High Level Design

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2. Introduction

This project is designed to demonstrate the use of Kafka, particularly the ability to host Kafka in a kubernetes cluster.

Kubernetes, out of the box supports the following:

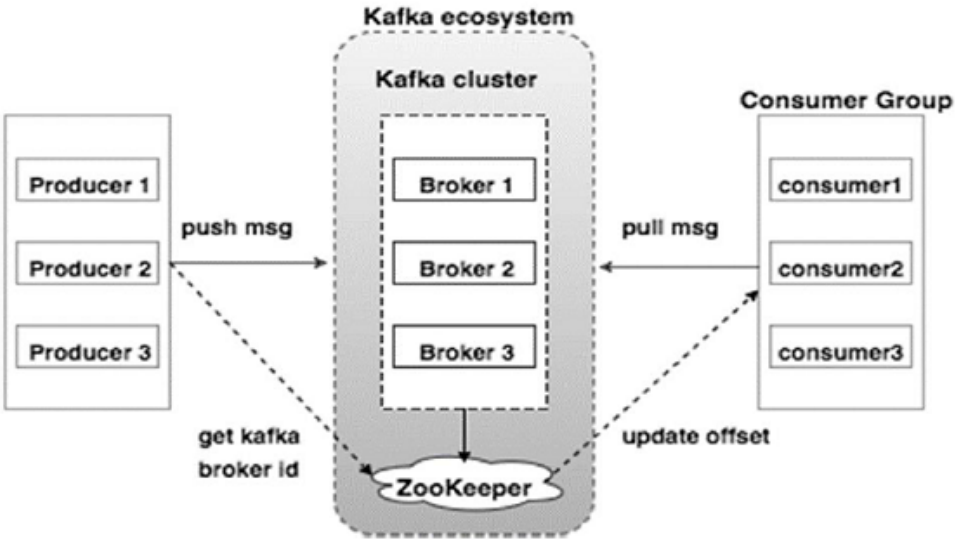
- high availability
- elasticity / scalability

In addition, this project further alludes to the support for data replication and data recovery, through the means of Confluent's Kafka replicator or MirrorMaker

3. Logical Design Model

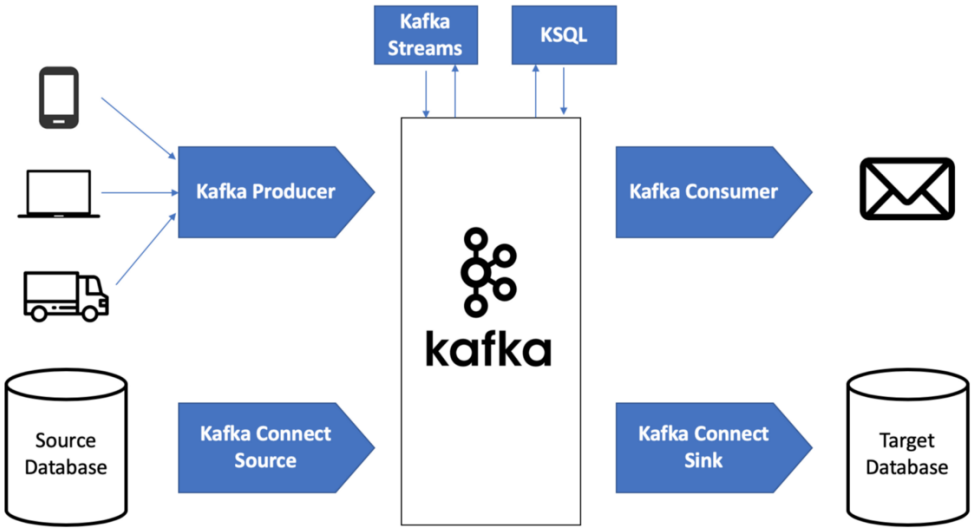
The logical model[1] isn't an exact replica of my implementation, however it illustrates the same cluster configuration.

1. Kafka messages are placed on a topic called `datetime-topic` by making a `POST` request to the `datetime-injector-app` web application.
2. The messages placed are persisted on that Kafka topic indefinitely



This design set the foundation to further extend this out to allow data replication by offloading the data onto an external database such as REDIS or MySQL

The design here[2] illustrates how the Kafka cluster can be extended



4. Future Considerations

4.1. Monitoring

Kubernetes provides various logging capability out of the box, this can feed into a data analytics tool such as Prometheus or Grafana

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1. https://www.tutorialspoint.com/apache_kafka/apache_kafka_cluster_architecture.htm
2. https://www.tutorialspoint.com/apache_kafka/apache_kafka_cluster_architecture.htm