

# Why Amazon Managed Streaming for Apache Kafka (MSK)?



# Challenges operating Apache Kafka

Difficult to set up



Difficult to scale



Hard to achieve high availability



AWS integrations = development



No console, no visible metrics



$$f(kafka_{usage}) = \sum_{n=1}^{\infty} \text{?} (SRE)$$



# What Amazon MSK does for you



Fully managed, production-ready Apache Kafka clusters



Drives best practices through design, defaults, and automation



Security, scalability, and high availability for enterprise workloads



Amazon MSK is committed to improving open-source Apache Kafka

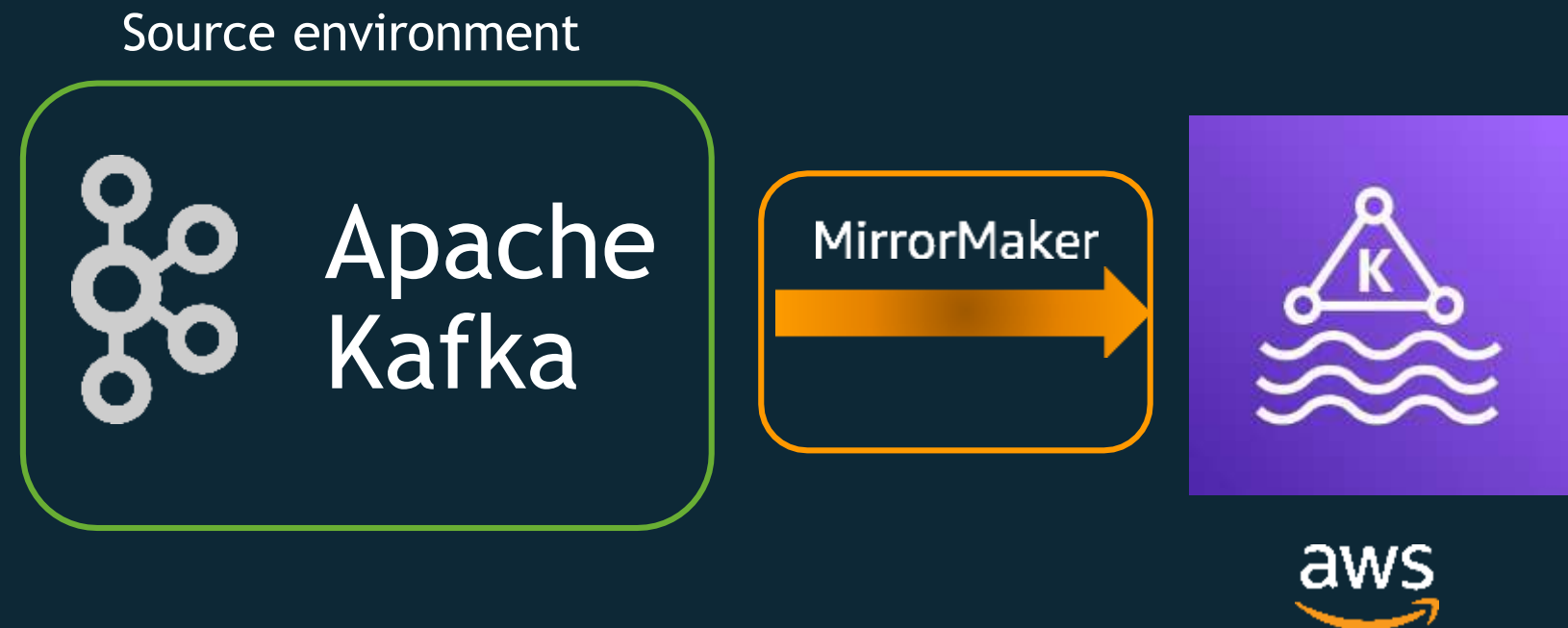


# Apache Kafka mirroring tools and architectures



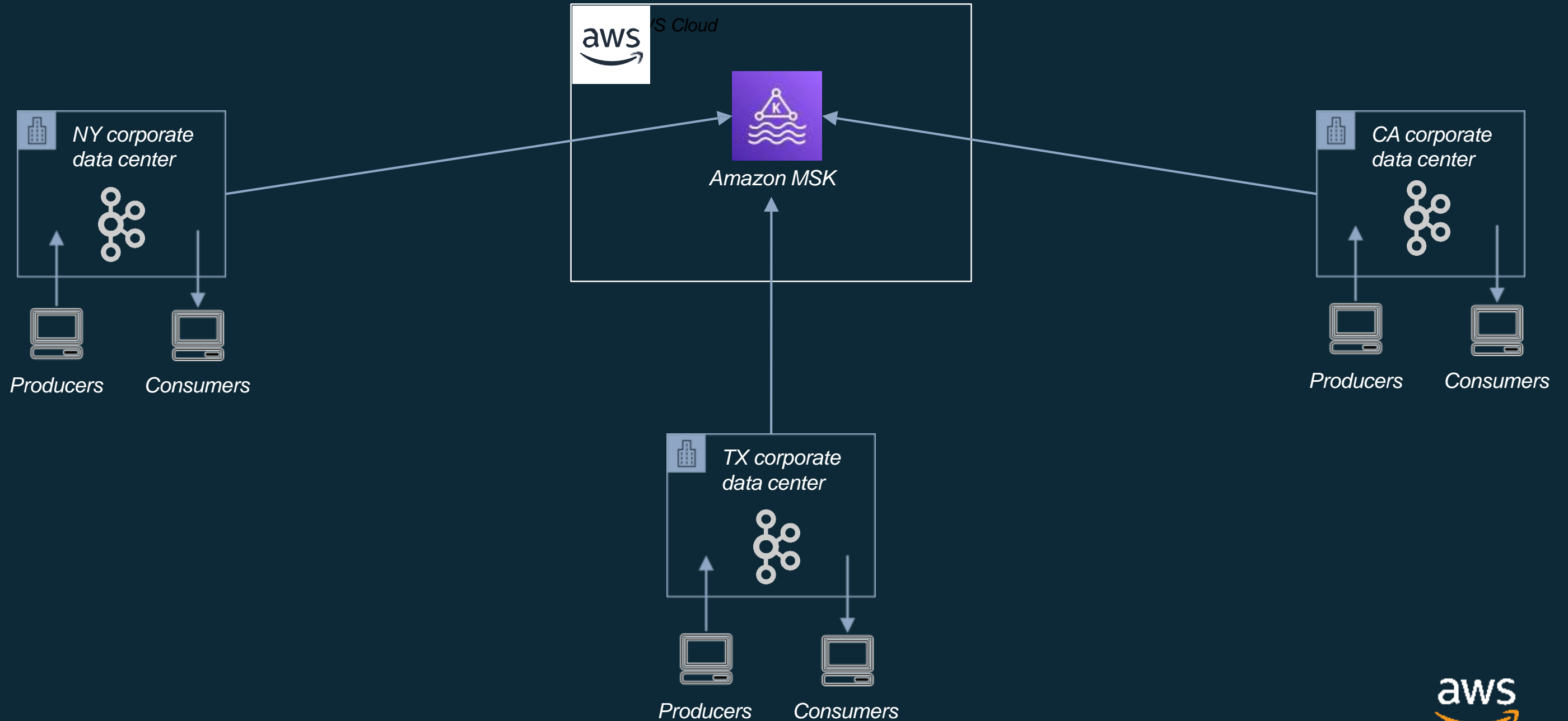
# Apache Kafka mirroring tools

- Apache Kafka mirroring tools help in maintaining a replica of an existing Apache Kafka cluster
- Common uses of Apache Kafka mirroring tools
  - Disaster recovery
  - Aggregation
  - Cloud migration
  - Data isolation
  - Geoproximity
- Apache Kafka mirroring tools
  - MirrorMaker 2.0
  - MirrorMaker 1.0



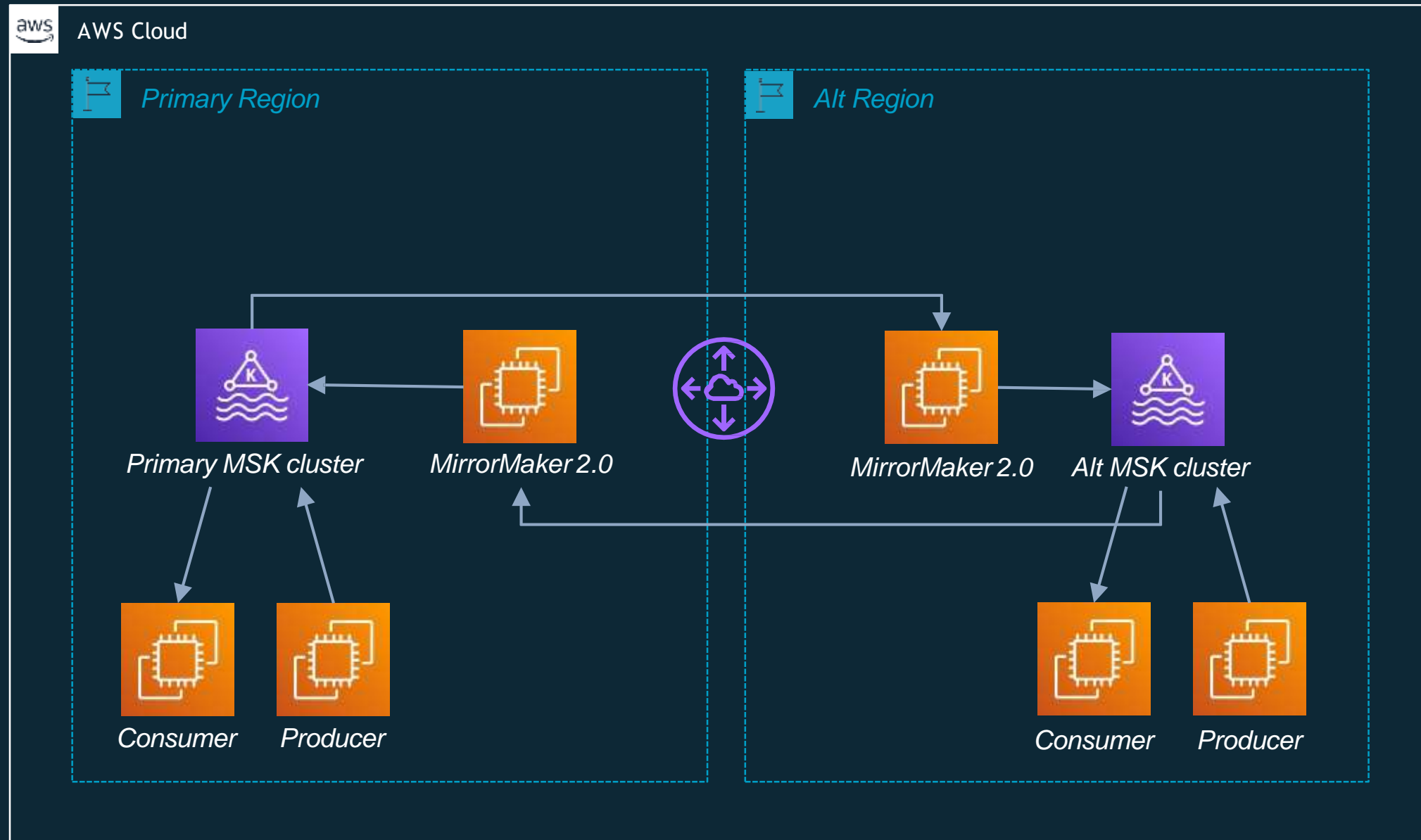
# Hub-and-spoke mirror architecture

## AGGREGATION



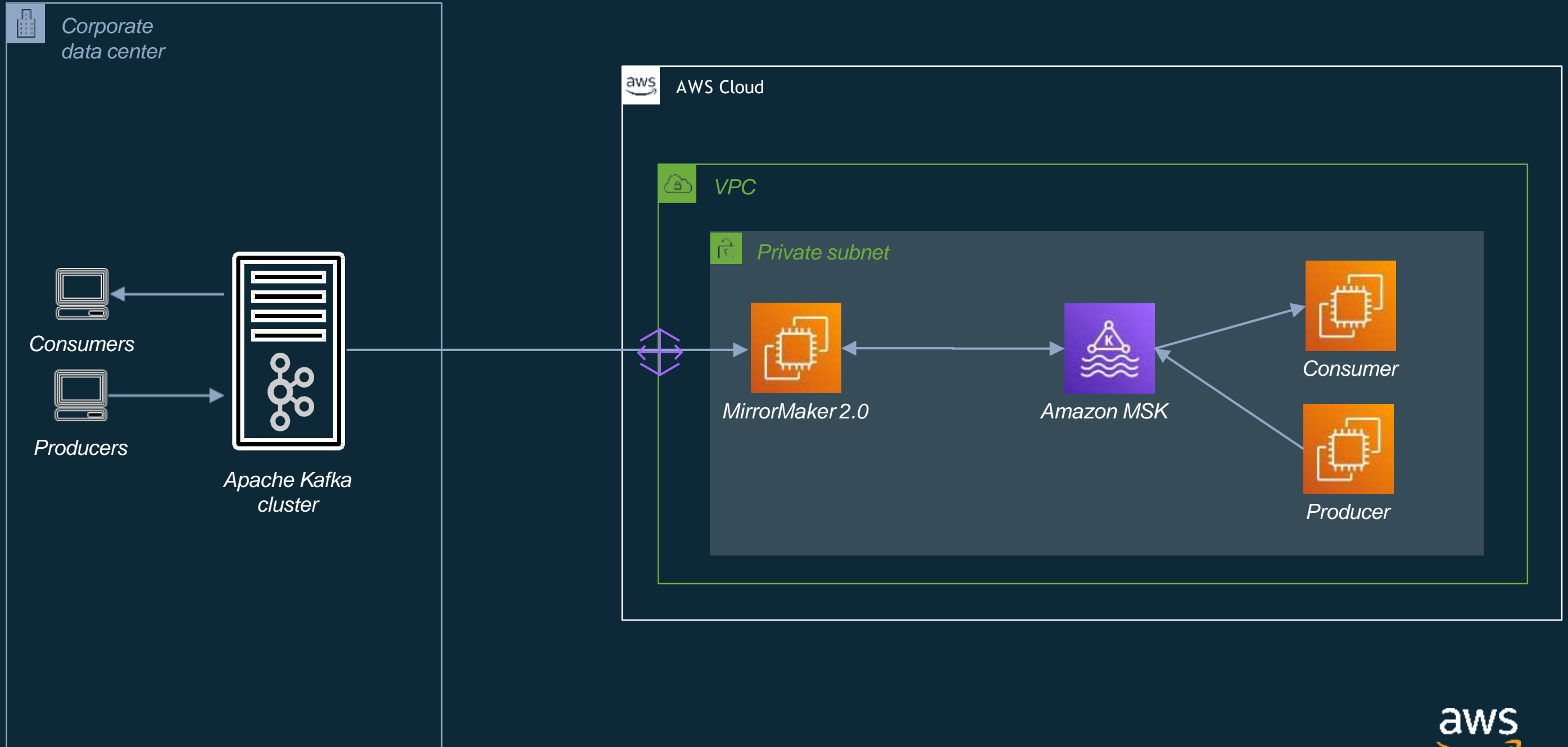
# Active-Active mirror architecture

HIGH AVAILABILITY: BI-DIRECTIONAL REPLICATION



# Active-Active mirror architecture

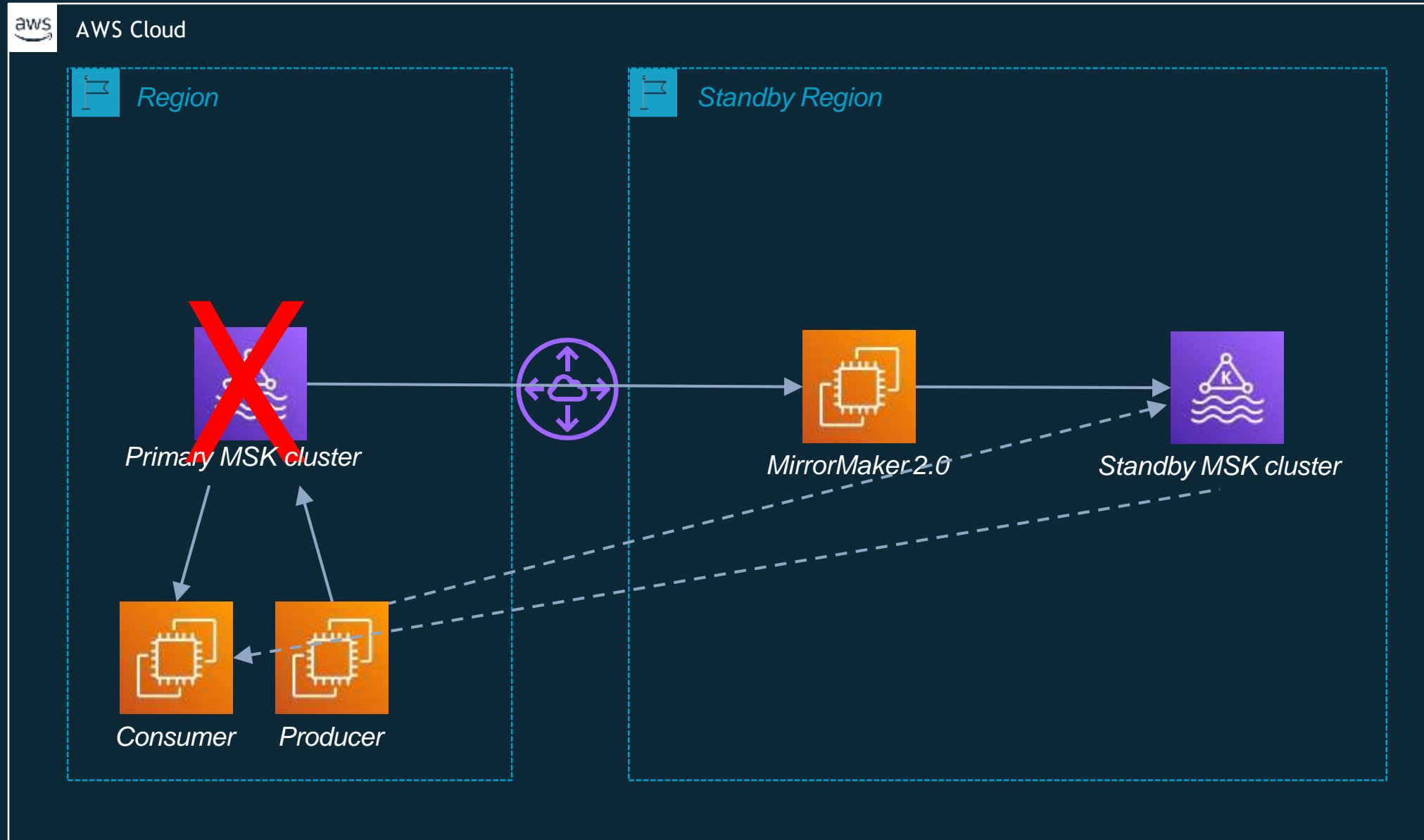
## GEO Proximity: 1-WAY REPLICATION





# Active-Passive mirror architecture

## DISASTER RECOVERY



# Migration using MirrorMaker 2.0



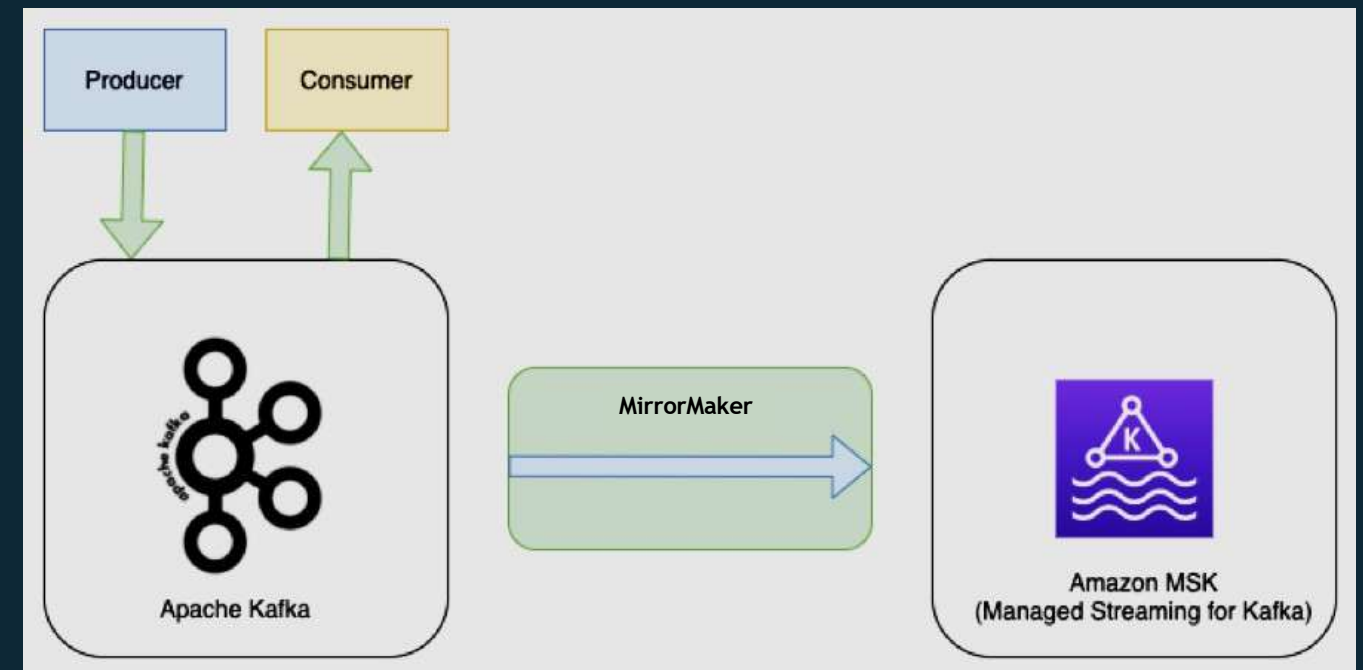
# MirrorMaker 2.0 vs. MirrorMaker 1.0

## MM 2

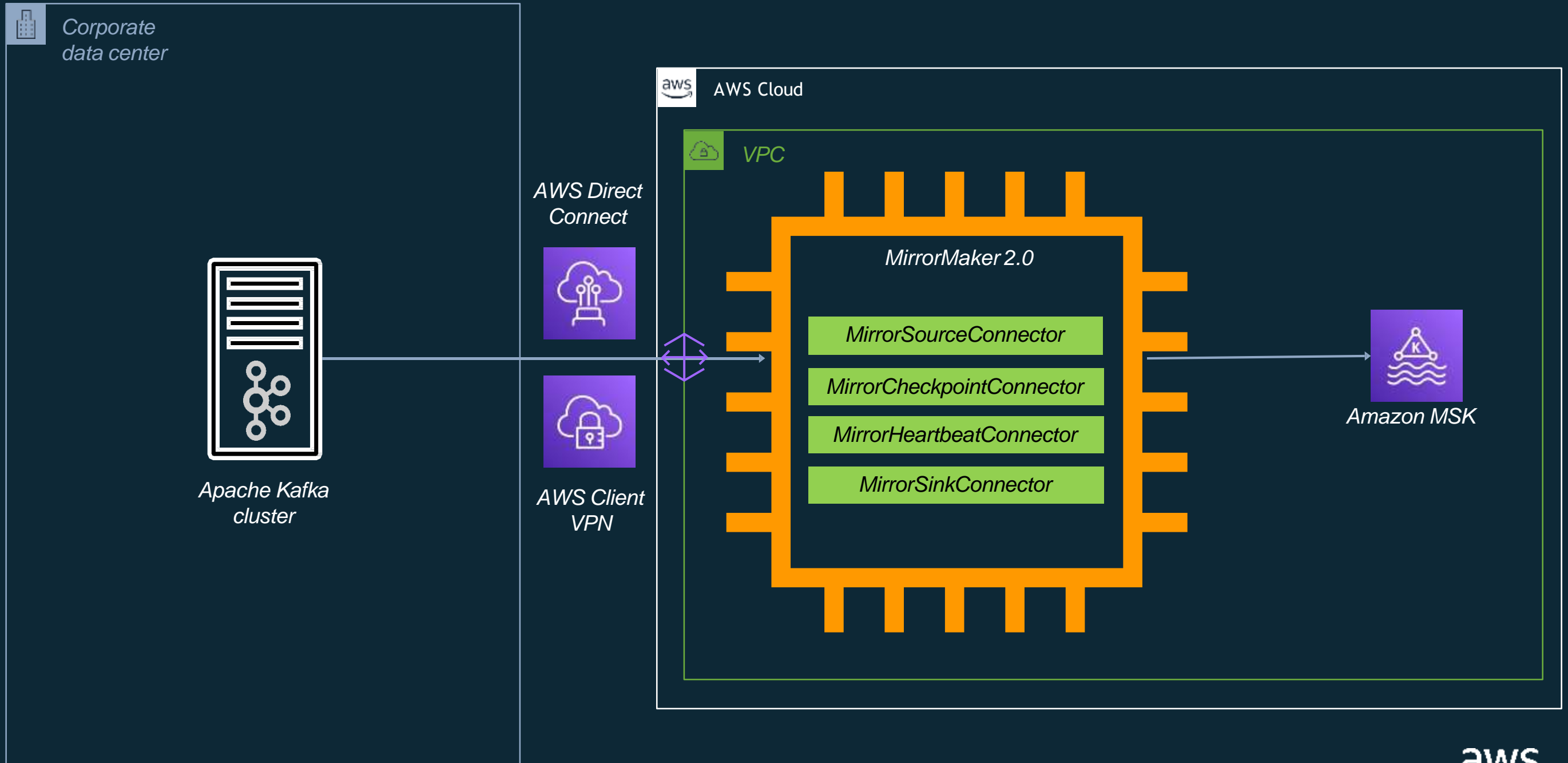
- *Multi-cluster data replication engine based on Kafka Connect framework*
- *Detects new topics and partitions in self-discovery mode*
- *Automatically synchronizes topic configuration*
- *Supports “active/active” cluster pairs, as well as any number of active clusters*
- *Provides new metrics including end-to-end replication latency across multiple clusters*
- *Emits the offsets required to migrate consumers between clusters and tooling for offset translation*
- *Configuration file for specifying multiple clusters and replication flows in one place*

## MM 1

- *Tool to mirror data between two Kafka clusters*
- *Data is read from topics in source and written with same name in destination cluster*
- *Uses the cluster default config to create topics in destination cluster*
- *Source and destination clusters are independent of each other*



# Anatomy of MirrorMaker 2.0



# MirrorMaker 2.0 deployment methods

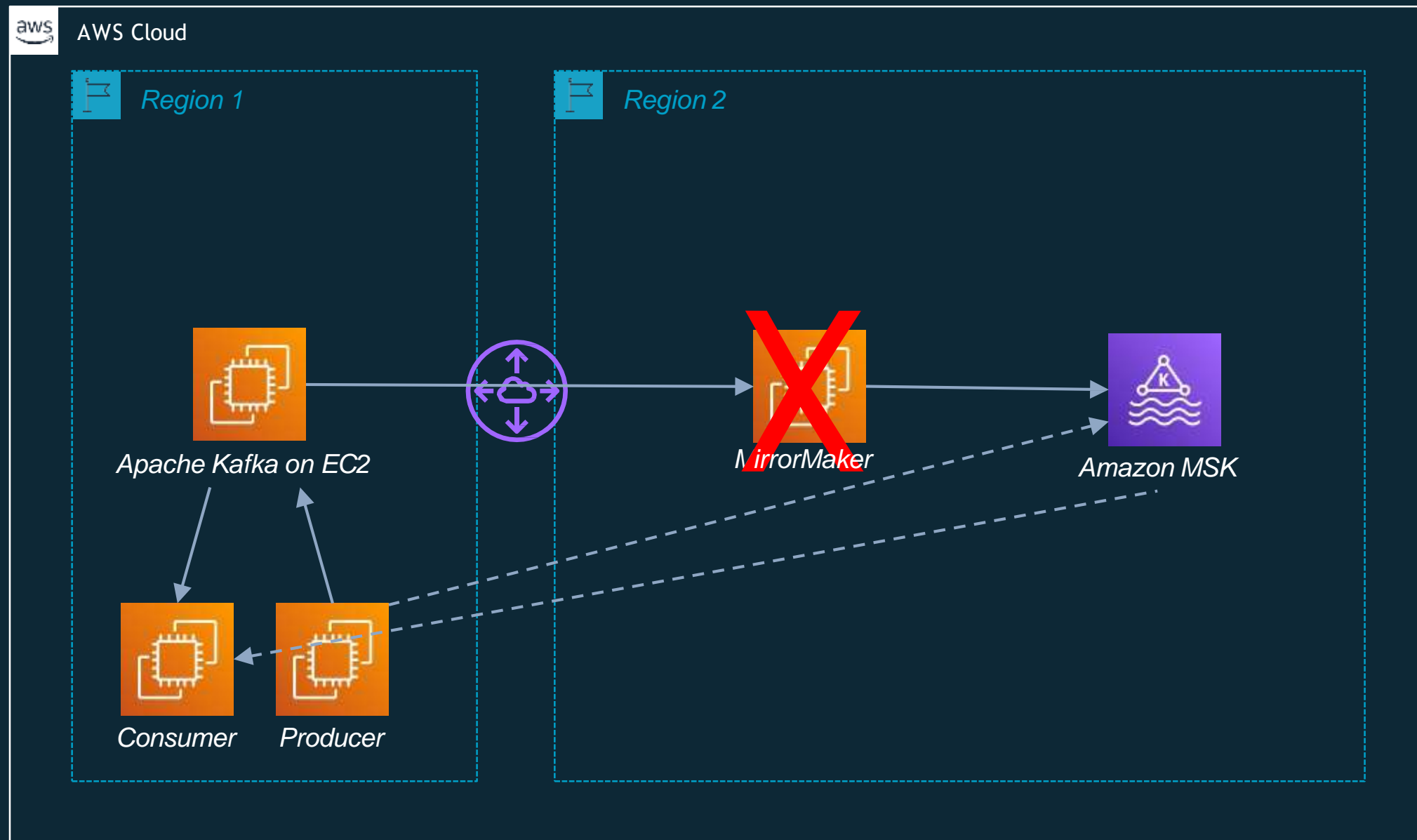
MirrorMaker 2.0 can be deployed and run four ways:

- Dedicated MirrorMaker 2.0 cluster
- Connector in a distributed Connect cluster
- As a standalone Connect worker
- In legacy mode



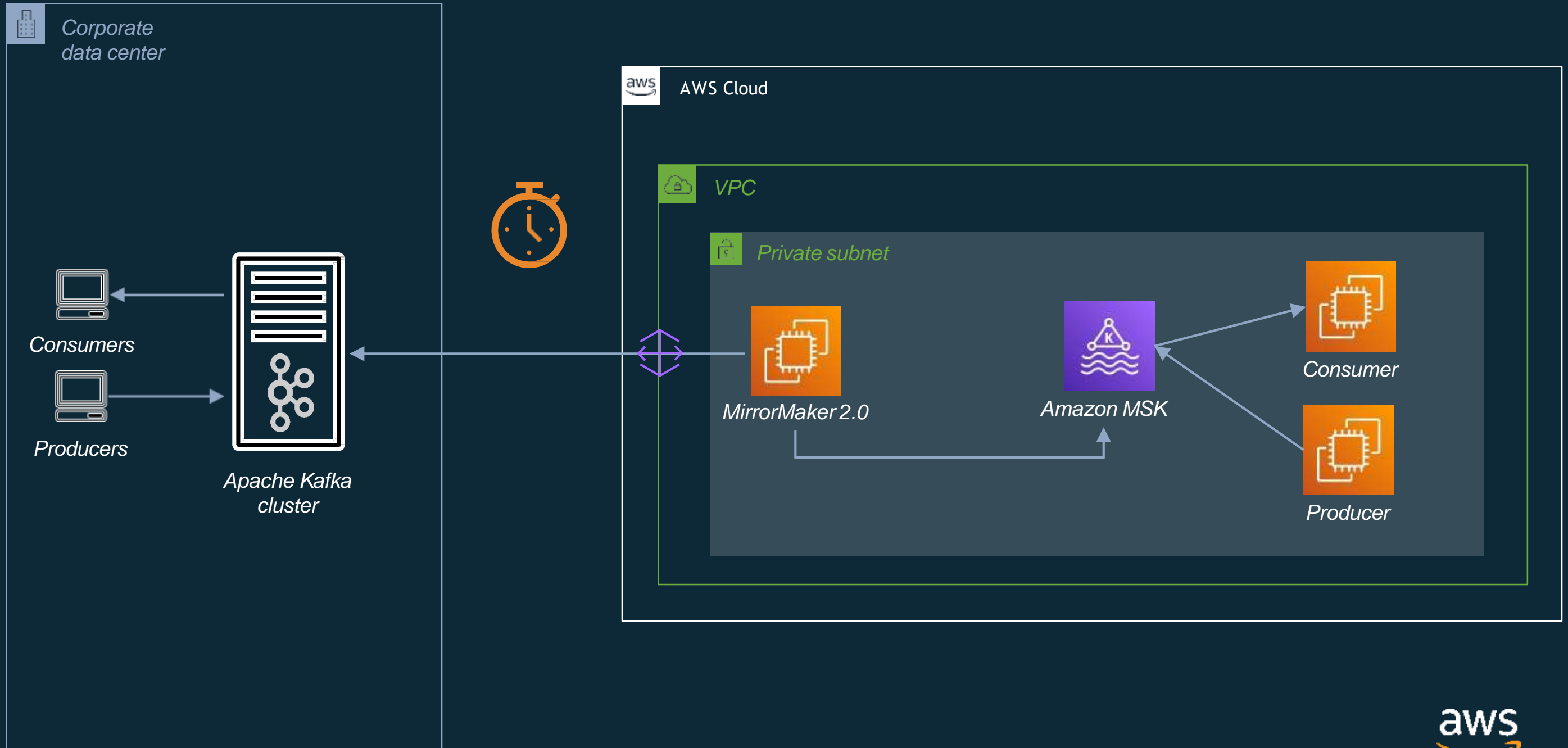
# No retention migration

WITH CONSUMER AND PRODUCER MIGRATION



# Migration with minimal downtime

WITH CONSUMER AND PRODUCER MIGRATION



# Kafka Migration Program

Packaged best practices, expertise, hands-on technical assets, and migration incentives to accelerate your MSK migration

---



## Free 2 day deep dive workshop

Get familiar with MSK, understand how MSK will fit in to your architecture and get hands-on migration guidance



## Engage with our professional services experts

Get a jumpstart on your migration with a 'Launch' (paid) engagement with our experts from professional services



## Ready to use technical assets

Get hands-on access to migration labs that detail best practices around configuring and migrating using MM2



## Migration Incentives

If needed, get POC credits to get the ball rolling on your migration

\* Work with your account teams to check if you [qualify](#)





# Getting Started

Learn MSK using our new education classes

<https://aws.amazon.com/msk/resources/>

Get hands on using our additional Labs

<https://amazonmsk-labs.workshop.aws/en/>

Get started in minutes with our ready to use templates

<https://aws.amazon.com/solutions/implementations/aws-streaming-data-solution-for-amazon-msk/>

Watch how compatible toolsets work with MSK

[https://www.youtube.com/watch?v=4C\\_FT2le9E4&t=6s](https://www.youtube.com/watch?v=4C_FT2le9E4&t=6s)

Need a deep dive?

Contact us at [msk-bd@amazon.com](mailto:msk-bd@amazon.com)



# Thank you!

