# AMQ Online - Hackfest

Introduction / Overview

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# Overview

- What is AMQ Online?
- Usage Model
- Key Concepts
- Future Directions

# Messaging as a Service

- Messaging as Infrastructure
- Separate the use of Messaging from management of infrastructure
- Create messaging "on demand"
- Quickly scale from small applications to huge volumes
- Declaratively define application messaging requirements

# What is "AMQ Online"

Messaging as a service on OpenShift

- Messaging as a Service on OpenShift
- Utilise AMQ technologies
  - Scalable
  - On Demand
- Multi-tenant
- Standard protocols
- Capable of supporting traditional JMS Messaging use cases

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# What "AMQ Online 1.0" Is Not

AMQ Online 1.0 is not magic - it relies on underlying AMQ components!

- HA / DR - limited by what a single OpenShift cluster can provide
- Cloud-bursting - see above
- Scaling via plans - not automatic
- Scale vs. functionality - always a trade-off

Finally

- It is not available as a Red Hat managed service (...yet)

# When to use AMQ Online

AMQ Online vs. AMQ OpenShift Images

- AMQ Online
    - Separates use of messaging from management of messaging infrastructure
    - Enforces customer defined policies (e.g. authn/authz) across all applications
    - Declarative definition of messaging requirements by applications
- AMQ OpenShift Images
    - Each application manages own configuration
    - Exposes all capabilities of AMQ Broker or AMQ Interconnect

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# AMQ Online User Personas

Different users of AMQ Online will interact with the system in different ways.

- System Admin
- System Operator
- Tenant
- Operator

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# AMQ Online User Personas

System Admin

The *System Admin* has responsibility for providing messaging solutions to applications

- Installation and configuration
- Integration with existing authentication and authorisation providers
- Defining which users can provision messaging, and deployment options
- Metering and managing and potential chargeback to users

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# AMQ Online User Personas

System Operator

The *System Operator* has responsibility for ensuring the messaging system remains available and meets SLAs for applications

- Monitoring / management of system level metrics (availability, storage, cpu, memory)
- Visibility into the underlying implementation of AMQ Online, system logs
- Not responsible for monitoring queues / topics

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# AMQ Online User Personas

Tenant

The Tenant has responsibility for defining the applications and the configuration of the messaging system

- Provision messaging
- Create necessary queues / topics
- Define users and permissions

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# AMQ Online User Personas

Operator

The Operator monitors the messaging system, verifying that the applications and messaging are behaving as expected

- Metrics on queues (backlog size, throughput,oldest message, etc)
- Metrics on connections (throughput, user, remote IP address)

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# The AMQ Online Model

Address Spaces

"a collection of messaging endpoints (such as queues or topics) which can be accessed with the same set of credentials"

"the unit of provisioning of AMQ Online"

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# The AMQ Online Model

Address Space Types

AMQ Online supports multiple *types* of Address Space.

- Different address space types
  - may support differing types of messaging endpoints
  - may support differing messaging protocols
  - may have different abilities to scale to high workloads
- The address space type reflects the underlying technology used
- The supported types are currently not user-definable

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# The AMQ Online Model

Supported Address Space Types

- "Standard" address spaces
  - scales to high workloads
  - supports AMQP (MQTT in tech preview)
  - doesn't support transactions, message grouping, selectors on queues…
- "Brokered" address spaces
  - full JMS support
  - supports AMQP, MQTT, core, OpenWire, STOMP
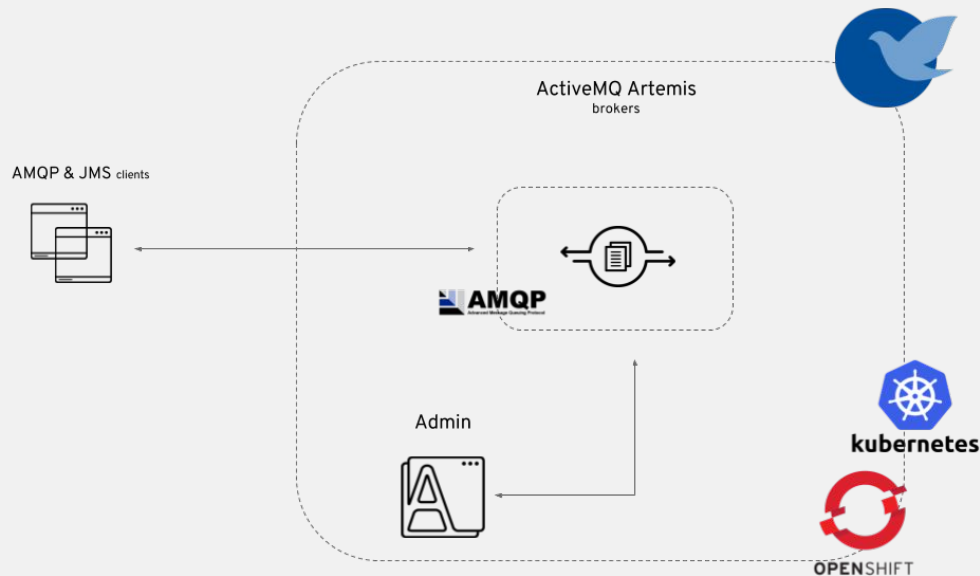  - limited by scalability of broker

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# The AMQ Online Model

The Standard Address Space
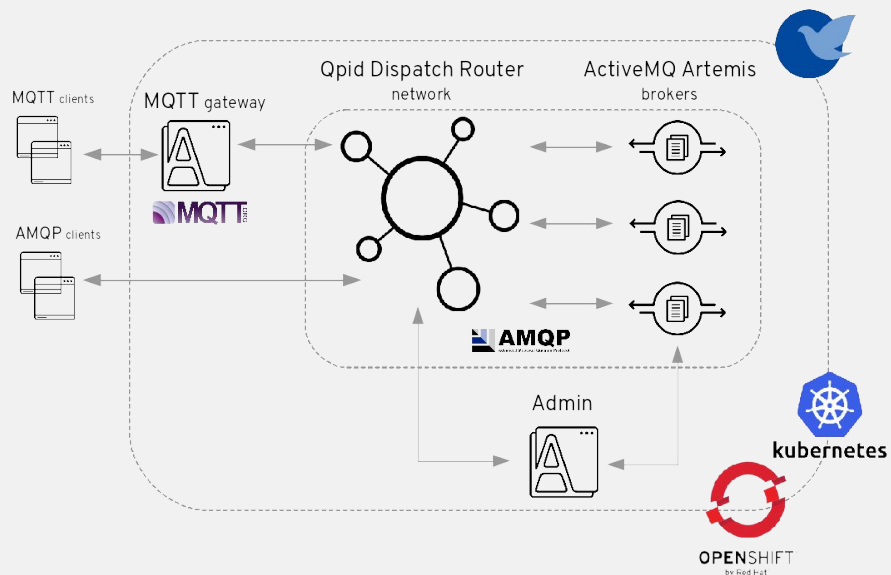
# The AMQ Online Model

## The Brokered Address Space

# The AMQ Online Model

Address Space Plans

Each address space type supports multiple *plans*

- A plan defines *how much* messaging you get
- A plan may enable or disable some features
- Each address space type defines the aspects which can be configured in a plan
- Plans are user-configurable - specific to an installation

# The AMQ Online Model

Example Address Space Plans

- Brokered
    - XS - Single broker, 256MB RAM, 1 CPU, 4GB Storage
    - M - Single broker, 4GB RAM, 4 CPU, 64GB Storage
    - XL - 4 broker cluster, each 4GB Ram, 4 CPU, 64GB Storage
- Standard
    - XS - Single router, single broker
    - M - Up to 4 routers and 4 brokers
    - XL - Up to 16 routers and brokers

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# AMQ Online

OpenShift Online Container Platform

- Customer Managed Messaging
- Define plans that reflect business needs
- Integrate with corporate identity and authorization systems
- Integrate with existing management and monitoring tooling

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# AMQ Online

OpenShift Dedicated (Future)

- Will not be available for OpenShift Dedicated 3.x
- Will allow installation of AMQ Online by customer
- Customer Managed Messaging
- No RedHat involvement in operation

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# AMQ Online

Red Hat Managed Messaging (Aspirational)

- Multiple requests for Red Hat to provide a fully managed service
- Discussions ongoing with Mobile Services
- Trialling a managed service offering with Bosch

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# AMQ Online

Future Directions

- Consolidated console (provisioning for all AMQ on OpenShift)
- IoT integration (Hono)
- Bridging between addressspaces - wide area messaging
- Managed AMQ Streams / Kafka topics
- Shared Infrastructure

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