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API303

Application migration & hybrid cloud with Amazon MQ

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Agenda

- Overview of Amazon MQ for RabbitMQ
- Migration/hybrid architecture features in RabbitMQ
- Typical hybrid/migration scenarios
- Discussion

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Amazon MQ for RabbitMQ

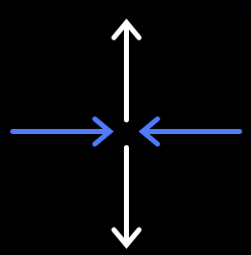
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Why use Amazon MQ for RabbitMQ?



Setup

Automatic provisioning of single-node and clustered brokers with best practices by default



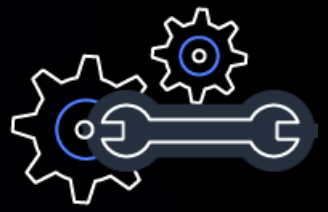
Scaling

Vertically scale between Amazon MQ broker instance types



Security

Encryption in transit over TLS and encryption at rest using AWS KMS keys



Upgrades

Managed administrative tasks such as software upgrades



Maintenance

Customize maintenance window schedule

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Getting started with Amazon MQ for RabbitMQ

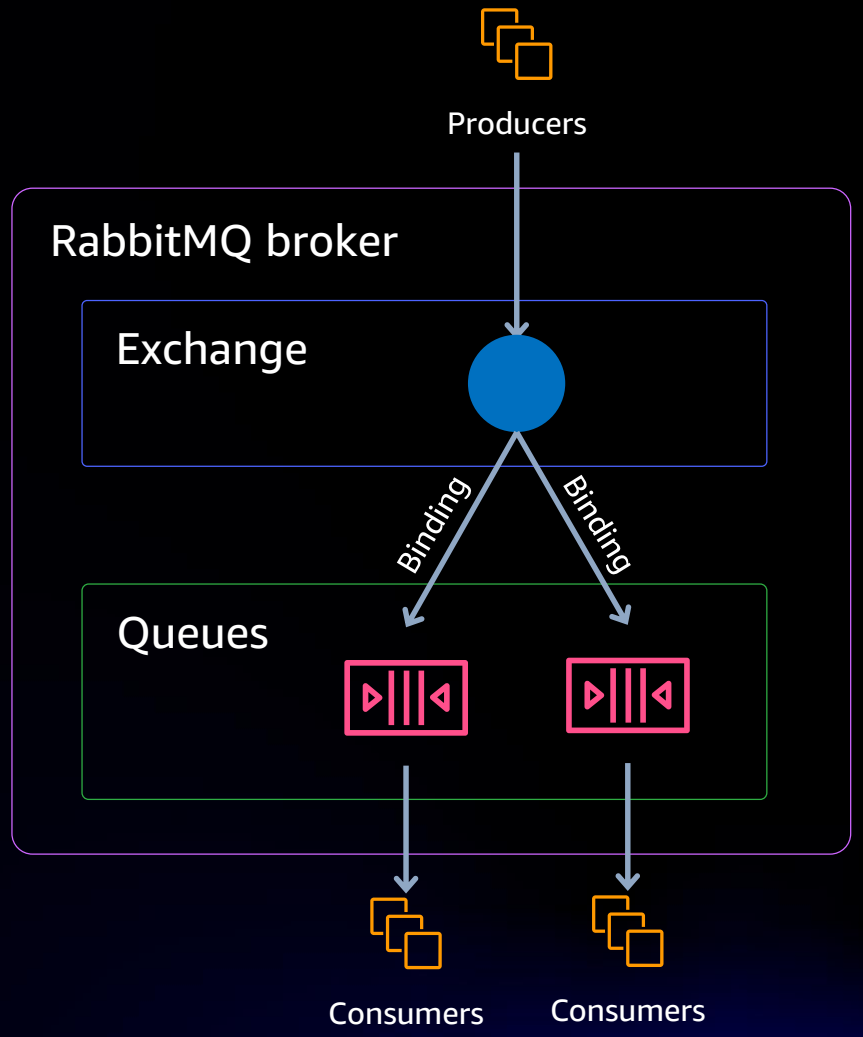
- Same open source as RabbitMQ v3.8.6 – v3.8.23
- AMQP 0-9-1 support
- Management, monitoring, consistent hash, shovel, and federation plugins installed
- Choice of single-instance or 3-node clustered broker
- Amazon CloudWatch metrics for broker monitoring
- Amazon CloudWatch Logs for broker logging

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Exchanges, bindings, and queues

- Exchanges take a message and route it into zero or more queues

  Exchange types:
  Direct, topic, fanout, headers
- Bindings are rules that exchanges use to route messages to queues
- Queues store messages that are consumed by applications

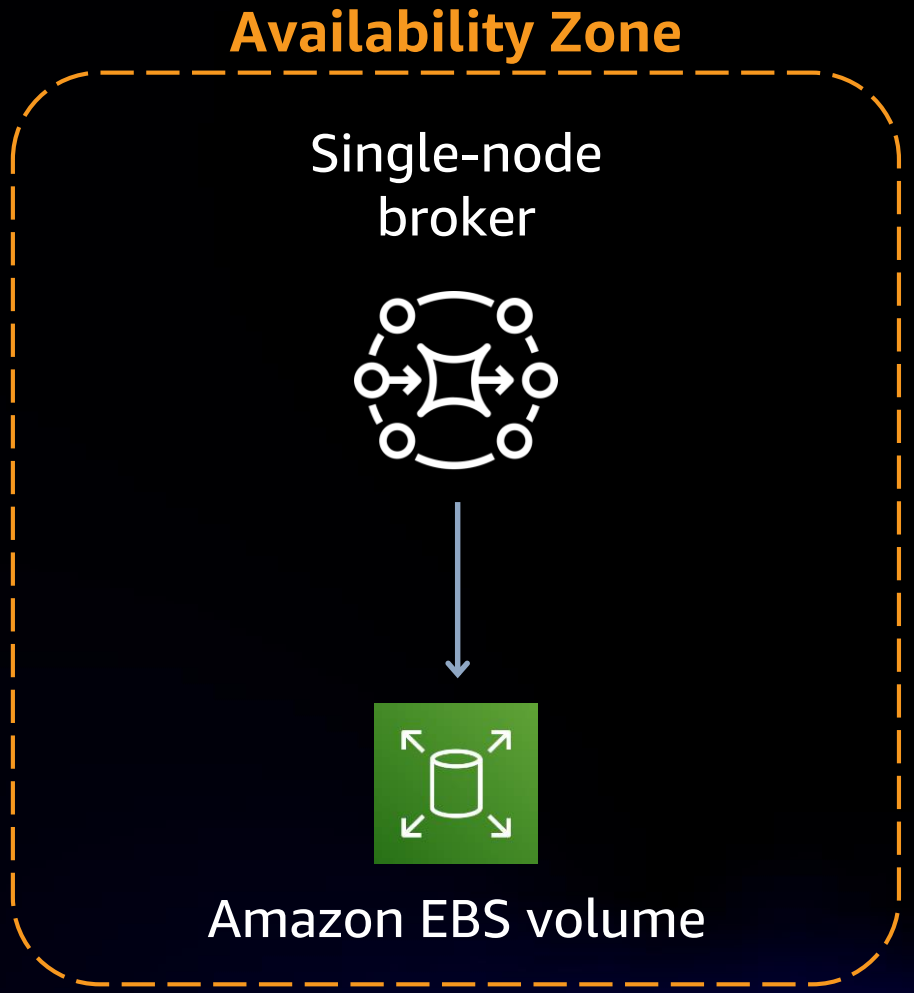


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RabbitMQ single-node broker deployment

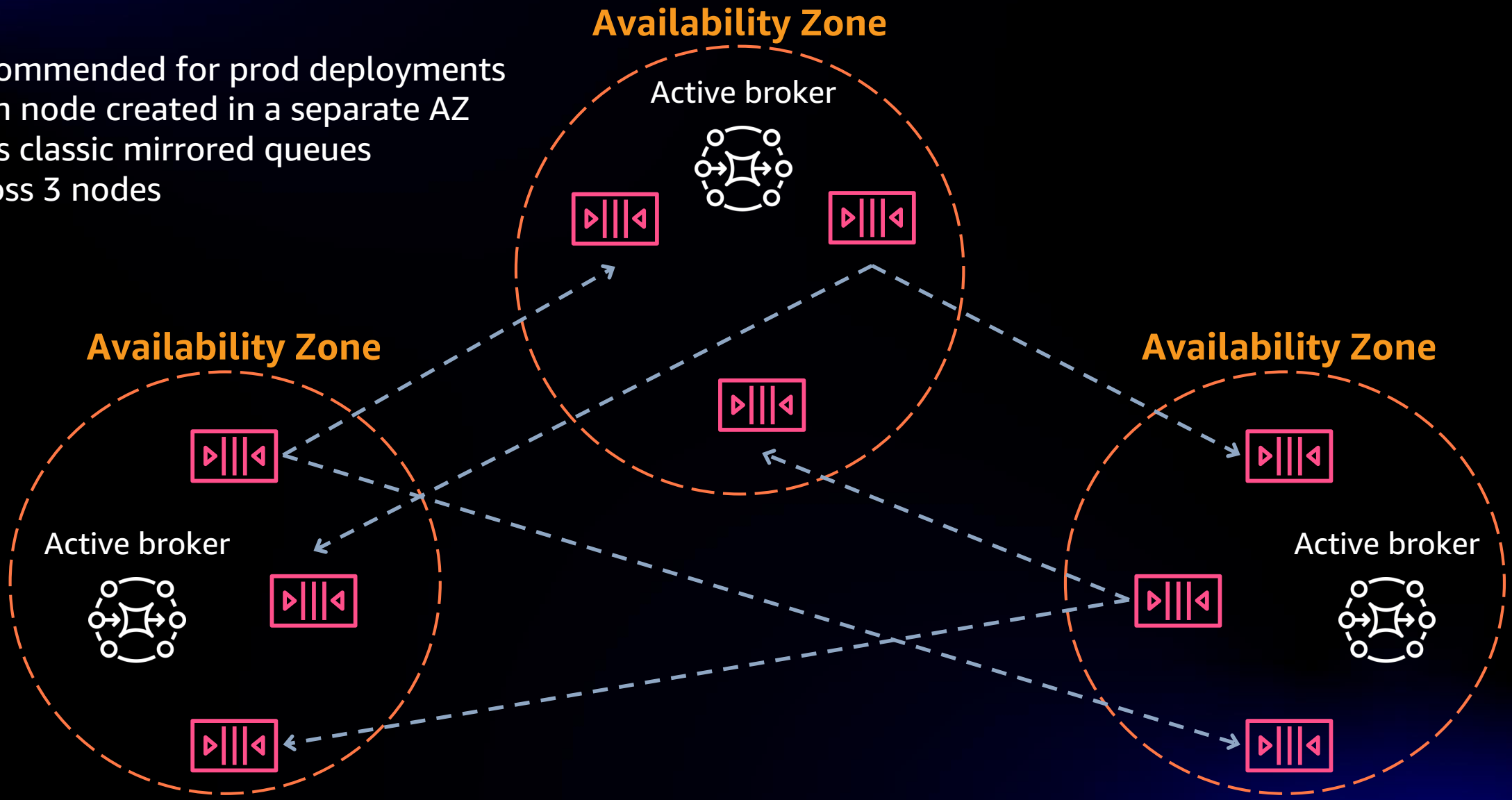
Recommended for non-production deployments and low-latency use cases with non-persistent messages



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RabbitMQ 3-node cluster deployment

- Recommended for prod deployments
- Each node created in a separate AZ
- Uses classic mirrored queues across 3 nodes



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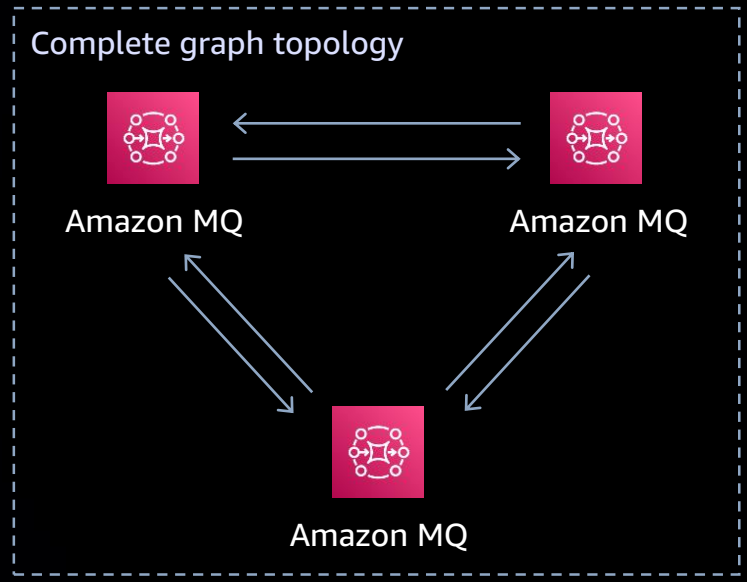
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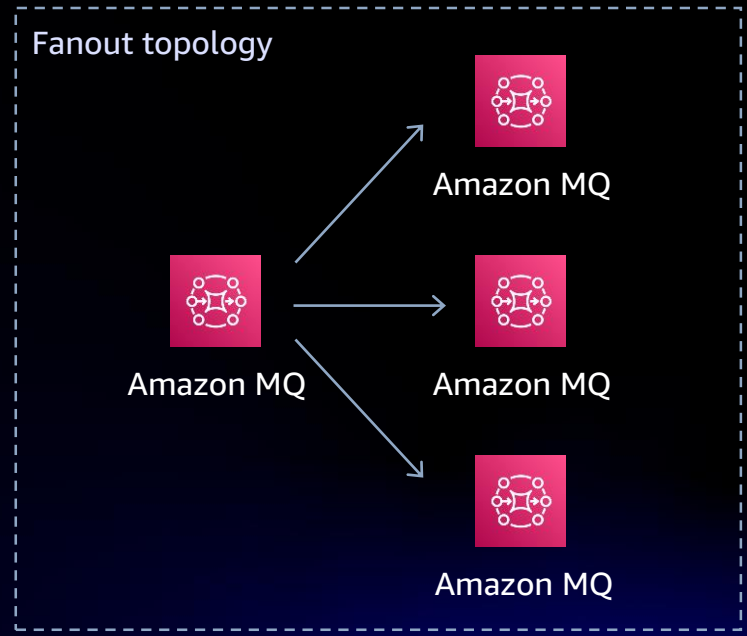
Migration & hybrid patterns

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Federation plugin

- Downstream brokers initiate one-way point-to-point connections to upstream brokers
- Federated queues **move** messages from upstream queues to perform load balancing across downstream consumers
- Federated exchanges **copy** messages from upstream exchanges to downstream exchanges, using connected topologies such as pairing, complete graphs, and fanout; loop protection is provided using a max-hops value
- Because the downstream broker initiates the connection to the upstream broker, the upstream Amazon MQ broker must be public

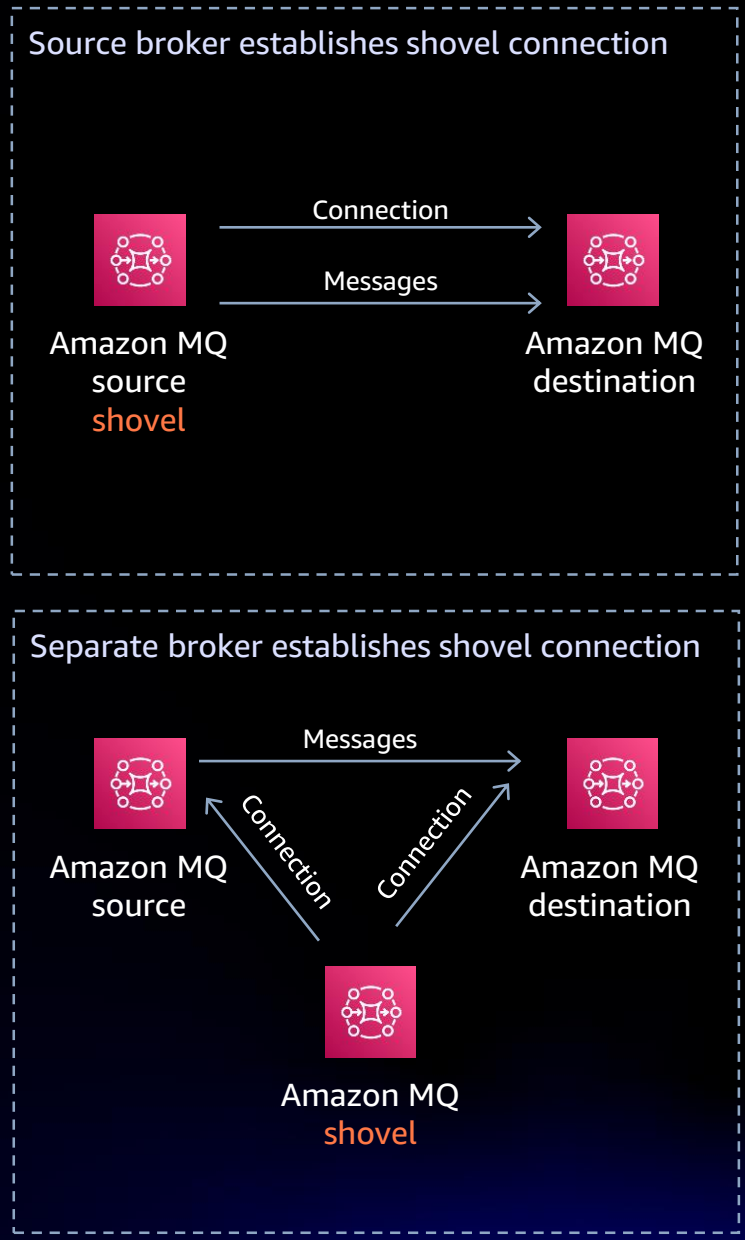




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Shovel plugin

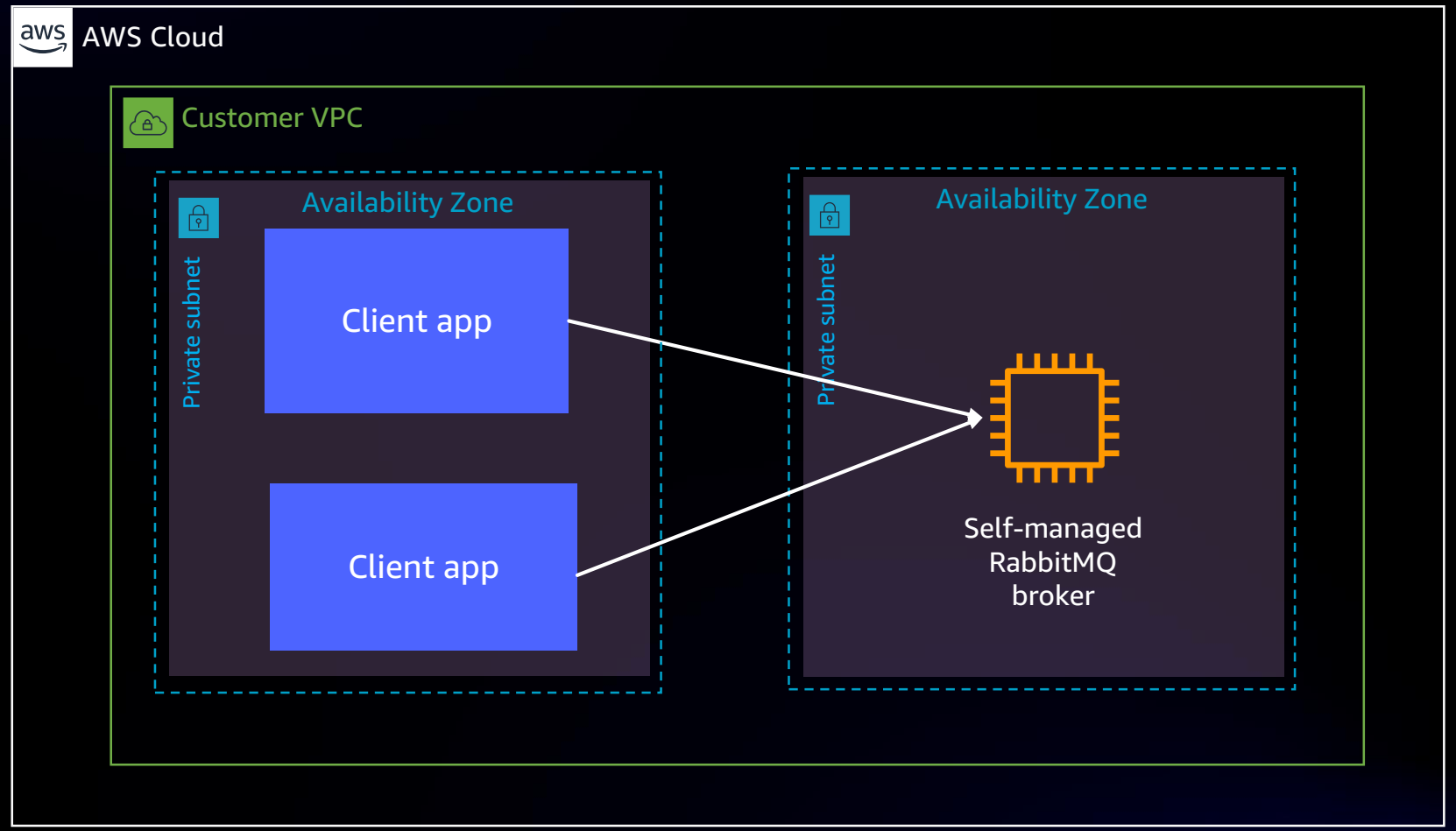
- A shovel acts like a well-written client application, consuming messages from a queue on a source broker and moving them to a queue or exchange on a destination broker
- Shovel connections can be initiated from the source broker, destination broker, or a separate node or cluster
- After a connection is established, queues, exchanges, and bindings can be declared automatically, according to the shovel definition
- Flexible topology support, but no loop detection



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Self-managed to private Amazon MQ broker

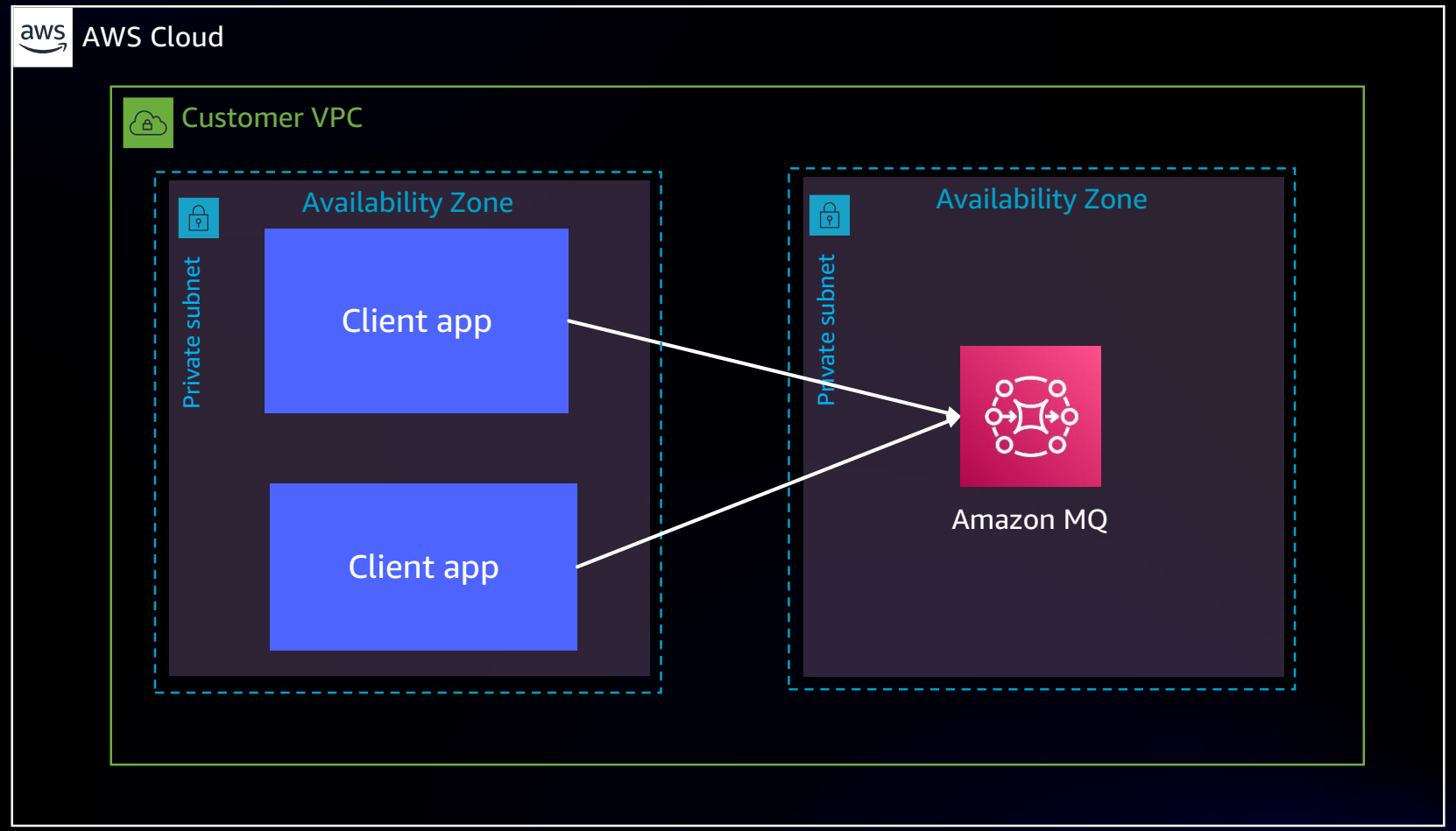
Current state



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Self-managed to private Amazon MQ broker

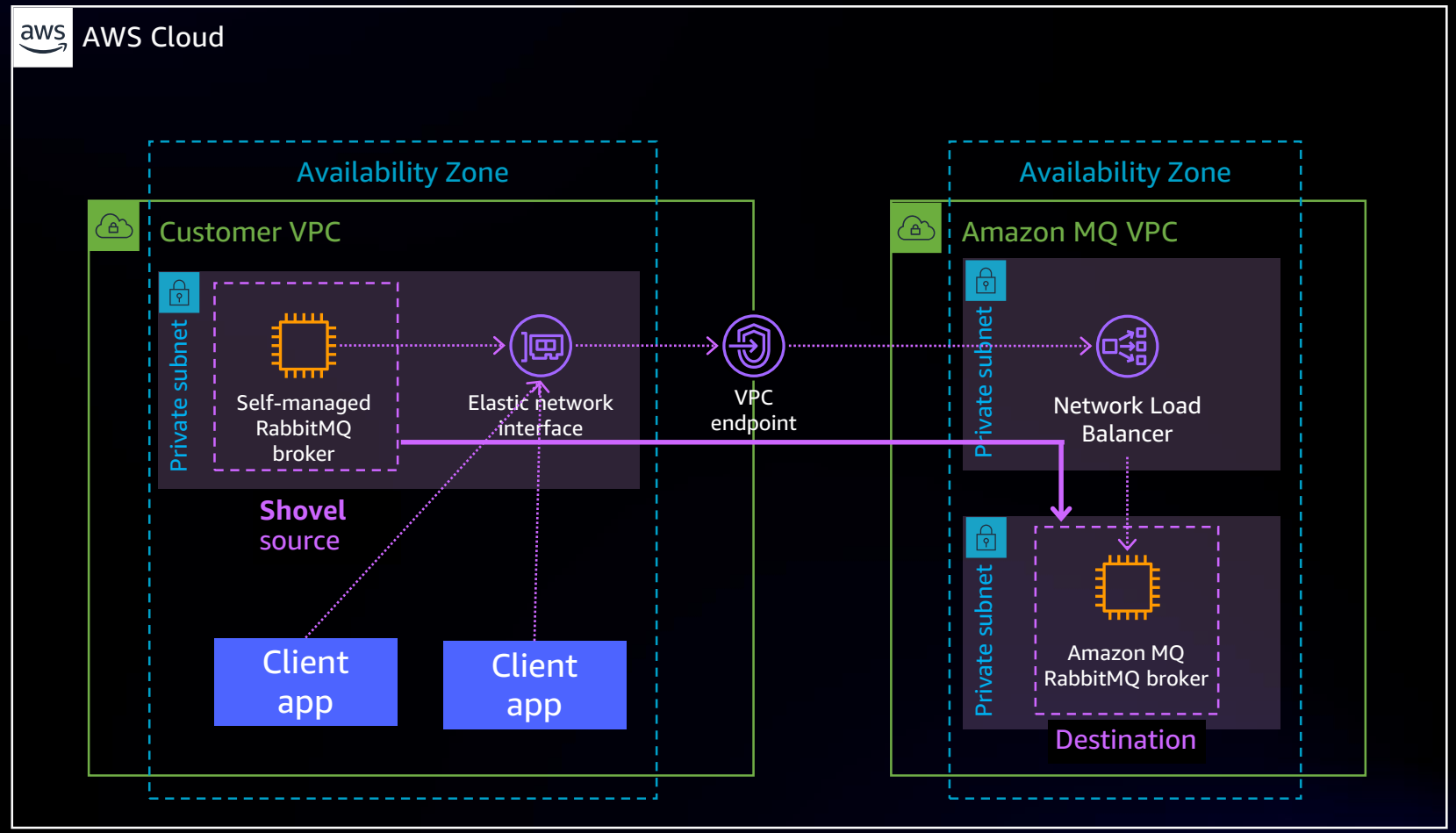
Target state



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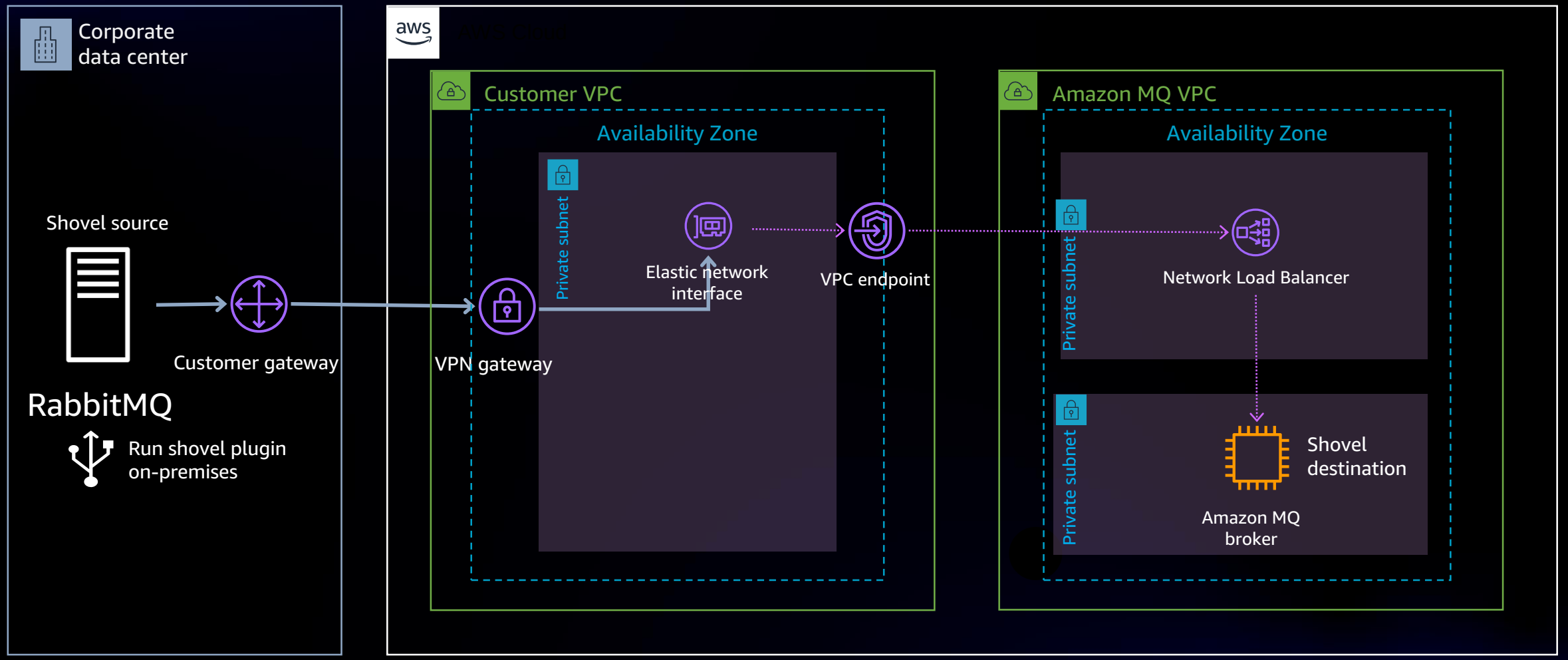
Self-managed to private Amazon MQ broker

Migration approach



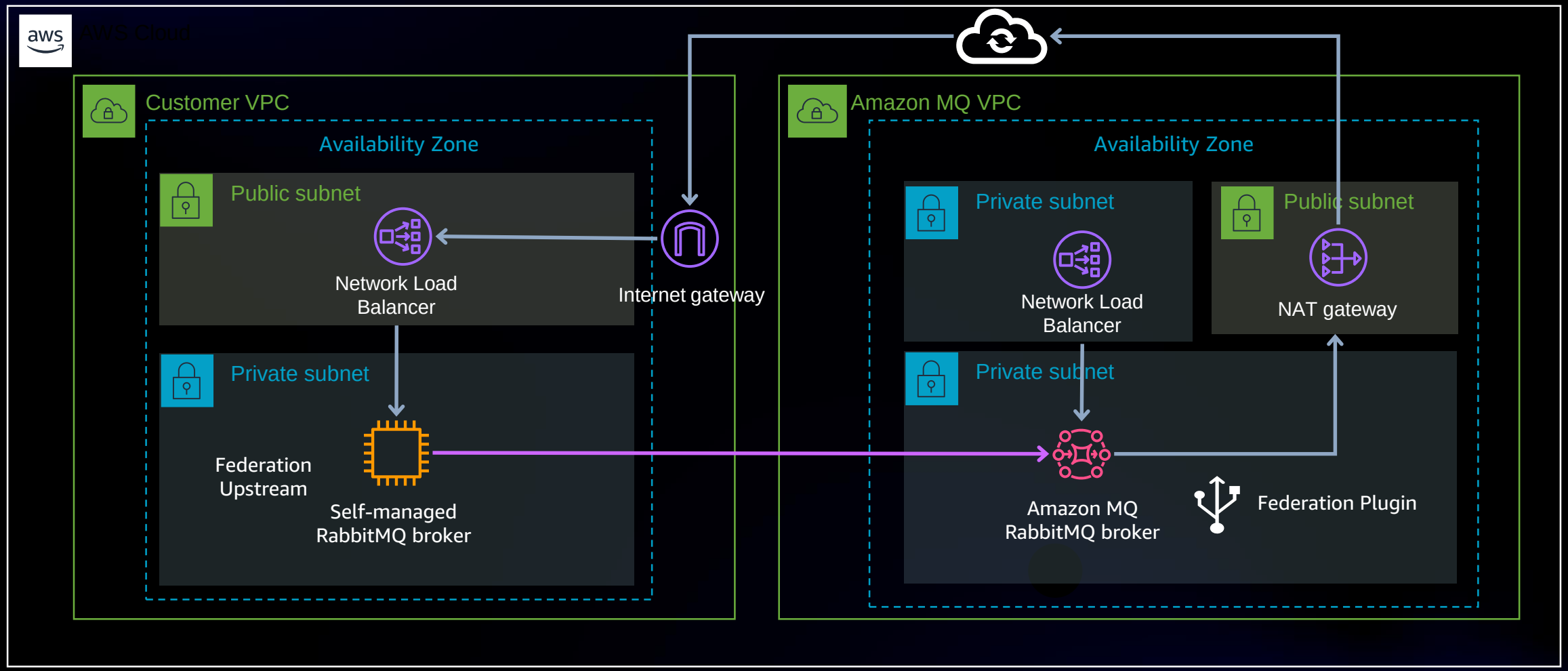
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On-premises RabbitMQ to Amazon MQ – Hybrid



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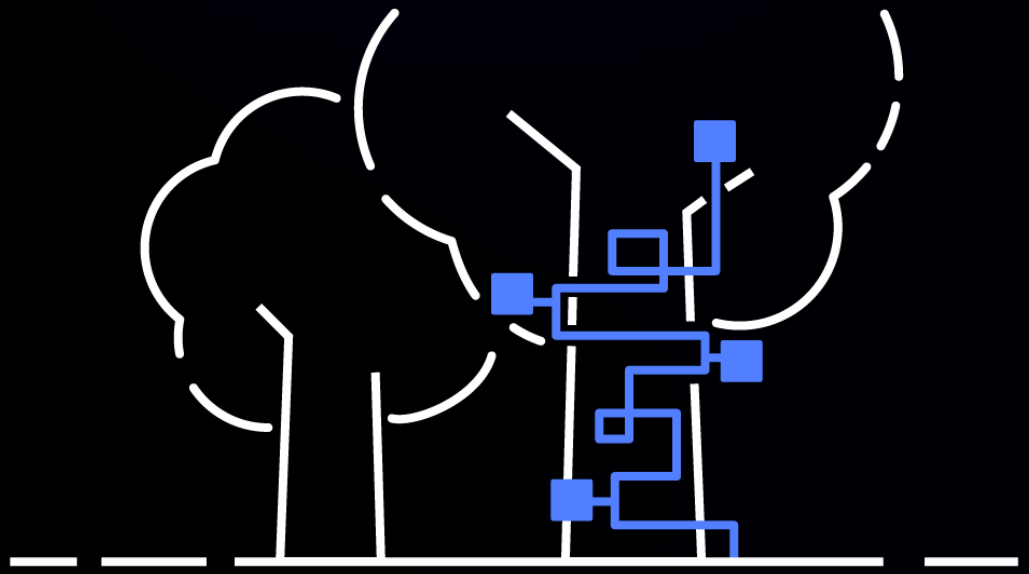
Federating with upstream self-managed broker



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AWS Migration Hub Refactor Spaces Preview

Transform your applications faster



Start refactoring applications in days instead of months

Combine your legacy app and microservices into a single application

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Learn more about accelerating app refactor with AWS Migration Hub Refactor Spaces

Sessions

- **ENT321** 11/29 Evolve existing apps to microservices using Migration Hub Refactor Spaces
- **ENT402** 11/30 Simplify multi-account refactoring with AWS Migration Hub Refactor Spaces
- **ENT401** 12/1 Modernize faster with AWS Migration Hub Refactor Spaces

Workshops

- **ENT302** 12/1 Incremental refactoring: Evolve existing apps with microservices

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Thank you!

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