APACHE KAFKA

Introdução

O QUE É O APACHE KAFKA

Open Source
Sistema distribuído
Stream de dados

O QUE ELE FAZ

Central de transferência e armazenamento de dados

Importancia

EVENTOS

Presentes na maiora dos sistemas nos dias de hoje

VANTAGENS

Manipulação e armazenamento historico de dados

Como ele funciona?

KLUSTER

Conjunto de servidores funcionando em sincronia e cooperando entre sí.

BROKERS

Servidores que armazenam os dados e partições

PRODUTOR E CONSUMIDOR

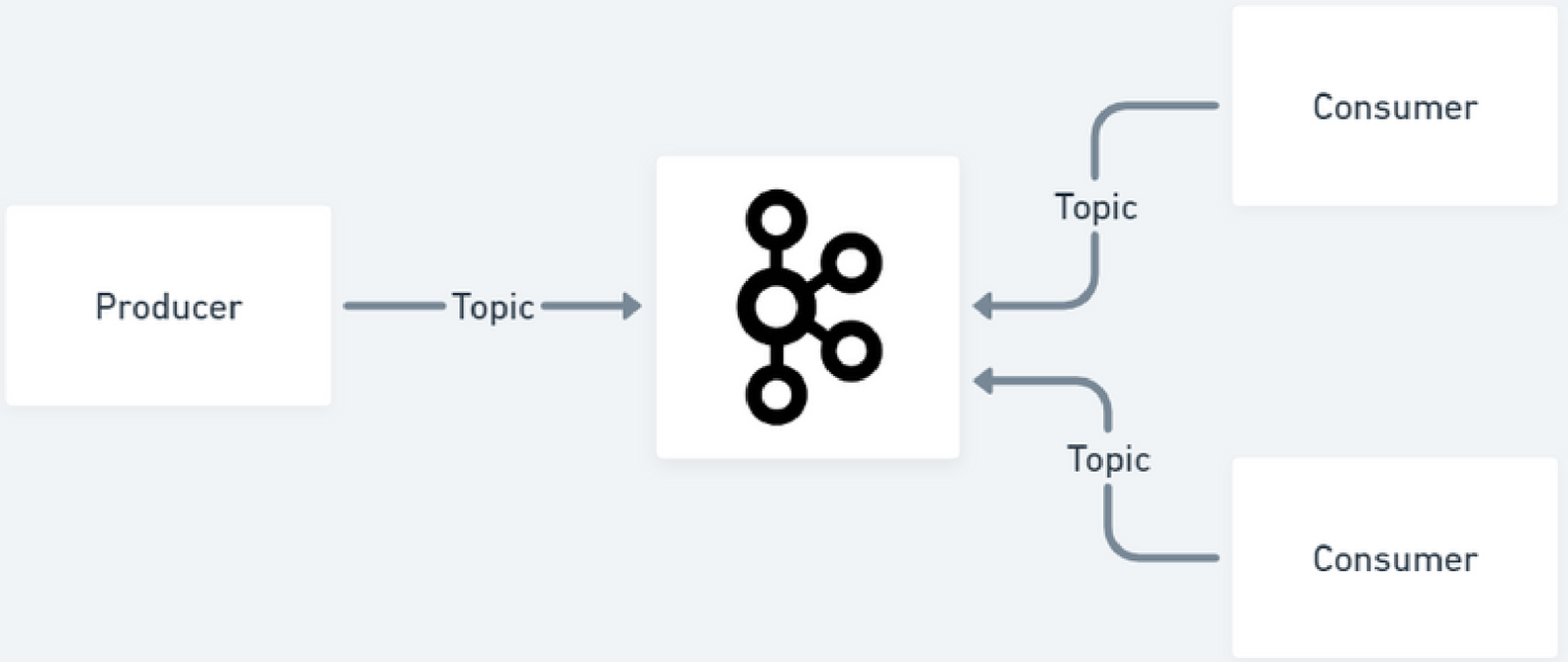
Produtores geram dados e postam nos tópicos, consumidores leem constantemente o tópico esperando por mensagens.

ZOOKEEPER

Possuem a função de service discovery e oquestragem de brokers, garantindo sua sincronicidade e cooperação.

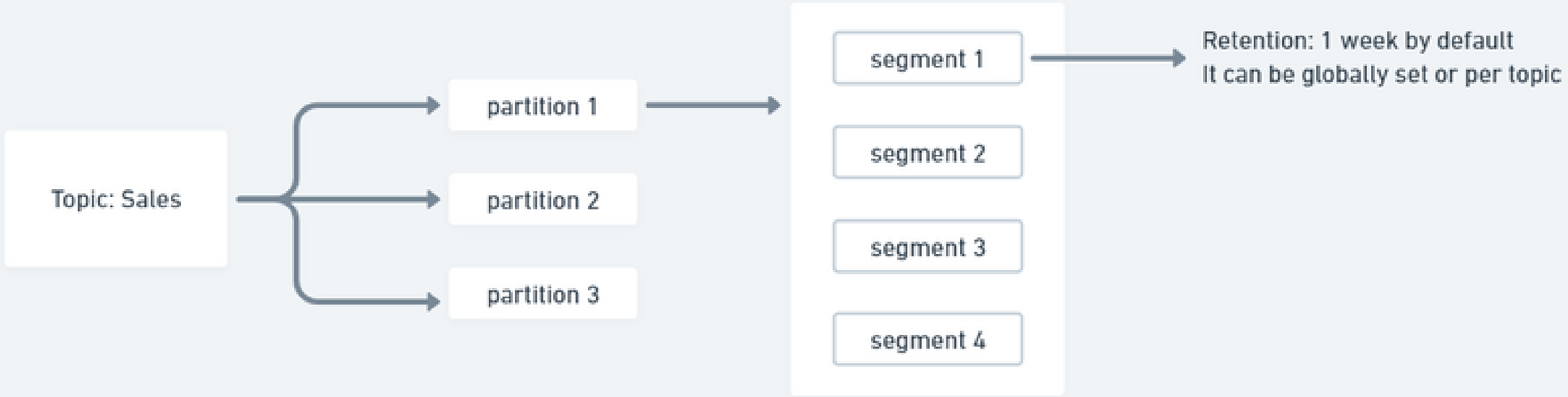
Tópicos

Conceito geral



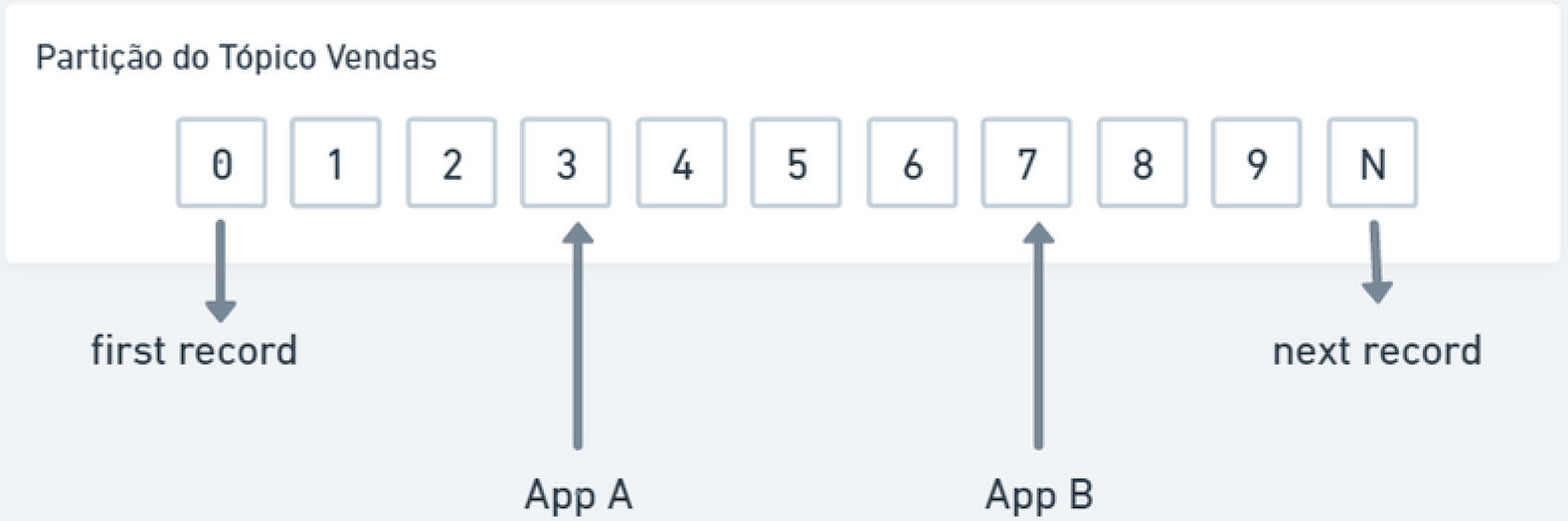
Tópicos

Partições e segmentos



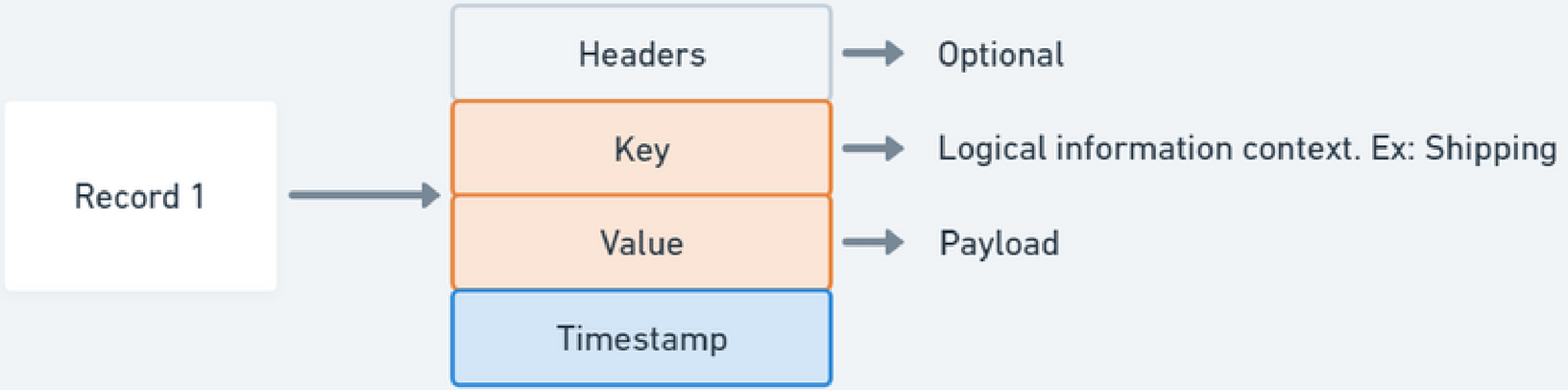
Tópicos

Logs



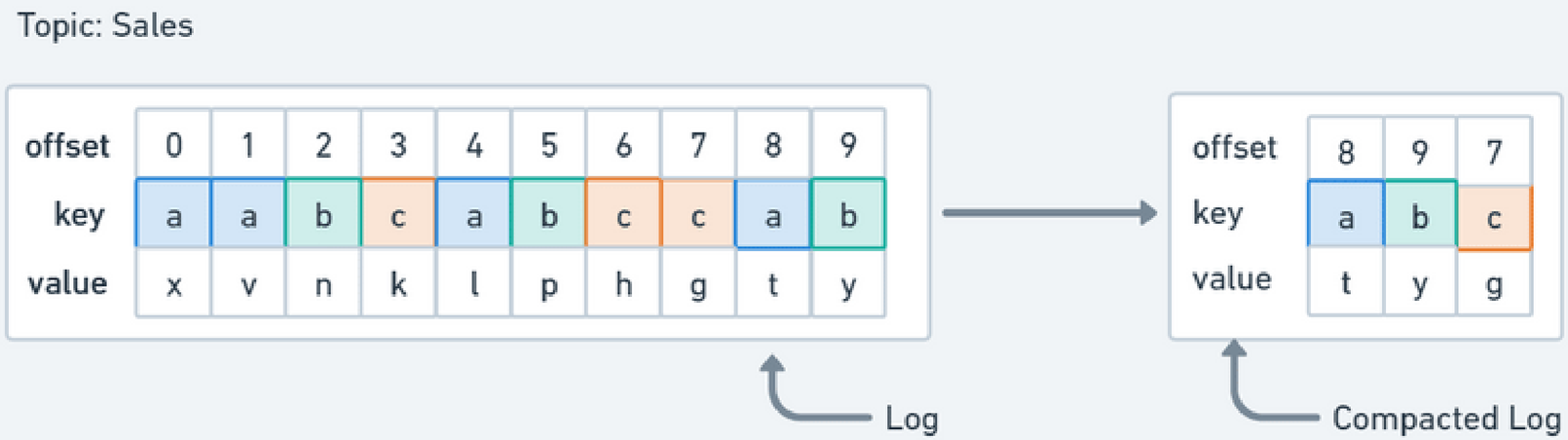
Tópicos

Anatomia dos offsets



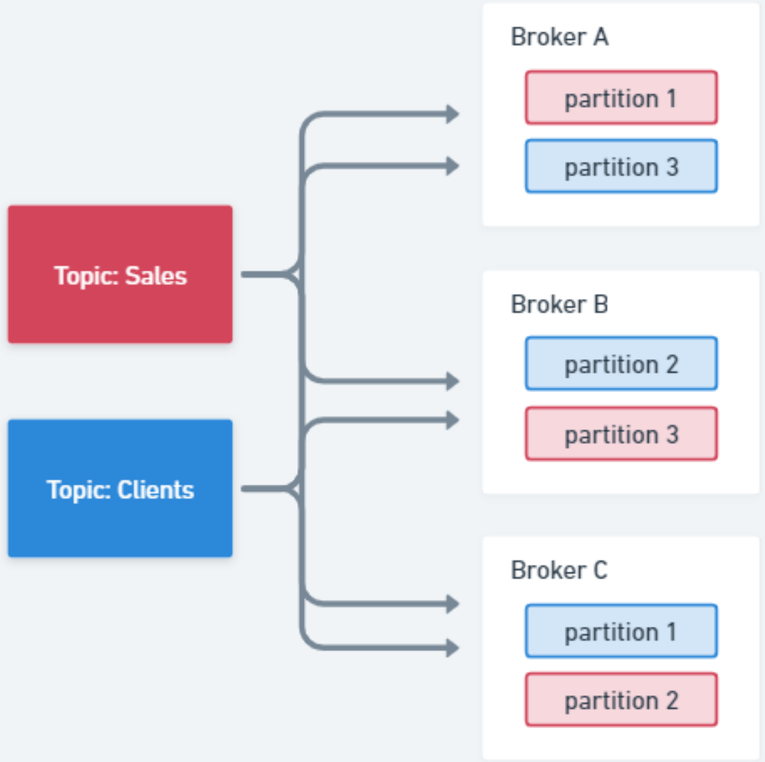
Tópicos

Tópico compacto



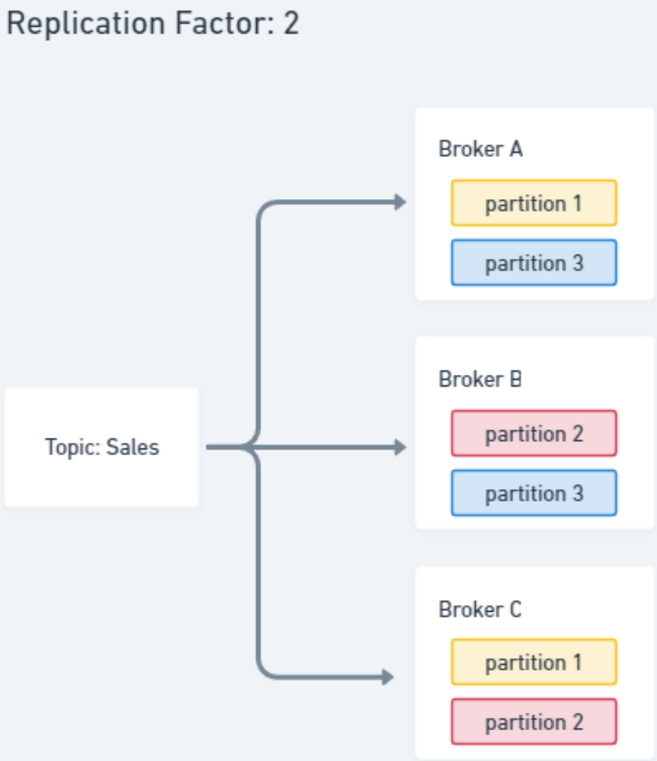
Tópicos

Partições Distribuidas



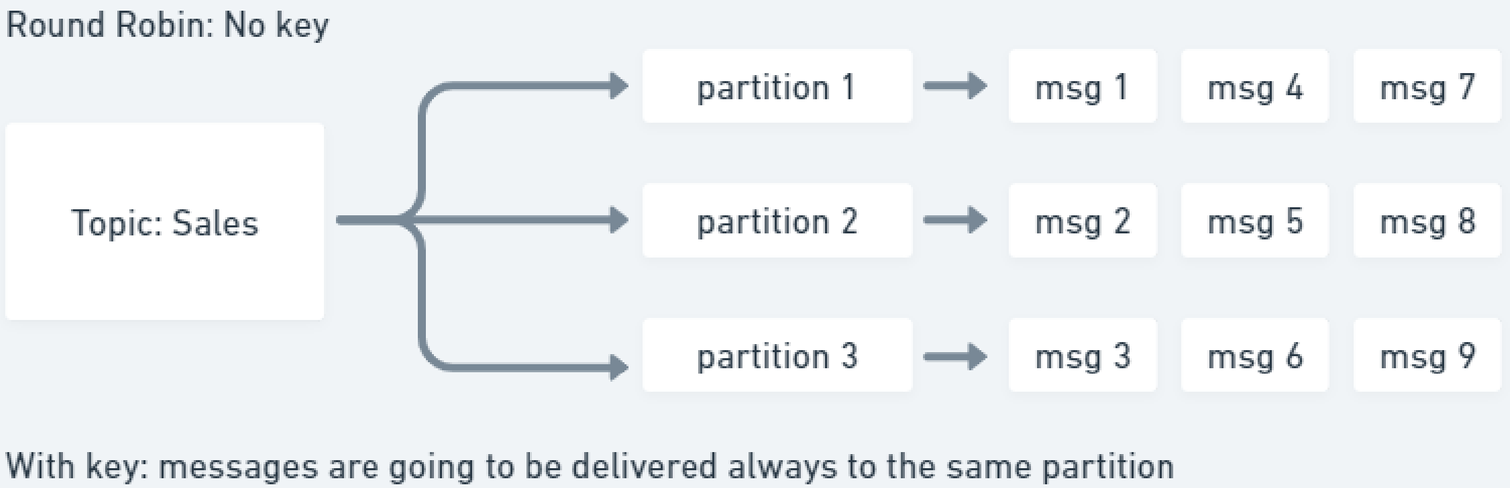
Tópicos

Replication Factor



Tópicos

Entrega de mensagens



With key: messages are going to be delivered always to the same partition

Tópicos

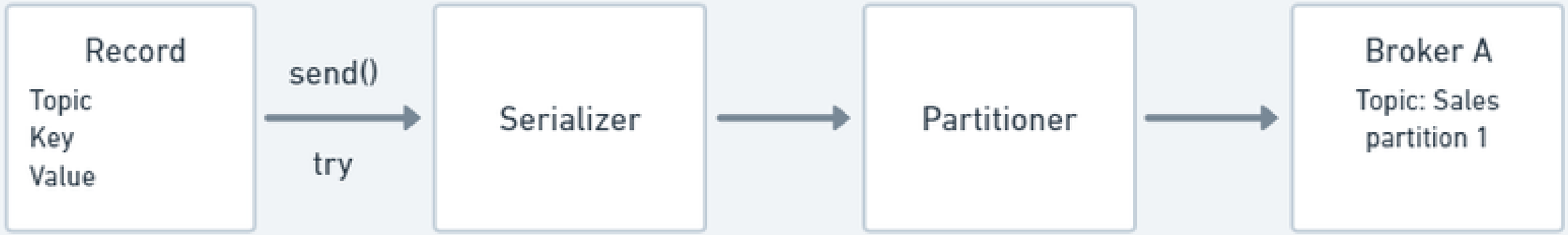
Partições Líder

Leaders = Blue
Followers = White

If there is any trouble with a broker running a leader partition, a new leader is elected.

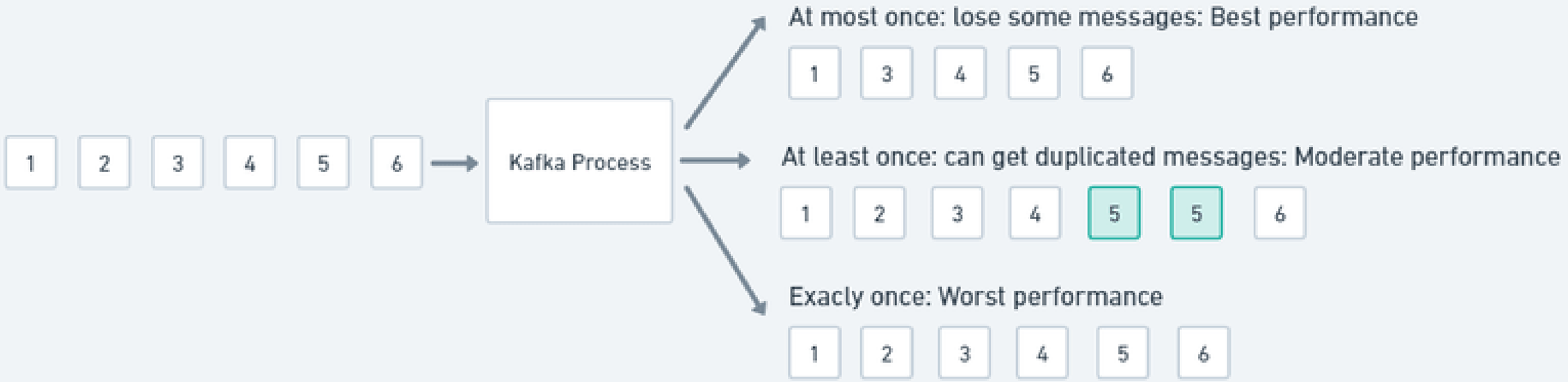
Produtores

Processo de entrega

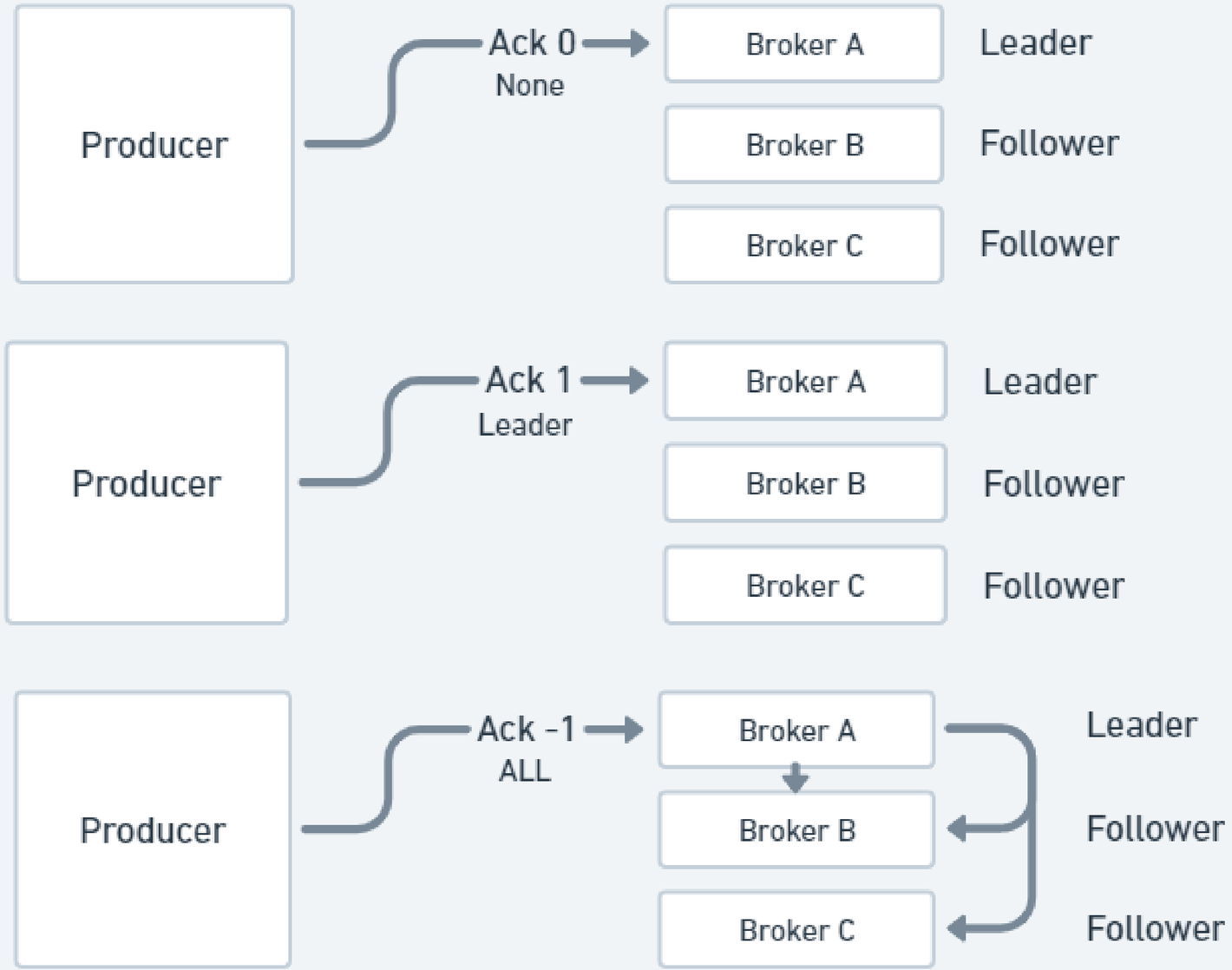


Produtores

Garantia de entrega



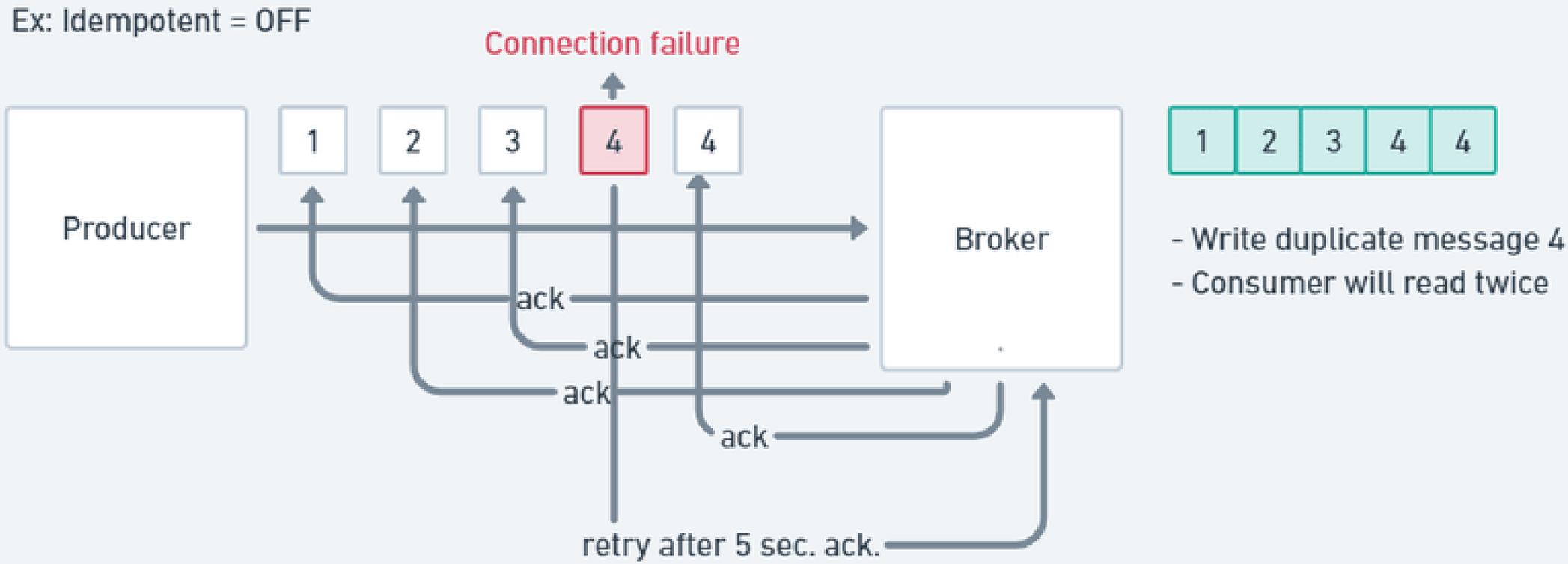
Produtores



Garantia de entrega - ACK

Produtores

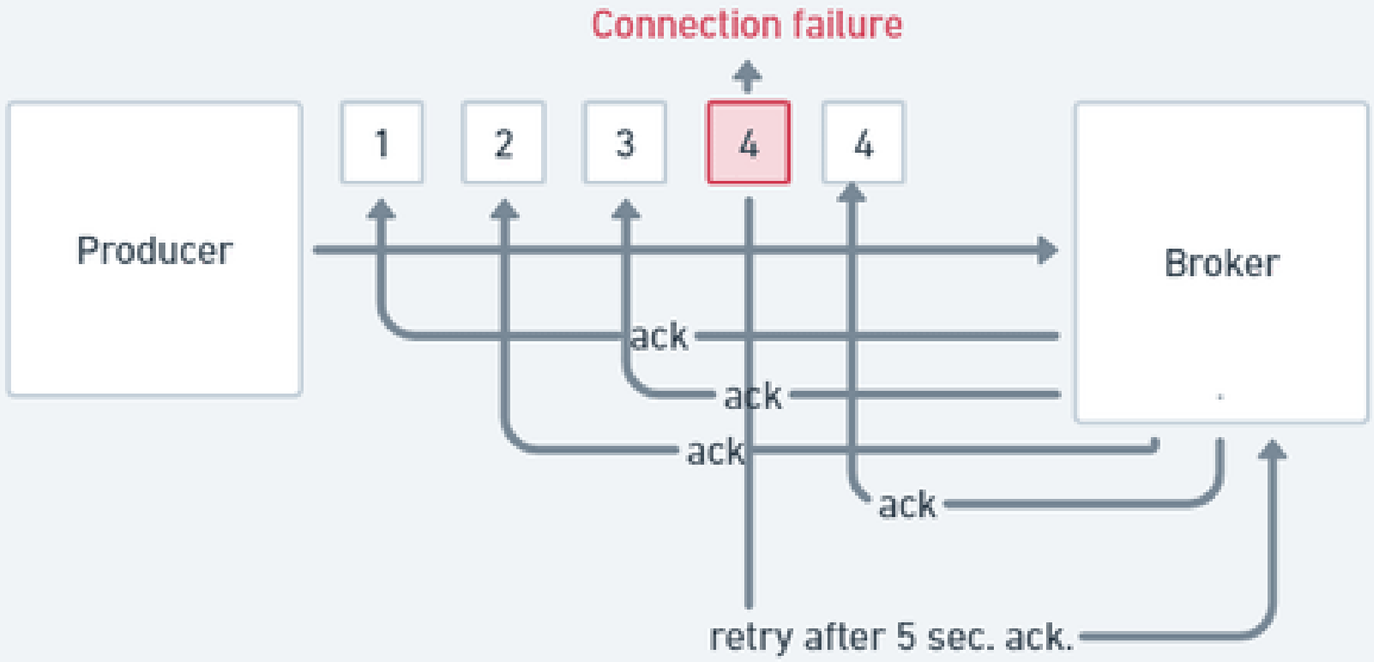
Idempotencia - OFF



Produtores

Idempotencia - ON

Ex: Idempotent = ON



- Check Producer ID and message sequence number.
- Discard if duplicate.
- Message is written in correct order

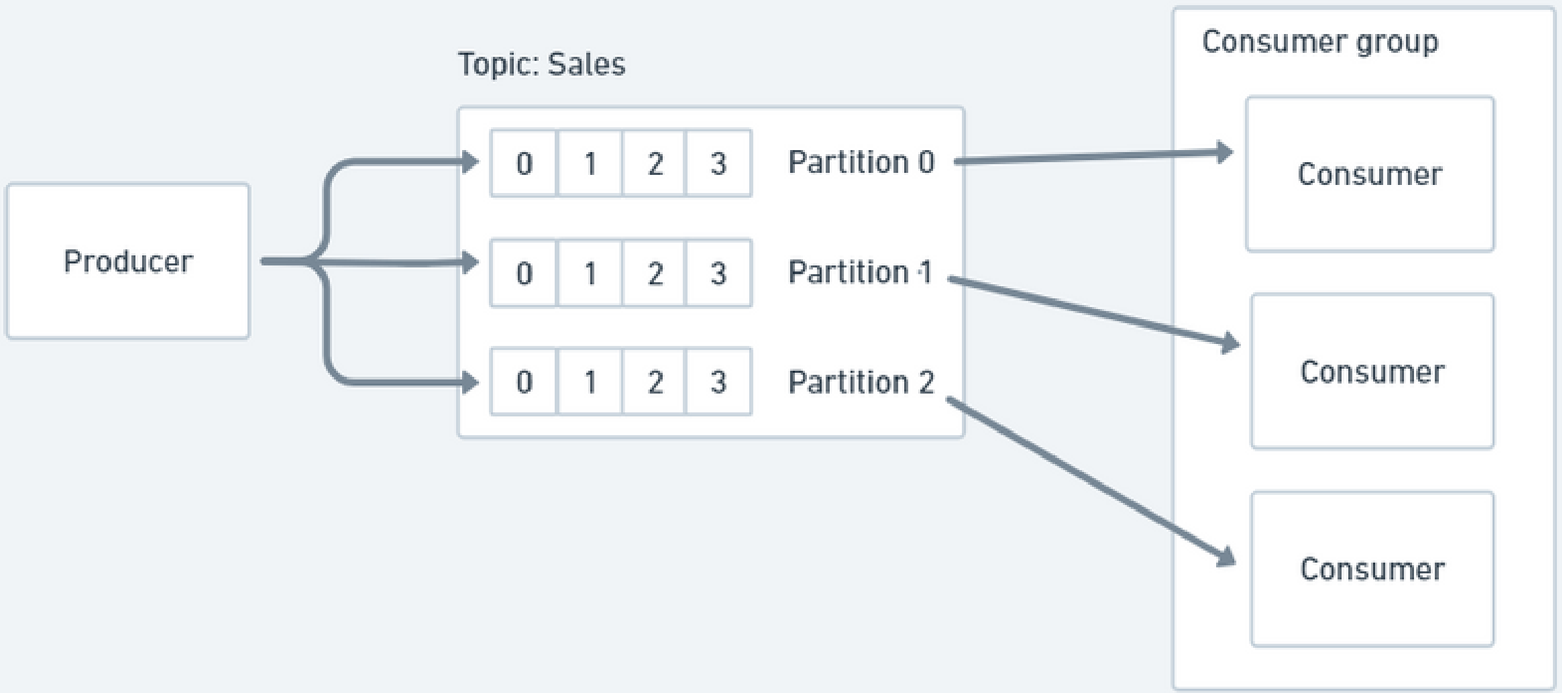
Consumidores

Consumidores

Grupo de consumidores

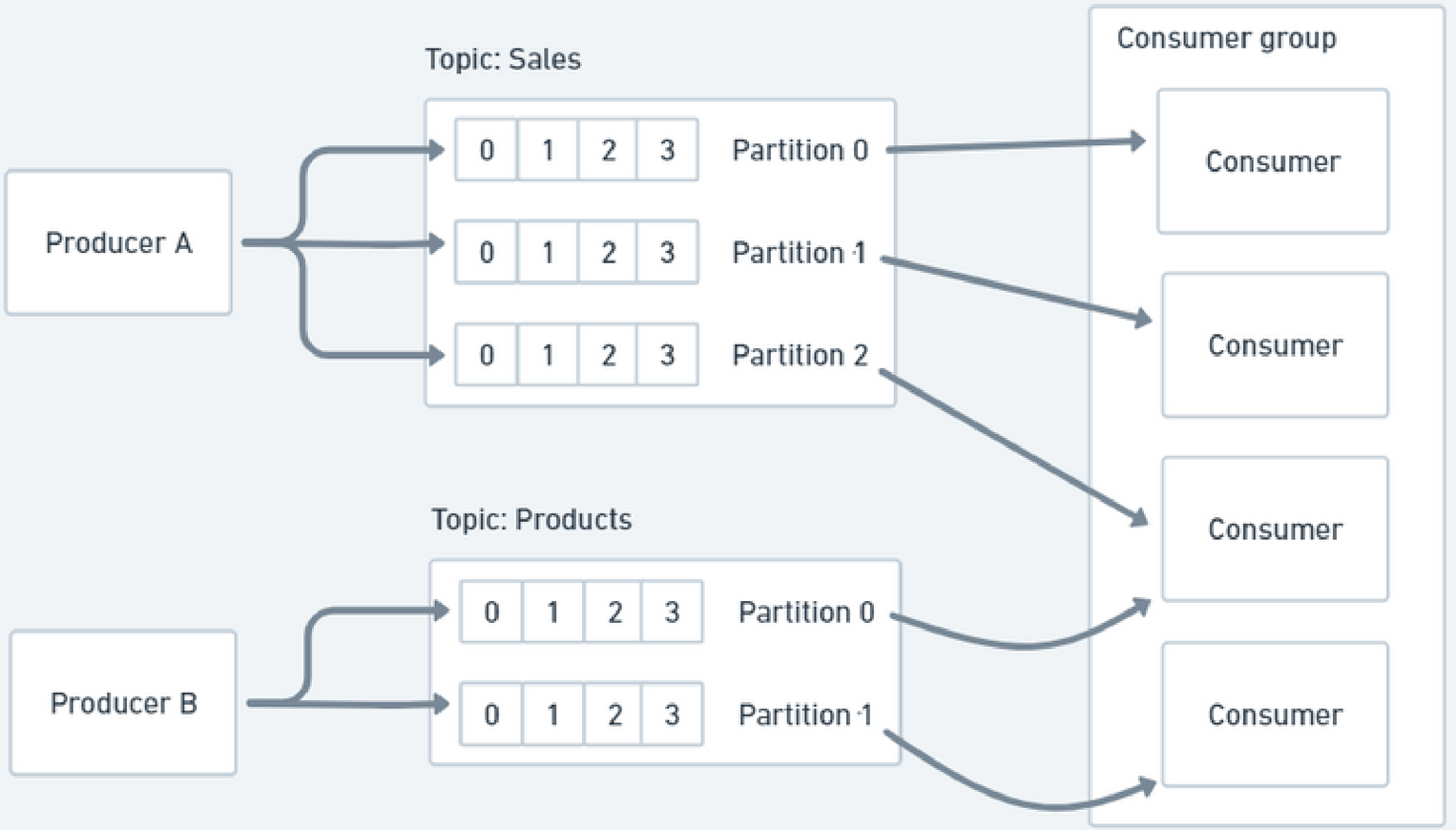
Consumidores

Grupo de consumidores



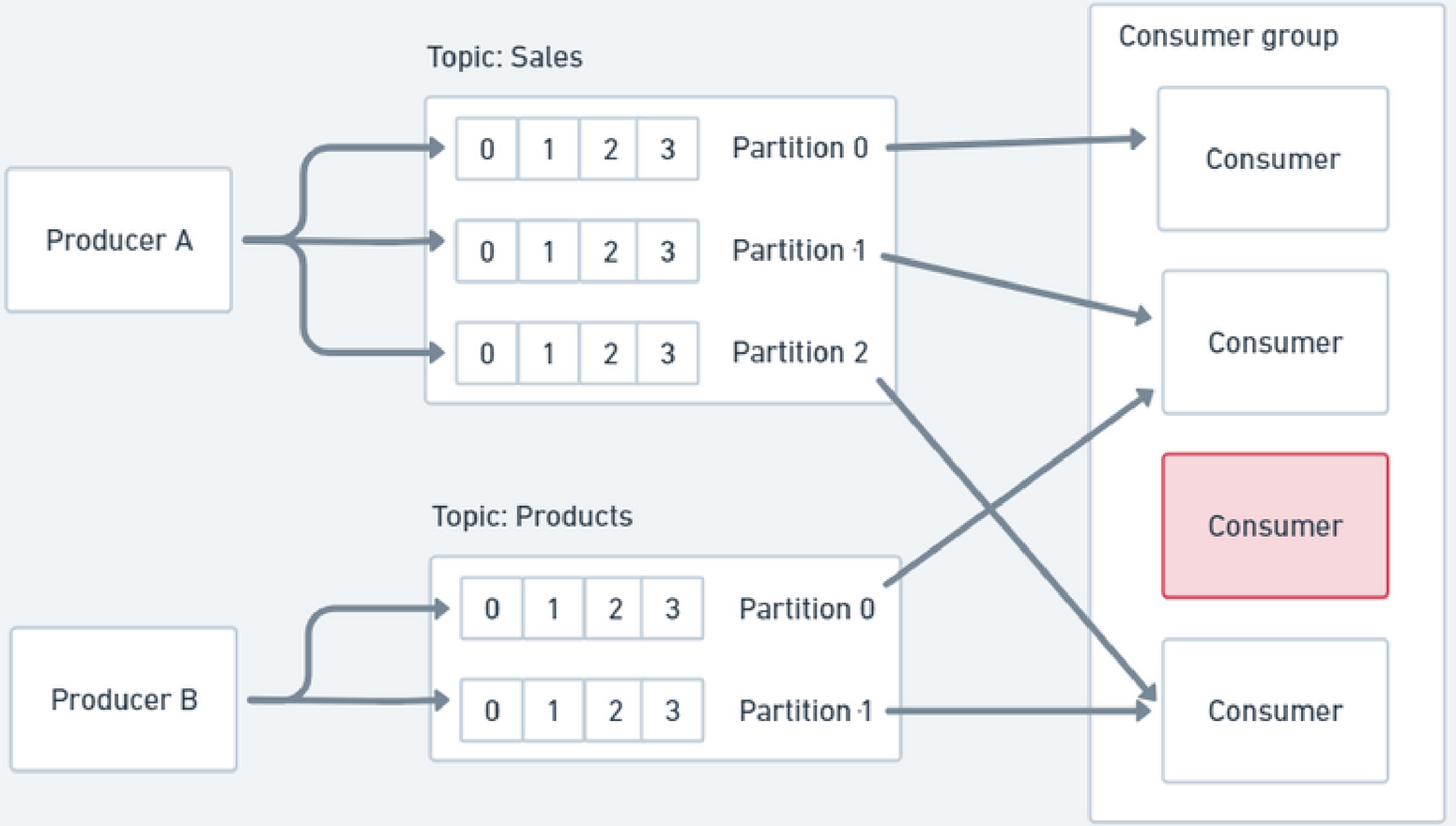
Consumidores

Grupo de consumidores



Consumidores

Reequilibrio de Consumidores

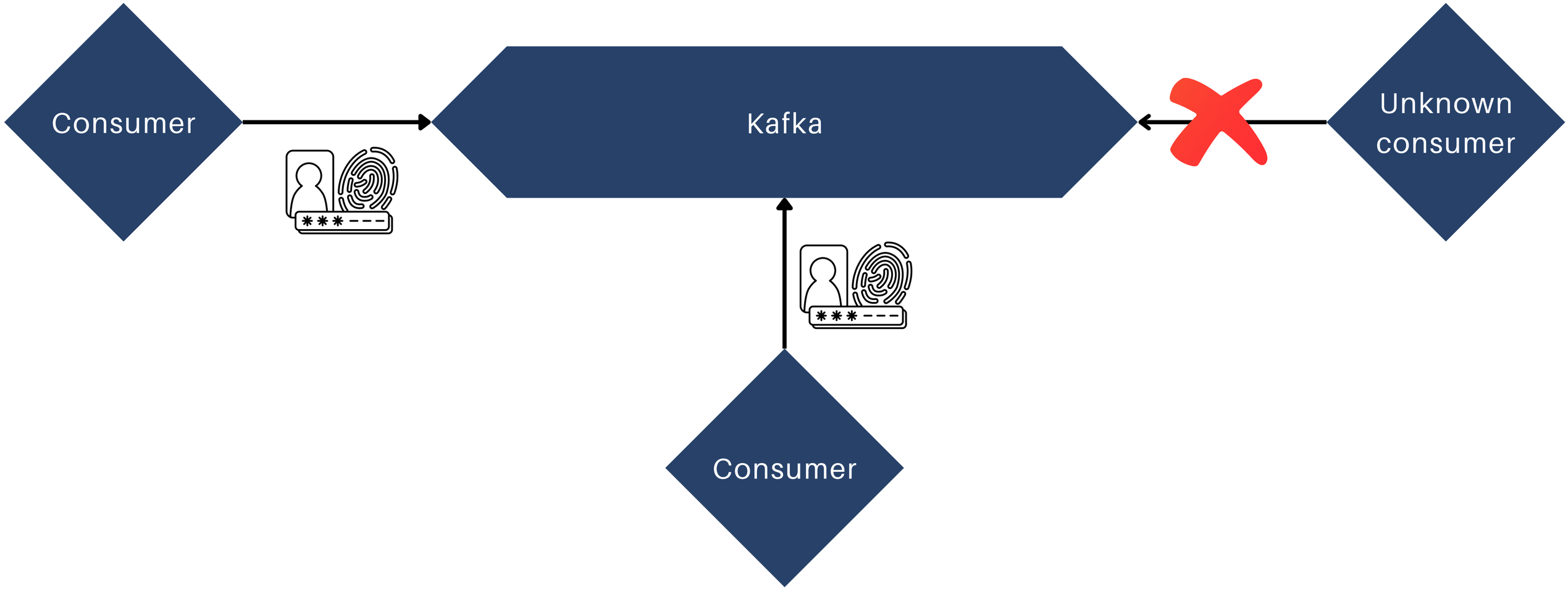


Segurança

Criptográfia

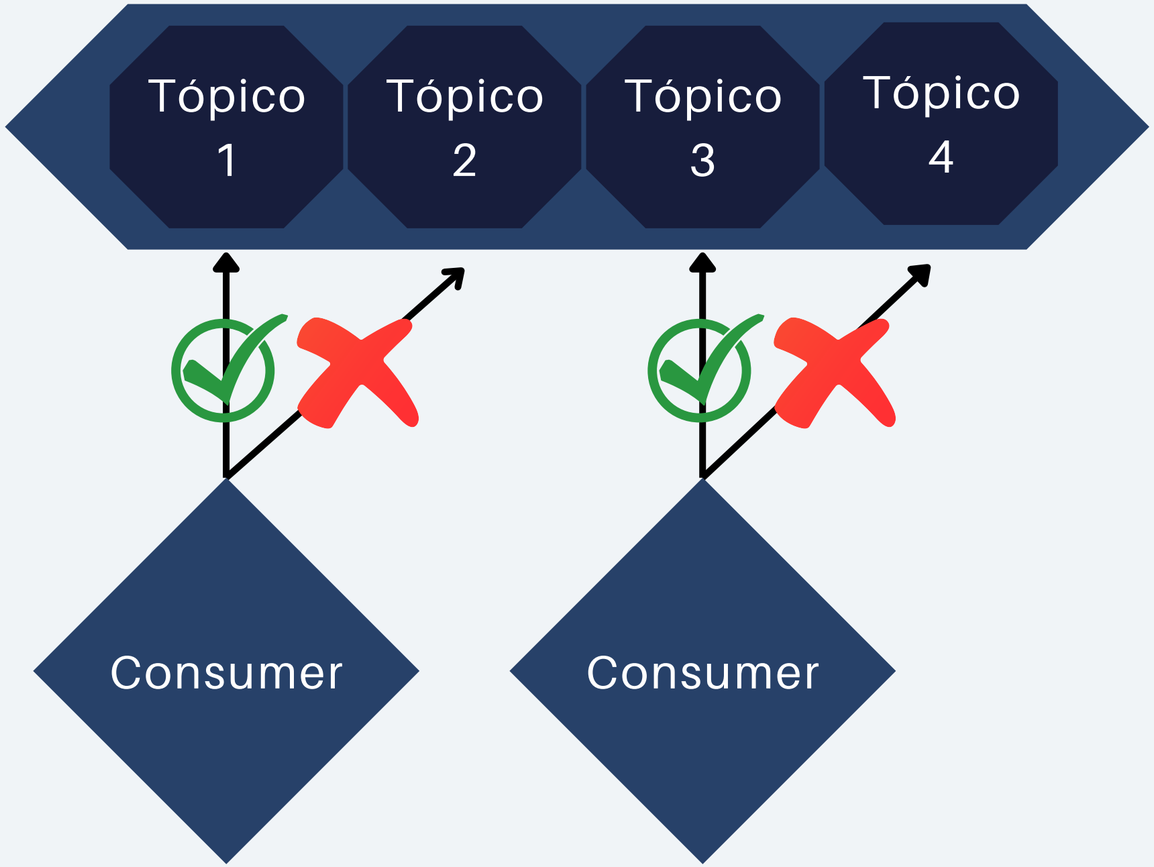
Segurança

AAA - Autentication



Segurança

AAA - Authorization



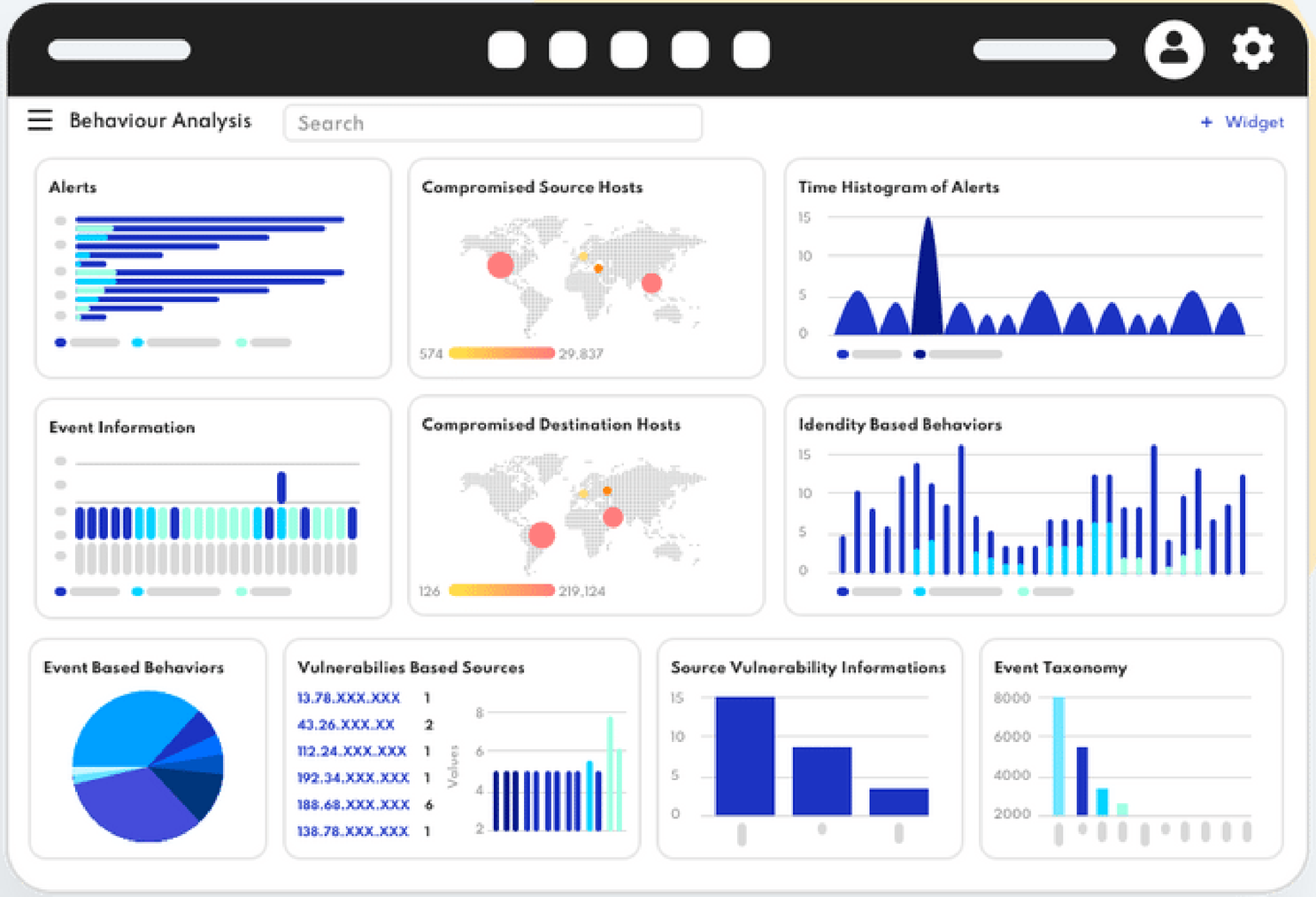
Segurança

AAA - Accounting

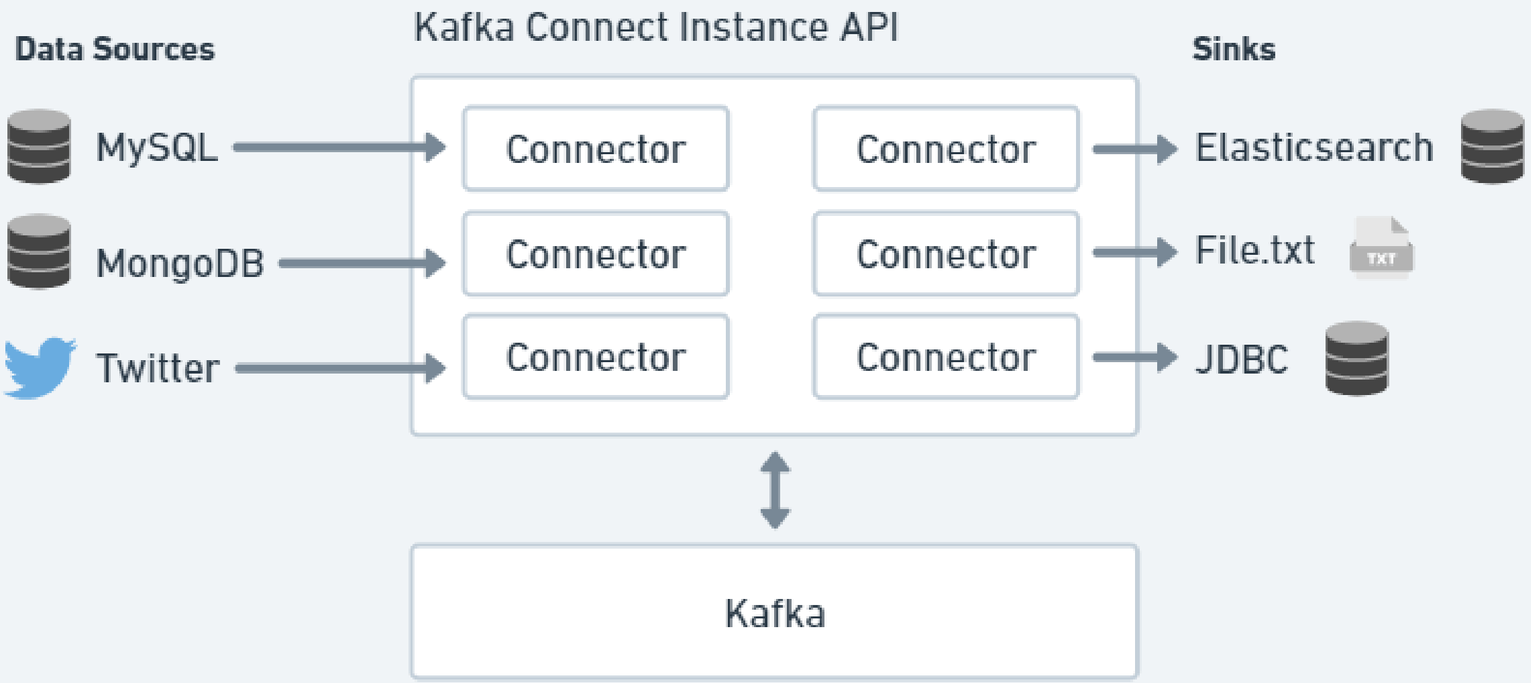
Time	Resource Name	Type	Action	Performed by	Parameters
Nov 19, 2020 5:20:21 PM	Default Threshold - HOMEPA...	Threshold Profiles	Updated	mounika.ks	{"objects_alert_broken":{"seve...
Nov 19, 2020 5:11:53 PM	Default Threshold - HOMEPA...	Threshold Profiles	Updated	mounika.ks	{"objects_alert_broken":{"seve...
Nov 19, 2020 3:07:11 PM	Site24x7	Monitors	Updated	mounika.ks	{"website":"http://www.site24...
Nov 19, 2020 1:06:41 PM	mounika.ks	Users	Logout	mounika.ks	None
Nov 19, 2020 12:39:53 PM	**Notification_XXXX**	**Notification Profiles**	**Created**	**mounika.ks**	**{profile_name=Notification_X...**
Nov 19, 2020 12:32:55 AM	cpustats_1.py - Default Thres...	Threshold Profiles	Updated	mounika.ks	{"anomaly_profile":false,"plugi...
Nov 18, 2020 10:27:19 PM	Plugin_XXXX	Threshold Profiles	Deleted	mounika.ks	None
Nov 18, 2020 10:17:00 PM	cpustats_1.py-mounika-9952	Run all rules	Run All Rules Initiated	Site24x7	{"1000000212161":{"confxml...
Nov 18, 2020 10:17:00 PM	cpustats_1.py-mounika-9952	Run all rules	Run All Rules Initiated	Site24x7	{"1000000212161":{"confxml...
Nov 18, 2020 10:16:54 PM	cpustats_1.py-mounika-9952	Monitors , Plugin	Created	Site24x7	{"heartbeat_required":true,"sc...
Nov 18, 2020 9:35:02 PM	Plugin_XXXX	Threshold Profiles	Created	mounika.ks	{"anomaly_profile":false,"plugi...

Segurança

AAA - Accounting - SIEM

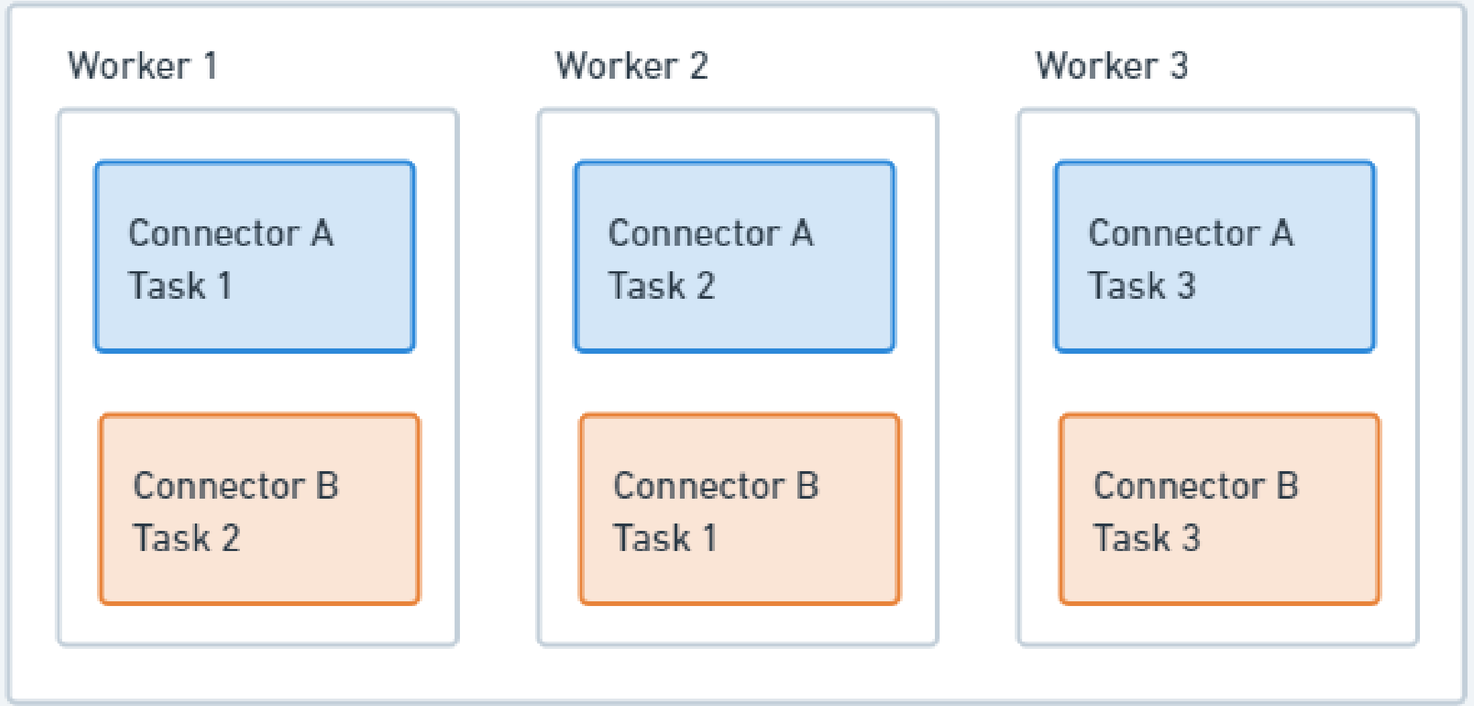


Kafka Connect



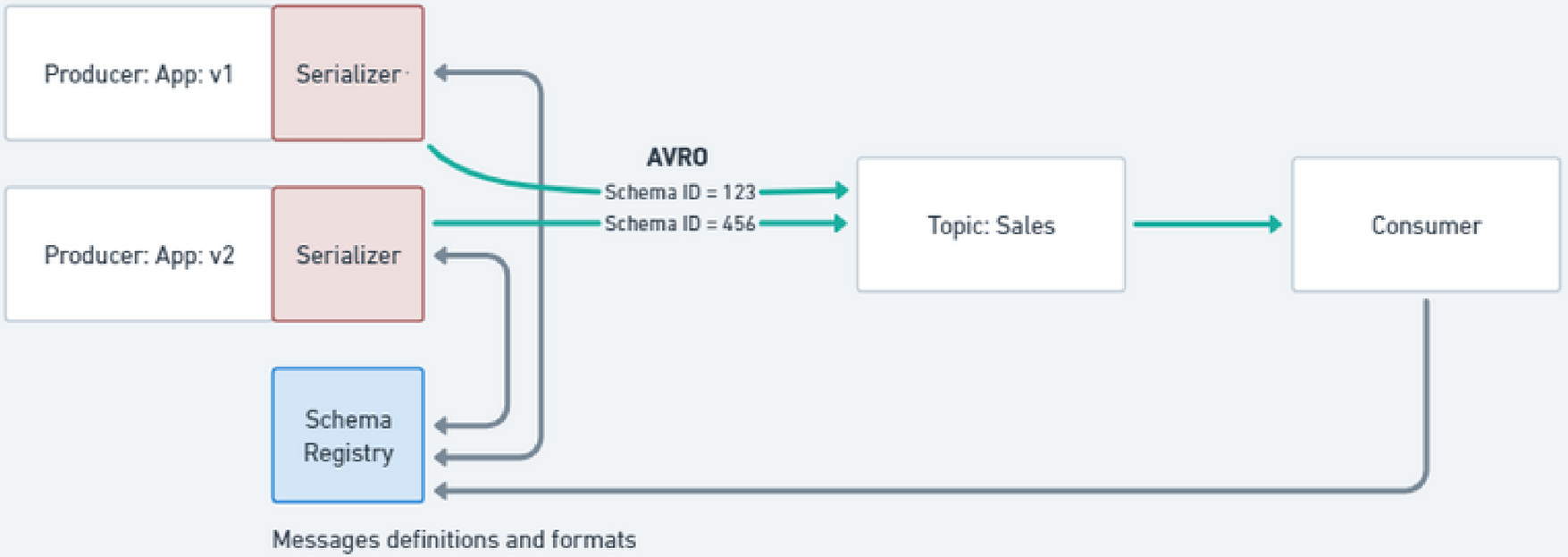
Kafka Connect

Workers e Taks



Kafka REST Proxy

Compatibilidade de dados



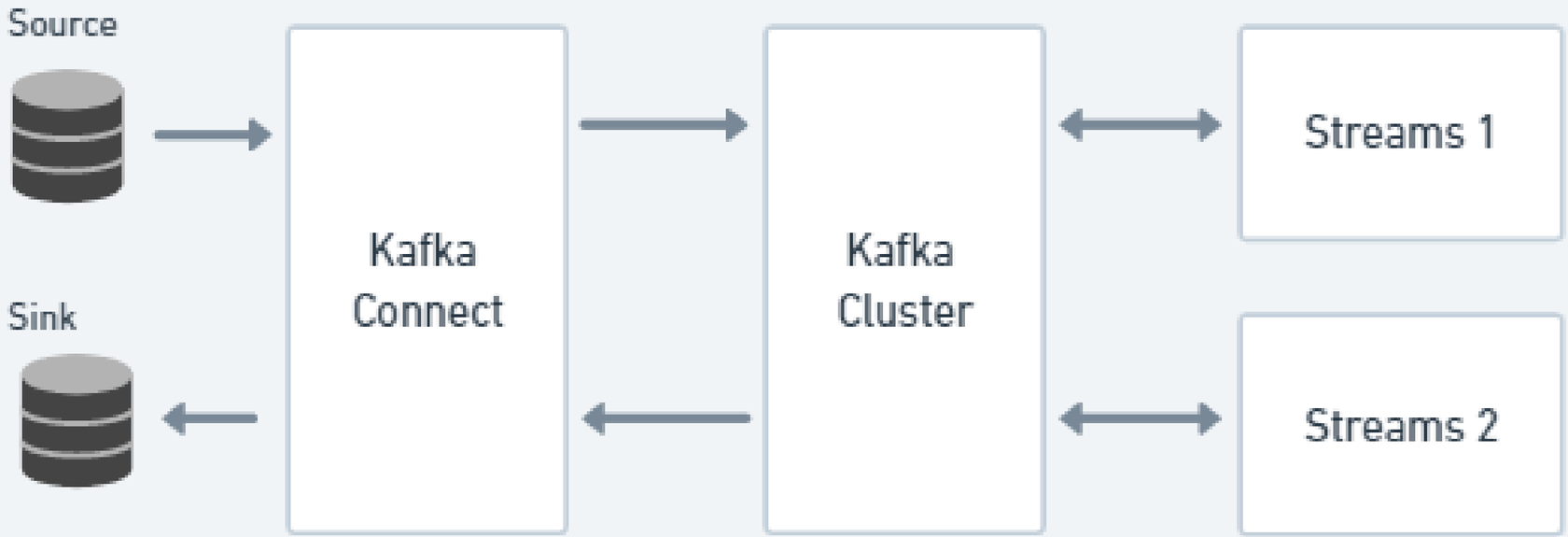
Compatibilidade de dados

Apache AVRO

```
{
  "namespace": "pnda.entity",
  "type": "record",
  "name": "event",
  "fields": [
     {"name": "timestamp", "type": "long"},
     {"name": "src",       "type": "string"},
     {"name": "host_ip",   "type": "string"},
     {"name": "rawdata",   "type": "bytes"}
  ]
}
```

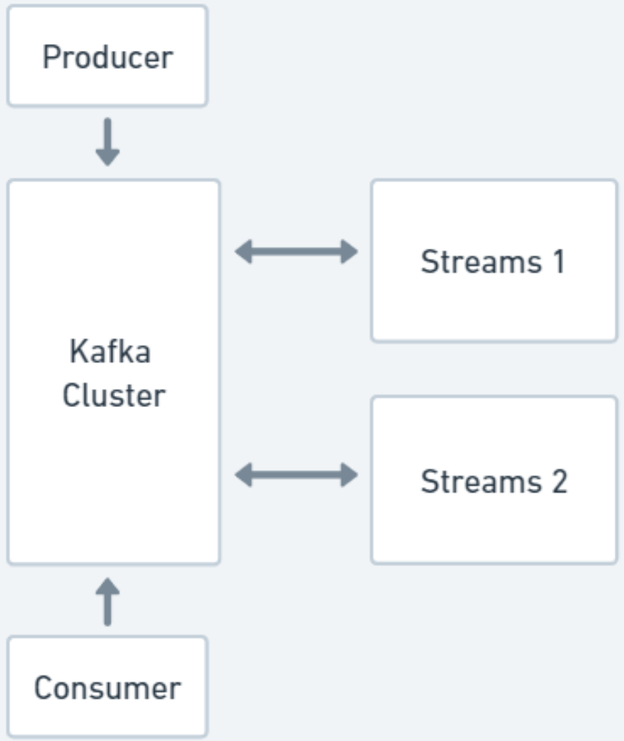
Kafka Streams

Utilizando Kafka Connect



Kafka Streams

Utilizando Produtor-Consumidor



Confluent ksqlDB

```
ksql > CREATE TABLE products WITH (KAFKA_TOPIC='products', key='ID', VALUE_FORMAT='AVRO')
```

```
ksql > SELECT id, name, price FROM products EMIT CHANGES;
```

```
ksql > CREATE table products_avg AS SELECT SUM(price) / COUNT(*) as avg FROM products;
```

```
ksql > SELECT avg FROM products_avg EMIT CHANGES;
```


REST API

Botando em Prática

- Setup do Apache Kafka
- Sistema produtor-consumidor
- Consumer Groups
- Uso do describe

MEMBROS DA EQUIPE

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