The Need for:
Kubernetes Native Message Queue Broker

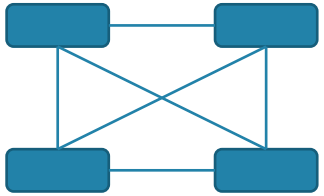
Lior Nabat, CTO E-mail:lior.nabat@kubemq.io Twitter:@lior_nabat

The need for messaging in Kubernetes

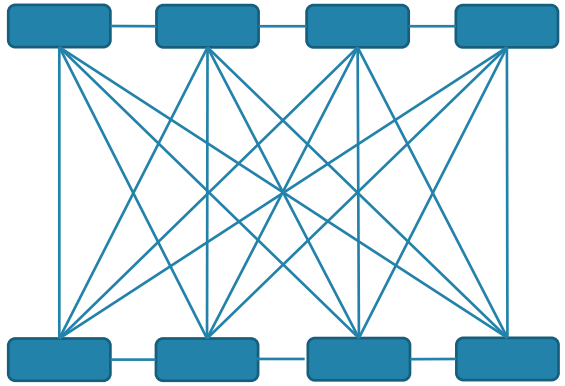
- Decoupling creates potential for massive amount of connections
- Point to Point
- No Multicast
- No Queuing

Direct connection (such as HTTP/REST)

4 services
12 connections

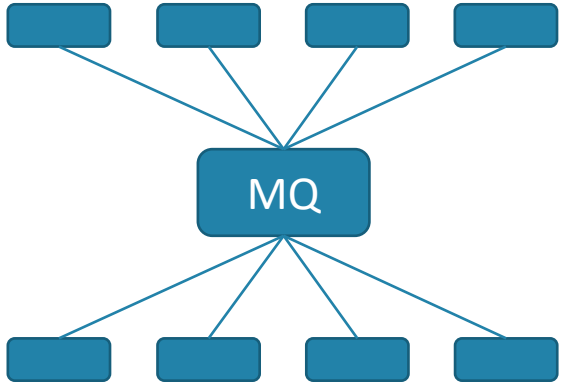


8 services
56 connections



With message queue

8 services, 8 connections

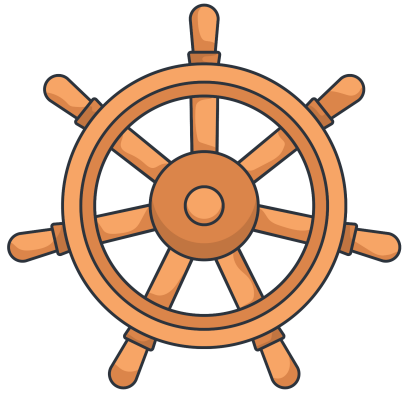


The need for Kubernetes **Native** message queue (1)

Kubernetes effective

A messaging system cannot be effective if it is not native to Kubernetes. Enterprises must ensure that when implementing a message queue system, it is native to Kubernetes to leverage the advantages:

- Robust messaging queue system
- Secured system
- Low DevOps maintenance
- Well-connected ecosystem for all Kubernetes services
- Rapid development and deployment

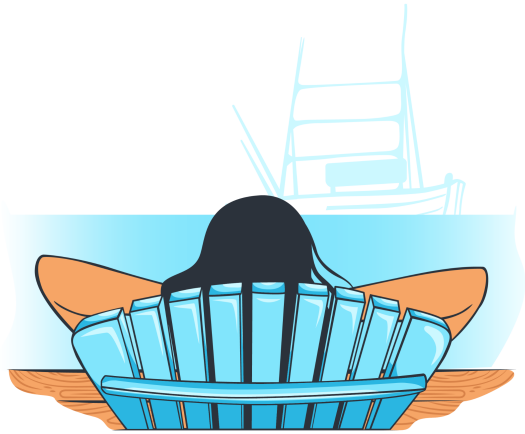


The need for Kubernetes **Native** message queue (2)

Ease of Use

A message queue system in microservices architecture can save time, money, as long as it is super easy to use in Kubernetes

- Dedicated IT experts is not needed
- Unifies operation workflows and development
- Saves costs



The need for Kubernetes **Native** message queue (3)

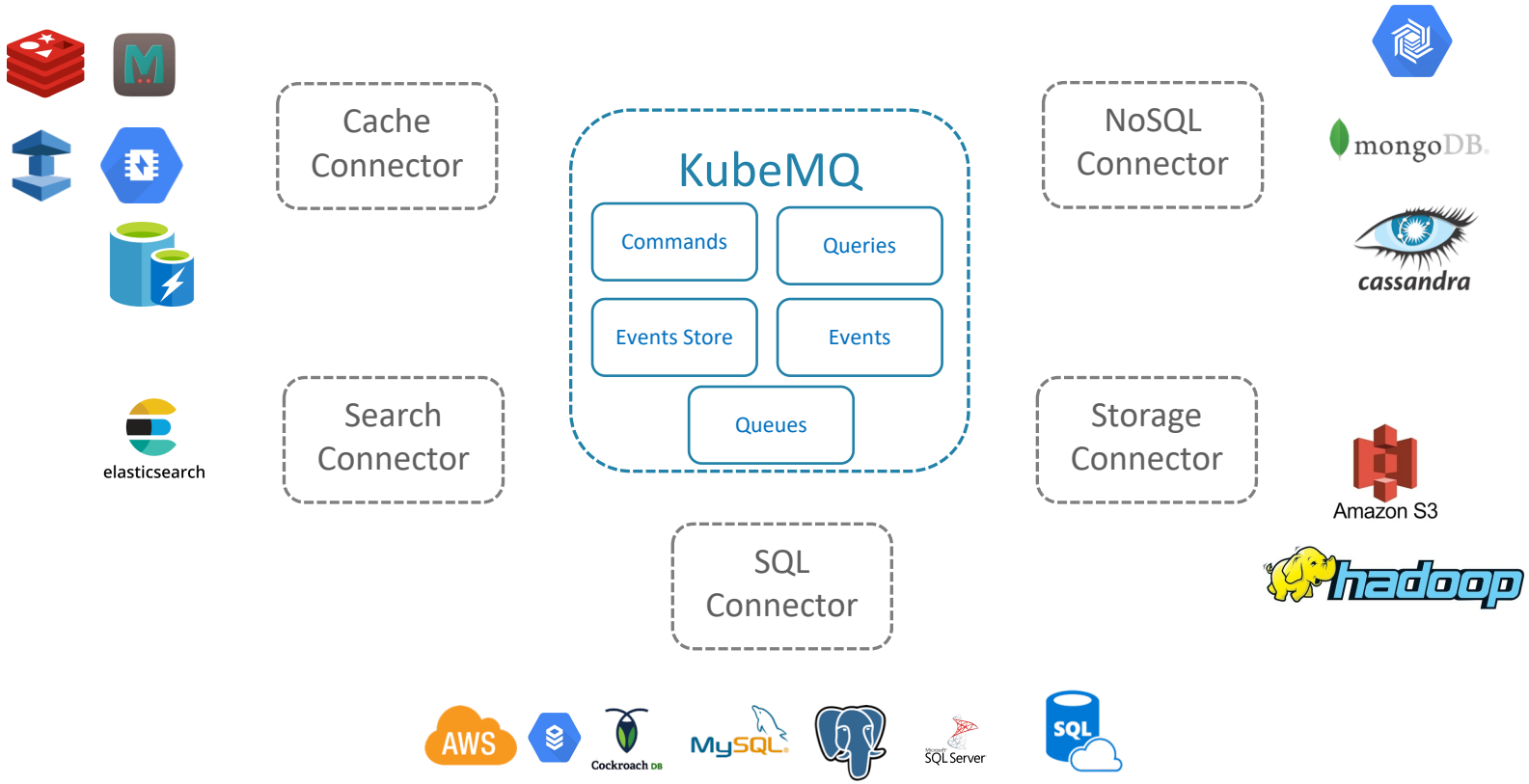
Integrated in the Kubernetes cluster and to the edge

Use the message queue inside the K8S cluster to avoid issues of

- Security
- Double traffic
- Additional environment maintenance
- Additional operational overhead
- Enable ability to serve edge and small clusters

The need for Kubernetes **Native** message queue (4)

Cloud native integration



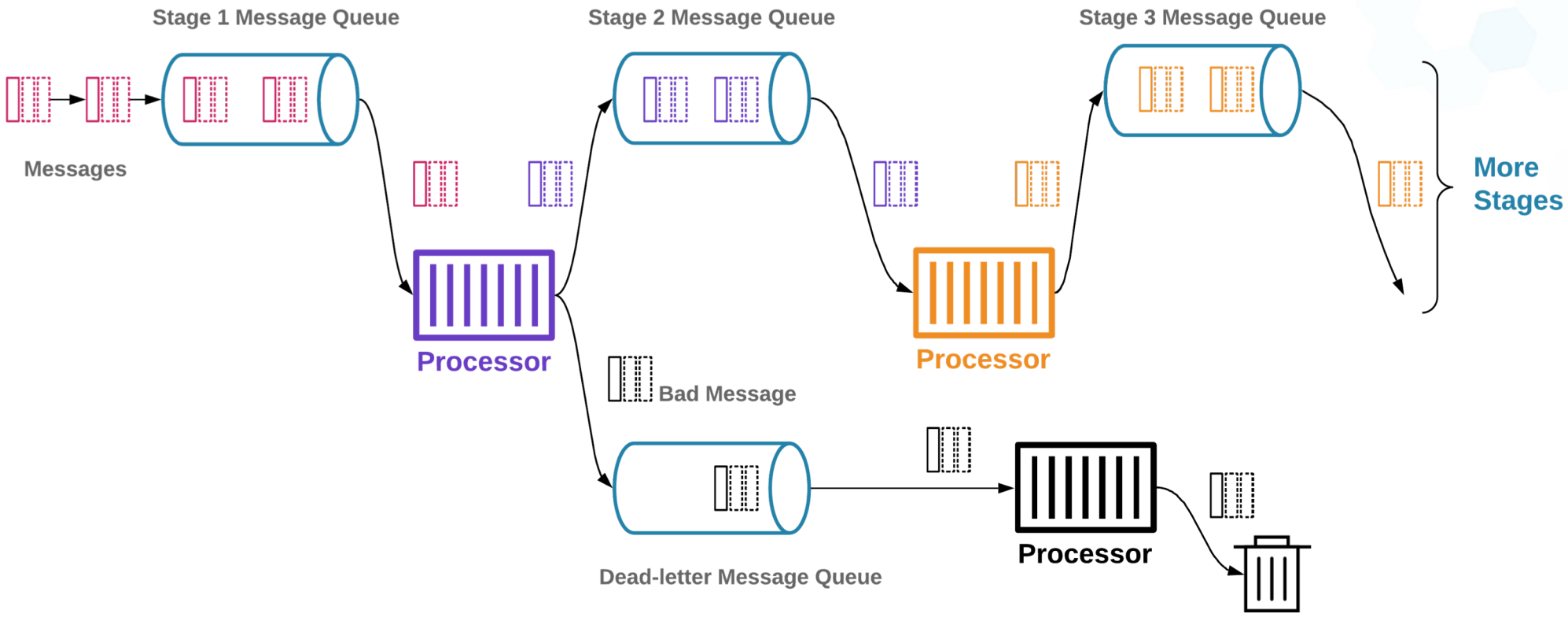
The need for Kubernetes **Native** message queue (5)

Use cases

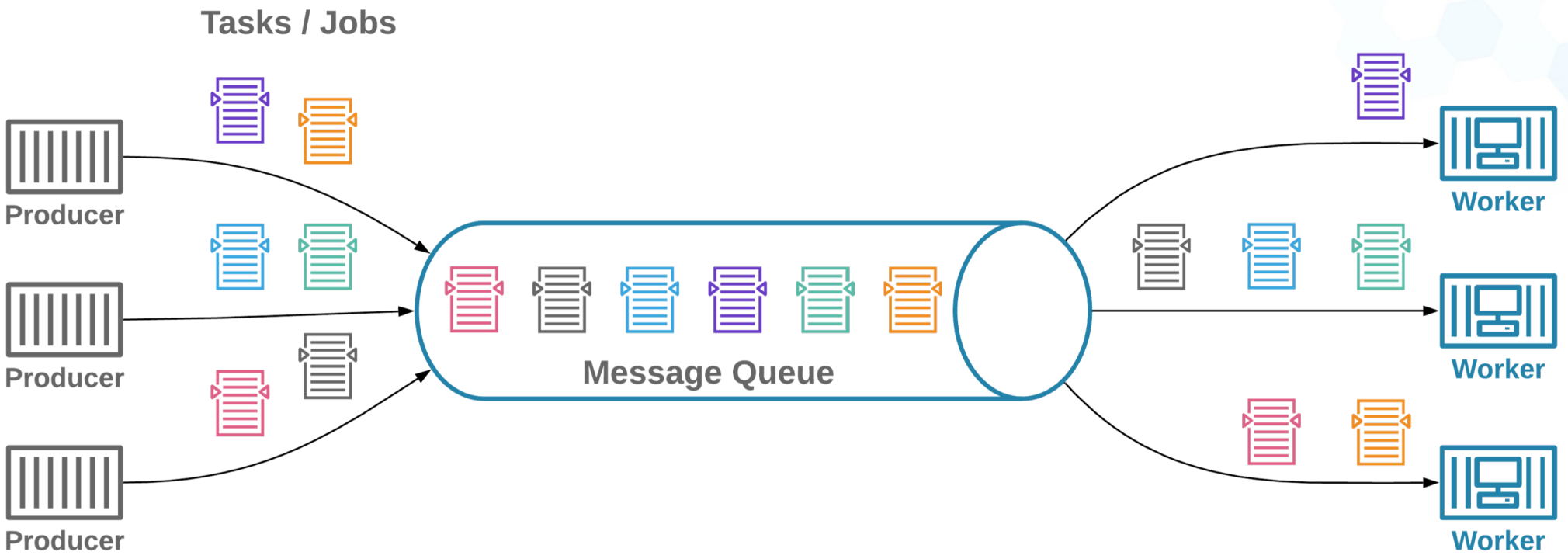
Supporting most common use cases of the messaging in Kubernetes

- Multi-stage pipeline
- Task / Job Distributed Queue
- Streaming data workflows
- Pub/Sub in real time
- Application decoupling - microservices

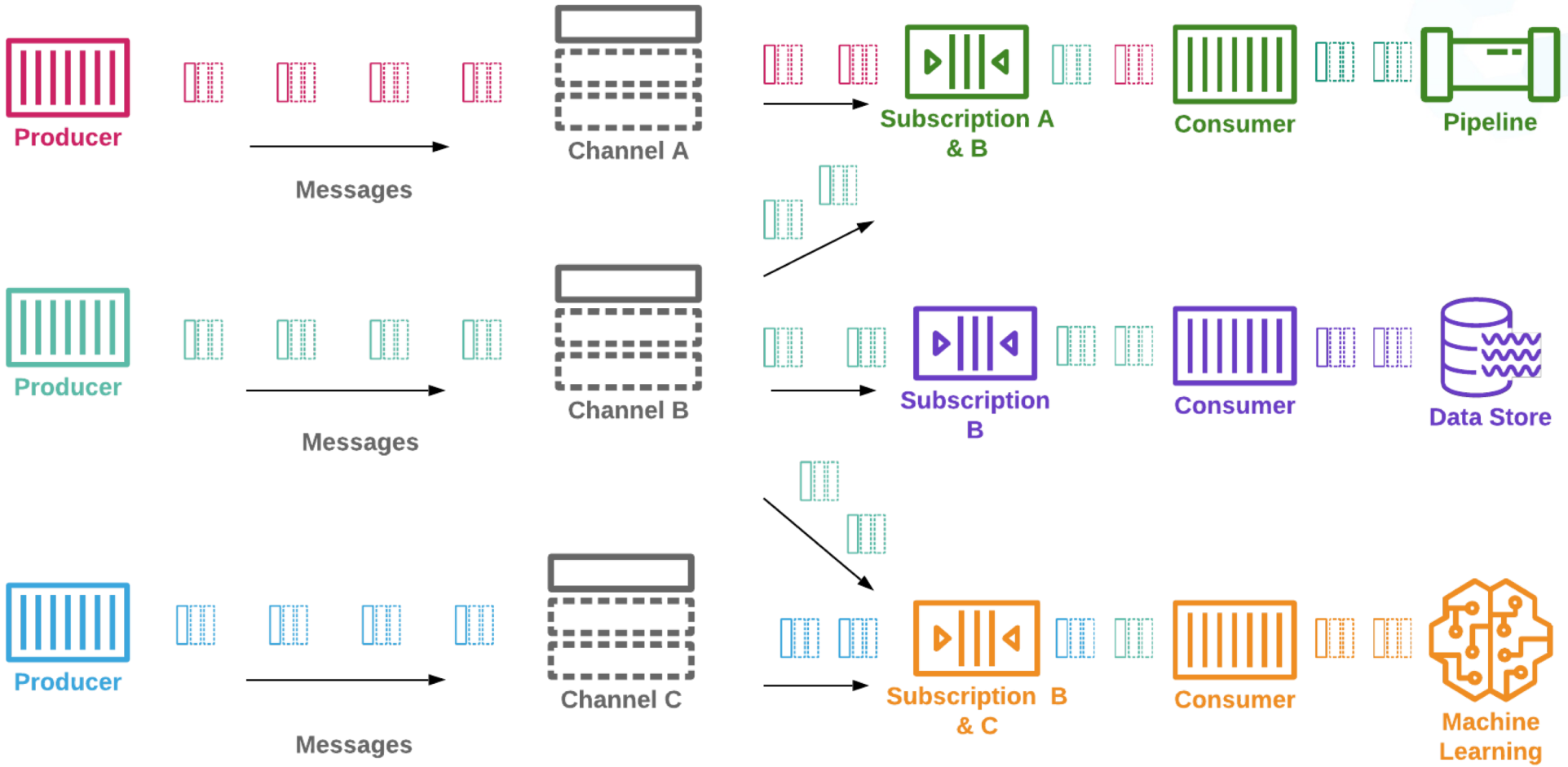
Multistage Data Processing Pipeline



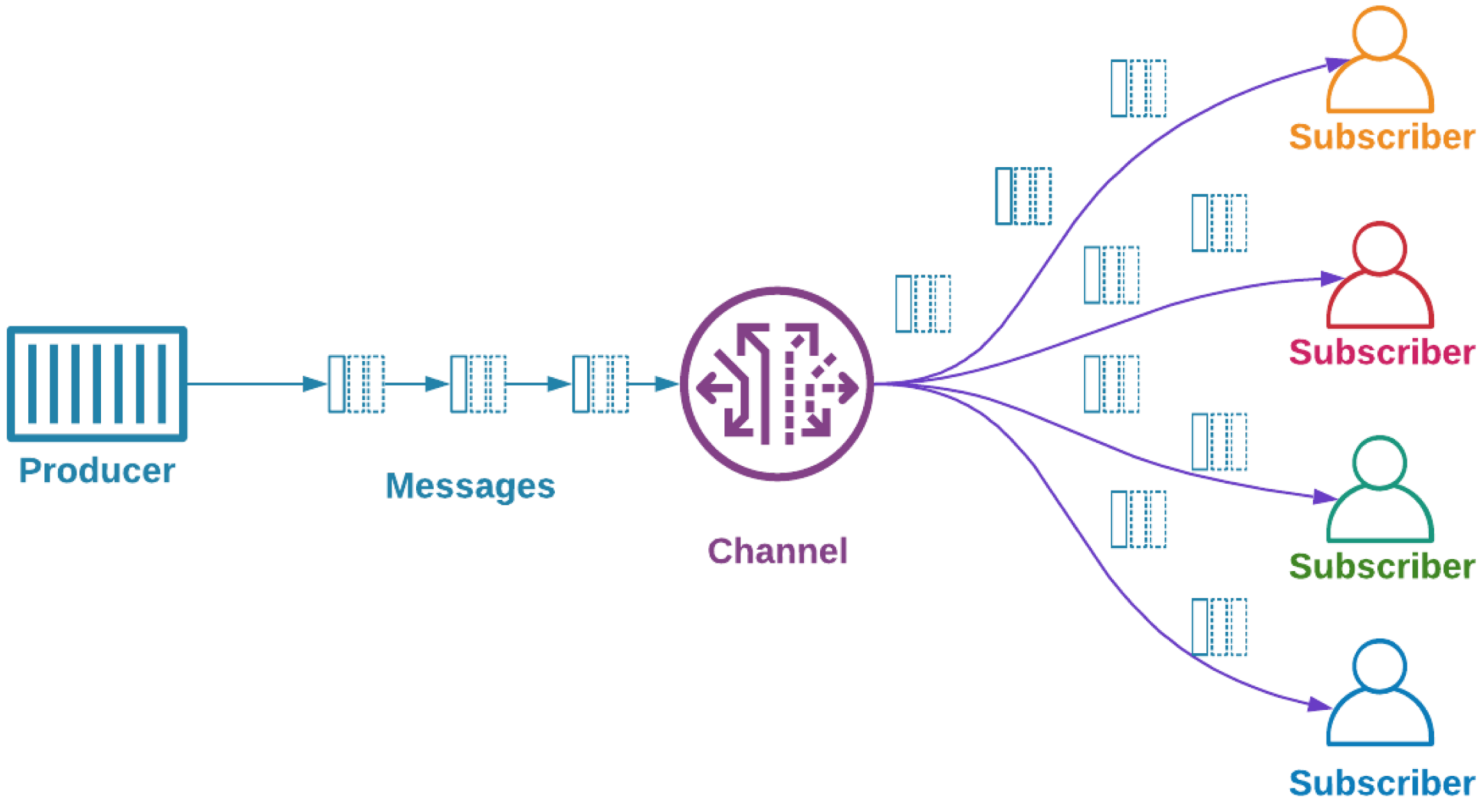
Task / Job Distributed Queue



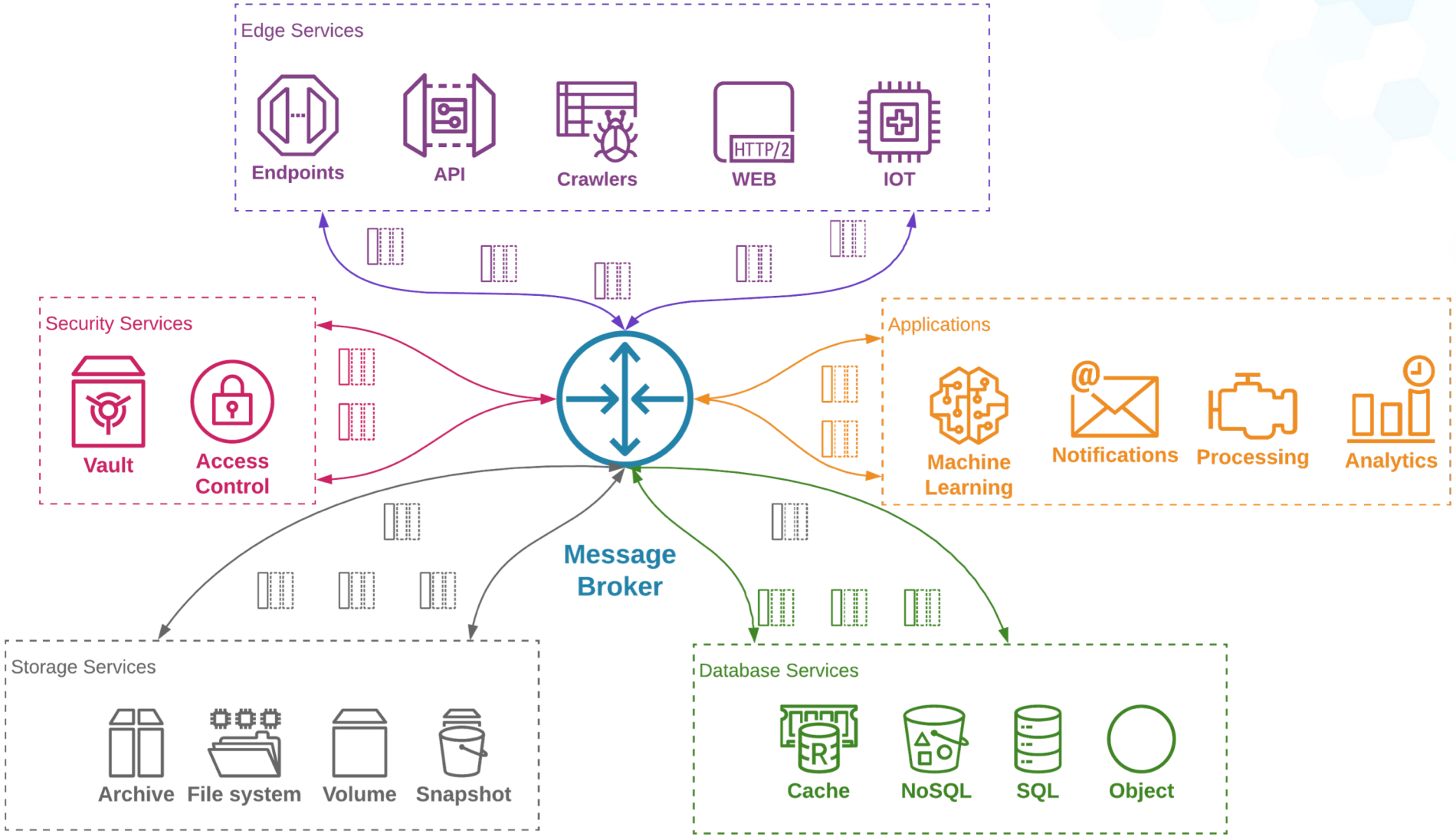
Stream Messages Processing



Pub/Sub Realtime Messaging



Application decoupling / Microservices

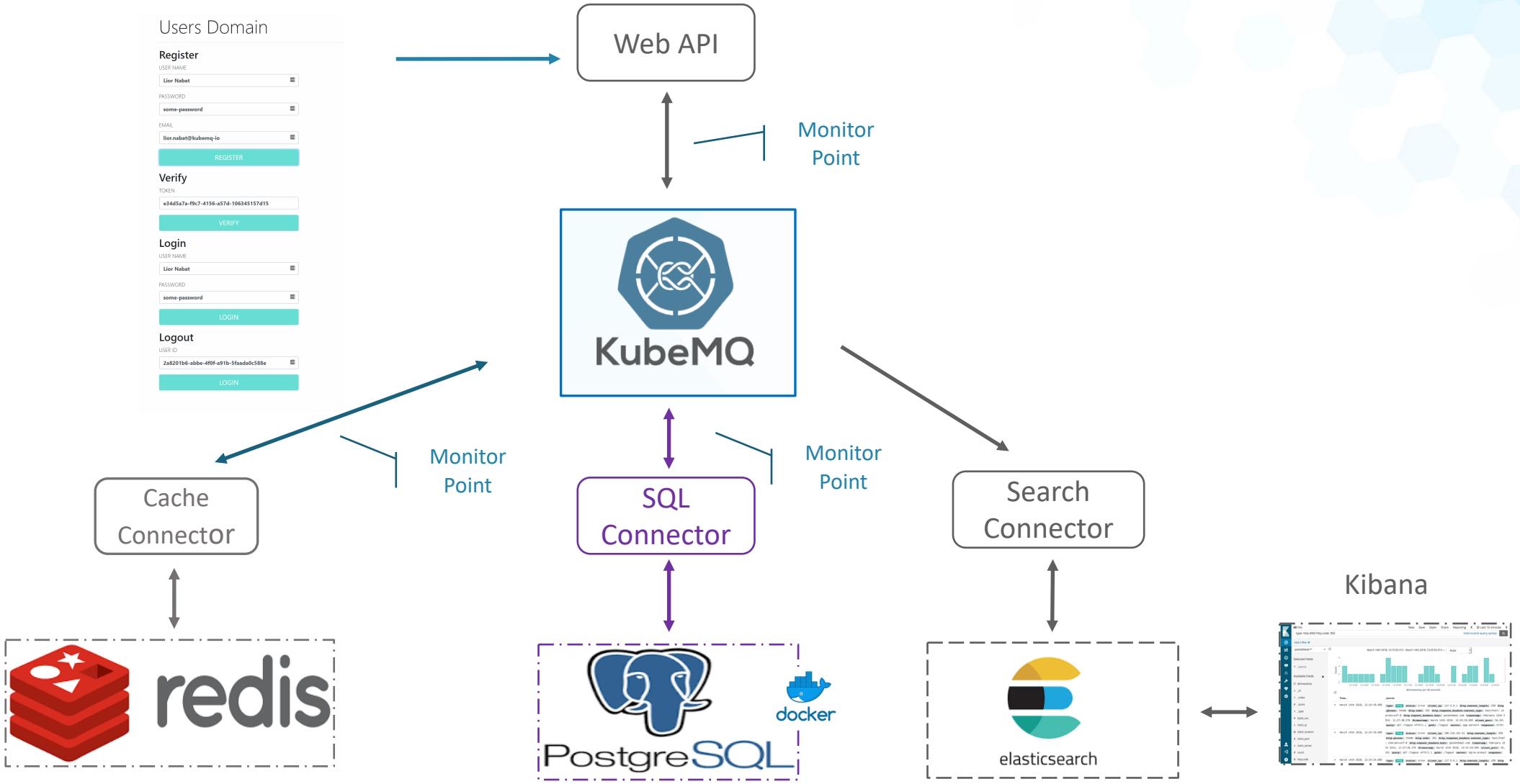


Demo

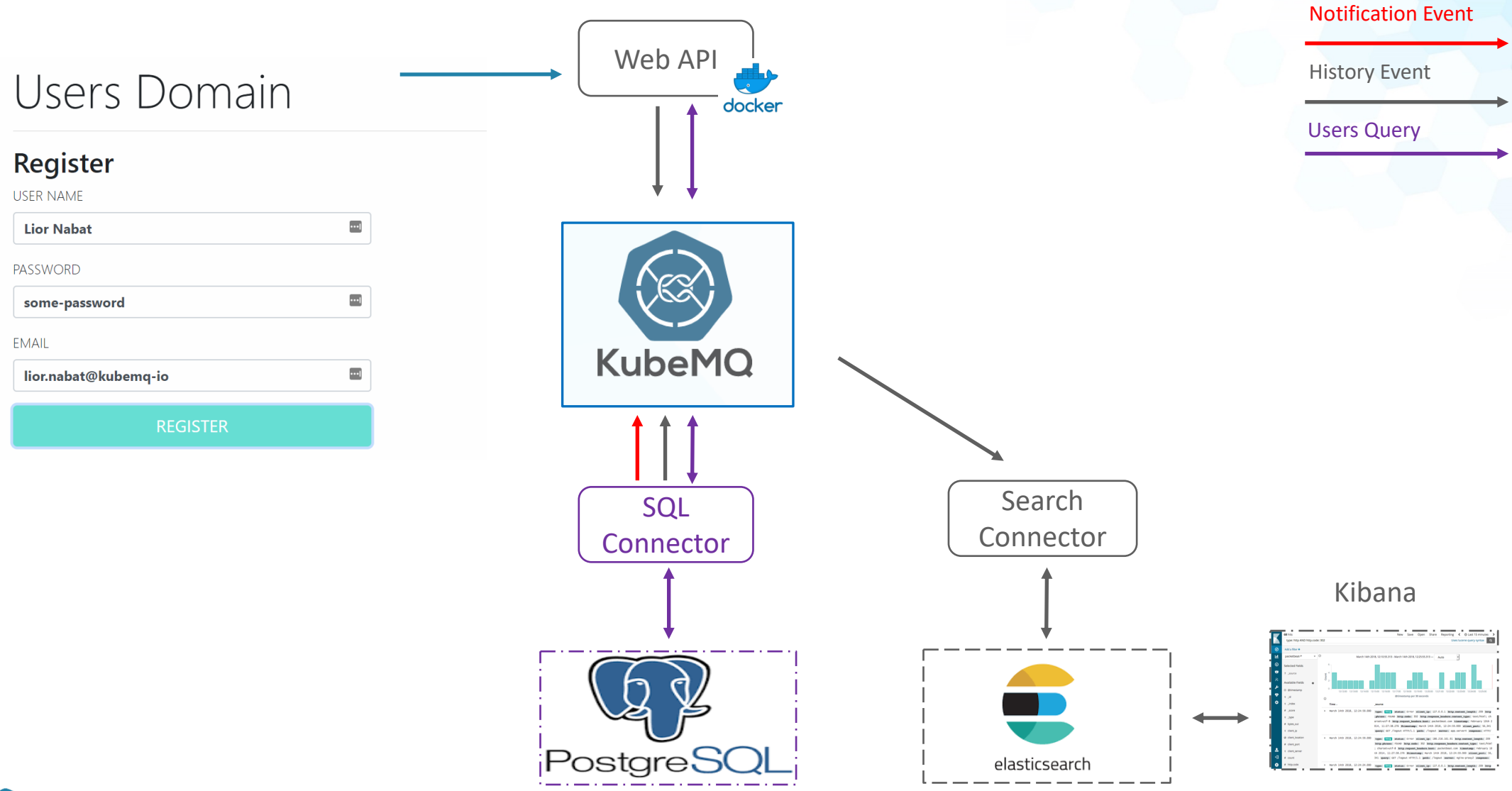
Let’s look on Users domain

Register	Create a user and get verification code
Verify	Send verification code and activate user account
Login	Login with credentials
Logout	Logout from user account

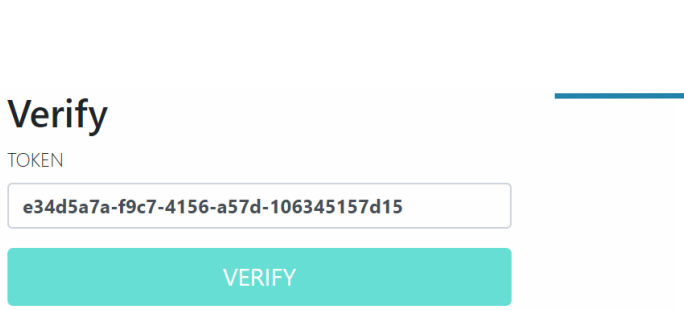
The Setup

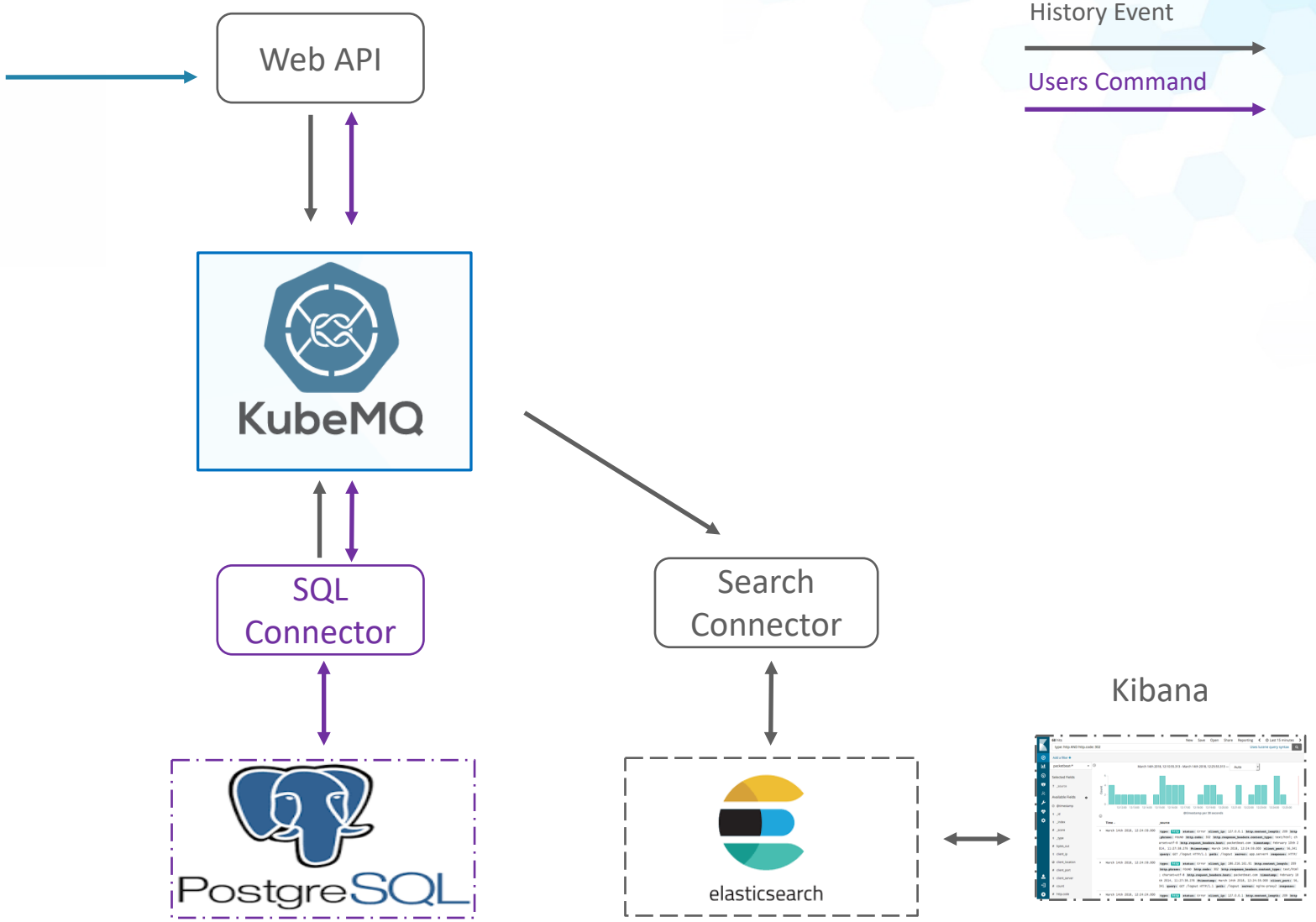

Users Domain
Register
USER NAME
Lior Nabat
PASSWORD
some-password
EMAIL
lior.nabat@kubemq-io
REGISTER
Verify
TOKEN
e34d5a7a-f9c7-4156-a57d-106345157d15
VERIFY
Login
USER NAME
Lior Nabat
PASSWORD
some-password
LOGIN
Logout
USER ID
2a82201b6-abbe-4f0f-a91b-5faada0c588e
LOGIN
Web API
Monitor Point
KubeMQ
Monitor Point
Monitor Point
Cache Connector
SQL Connector
Search Connector
redis
PostgreSQL
docker
elasticsearch
Kibana

Register Flow

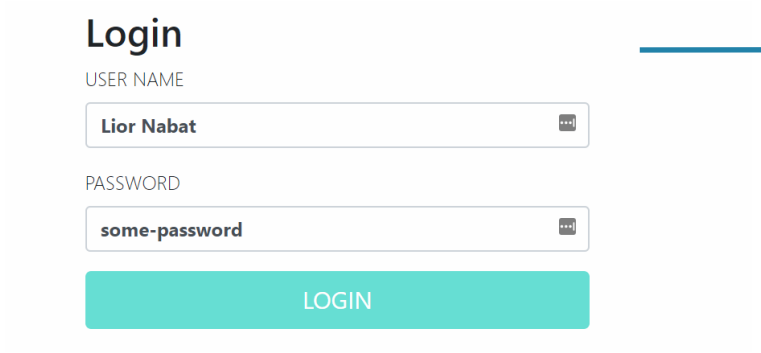


Verify Flow


Verify
TOKEN
e34d5a7a-f9c7-4156-a57d-106345157d15
VERIFY


Web API
KubeMQ
SQL Connector
Search Connector
PostgreSQL
elasticsearch
Kibana
History Event
Users Command

Login Flow



Web API

KubeMQ

Cache Connector

SQL Connector

Search Connector

redis

PostgreSQL

elasticsearch

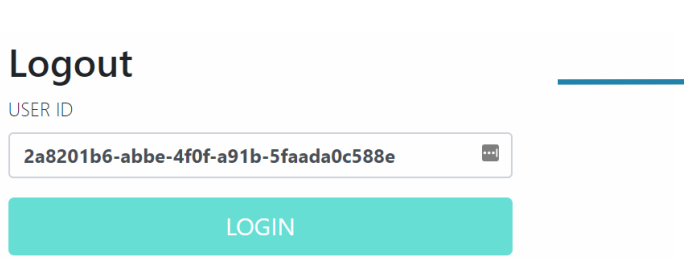
Kibana

History Event

Users Query

Cache Commands / Query

Logout Flow



History Event

Users Query

Cache Commands / Query

Web API

KubeMQ

Cache Connector

SQL Connector

Search Connector

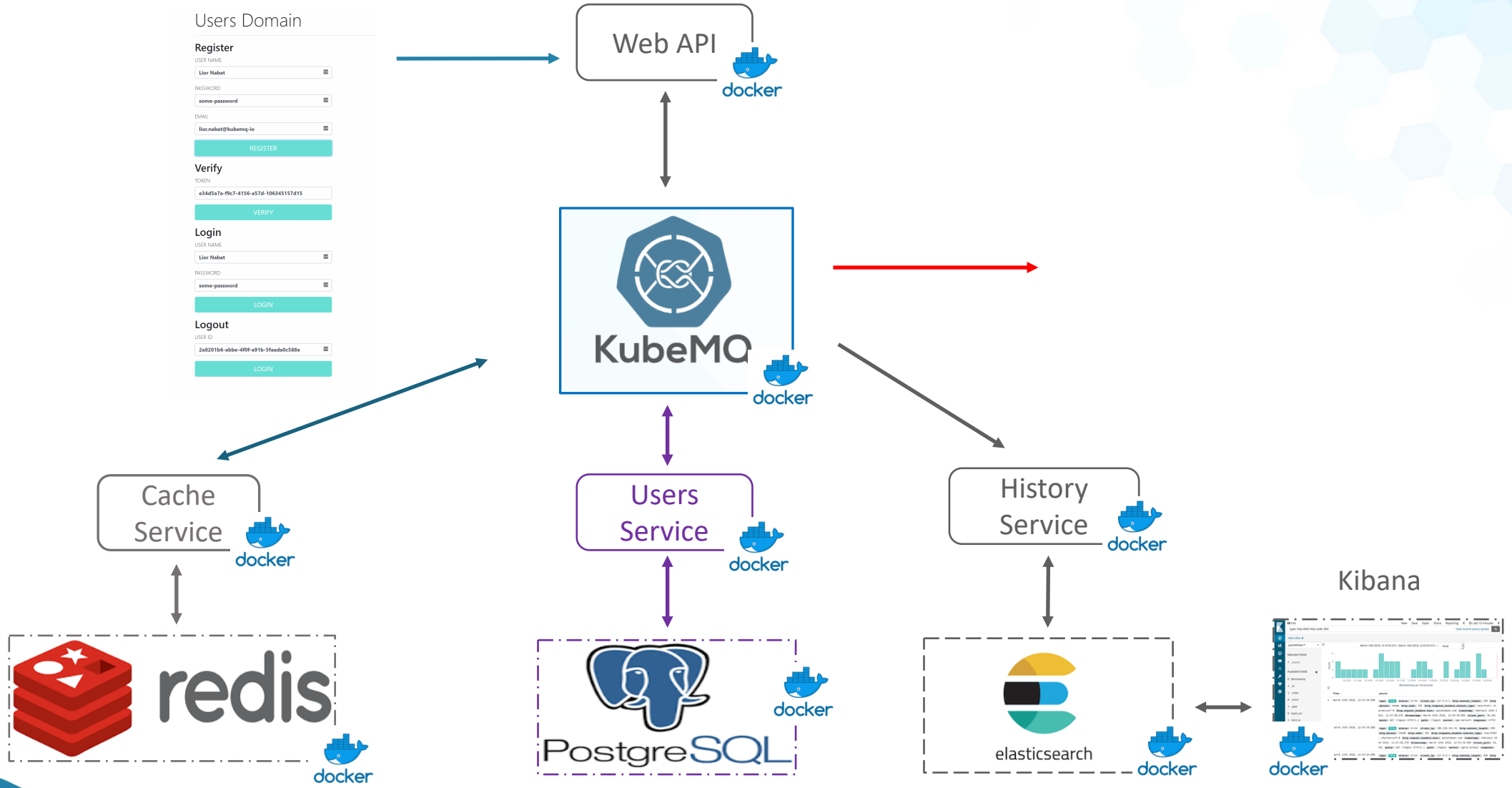
redis

PostgreSQL

elasticsearch

Kibana

Let's See Some Errors

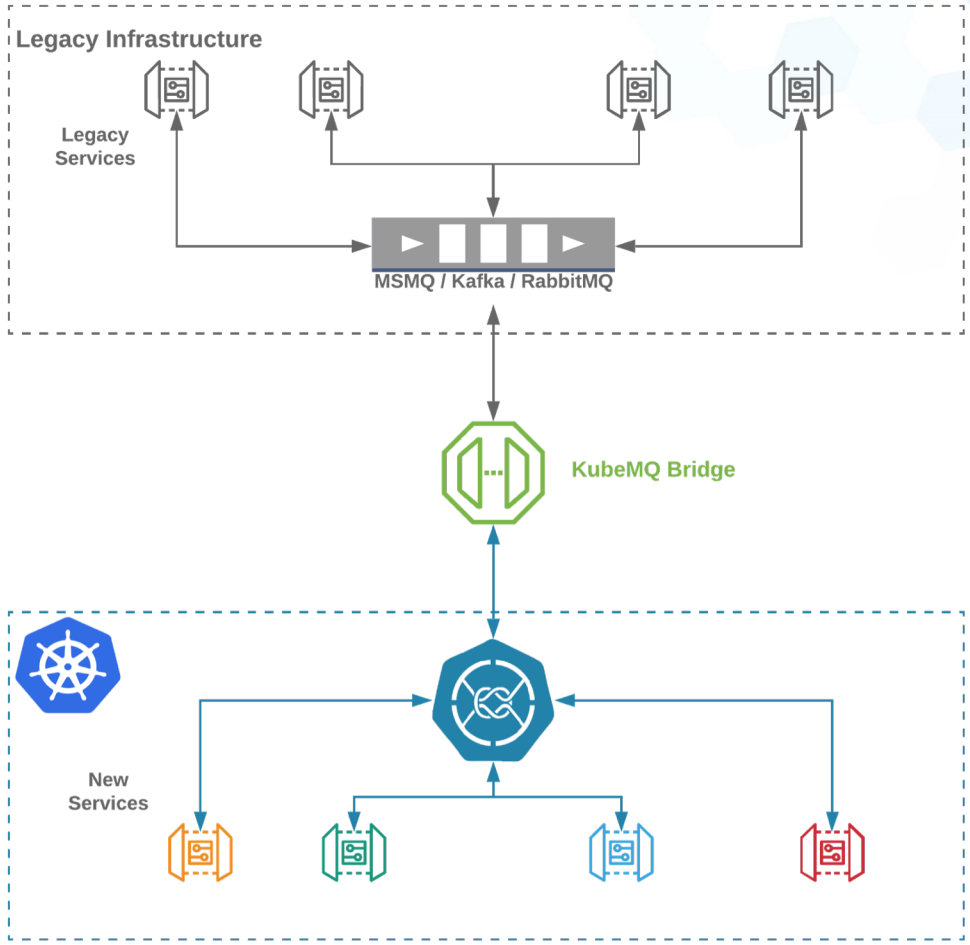


Migration to microservices environment

Companies with legacy IT infrastructure need to gradually migrate to microservices or start building new components separately.

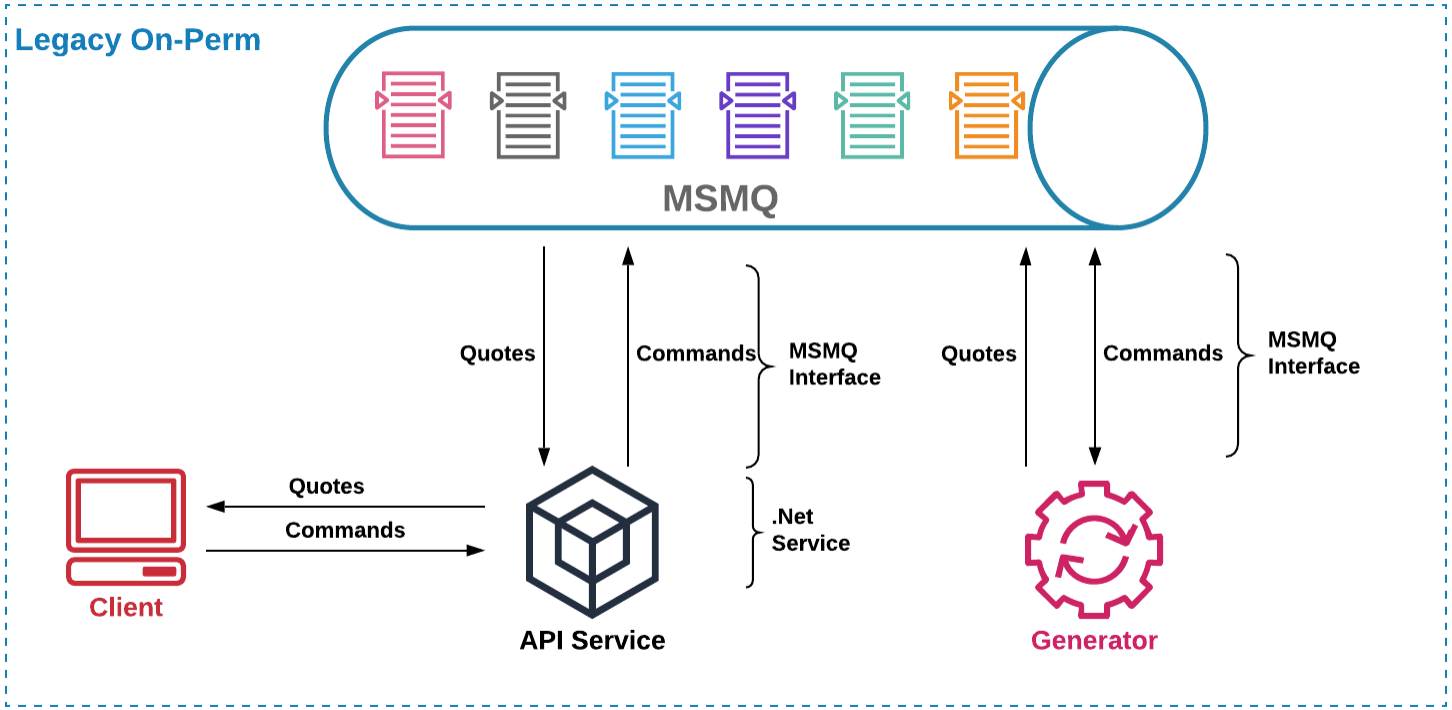
Using a bridge to provide connectivity between legacy on-prem monolithic and new microservices architecture

This bridging capability enables gradual migration by implementing a step-by-step replacement of components from the old environment or the creation of new services that can still connect with the legacy resources.

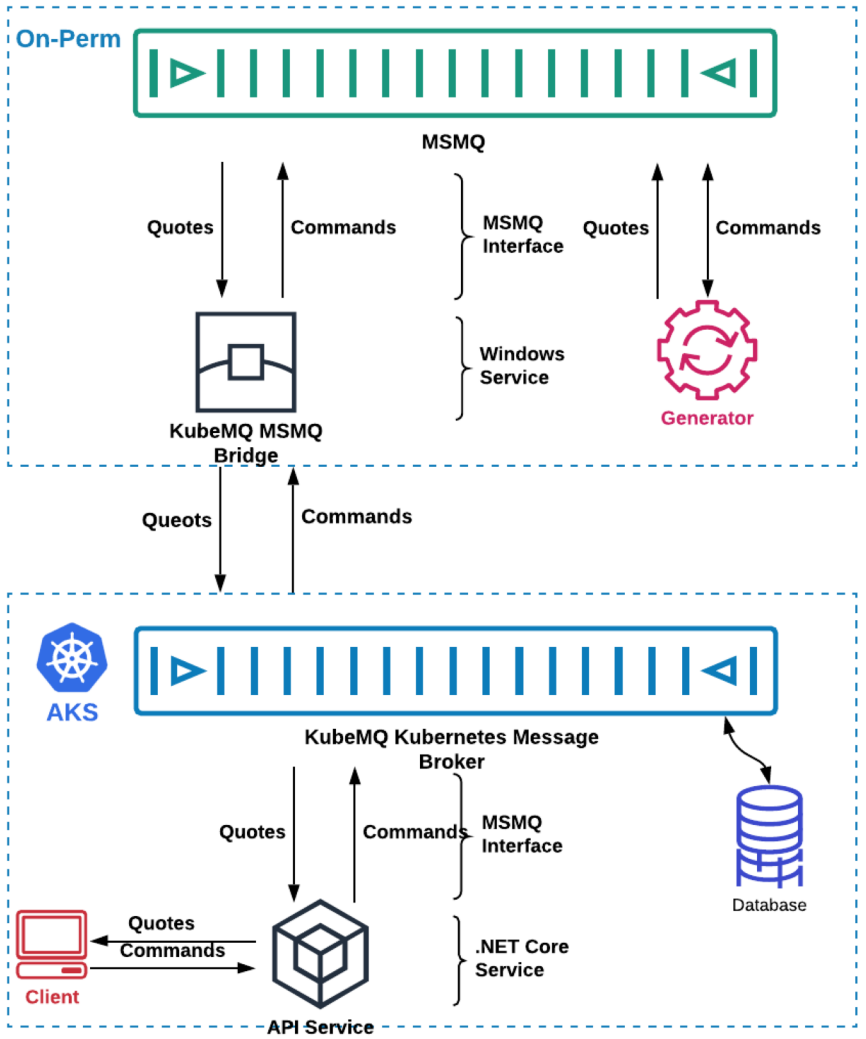


Demo

Migrating Financial Based app from MSMQ to Kubernetes



Migration to AKS



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Thank you

KubeMQ is an enterprise grade message broker for Kubernetes