lessons learned so far

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@ FirstDerivatives

Session 1

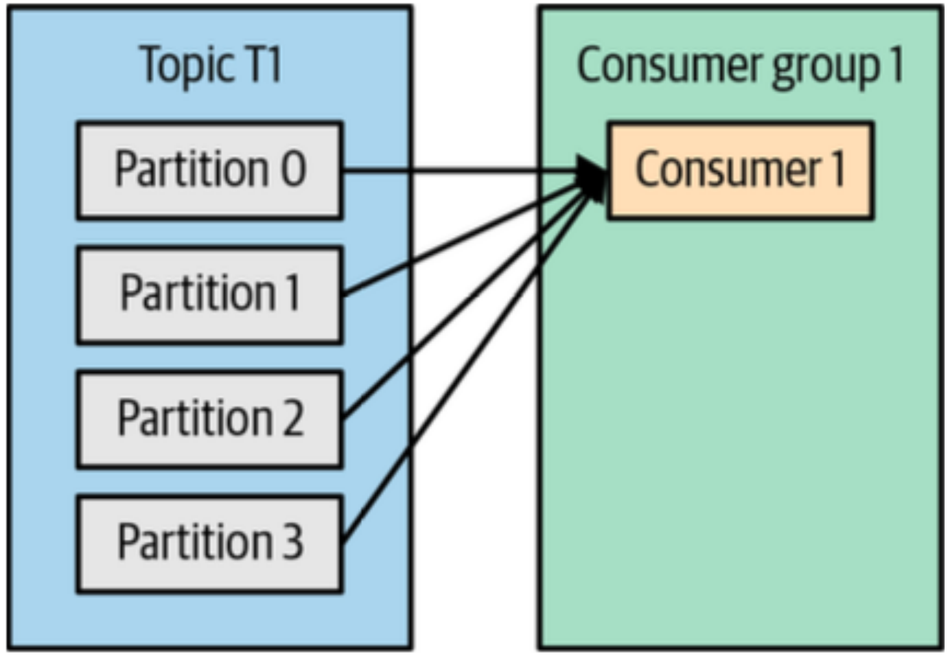
- Kafka - Introduction
- Kafka Elements
- CLI commands
- KAFKA API - Producers vs Consumers

Agenda

- Consumer groups
- Consumers - Assign and Seek
- Producers - Synchronous vs Asynchronous
- Twitter API
- Elastic Search
- Connectors
- Kafka Streams

Consumer groups

- Way of parallel reading
  - Message consumption is load balanced across all consumers in a group
- Consumers usually do intensive operations that add latency (+ consumers)
- Who handles rebalances?
  - Group Leader
- Who handles group membership?
  - Group Coordinator



Single Consumer

Consumer Assign and SEEK

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Producers

How a message is sent

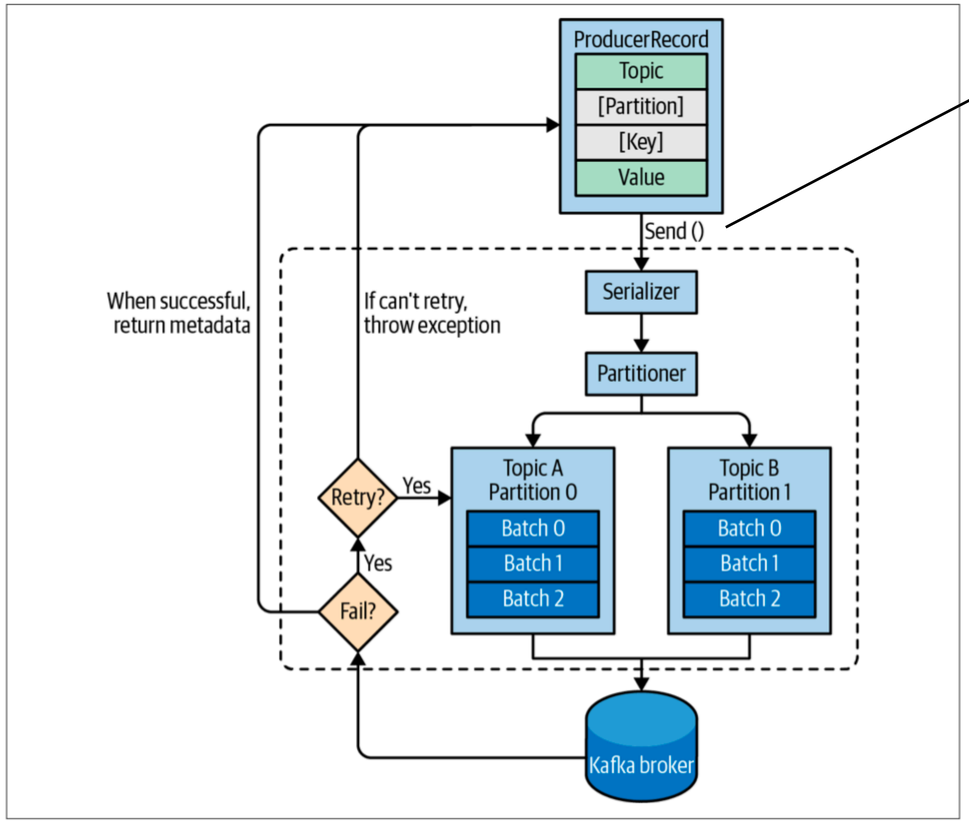

Figure 3-1. High-level overview of Kafka producer components

Returns a Future Object with recordMetadata

```
ProducerRecord<String, String> record =
    new ProducerRecord<>("CustomerCountry", "Precision Products",
        "France"); ❶
try {
    producer.send(record); ❷
} catch (Exception e) {
    e.printStackTrace(); ❸
}
```

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Producer

Sending messages synchronously

- Allows Sender to catch exceptions when:
  - Kafka replies back with an error
  - exhausted number of retries
- Brokers can take different times to get back
- Sending thread is blocked until broker replies back

```
ProducerRecord<String, String> record =
    new ProducerRecord<>("CustomerCountry", "Precision Products", "France");
try {
    producer.send(record).get(); ❶
} catch (Exception e) {
    e.printStackTrace(); ❷
}
```

Producer

Sending messages asynchronously

- Do we need the broker reply? Maybe not
- What about errors? Maybe log them for later analysis?
- Solution? Callbacks!

```
private class DemoProducerCallback implements Callback { ❶
    @Override
    public void onCompletion(RecordMetadata recordMetadata, Exception e) {
        if (e != null) {
            e.printStackTrace(); ❷
        }
    }
}

ProducerRecord<String, String> record =
    new ProducerRecord<>("CustomerCountry", "Biomedical Materials", "USA"); ❸
producer.send(record, new DemoProducerCallback()); ❹
```

Twitter API

Fetching data from Twitter

- Hosebird Java HTTP client for consuming Twitter Streaming API
  https://github.com/twitter/hbc

DEMO TIME!

Elastic Search

Distributed search and analytical engine

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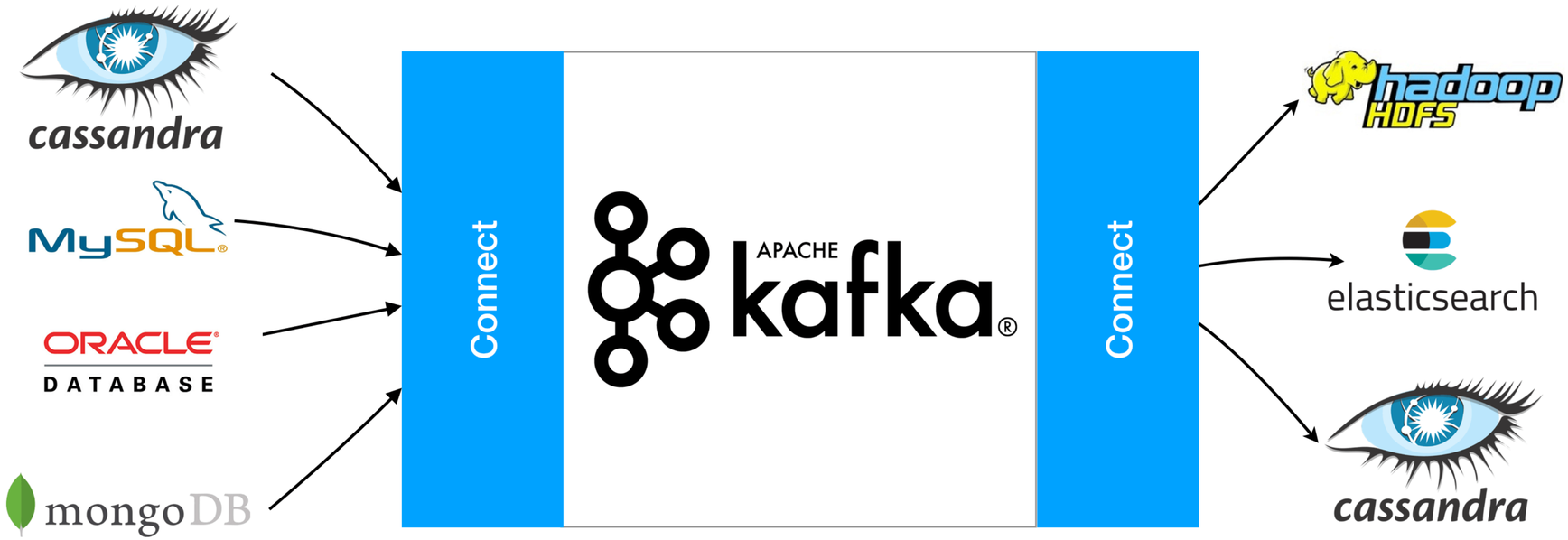
KAFKA Connectors

Save your time!



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KAFKA Connectors

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KAFKA Streams

Filtering Tweets

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Questions?

Thank you!