Se Apache Kafka

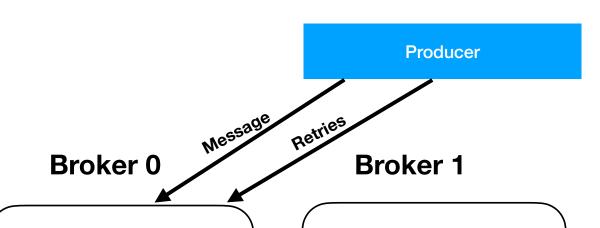
Kafka Delivery Semantics

Presented by Riaz Farhanian - June-July 2022

Semantics

- At least once
- At most once
- Only once

At Least Once



Partition 0 (L)

Partition 1 (L)

Partition 3 (F)

Partition 2 (L)

Partition 0 (F)

Partition 1 (F)

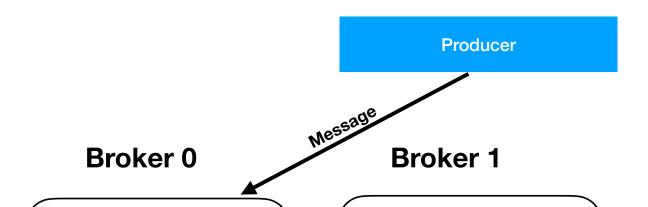
Broker 2

Partition 3 (L)

At Least Once

- Multiple Retries by configuring Retry Configuration
- If message not able to be delivered then the message will be Sent again
- We might have multiple of same message in the Queue

At Most Once



Partition 0 (L)

Partition 1 (L)

Partition 3 (F)

Partition 2 (L)

Partition 0 (F)

Partition 1 (F)

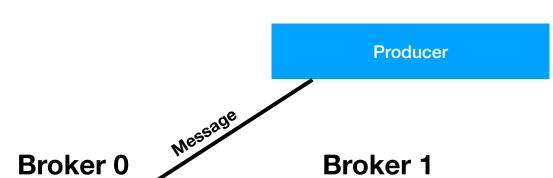
Broker 2

Partition 3 (L)

At Most Once

- No retries => Retry count configuration is 0
- If message not able to be delivered then the message will be lost forever

Only Once



Partition 0 (L)

Partition 1 (L)

Partition 3 (F)

Broker i

Partition 2 (L)

Partition 0 (F)

Partition 1 (F)

Broker 2

Partition 3 (L)

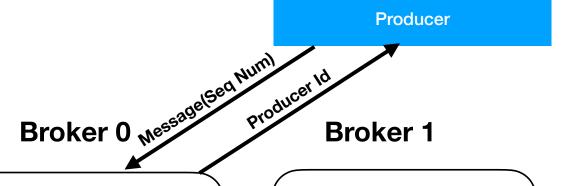
Only Once

- Idempotency Enabled
- Multiple Retries by configuring Retry Configuration
- Message will be available only once

Idempotency Mechanism

- By enabling Idempotency:
 - Sequence Number is generated by Producer
 - Producer Id is generated by Broker
- With Sequence Number and Producer Id, Kafka Simply doesn't allow that one message can be duplicated

Only Once



Seq Num & Producer ID

Partition 0 (L)

Partition 1 (L)

Partition 3 (F)

Partition 2 (L)

Seq Num & Producer ID

Partition 0 (F)

Partition 1 (F)

Broker 2

Partition 3 (L)