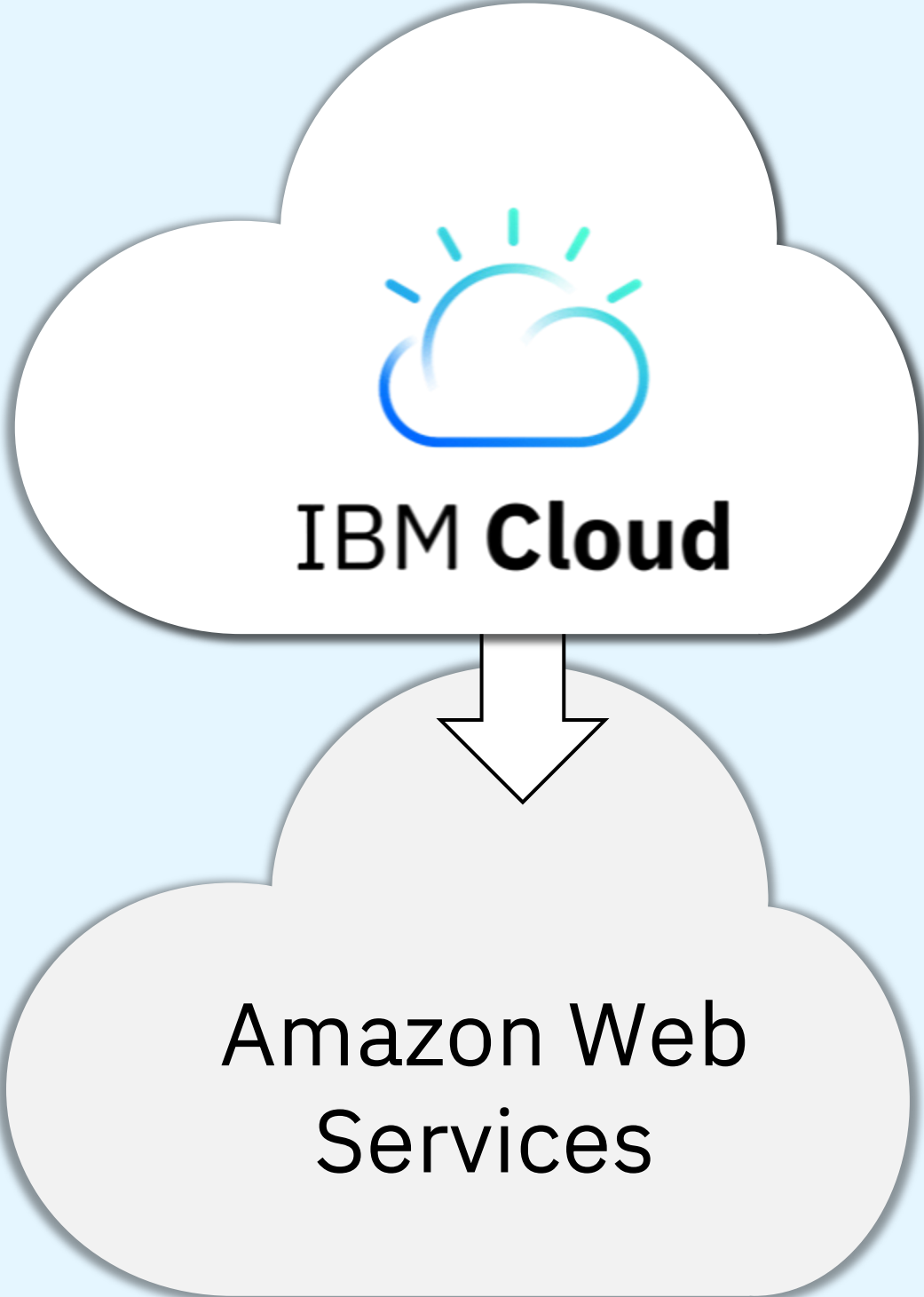
- Linux
- Windows
- AIX
- IBMi
- ...



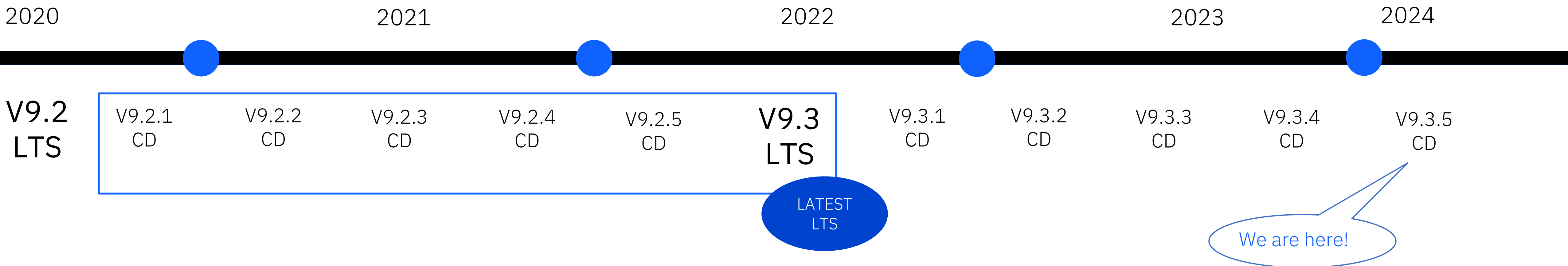
## SaaS

IBM-managed SaaS, hosted in IBM Cloud and AWS public cloud

'IBM MQ on Cloud' (SaaS service)



# IBM MQ | Delivery Cadence



In 2016 MQ introduced a dual Long-Term Support and a Continuous Delivery model.

## Long-Term Support

Approximately every two years a new LTS version is released, rolling up many of the CD capabilities into a release with 5+3 support attached.

Required by those looking for fixed function.

## Continuous Delivery

New CD versions of MQ are released approximately every four months, incrementally introducing new product capabilities.

Intended for those that can continually integrate.

## Mix and Match

Both are available under the same license.

Both can interoperate, just like any previous version of MQ.



# IBM MQ

## What's new

### v9.3.5

#### IBM MQ console

Rapidly identify and resolve issues with new dashboards in the MQ Console that show key information about the health of your entire MQ estate, regardless of where or how IBM MQ is deployed.

#### Standalone web server

Administer your IBM MQ queue managers and access the REST messaging API using a Linux host separate from your queue manager.

#### OpenTelemetry tracing

Gain deeper insights into how applications are behaving.

#### JSON web token (JWT) Java support

IBM MQ clients can now use Java and C with JSON web tokens.

#### Secure backup and restore

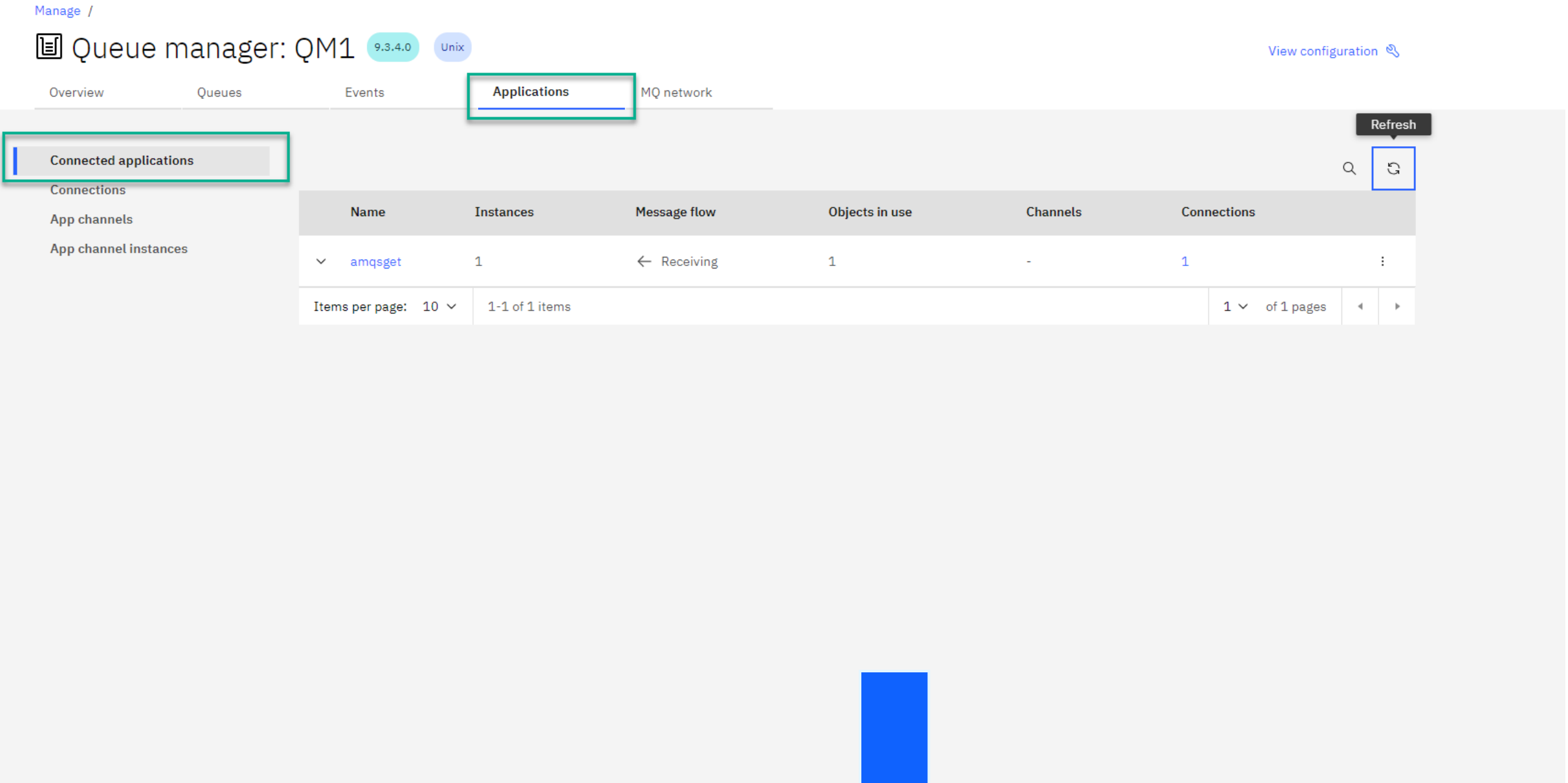
MQ Appliance Administrators can recover environments faster with secure back-ups

#### zHyperWrite expansion

Improved active log write throughput for additional queue managers.

# MQ Console

new application overview panel



Manage / Queue manager: QM1 9.3.4.0 Unix View configuration

Overview Queues Events Applications MQ network

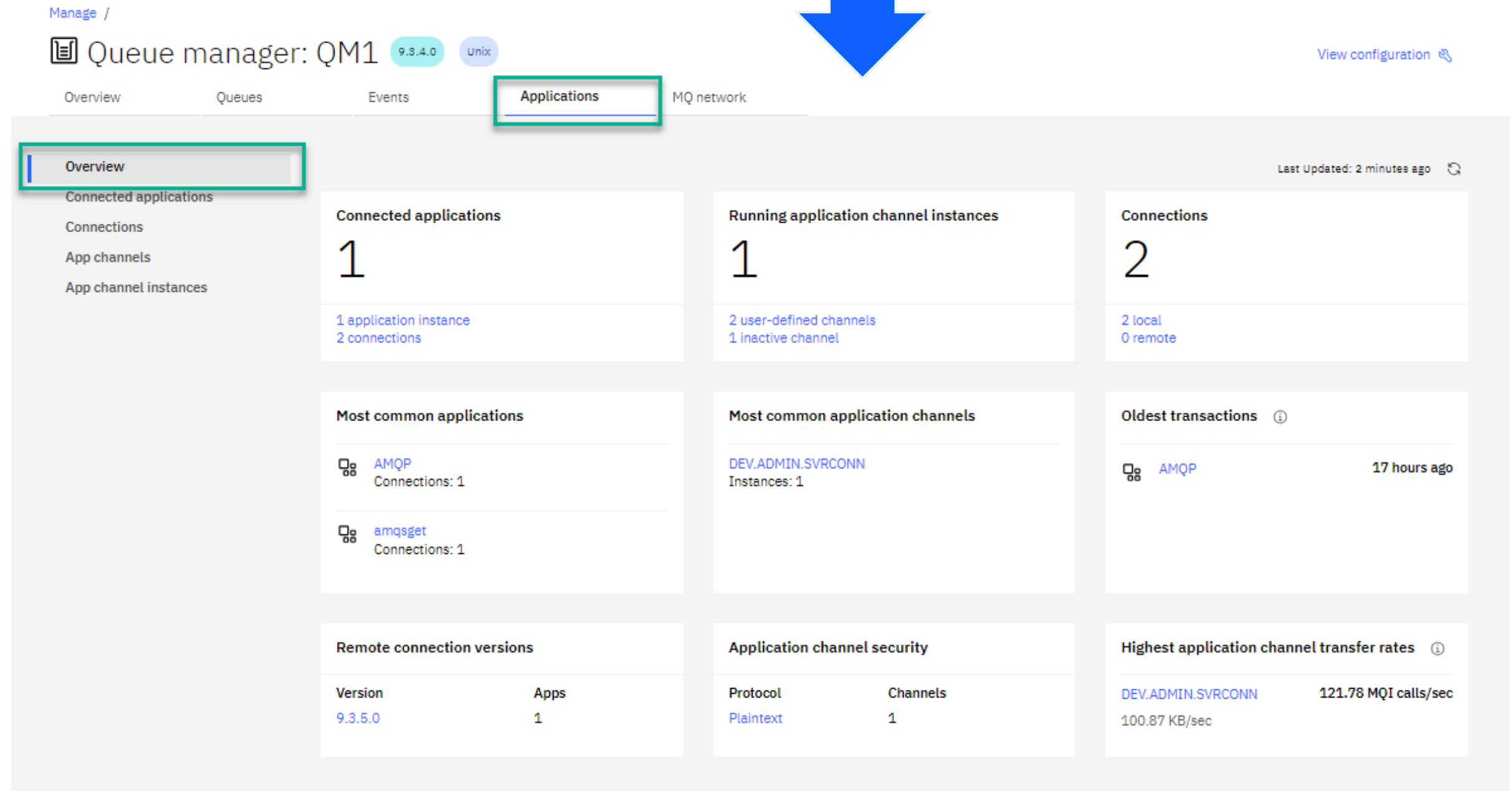
Refresh

Connected applications

Name	Instances	Message flow	Objects in use	Channels	Connections
amqsget	1	← Receiving	1	-	1

Items per page: 10 1-1 of 1 items 1 of 1 pages

v9.3.4



Manage / Queue manager: QM1 9.3.4.0 Unix View configuration

Overview Queues Events Applications MQ network

Overview

Last Updated: 2 minutes ago

### Connected applications

1

1 application instance  
2 connections

### Running application channel instances

1

2 user-defined channels  
1 inactive channel

### Connections

2

2 local  
0 remote

### Most common applications

- AMQP Connections: 1
- amqsget Connections: 1

### Most common application channels

DEV.ADMIN.SVRCONN Instances: 1

### Oldest transactions

AMQP 17 hours ago

### Remote connection versions

Version	Apps
9.3.5.0	1

### Application channel security

Protocol	Channels
Plaintext	1

### Highest application channel transfer rates

DEV.ADMIN.SVRCONN 121.78 MQI calls/sec  
100.87 KB/sec

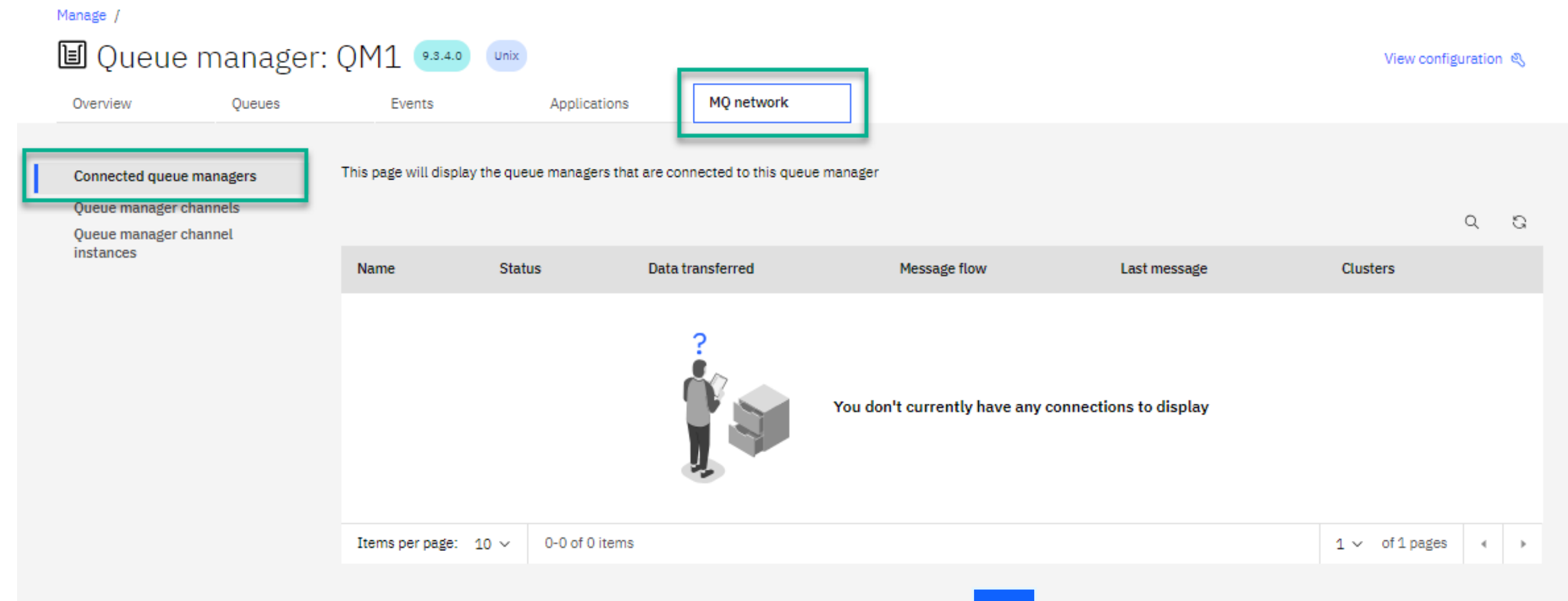
v9.3.5

# MQ Console

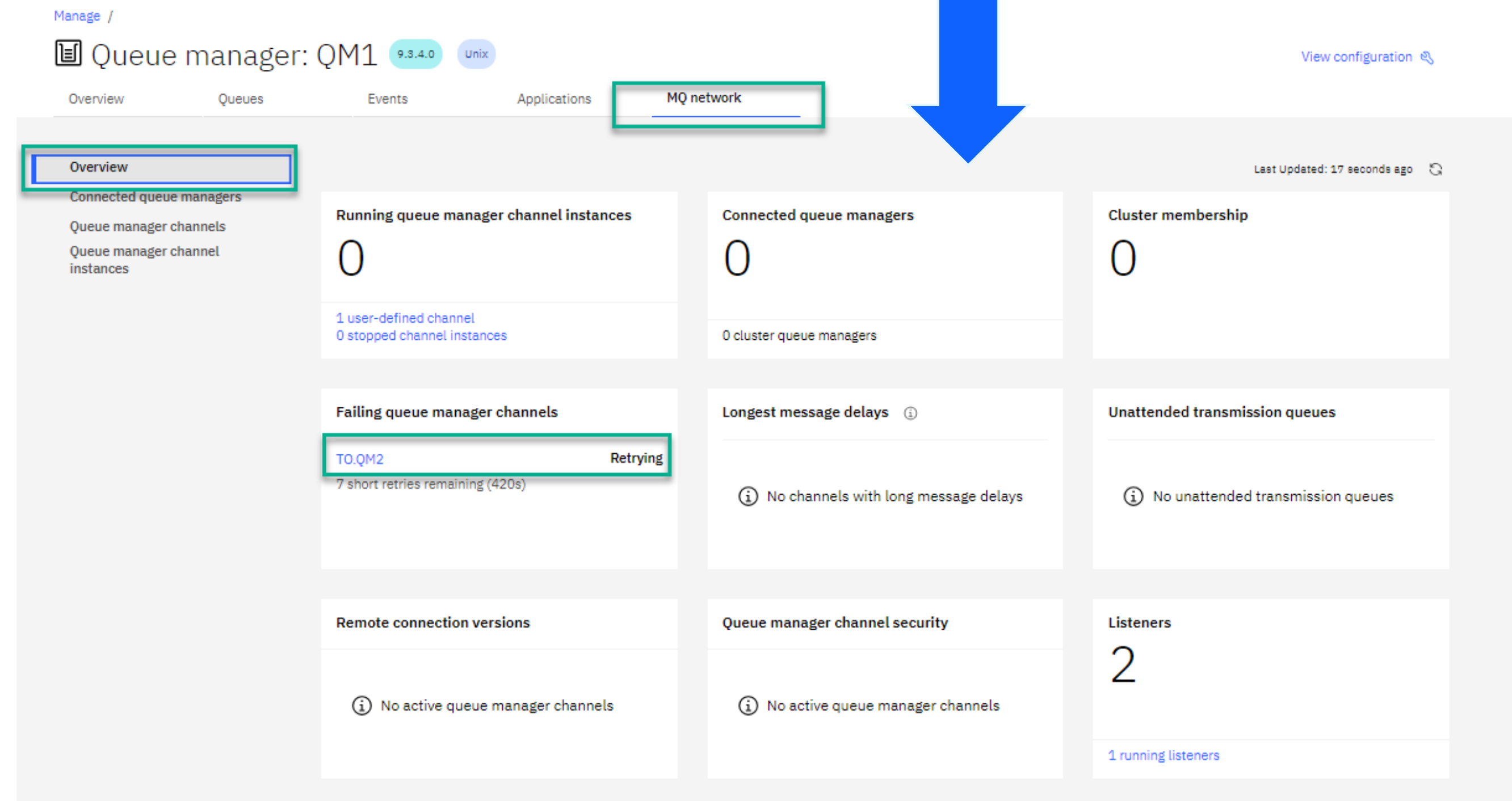
new network overview panel

v9.3.4

Network overview panel added with multiple status tiles.



v9.3.5



# MQ Console

network panel enhancements

Inactive channel status tile added to queue manager channels.

v9.3.4

Manage / Queue manager: QM1 9.3.4.0 Unix View configuration

Overview Queues Events Applications **MQ network**

Connected queue managers

Queue manager channels Queue manager channel instances

A queue manager channel is a logical communication link for transmitting messages between queue managers across a network.

0 Running  
0 user-defined  
0 system channels

1 Retrying  
1 user-defined  
0 system channels

0 Stopped  
0 user-defined  
0 system channels

Looking for system channels on the table? [Click here to see how](#)

Name ↑	Type	Status
TO.QM2	Sender	Retrying

Items per page: 5 1-1 of 1 items 1 of 1 pages

Create +

v9.3.5

Manage / Queue manager: QM1 9.3.4.0 Unix View configuration

Overview Queues Events Applications **MQ network**

Overview

Connected queue managers

Queue manager channels Queue manager channel instances

A queue manager channel is a logical communication link for transmitting messages between queue managers across a network.

0 Running  
0 user-defined  
0 system channels

1 Retrying  
1 user-defined  
0 system channels

0 Stopped  
0 user-defined  
0 system channels

7 Inactive  
0 user-defined  
7 system channels

Looking for system channels on the table? [Click here to see how](#)

Name ↑	Type	Status
TO.QM2	Sender	Retrying

Items per page: 5 1-1 of 1 items 1 of 1 pages

Create +

# MQ Console

new for z/OS - storage classes

Manage /

## Queue manager: remote-MQ53

D28FEB24

z/OS

[View configuration](#)

Overview **Queues** Events Applications MQ network

Queues

**Storage classes**

A storage class is an MQ for z/OS concept that allows the queue manager to map queues to page sets.

+

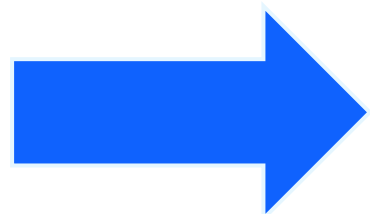
Name ↑	Page set ID	QSG disposition	Related queues
<a href="#">BIGPAGE</a>	13	Queue manager	-
<a href="#">DEFAULT</a>	1	Queue manager	-
<a href="#">NODEFINE</a>	1	Queue manager	-
<a href="#">REMOTE</a>	1	Queue manager	-
<a href="#">SYSLNGLV</a>	2	Queue manager	-
<a href="#">SYSTEM</a>	0	Queue manager	-
<a href="#">SYSTEMST</a>	1	Queue manager	-
<a href="#">SYSVOLAT</a>	3	Queue manager	-

Items per page: 10 ▾ 1-8 of 8 items 1 ▾ of 1 pages ◀ ▶

# MQ Console

time zone improvements

Queue manager: QM1 v9.3.4



Manage /

Queue manager: QM1 v9.3.5

Overview Queues Eve

CPU 0.35%

Active queues  
2

2 queues with messages  
0 queues open for work

Deepest queues

MARTIN	2 / 5000
--------	----------

Overview Queues Eve

CPU 0.09%

Active queues  
2

2 queues with messages  
0 queues open for work

Deepest queues

MARTIN	2 / 5000	Last put: 11 seconds ago
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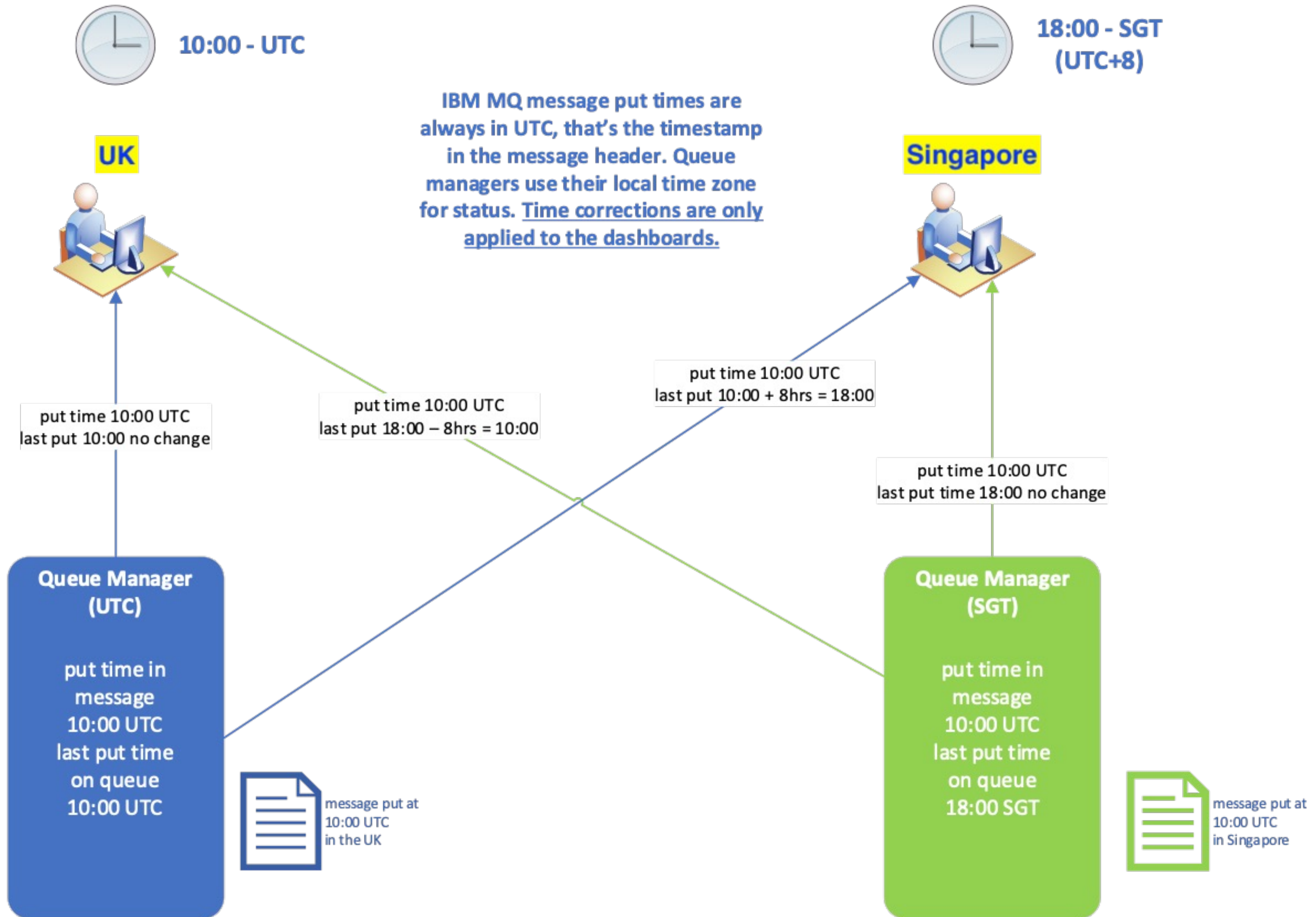
UK browser - queues overview - showing a message on a USA hosted queue manager adjusted for UK time zone

Name	Type	Depth % ↓	Maximum depth	Current connections	Attached apps	Last put
MARTIN	Local	0%	2/5000	Input 0, Output 0	-	8 hours ago

note: queue details panel still shows queue manager time zone

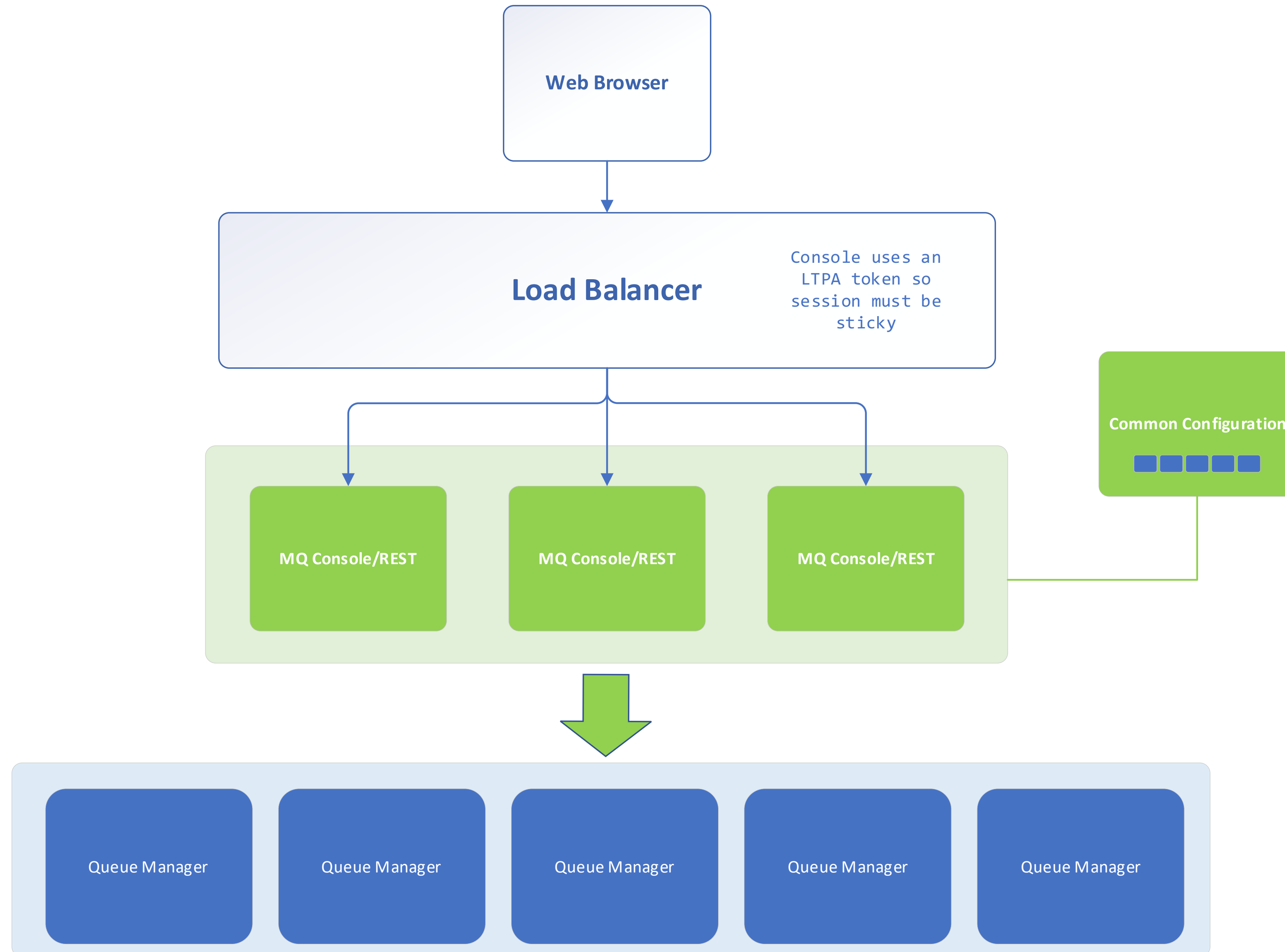
# MQ Console

time zone improvements



# Standalone Web Server

decoupled, backward compatible, scalable and highly available



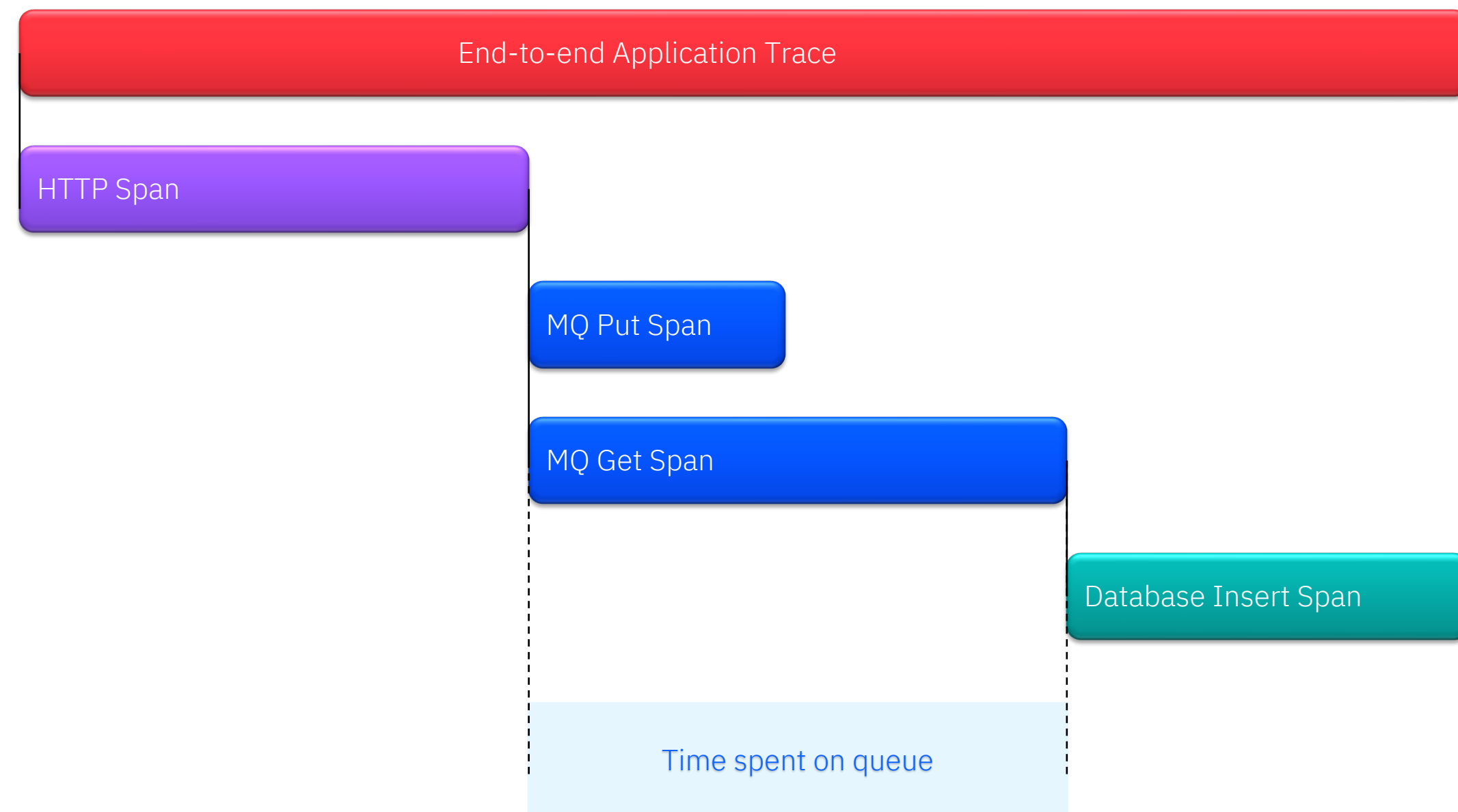


# OpenTelemetry Tracing

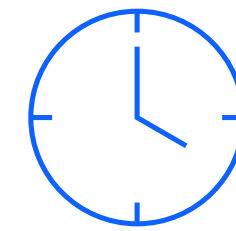
Available for Unix-based (AIX and Linux p/x/z) and Windows

## What is OpenTelemetry ?

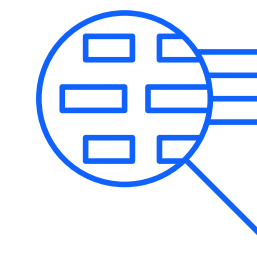
- An observability framework and toolkit designed to create and manage [trace](#), metrics, and log data.
- It is vendor and tool agnostic - it can be used with a broad variety of observability solutions:
  - Commercial offerings such as IBM Instana
  - Open-source tools like Jaeger and Prometheus



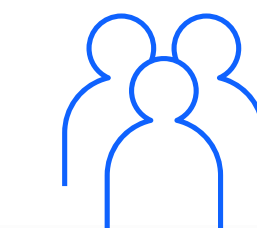
## Benefits:



Diagnose problems across multiple systems fast, using data to pinpoint where issues are



Gain insights to optimise performance end-to-end, ultimately improving customer experience



Futureproof – open and likely to become a cross-industry de facto standard for observability

### What you need to know:

- Available for Windows and Unix-based platforms (AIX, Linux p/x/z) in VMs and containers. Not available to IBM MQ Appliance.
- Instana Exit shipped with IBM MQ as a [supporting program](#)
- Available from 9.3.5 CD and later (will be available for LTS from Next Major release).

# Zipkin UI

The screenshot displays the Zipkin UI interface for a trace titled "qm1: put input\_queue". The top navigation bar includes the Zipkin logo, search options, and language settings. The main area shows a horizontal timeline with four spans: "qm2: get output\_queue" (1-), "qm2: put output\_queue" (2-), "qm1: get input\_queue" (3-), and "qm1: put input\_queue" (4-). The total duration is 7.402s. Overlaid on this trace are four vertical blue arrows labeled "arrival on queue" and "removal from queue" at the start and end of the "qm1: put input\_queue" span. Horizontal double-headed arrows indicate "time on queue" (purple) and "time spent elsewhere" (green) periods.

Service name: qm1  
Span name: put input\_queue  
Span ID: 197abea6f250d52b  
Parent ID: none

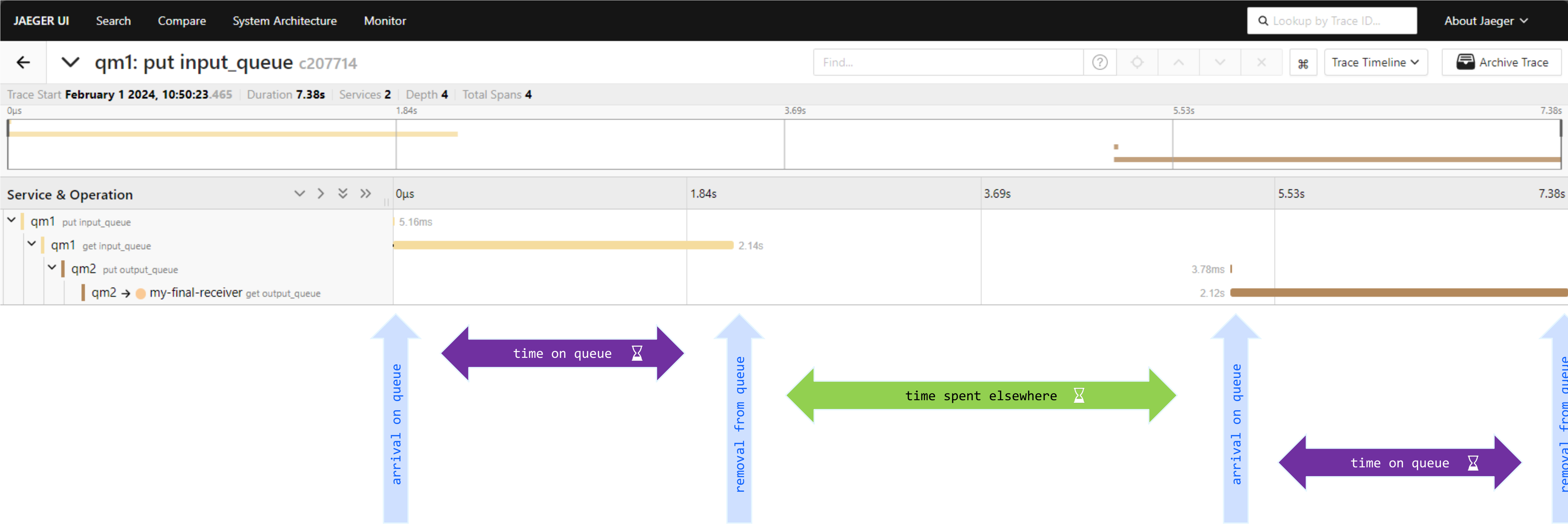
Annotation

0ms	2.407ms	4.813ms	7.220ms
Start Time	02/01 09:00:46.575		
Value	Consumer Start		
Address	qm1		
Start Time	02/01 09:00:46.583		
Value	Consumer Finish		
Address	qm1		

Tags

messaging.destination	INPUT_QUEUE
messaging.ibmmq.buffer_length	167
messaging.ibmmq.completion_code	0
messaging.ibmmq.destination.type	queue
messaging.ibmmq.exit_application_name	MY-SENDER

# Jaeger UI



# OpenTelemetry

open-source - time-series metrics and MQ logs

We now have a blogs and samples for sending IBM MQ JSON formatted logs and metrics to an OpenTelemetry compatible system.

Logs require no coding just installation and configuration of the community supported OpenTelemetry Collector.

<https://marketaylor.synology.me/?p=1542>

The open-source metrics samples now have an OpenTelemetry emitter capability.

<https://marketaylor.synology.me/?p=1564>

Note that the samples are not supported by IBM.

Vote for this to be part of the IBM MQ product here,

<https://ideas.ibm.com/ideas/MESNS-I-681>

## Handling MQ logs and events with OpenTelemetry



## MQ Metrics with OpenTelemetry



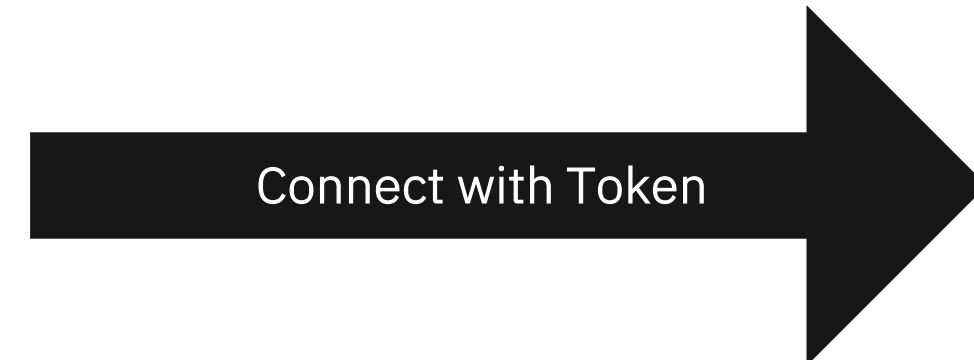
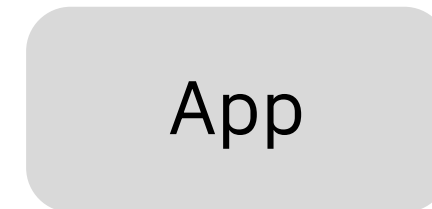
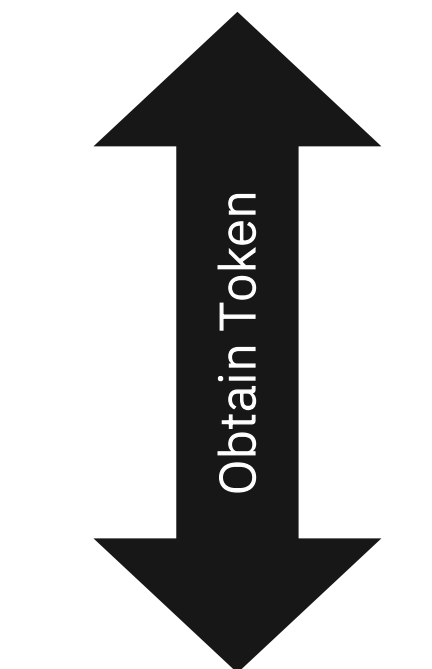
# Token-based authentication for Java

Available on Unix-based platforms (inc. AIX®, Linux®, and OpenShift® Container Platforms.)

First released in v9.3.4 for C clients, updated in v9.3.5 for Java

IBM MQ uses a password-less approach to authentication with JSON Web Tokens (JWT) enabling applications to operate in a secure, Multi-Factor Authentication (MFA) environment.

- Secure** Token-based authentication eliminates the need for storing and transmitting passwords, which can be a security vulnerability.
- Scalable** You can use one trusted issuer so your applications can authenticate with many services without separately registering with all of them.
- Flexible** Tokens can be used across multiple, diverse applications or other endpoints, enabling easier secure collaboration between enterprises and platforms.

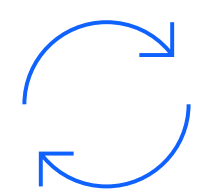


IBM MQ

```
{
  "alg": "HS256",
  "typ": "JWT"
}
{
  "sub": "1234567890",
  "name": "John Doe",
  "iat": 1516239022
}
HMACSHA256(
  base64UrlEncode(header) +
  "." +
  base64UrlEncode(payload),
  secret
)
```

# Secure Backup on MQ Appliance

Recover environments and upgrade hardware faster with secure backup and restore.



MQ Appliance currently requires users to backup various system configuration files individually and manually recreate local users, introducing the risk of errors.



Secure Backup is encrypted using a digital certificate, so it can contain user passwords, certificates and sensitive files to easily archive and restore full MQ Appliance configurations.

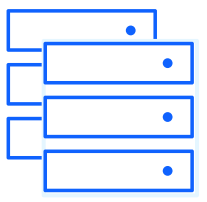
```
mqa(config)# secure-backup mybackupcert temporary:///myBackup
Secure backup to 'temporary:///myBackup' scheduled (may take a few minutes to complete).
Secure backup is complete.

mqa(config)# dir temporary:///myBackup
File Name                Last Modified                Size
-----
backupmanifest.xml      Oct 2, 2023 7:13:04 PM       5240
root.tgz                 Oct 2, 2023 7:13:04 PM       6808
config.tgz               Oct 2, 2023 7:13:03 PM       4152
cert.tgz                 Oct 2, 2023 7:13:03 PM       5688
local.tgz                Oct 2, 2023 7:13:03 PM       2592
password-map.tgz         Oct 2, 2023 7:13:03 PM       304
mq-users.tgz             Oct 2, 2023 7:13:03 PM       432

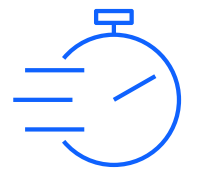
5115.3 MB available to temporary:///myBackup
```

# Expansion of zHyperWrite

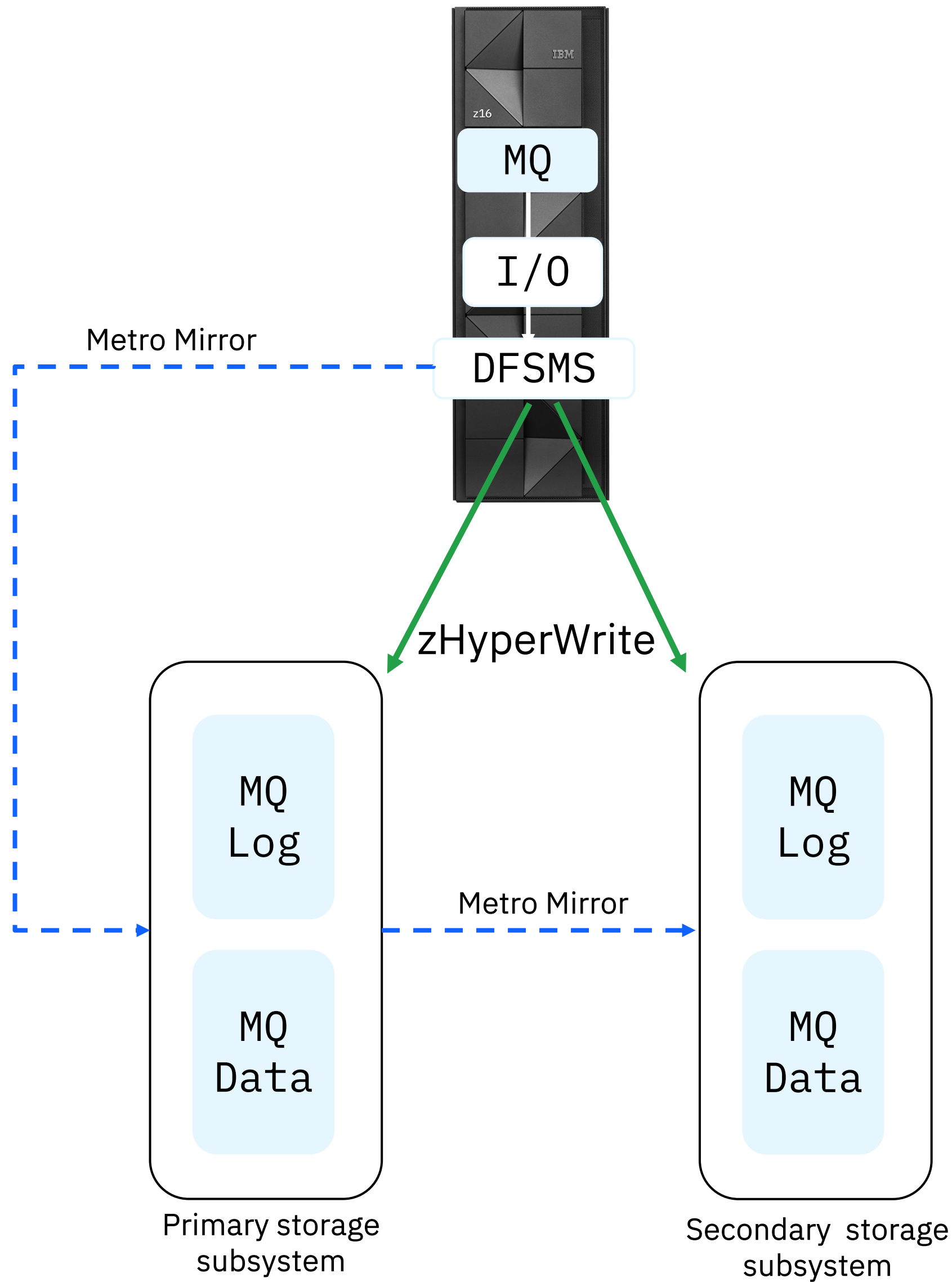
Additional scenarios benefit from an increase in active log I/O



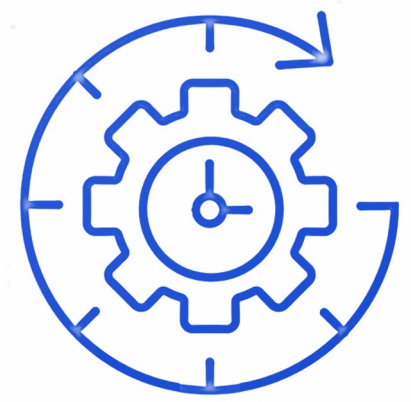
MQ for z/OS using zHyperWrite writes to logs in parallel, improving I/O throughput.



To maximise log write speed potential, zHyperWrite will now always be attempted on log writes



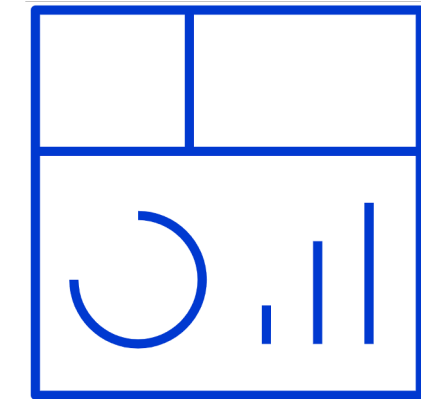
# IBM MQ | 2024 Focus



Connect mission-critical applications



Modernize to public cloud

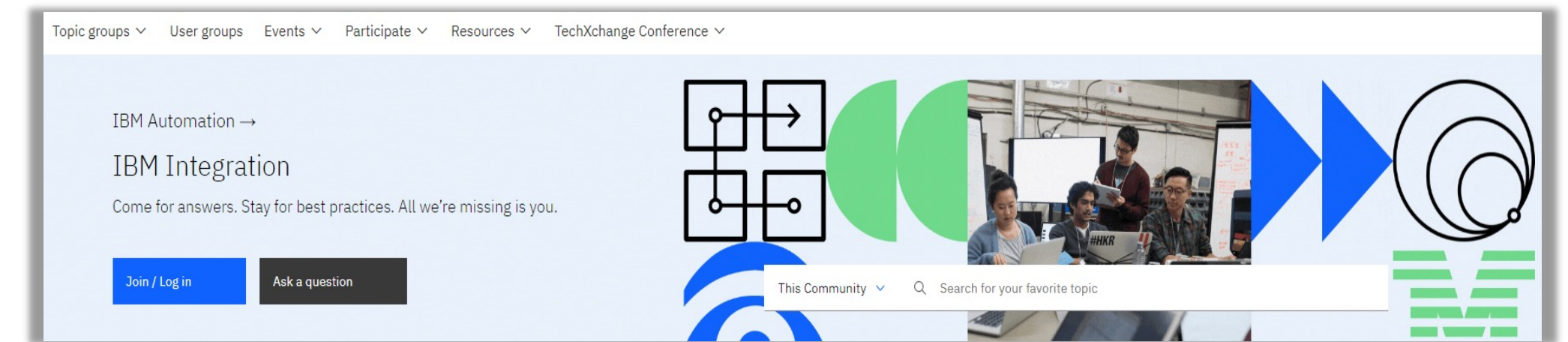


Gain actionable insights rapidly



# IBM MQ | Useful resources

- IBM TechXchange Community: [www.ibm.biz/MQCommunity](http://www.ibm.biz/MQCommunity)
  - User forums, blogs, webcasts, and more
- MQ Podcast: Do You MQ? [www.doyoumq.com](http://www.doyoumq.com)
  - Hear from the IBM MQ experts – now in its 5<sup>th</sup> season.
- MQ download for developers (free)
  - <https://developer.ibm.com/articles/mq-downloads/>



# Q&A

