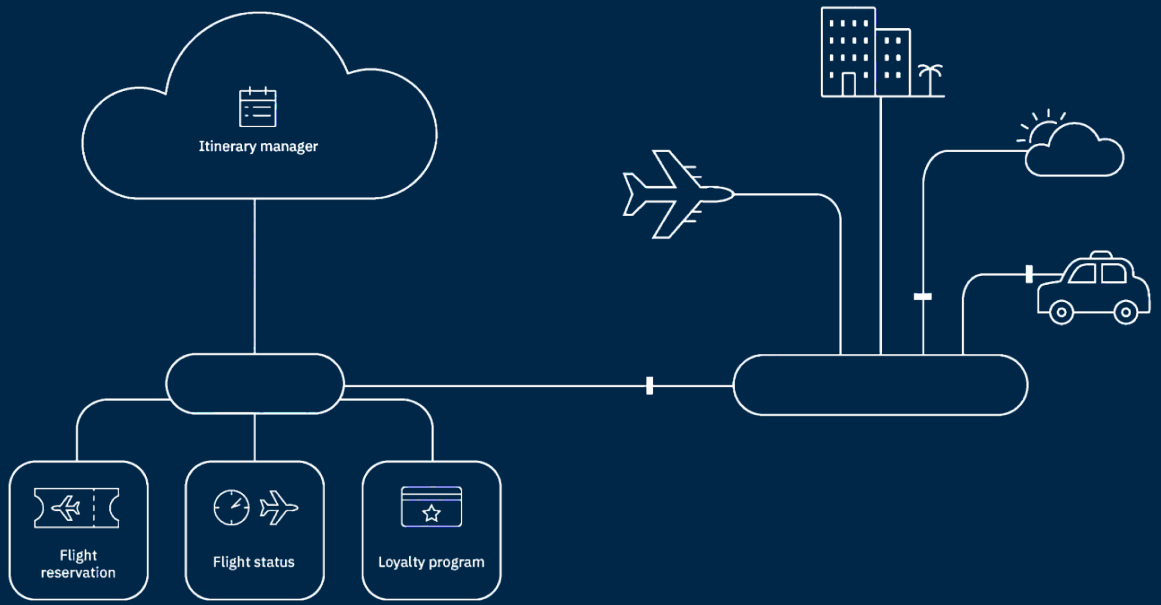
IBM MQ What's New: Innovation and evolution

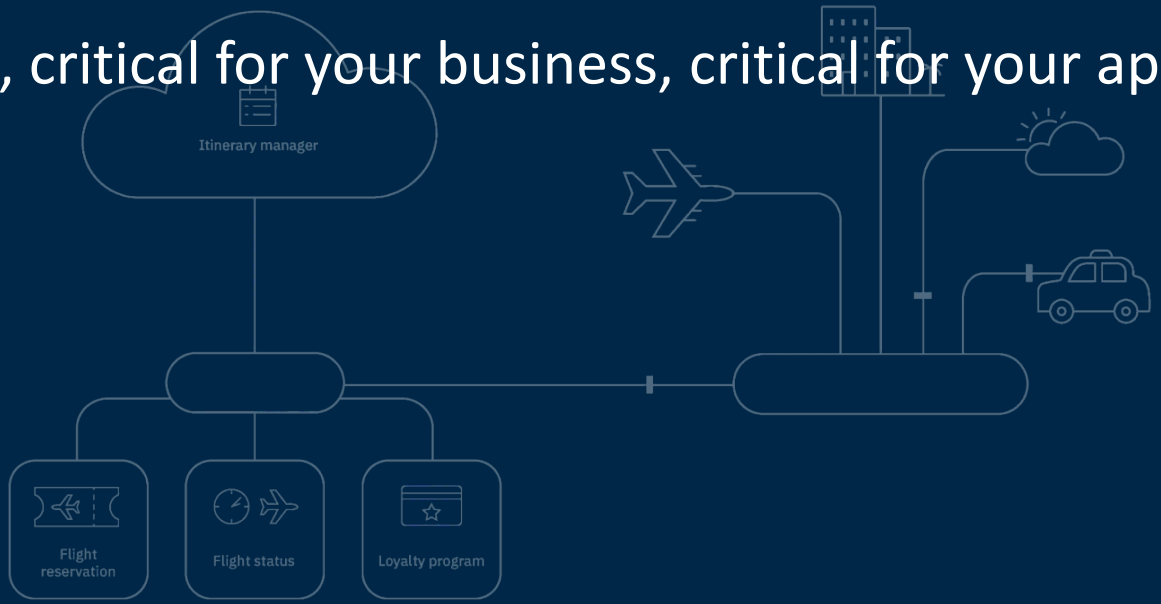
David Ware
IBM MQ Chief Architect
dware@uk.ibm.com

Messaging is essential for building fully connected, efficient and scalable solutions. More now than ever before



Messaging is essential for building fully connected, efficient and scalable solutions. More now than ever before

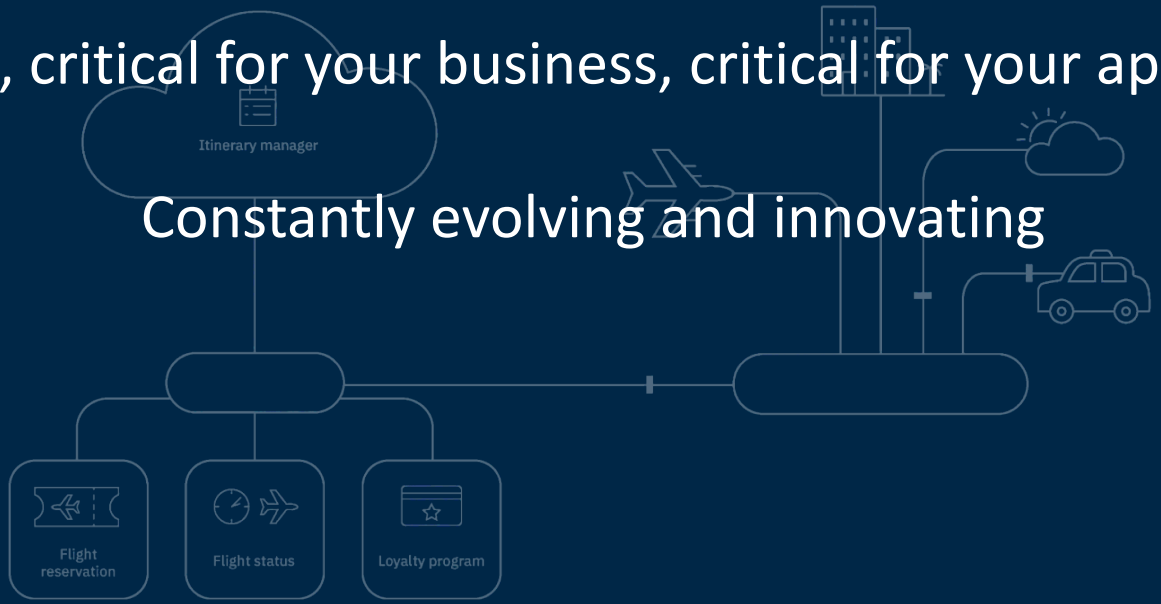
IBM MQ, critical for your business, critical for your applications



Messaging is essential for building fully connected, efficient and scalable solutions. More now than ever before

IBM MQ, critical for your business, critical for your applications

Constantly evolving and innovating

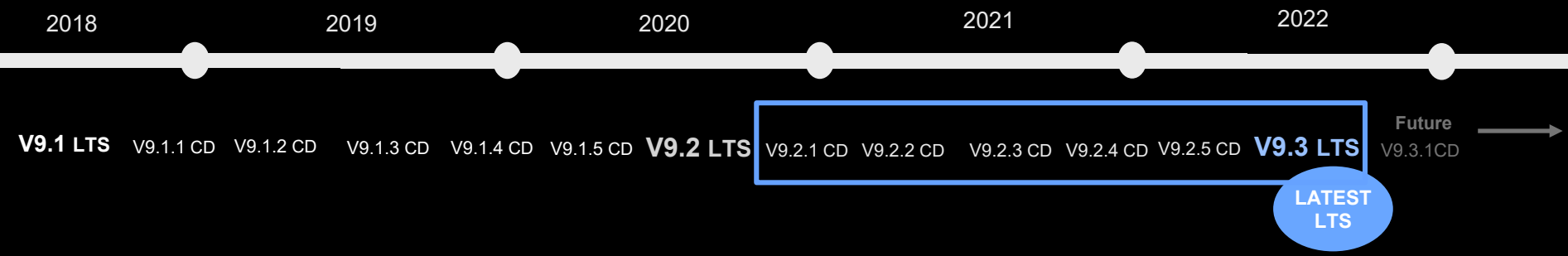


Messaging is essential for building fully connected, efficient and scalable solutions. More now than ever before

IBM MQ, critical for your business, critical for your applications

Constantly evolving and innovating

New IBM MQ v9.3



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

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.

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.

Mix and Match

Both are available under the same license.

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

All the function delivered in the 9.2.x CD releases is available in the long term support release **V9.3 LTS**

IBM MQ 9.3 LTS, enhancements since 9.2 LTS

www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq

Brand new for IBM MQ 9.3 (since 9.2.5 CD)

www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq

Applications

www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq

Security

Simplified Linux install	Dspmqinst for IBM i	Stream MQ Appliance error logs	MQ Console application quick start	Key repository passwords	Idempotent MQSC DELETE commands	Hardware accelerated compression for AIX	Non-OS user authorisations	TLS 1.3 across all protocols	TLS 1.3 support for MQIPT
Encrypted MQTT channel passphrases	TLS-only communication switch	Streaming queues	Multiple queue manager certificates for MQIPT	TLS enabled .NET XA monitor	Cryptographic hardware support for client passwords	PKCS#12 key repository support	SNI hostname support for channel routing	Uniform Cluster support for request/reply flows	Transaction boundary aware Uniform Cluster
Uniform Cluster aware MDBs	IBM MQ scaler for KEDA	Apache Qpid JMS support over AMQP	Point-to-point support for AMQP	Java 17 support for applications	MQ Console remote queue manager support	Jakarta Messaging 3.0 support	64-bit RBA default for z/OS	MQ Appliance synchronous DR replication	Disk encryption for the MQ Appliance
OpenShift Operator managed rolling upgrade	OpenShift support for zLinux and Power	OpenShift Prometheus integration with ServiceMonitor	Helm chart sample for Kubernetes deployments	Client attached dead-letter handler	MQ Appliance failed resource action control	IBM MQ on Cloud LogDNA integration	Raft based Native HA for OpenShift	Transfer logging for Managed File Transfer	AT-TLS support for z/OS
Separate statistics and accounting intervals for z/OS	Browse support for AMQP applications	Start/stop of MFT resource monitors	Redistributable MFT Logger	MFT managed call control over REST	IBM MQ AsyncAPI binding	AsyncAPI code generator for IBM MQ JMS applications	Queue depth SMF data for z/OS	.NET 6 application support	Extended REST API message properties

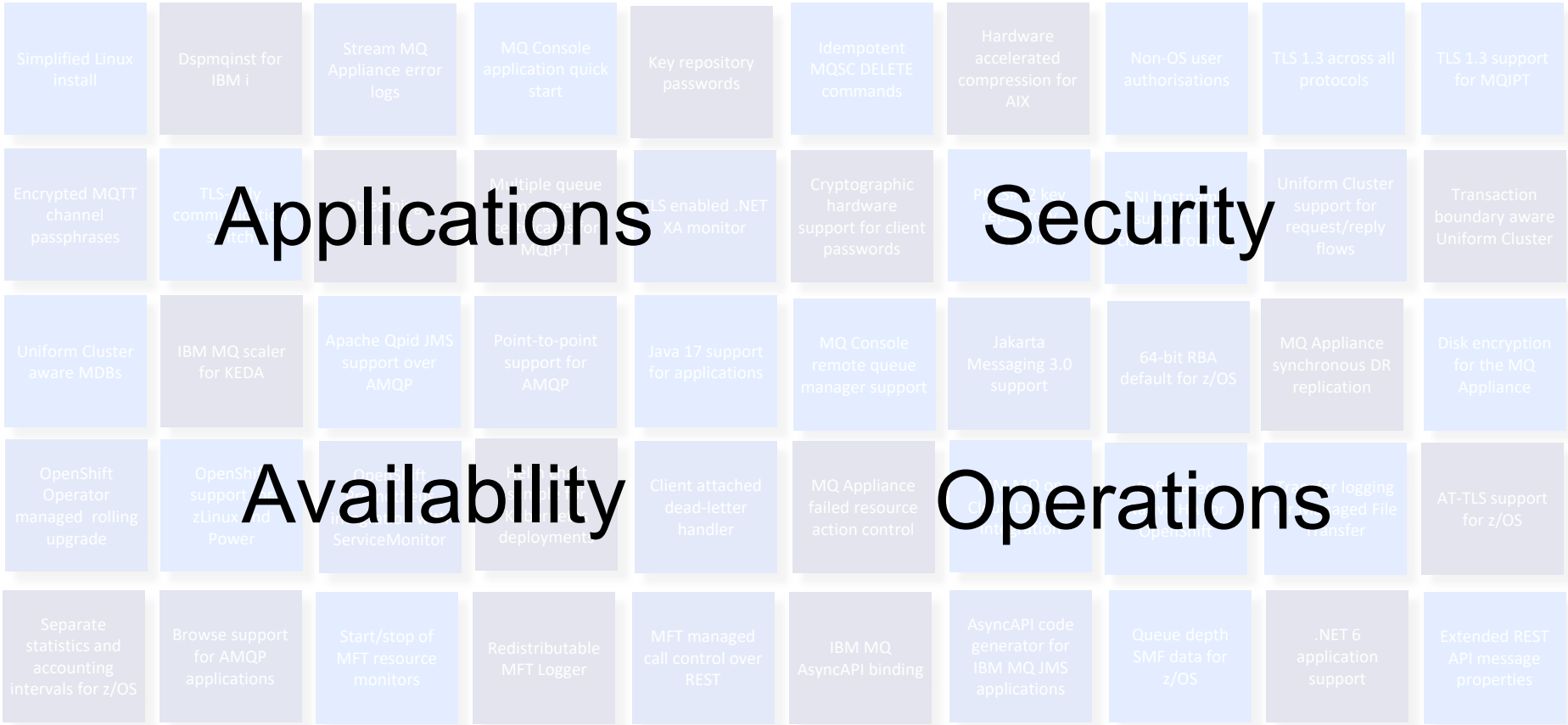
www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq

Availability

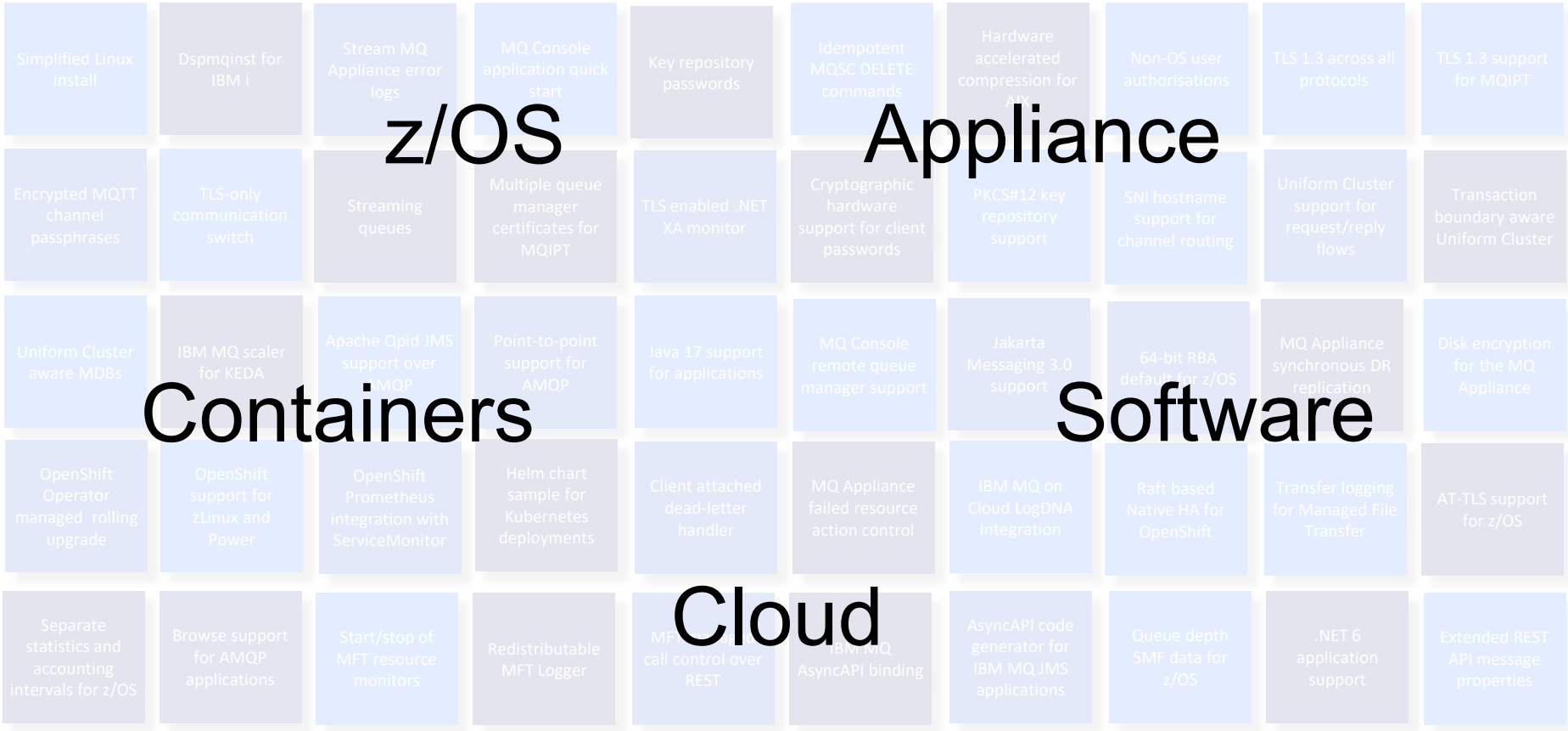
www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq

Operations

www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq



www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq



www.ibm.com/docs/en/ibm-mq/9.3?topic=930-whats-new-in-mq

Webinar:
Ensure Data Availability and Integrity with the new IBM MQ Appliance M2003

Please join us
Thursday, August 11th, 2022
at 12:00 PM EDT.

Register to join here

The IBM MQ Appliance M2003 brings together next-generation hardware and IBM MQ firmware, packed with the latest updates, to provide a complete messaging solution that delivers enhanced security options and higher performance than its predecessor, the M2002 MQ Appliance.

Join us to learn more about the latest features in the M2003 and how IBM MQ delivers a secure and reliable messaging solution for fast and cost-effective integration for many types of business including retail, manufacturing, and commercial payments.

Innovation

Insight to your data

Stream MQ data to new applications

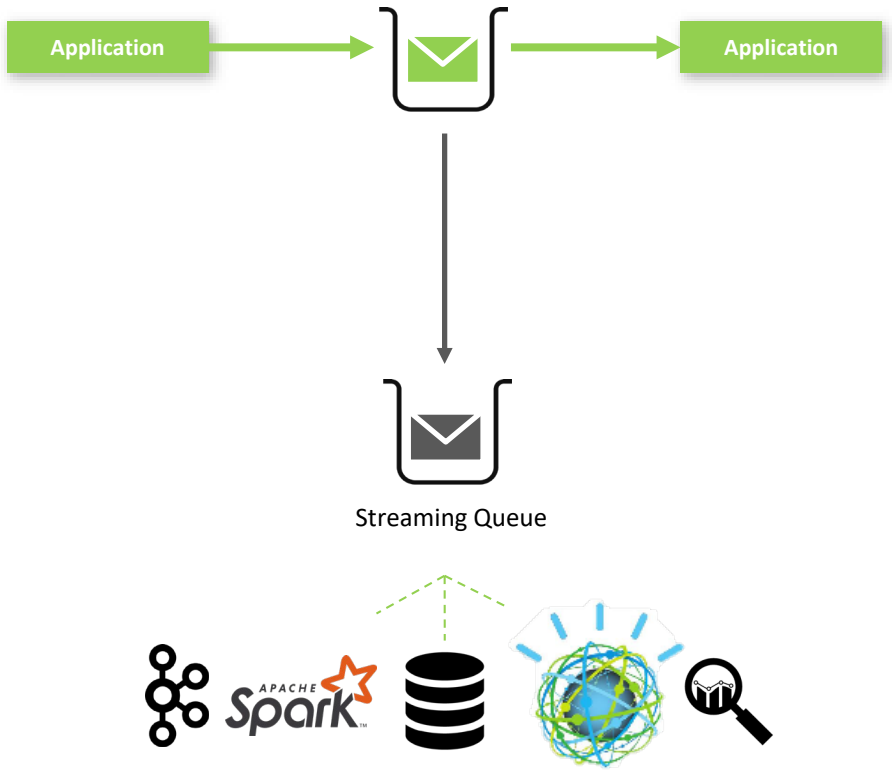
MQ Streaming Queues

Tap into the value of existing data flowing over MQ by making message data available to Kafka, AI, and analytics applications with **zero impact to the existing applications or their messages**, and without a need for re-architecting your message flows.

MQ Streaming Queues

Tap into the value of existing data flowing over MQ by making message data available to Kafka, AI, and analytics applications with **zero impact to the existing applications or their messages**, and without a need for re-architecting your message flows.

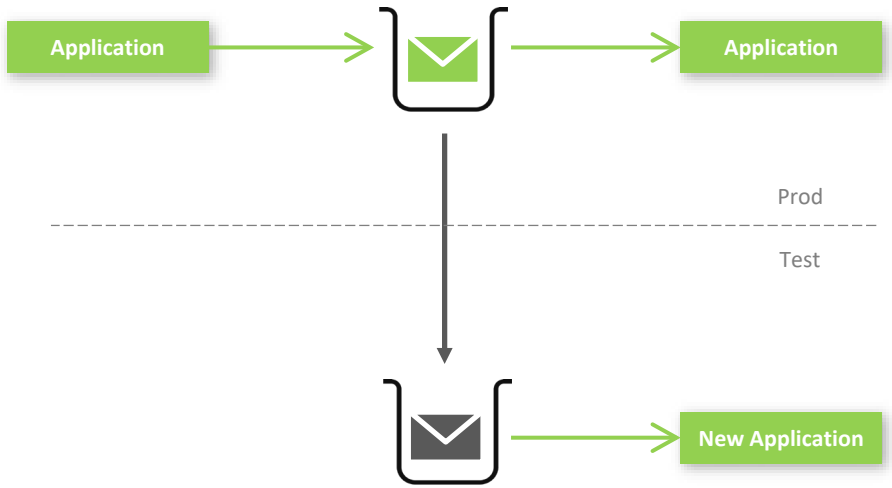
1. **Streaming Processing** to accelerate time to insight from existing data.
2. **Real world data** to accurately simulate production workloads to test the impact of changes on applications.
3. **Auditing and Replay** of data in the event of disasters. Auditing and replay use cases require exact duplicates of message content as well as message attributes including Message IDs, Correlation IDs etc.



MQ Streaming Queues

Can Streaming Queues help with production rollouts?

Yes, generate a stream of production messages to test your new environment and application versions



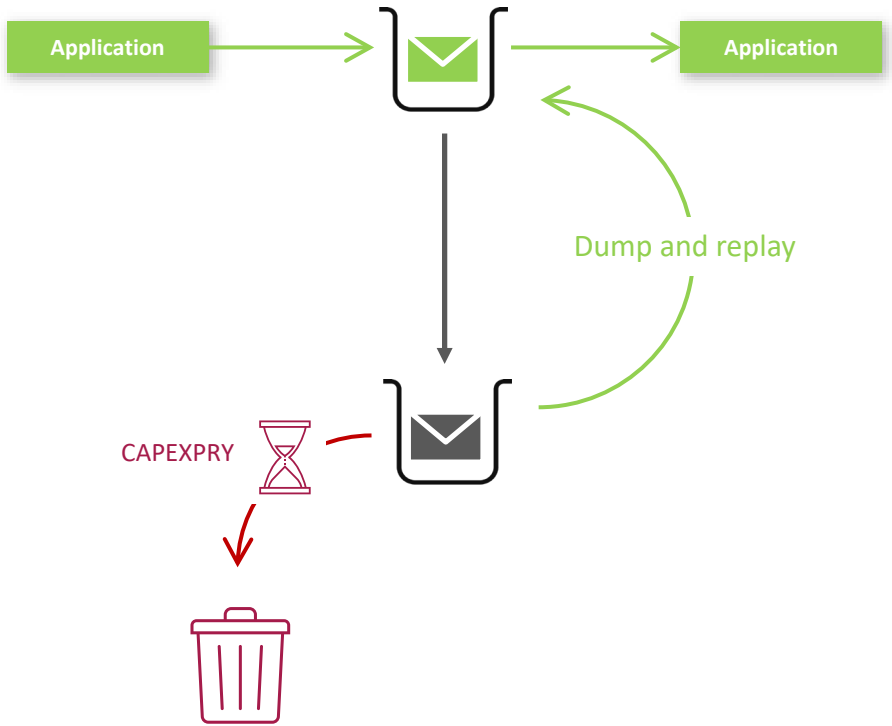
MQ Streaming Queues

*So, can I use MQ for **event streaming**?*

Not exactly, but if you're asking…

*Can I keep a **message history** for replay?*

Yes!



https://community.ibm.com/community/user/integration/blogs/matthew-whitehead1/2022/04/30/stream-queues-with-capexpry

MQ Streaming Queues

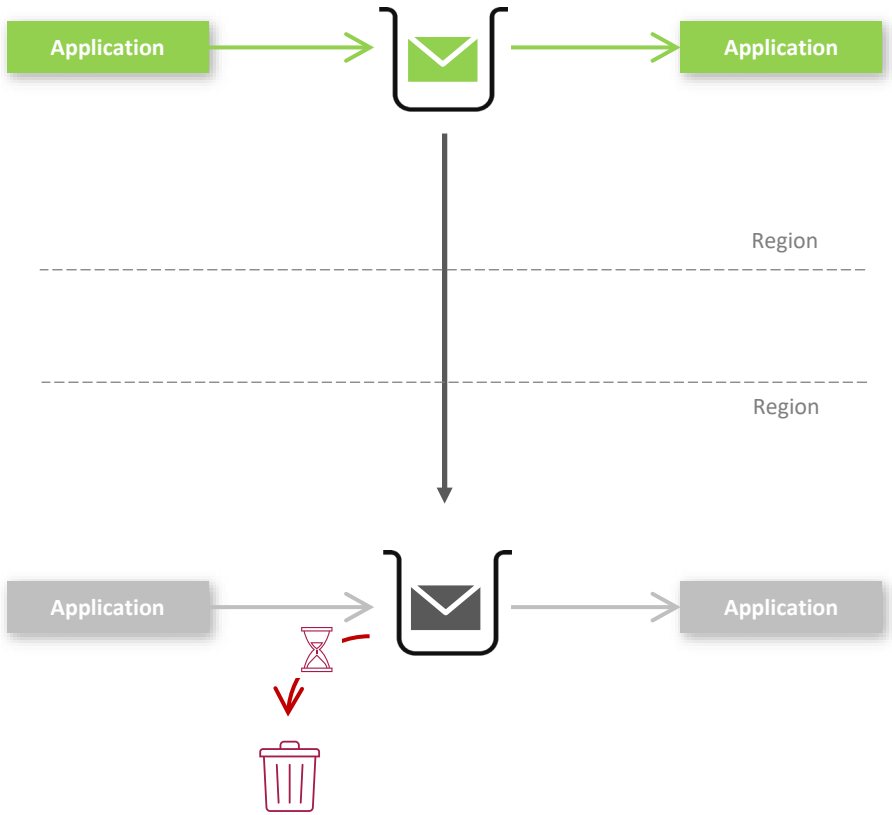
So, can I use Streaming Queues for DR?

Perhaps…

What is your DR objective?

Streaming queues can replicate the messages from certain queues to another queue manager, but not the consumption of those messages.

So if you're looking for a safe copy of the messages, it may fit a specific requirement.



Applications

Making it easy to benefit from MQ in your applications

Expanding application choice

MQ supports many protocols and APIs. MQ has been expanding these to meet new requirements and environments

REST Messaging Provides a very simple way to get messages in and out of your MQ system
(Latest: message property support with 9.2.5 CD)

Support for AMQP 1.0 clients to connect and interoperate with any other MQ application. Messaging behaviour follows Apache Qpid JMS, widening the choice of open source clients even further
(enhanced in IBM MQ 9.2.1)

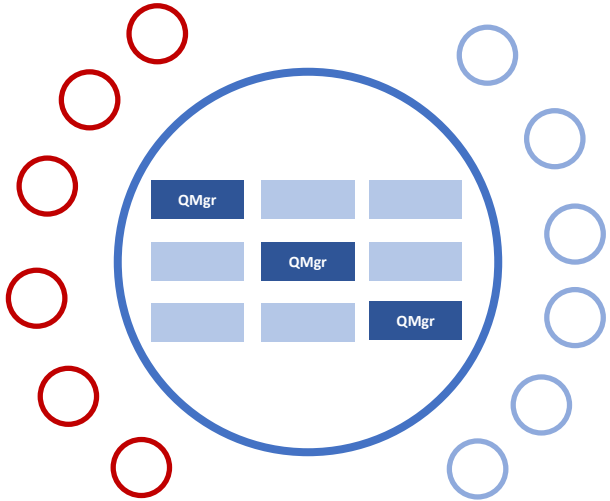
Define your MQ messaging endpoints and build applications with AsyncAPI
github.com/ibm-messaging/mq-asyncapi-bindings
github.com/ibm-messaging/mq-asyncapi-java-template

Availability and scalability

IBM MQ

Horizontal scaling with data replication for consistent always-on cloud deployments

Active/active workload balancing

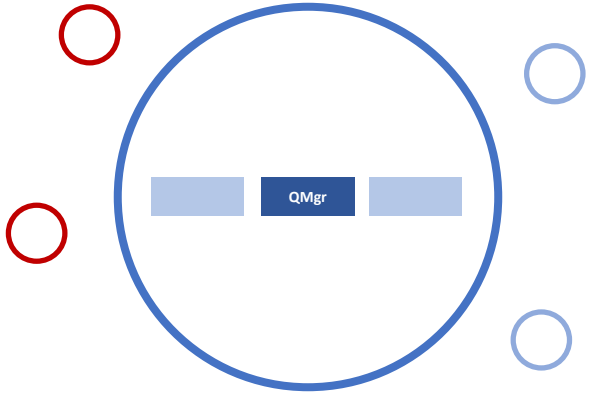


Data replication with consistent fast recovery

IBM MQ

Horizontal scaling with data replication for consistent always-on cloud deployments

Active/active
workload balancing



Data replication with consistent fast recovery

MQ message availability

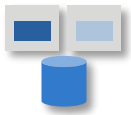
Protecting your critical data

Preventing loss and duplication of messages in the event of a failure

Data resiliency: messages are protected from a system failure
Automatic recovery: messages are quickly available following a failure

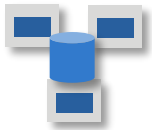
External solution

System managed HA



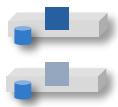
Multi-instance queue managers

Integrated solution



z/OS system

Replicated data queue manager

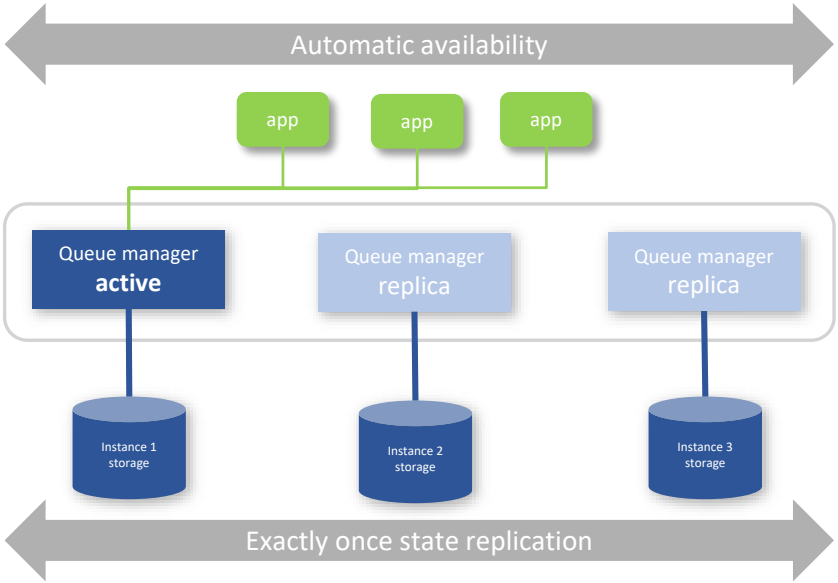


MQ Appliance

Native solution

Native HA

MQ Native HA



Messages persisted in three locations, e.g. across availability zones

Exact replicas, maintaining configuration, message order, transactional state

No external dependencies, simple storage requirements, e.g. block storage

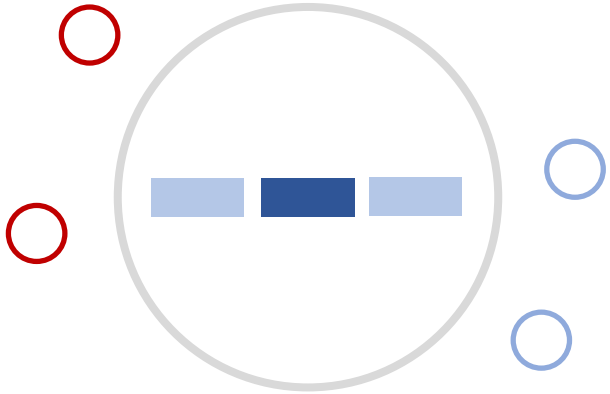
RAFT based Leader/follower quorum ensures consistency and rapid failure detection and recovery

Always-on

Building scalable, active-active, solutions

IBM MQ

Active/active
workload balancing

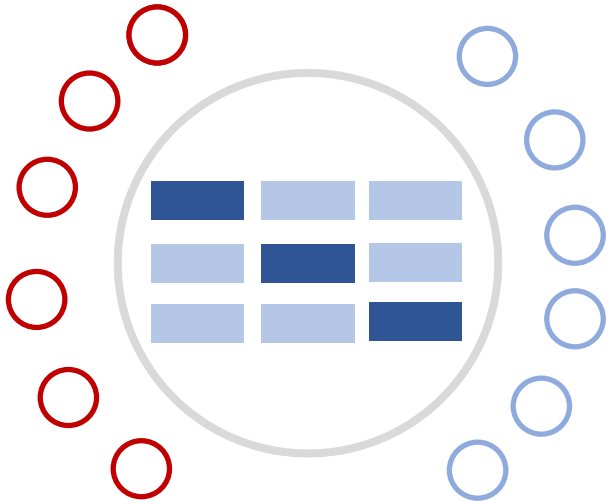


Data replication with consistent fast recovery

IBM MQ

Horizontal scaling with data replication for consistent always-on cloud deployments

Active/active workload balancing

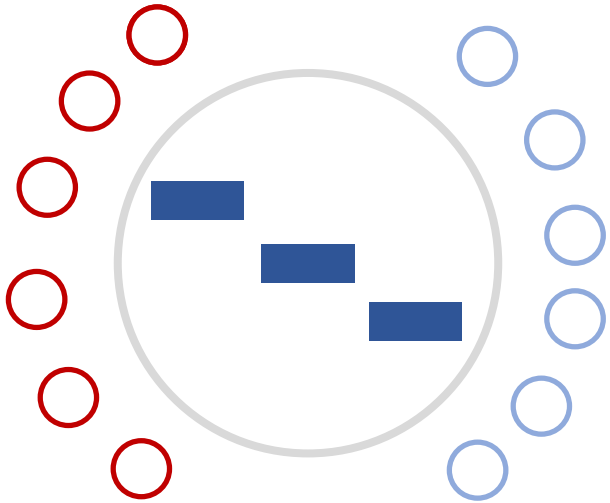


Data replication with consistent fast recovery

IBM MQ

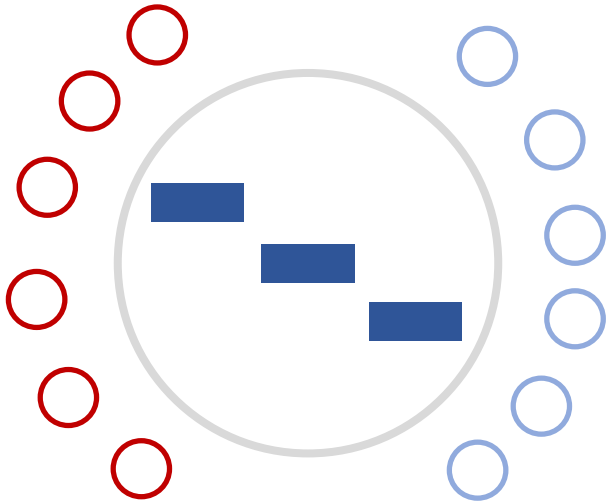
Horizontal scaling for always-on cloud deployments

Active/active workload balancing



Data replication with consistent fast recovery

Active/active workload balancing

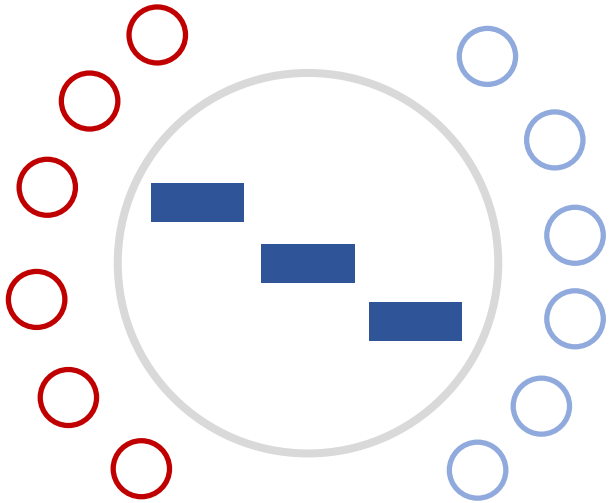


Multiple active queue managers

Messages workload balanced across application instances

Application connections distributed across the queue managers

Active/active workload balancing



Multiple active queue managers

Messages workload balanced across application instances

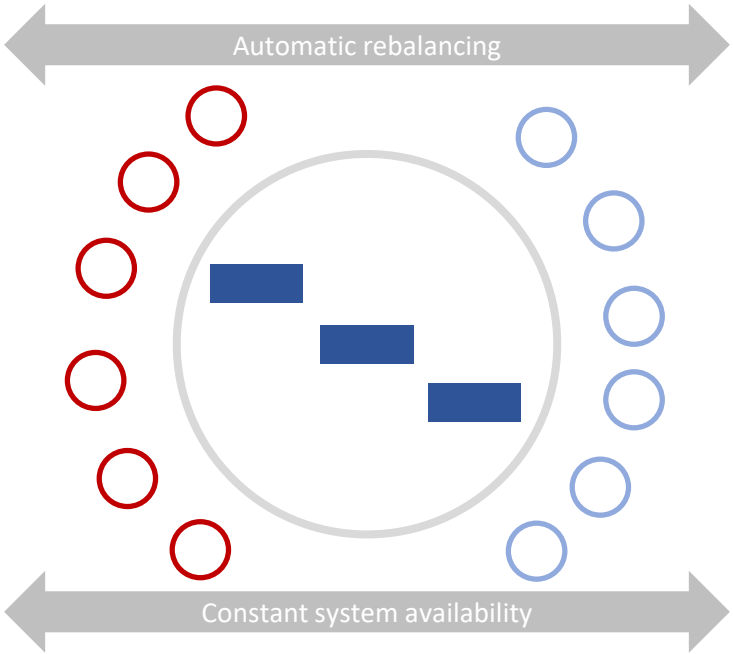
Application connections distributed across the queue managers

z/OS: **Queue Sharing Group**

Distributed: **Uniform Cluster**

Active/active message distribution

Uniform Cluster

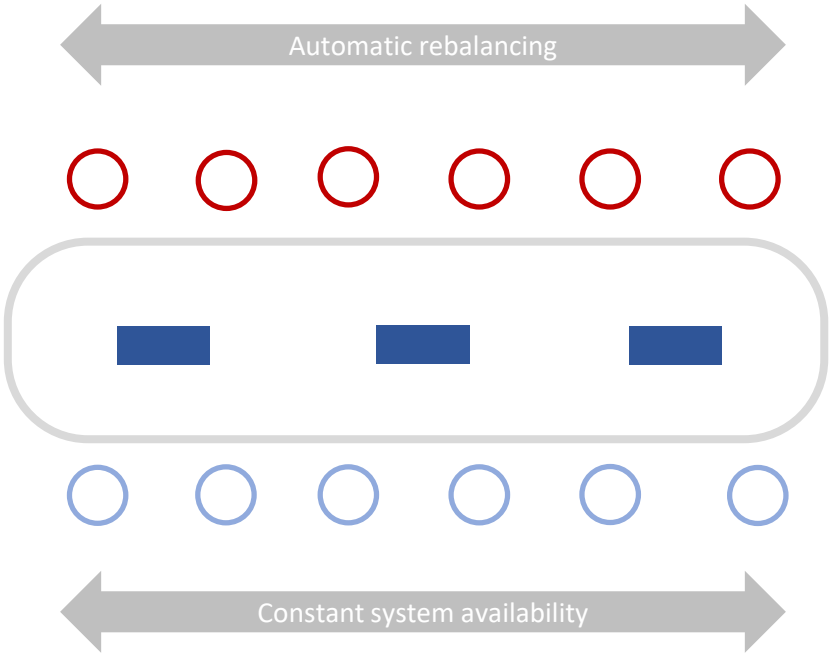


IBM MQ **Uniform Cluster** enables applications to be workload balanced across **loosely coupled** queue managers

Uniform Cluster detects application imbalance and **automatically moves connections** to instantly respond to change and maximise availability and scalability

Ensures constant availability of the system and **instant scaling out**

Active/active message distribution
Uniform Cluster



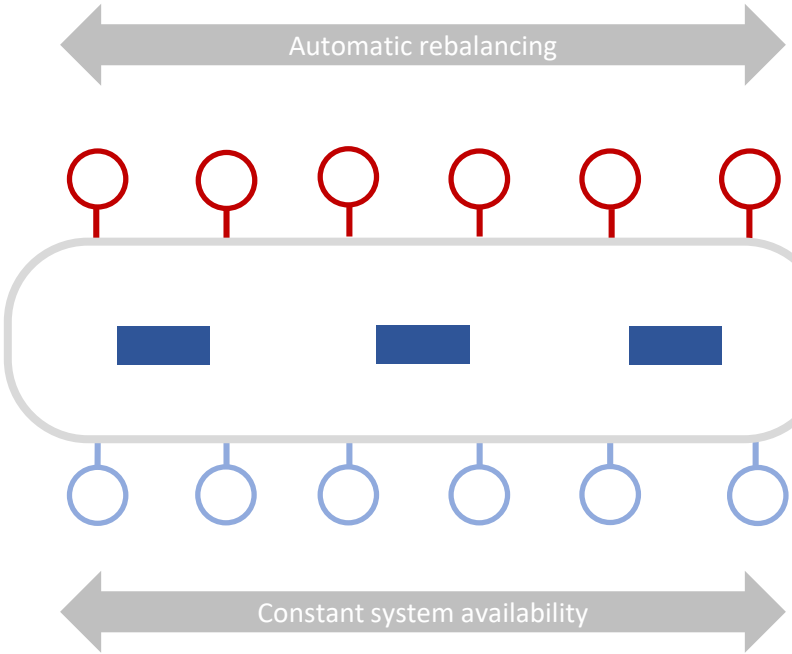
IBM MQ **Uniform Cluster** enables applications to be workload balanced across **loosely coupled** queue managers

Uniform Cluster detects application imbalance and **automatically moves connections** to instantly respond to change and maximise availability and scalability

Ensures constant availability of the system and **instant scaling out**

Available since IBM MQ 9.2 LTS
Distributed

Active/active message distribution
Uniform Cluster



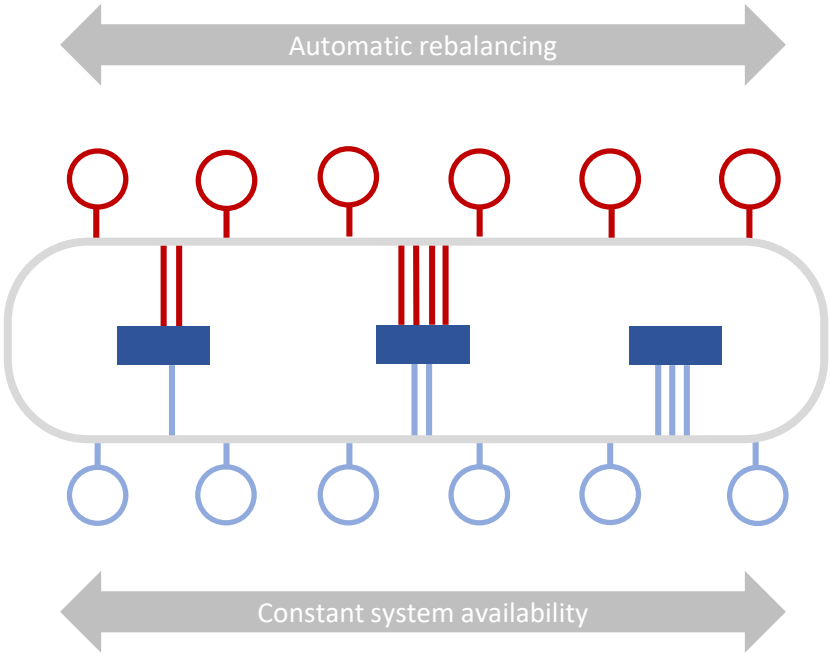
IBM MQ **Uniform Cluster** enables applications to be workload balanced across **loosely coupled** queue managers

Uniform Cluster detects application imbalance and **automatically moves connections** to instantly respond to change and maximise availability and scalability

Ensures constant availability of the system and **instant scaling out**

Active/active message distribution

Uniform Cluster



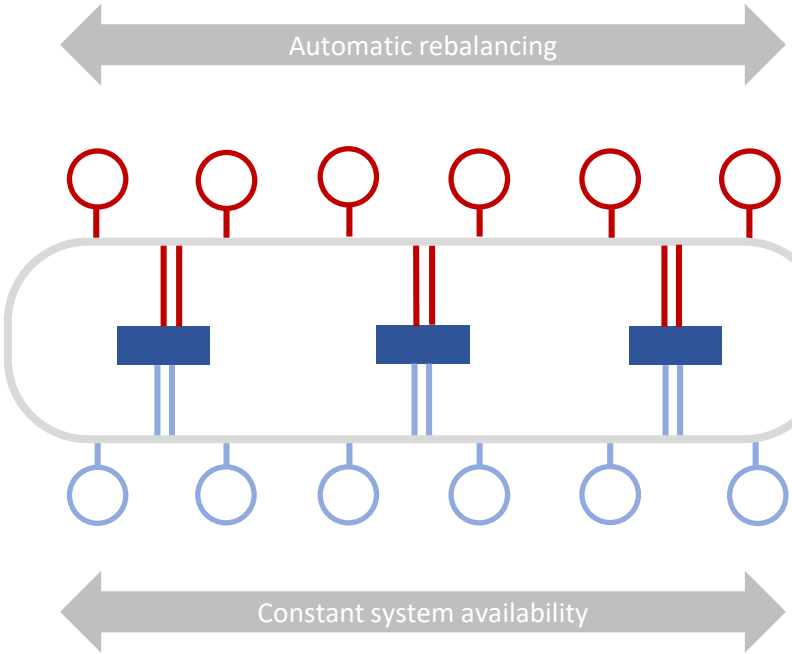
IBM MQ **Uniform Cluster** enables applications to be workload balanced across **loosely coupled** queue managers

Uniform Cluster detects application imbalance and **automatically moves connections** to instantly respond to change and maximise availability and scalability

Ensures constant availability of the system and **instant scaling out**

Available since IBM MQ 9.2 LTS
Distributed

Active/active message distribution
Uniform Cluster



9.3 updates

JEE Message Driven Bean support (9.2.3 CD)

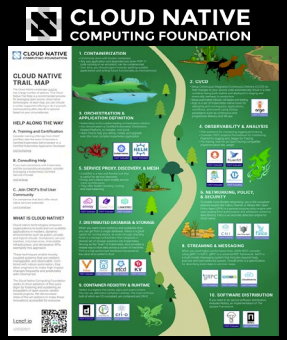
Smart balancing for request/reply patterns and transactions (9.2.4 CD)

IBM MQ **Uniform Cluster** enables applications to be workload balanced across **loosely coupled** queue managers

Uniform Cluster detects application imbalance and **automatically moves connections** to instantly respond to change and maximise availability and scalability

Ensures constant availability of the system and **instant scaling out**

IBM MQ, cloud native

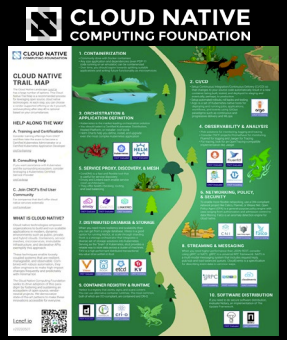


WHAT IS CLOUD NATIVE?

Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.

IBM MQ, cloud native



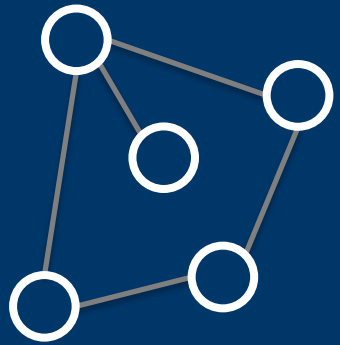
WHAT IS CLOUD NATIVE?

Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

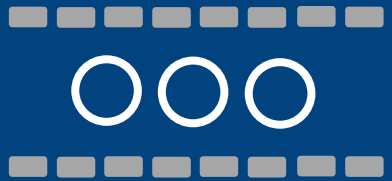
These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.

Containerised

Loosely coupled



Scalable



Replicated

Thank you.