Message Broker

* Also known as Integration Broker or Interface Engine
* Translates message from formal messaging protocol to sender to the formal messaging protocol of the receiver.

Kafka offers much higher performance than message brokers like RabbitMQ.

* Uses sequential disk I/O to boost performance
* Millions of messages per second with limited resources .

Use Case 1

Diagram

Description automatically generated

One topic and multiple partitions

Single consumer taking messages from these 3 partitions

Use Case 2 :

Diagram

Description automatically generated

Use case 3 :

Diagram

Description automatically generated

User case 4

Diagram

Description automatically generated

Kafka Rule : We can have maximum consumers in the consumer group to the number of consumers with respect to the maximum number of partitions you have.

If one consumer is down it immediately transfer over to the remaining consumers

Use case 5

A picture containing diagram

Description automatically generated

If we open another consumer group to the same topic. First consumer group has 3 consumers and second consumer group has 2 consumers. So each consumer has each partition. So how consumer knows where do I take the messages, so the Kafka support retention. So there is a mechanism they maintain called consumer offset

**What is Consumer Offset?**

The consumer offset is a way of tracking the sequential order in which messages are received by Kafka topics. Keeping track of the offset, or position, is important for nearly all Kafka use cases and can be an absolute necessity in certain instances, such as financial services.

Based on the consumer offset, Kafka knows particular consumer need to go to assigned partition respectively.

*Rule: Number of consumers in the consumer group should be equal or less than to the number of partition in the topic*