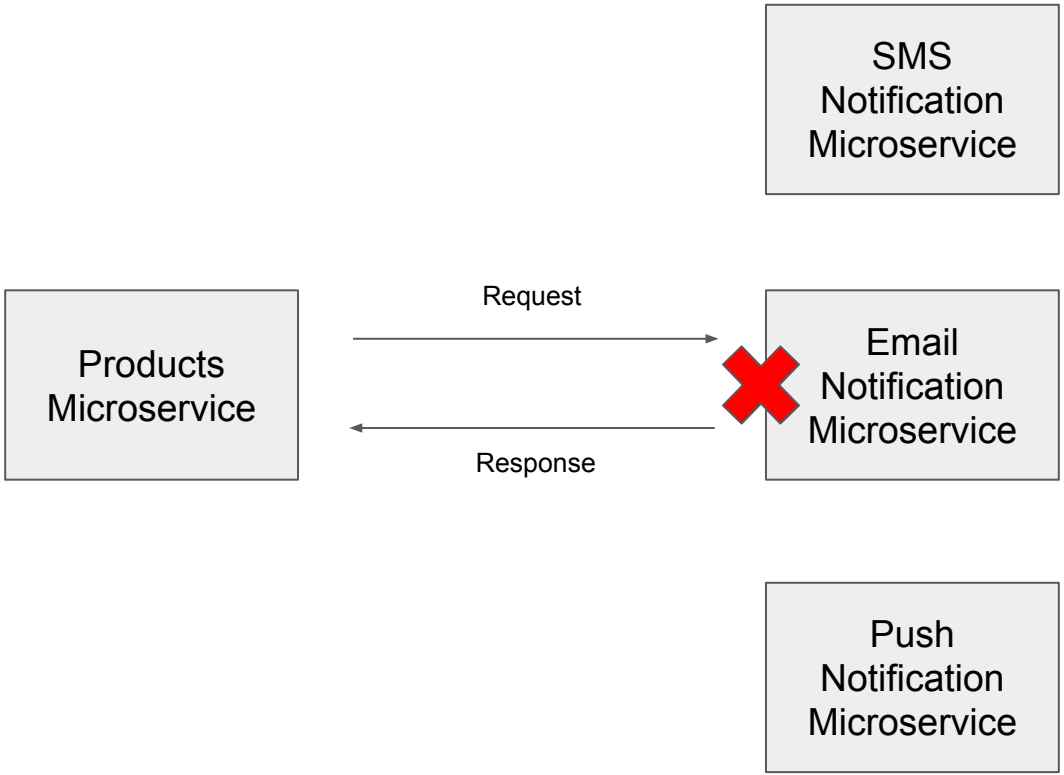
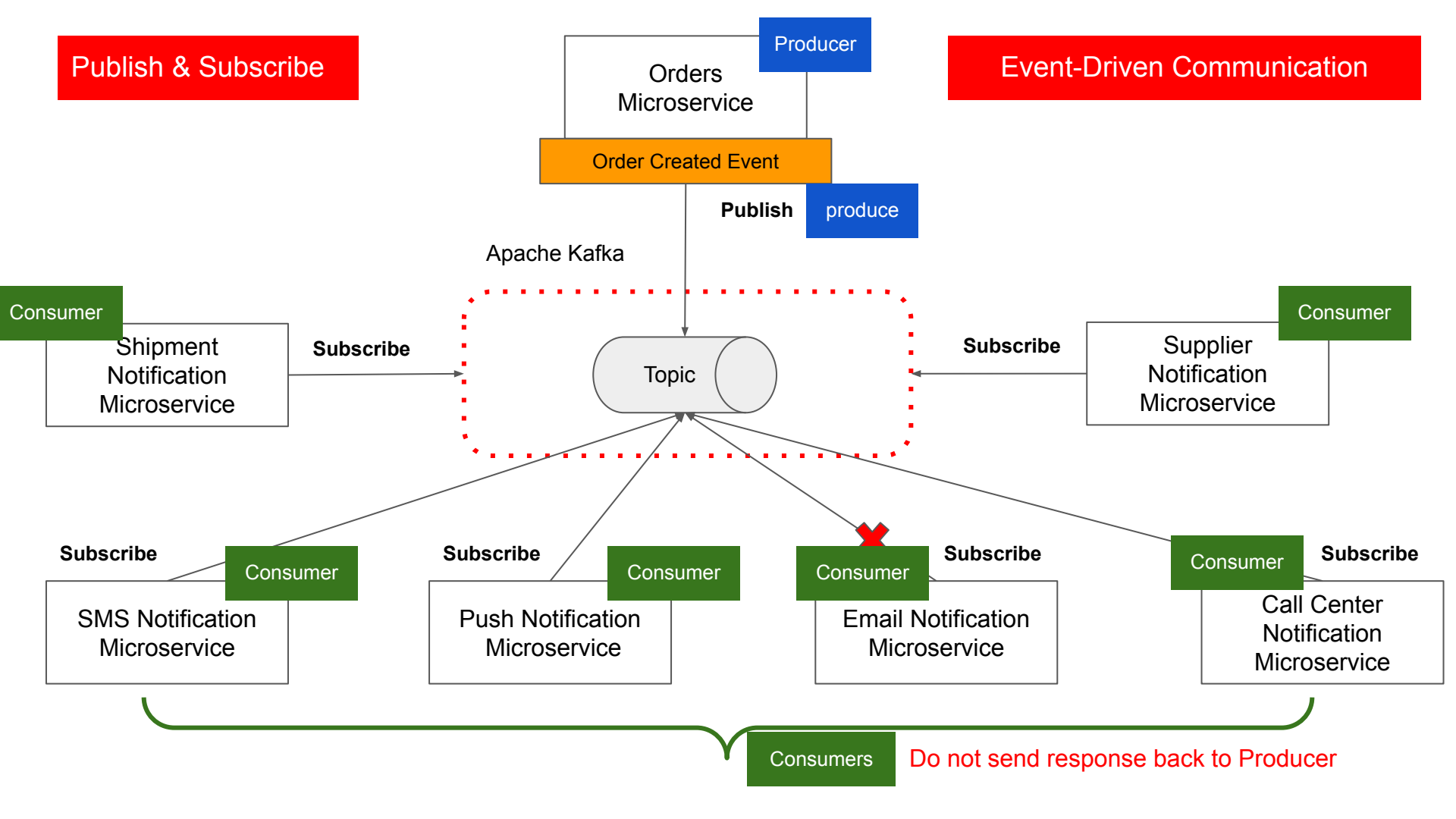
Event-Driven Microservices

Introduction

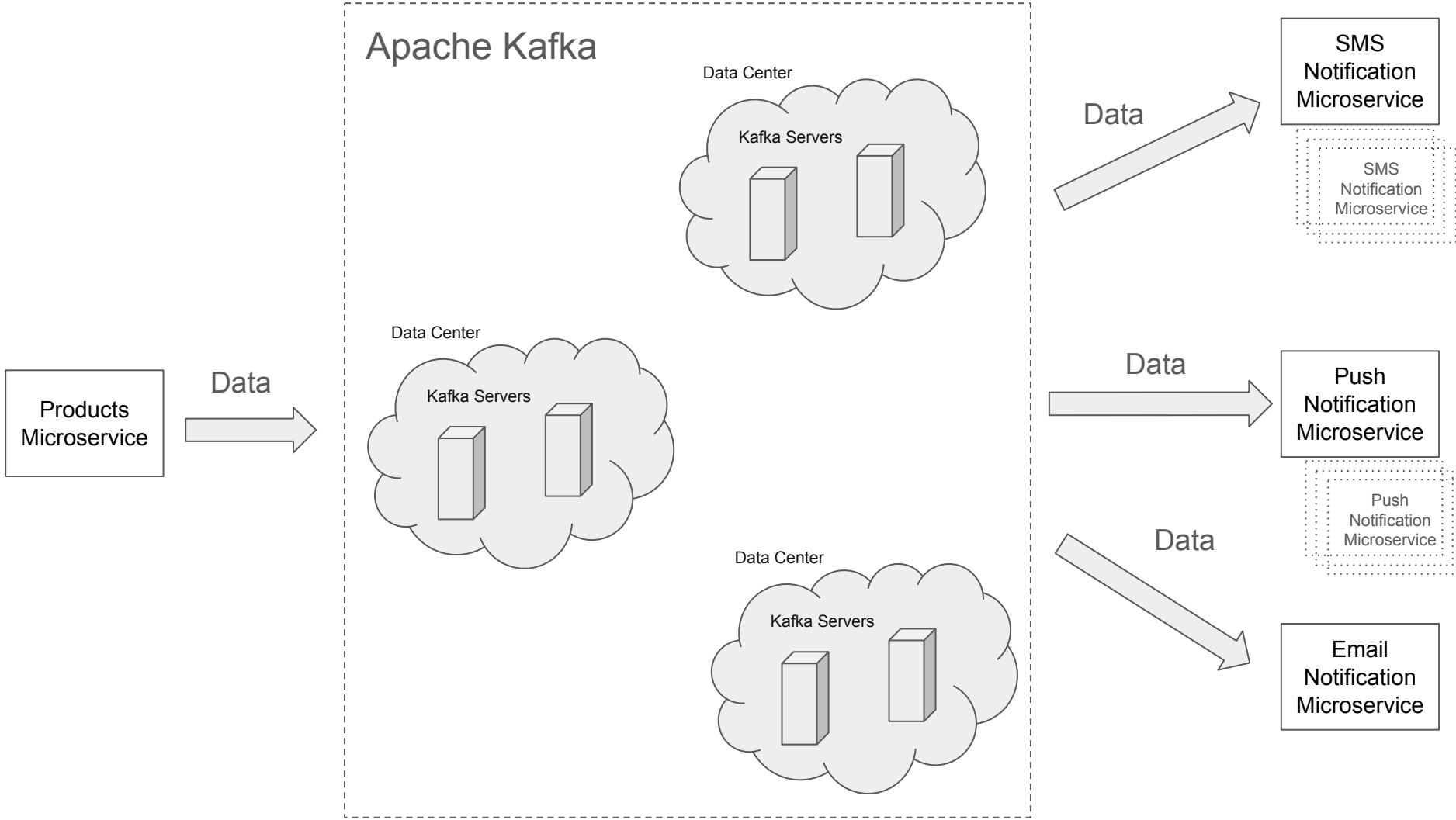

SMS
Notification
Microservice
Request
Products
Microservice
Email
Notification
Microservice
Response
Push
Notification
Microservice

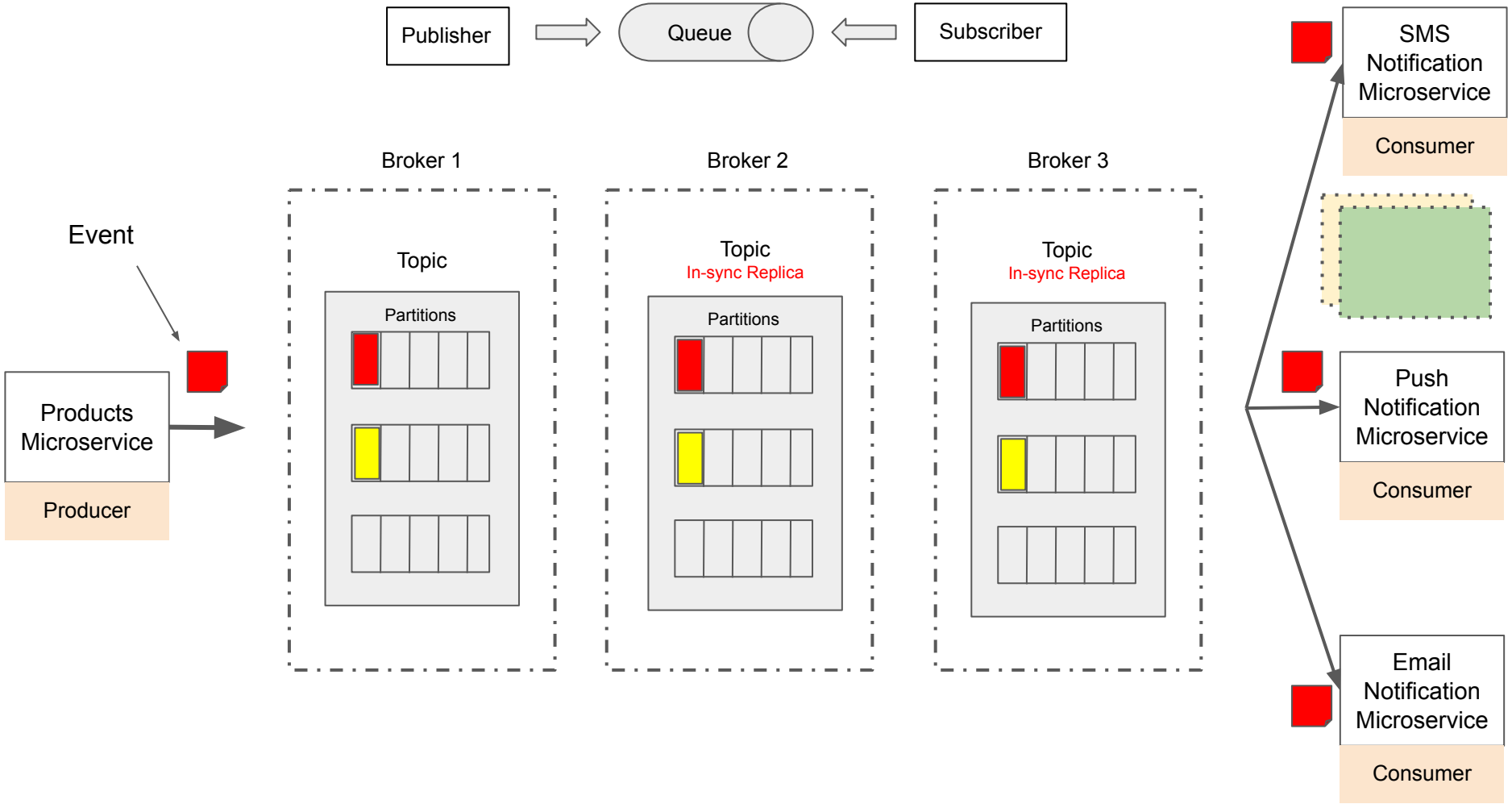

Publish & Subscribe
Event-Driven Communication
Producer
Orders Microservice
Order Created Event
Publish
produce
Apache Kafka
Consumer
Shipment Notification Microservice
Subscribe
Topic
Subscribe
Consumer
Supplier Notification Microservice
Subscribe
Consumer
SMS Notification Microservice
Subscribe
Consumer
Push Notification Microservice
Consumer
Email Notification Microservice
Subscribe
Consumer
Call Center Notification Microservice
Subscribe
Consumers
Do not send response back to Producer

Apache Kafka

Introduction

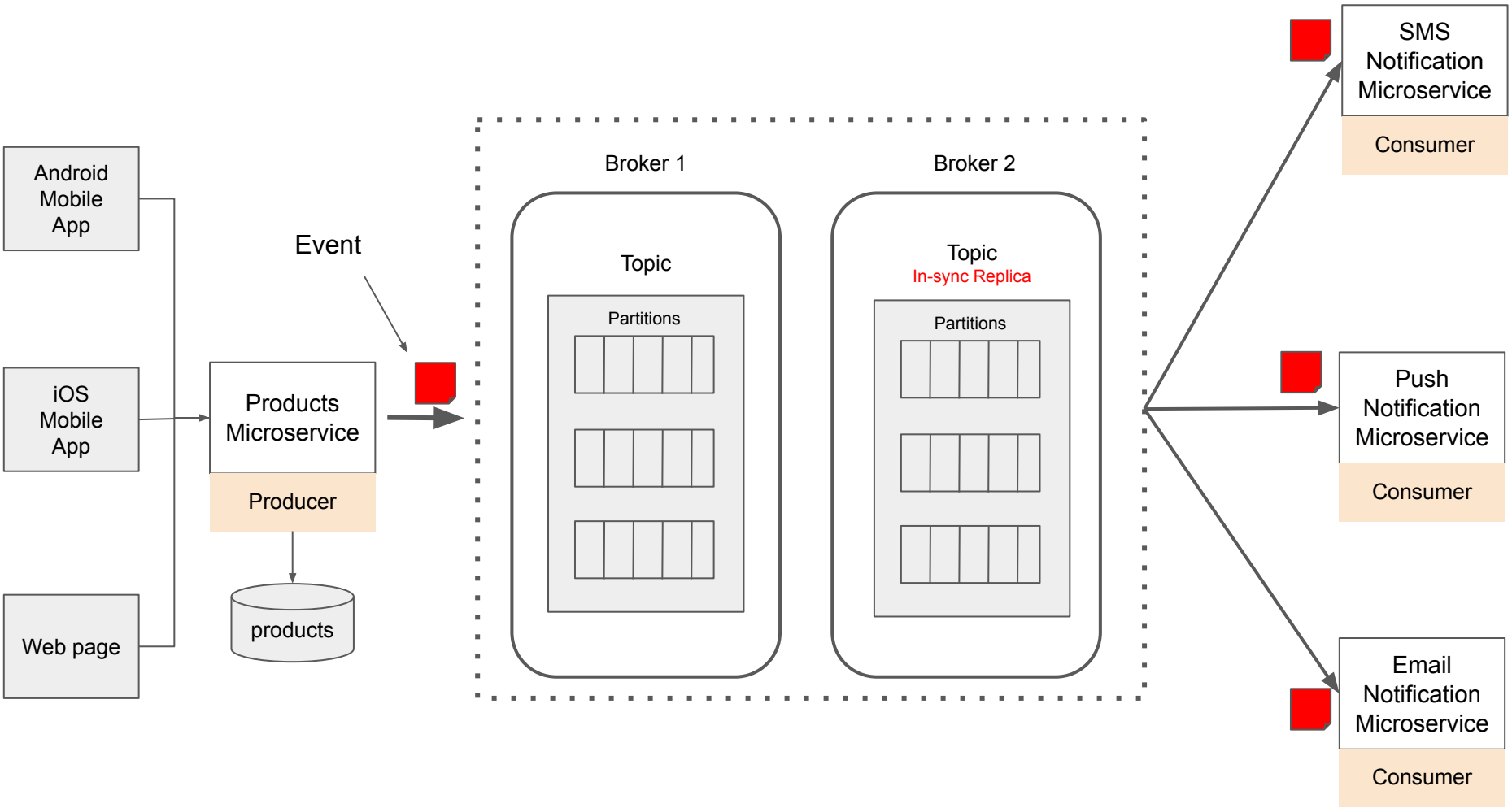
Apache Kafka is a distributed event streaming platform that is used to collect, process, store, and integrate data at scale.


Apache Kafka
Data Center
Kafka Servers
Data Center
Kafka Servers
Data Center
Kafka Servers
Products Microservice
Data
Data
SMS Notification Microservice
SMS Notification Microservice
Data
Push Notification Microservice
Push Notification Microservice
Data
Email Notification Microservice


Publisher
Queue
Subscriber
Broker 1
Broker 2
Broker 3
Event
Topic
Partitions
Topic
In-sync Replica
Partitions
Topic
In-sync Replica
Partitions
Products Microservice
Producer
SMS Notification Microservice
Consumer
Push Notification Microservice
Consumer
Email Notification Microservice
Consumer

Messages and Events

Introduction


Android Mobile App
iOS Mobile App
Web page
Event
Products Microservice
Producer
products
Broker 1
Topic
Partitions
Broker 2
Topic
In-sync Replica
Partitions
SMS Notification Microservice
Consumer
Push Notification Microservice
Consumer
Email Notification Microservice
Consumer

What is an Event?

In Apache Kafka, an event is an indication that **something has happened**.

- UserLoggedInEvent
- ProductCreatedEvent,
- OrderCreatedEvent.

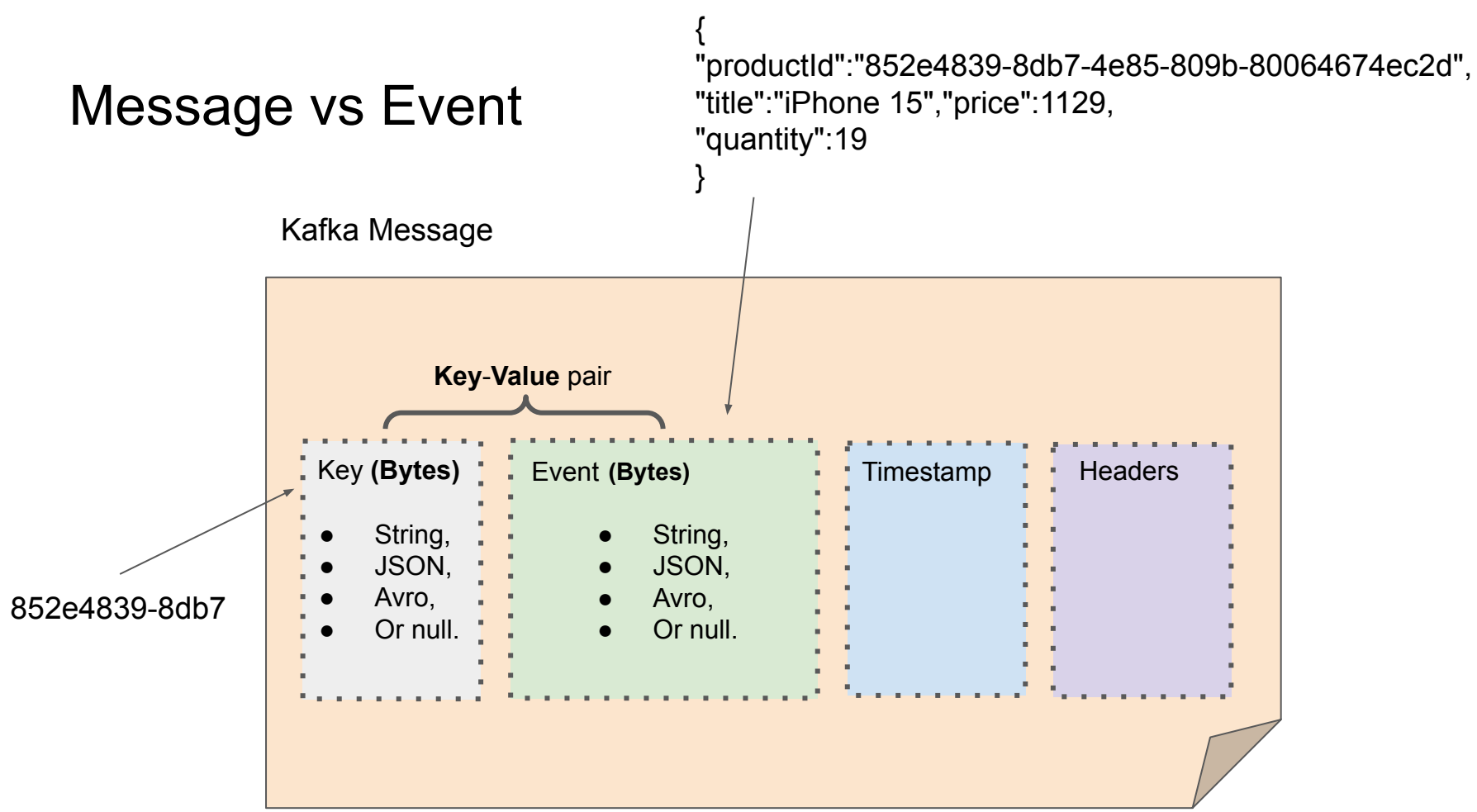
<Noun><PerformedAction>Event

ProductCreatedEvent

ProductShippedEvent

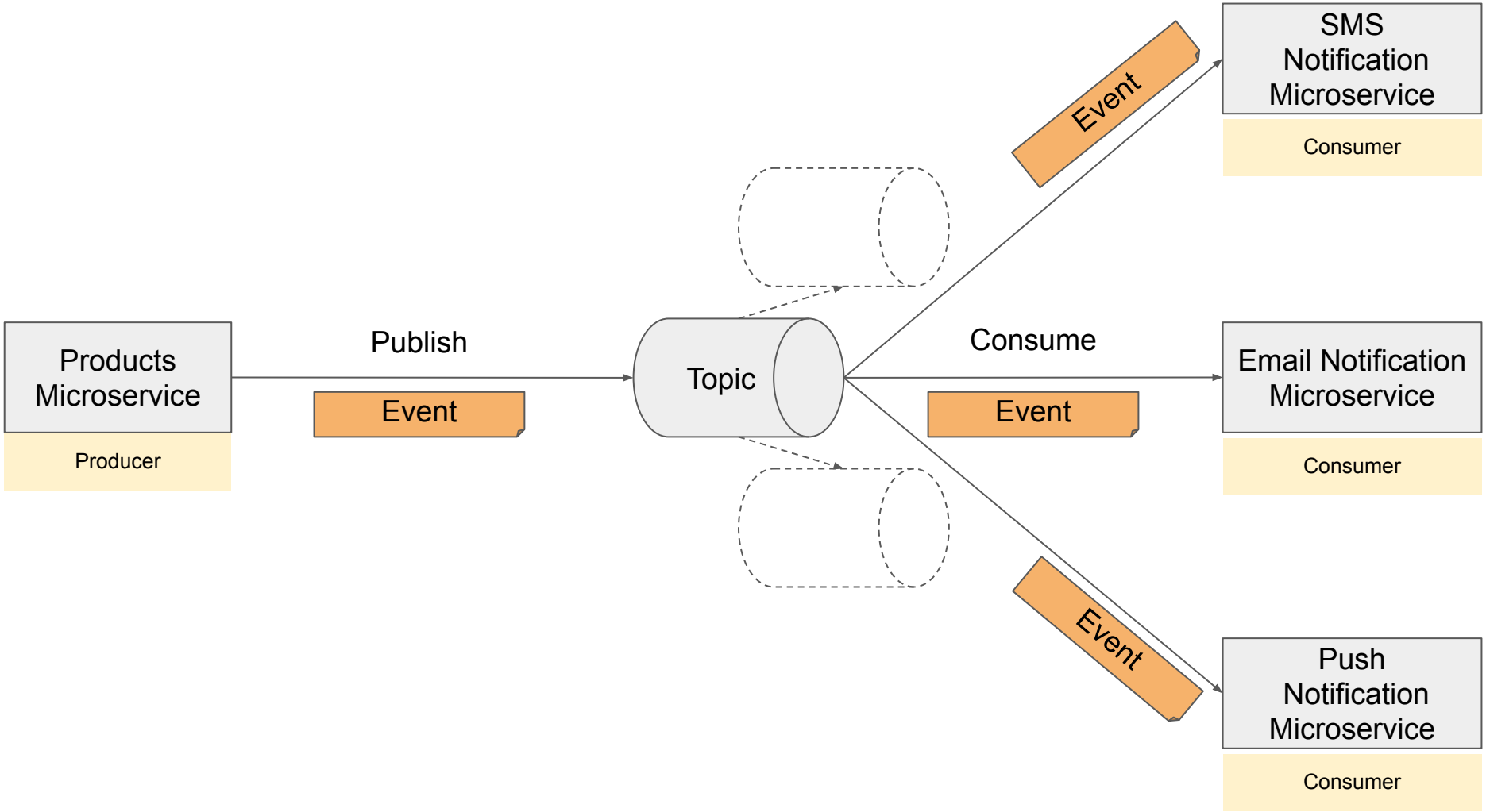
ProductDeletedEvent

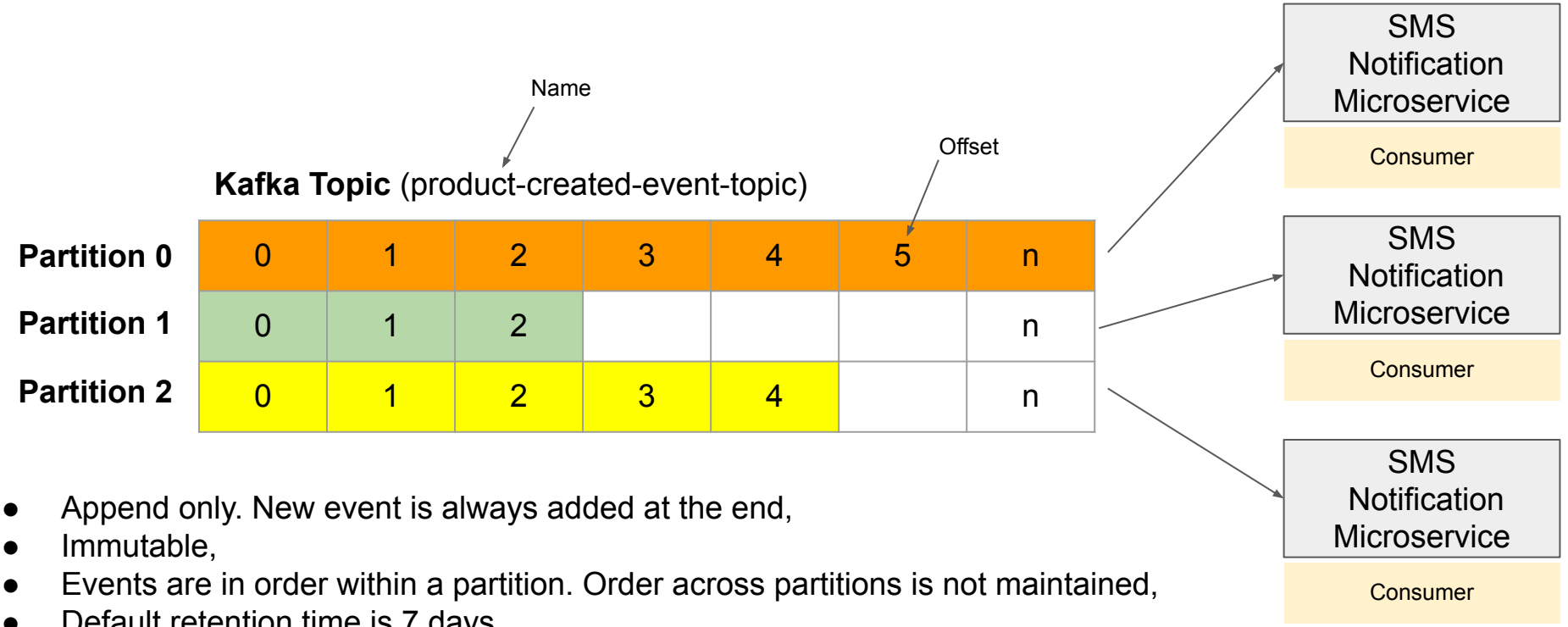
Message vs Event



Kafka Topic

Introduction

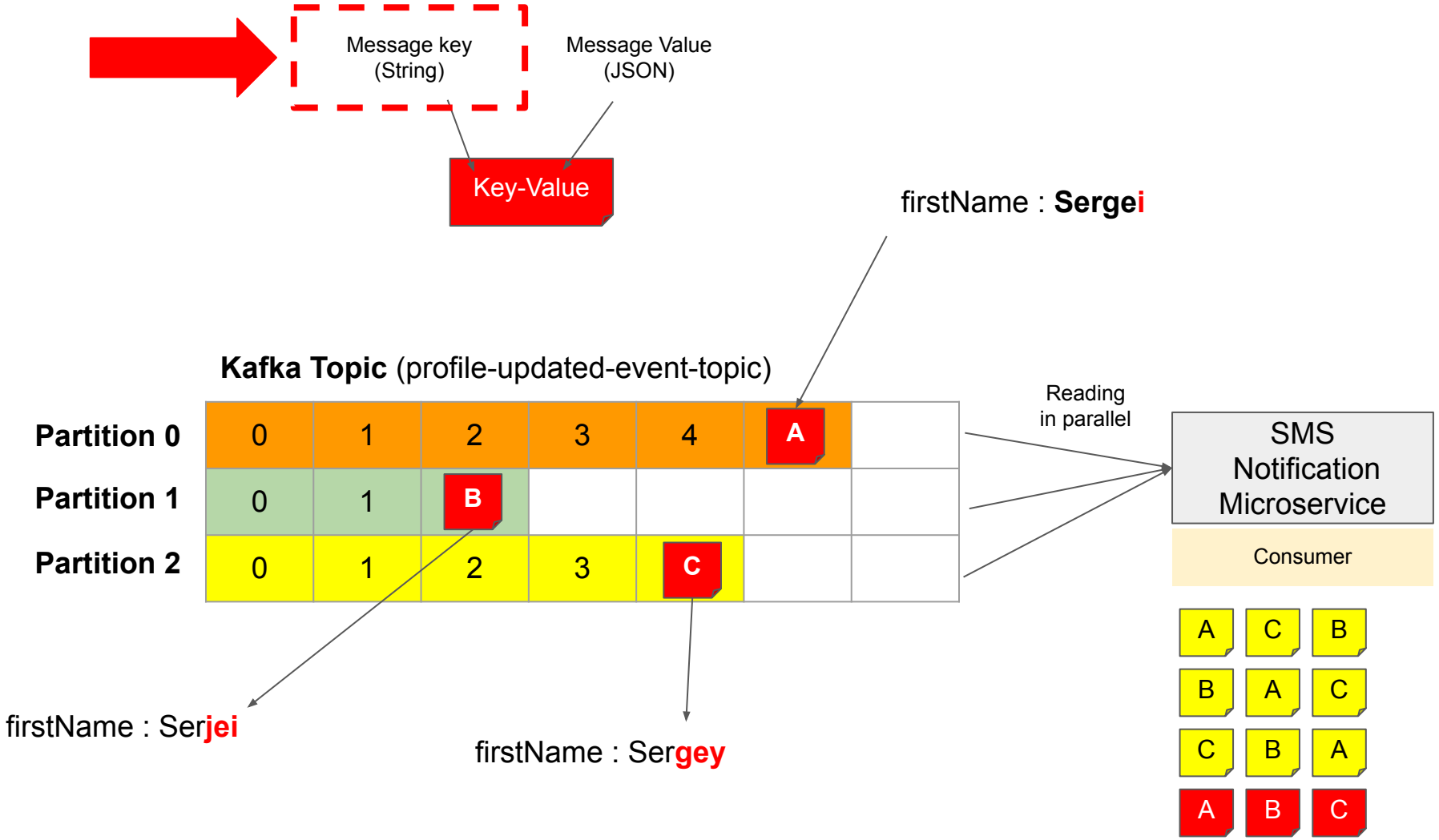

Products Microservice
Producer
Publish
Event
Topic
Consume
Event
Event
SMS Notification Microservice
Consumer
Email Notification Microservice
Consumer
Event
Push Notification Microservice
Consumer

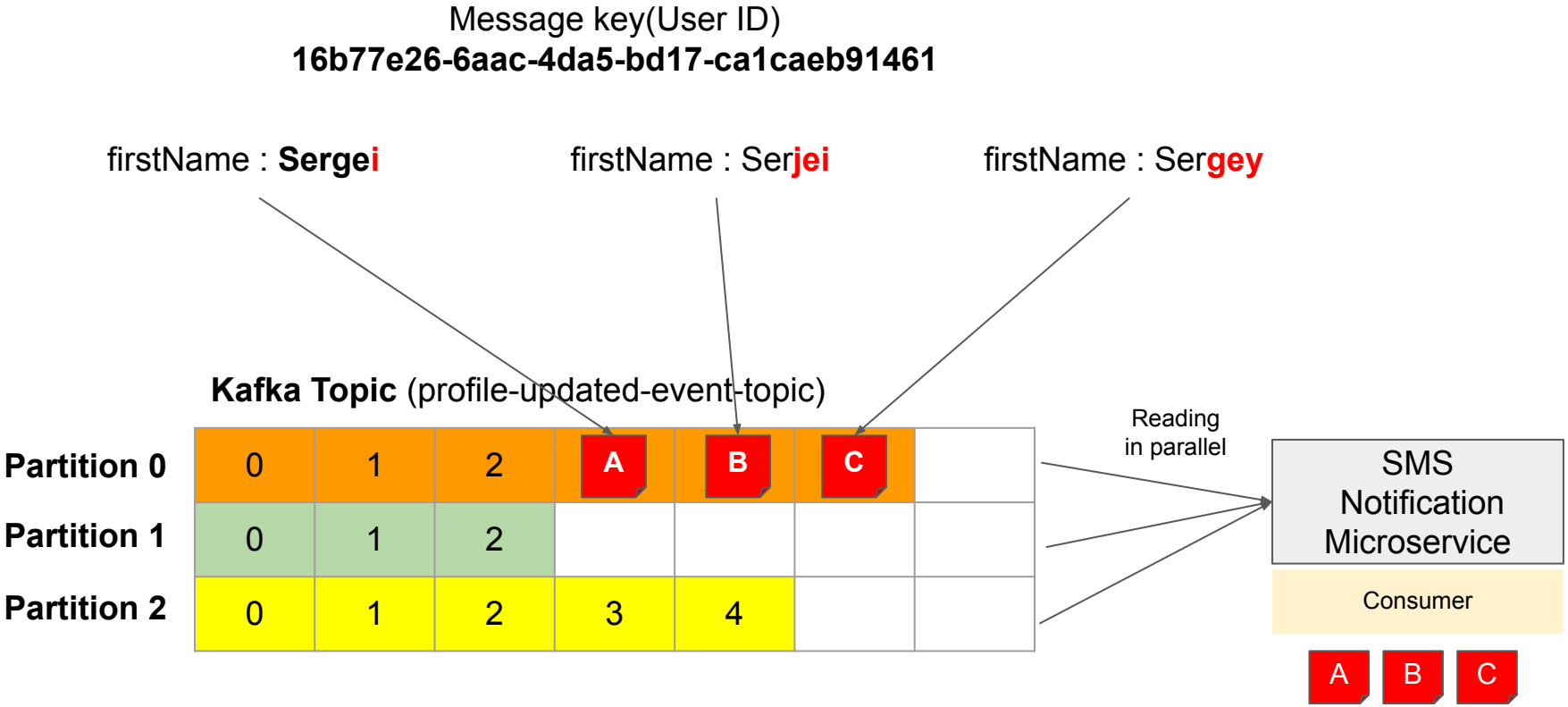


- Append only. New event is always added at the end,
- Immutable,
- Events are in order within a partition. Order across partitions is not maintained,
- Default retention time is 7 days,
- By default, data is retained for a week.

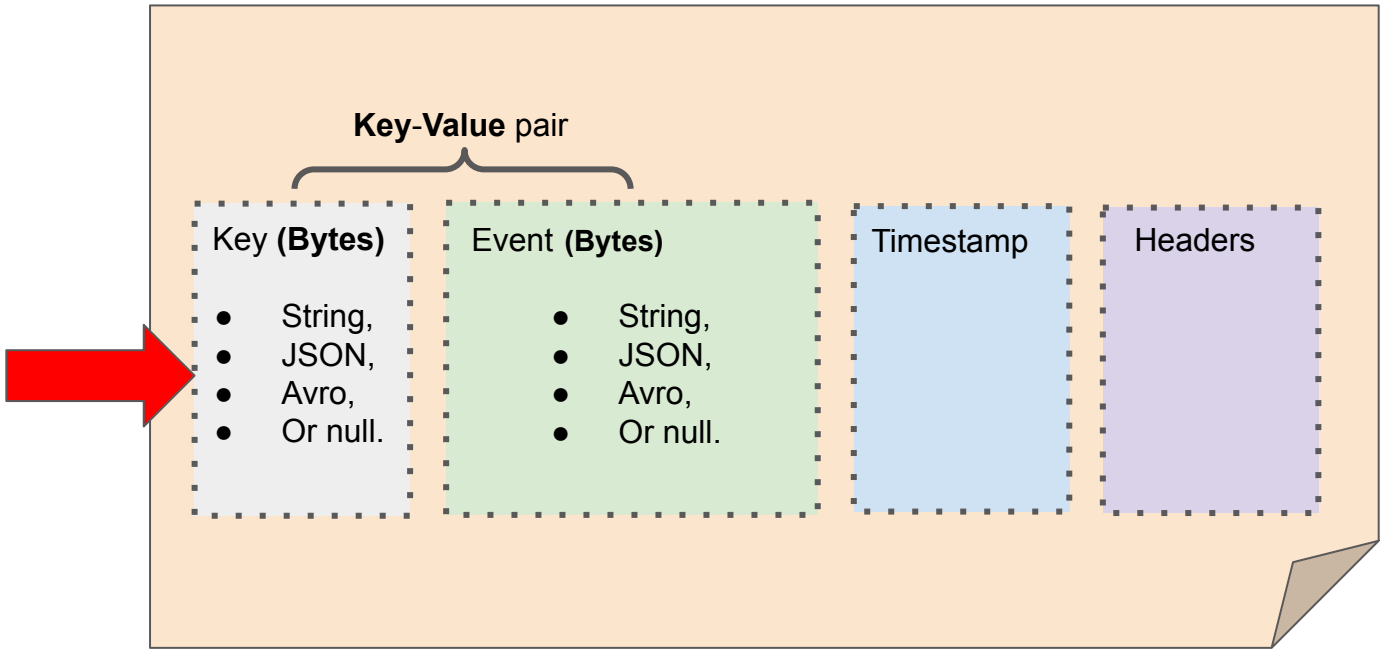
Events Ordering

Introduction


Message key
(String)
Message Value
(JSON)
Key-Value
firstName : Sergei
Kafka Topic (profile-updated-event-topic)
Partition 0
Partition 1
Partition 2
0
1
2
3
4
A
0
1
B
0
1
2
3
C
Reading
in parallel
SMS
Notification
Microservice
Consumer
A
C
B
B
A
C
C
B
A
A
B
C
firstName : Serjei
firstName : Sergey


Message key(User ID)
16b77e26-6aac-4da5-bd17-ca1caeb91461
firstName : Sergei
firstName : Serjei
firstName : Sergey
Kafka Topic (profile-updated-event-topic)
Partition 0
Partition 1
Partition 2
0
1
2
A
B
C
0
1
2
0
1
2
3
4
Reading
in parallel
SMS
Notification
Microservice
Consumer
A
B
C

Kafka Message



Possible Message Key Values

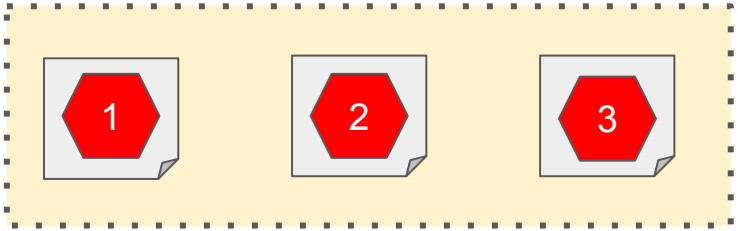
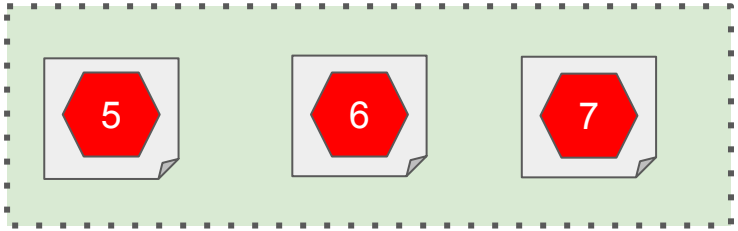
UUID

UserId	16b77e26-6aac-4da5-bd17-ca1caeb91461
ProductId	4d763028-998d-4e7f-810c-f79a407c394a

OrderId	order-id-16b77e26
CarId	car-id-4d763028

Custom format

Message Id: 4d763028-998d…



Message Id: f79a407c394a..