Journey to a Real-Time Enterprise

Neha Narkhede,
Co-founder/CTO at Confluent,
Co-Creator Apache Kafka
Infrastructure Technology
Adoption in Silicon Valley
Adoption in Silicon Valley
Adoption in the Enterprise
Fortune 500’s are using Apache Kafka™

- Travel Companies
- Global Banks
- Insurance
- Telecom
Emergence of the Streaming Platform
Pre-Streaming
Request-Response Applications

Deterministic

Rigid

Tight coupling
Event-Driven Applications

Responsive
Flexible
Extensible

Streaming Platform

App
Developer APIs

Service
Service
Service
Service
Pre-Streaming -> Event-Driven

Request-Response

Event-Driven
Why Didn’t It Work Before?
Past Solutions Are Insufficient

Message-Oriented Middlewhere
- No persistence
- Single point of failure
- Not fault tolerant
- Cannot order messages
- Cannot process messaging in flight
- Order of magnitude lower throughput
- No “Replay” functionality

EAI & ESBs
- Not event-oriented
- Fragile and bespoke
- Weak transformation capabilities

ETL
- Often slow, batch oriented, and non-scalable
- Point-to-point not publish subscribe
- Not a true infrastructure platform
The World has Changed

- Internet of Things
- Microservices
- Mobile
- Machine Learning
What’s Needed? Event Centric Thinking

STREAM PROCESSING

STREAMS OF REAL TIME EVENTS

- Database Change
- Customer Interactions
- SaaS Data
- Microservice Events

Tables of Data at Rest

Saas Apps

Microservices
What is an event?
Events

SOMETHING HAPPENED
Events

- A Sale
- An Invoice
- A Trade
- A Customer Experience
All Your Data is Streams of Events
What is a Company?

A business is a series of events and reacting to those events.
Event-Driven Government
Norwegian Work and Welfare Administration

Life is a Stream of Events

5.2 Million Citizens
The Future of the Automotive Industry is a Real Time Data Cluster

- Front Camera
- Traffic Alerts
- Anomaly Detection
- Infrared Camera
- Front, rear and top view cameras
- Ultrasonic Sensors
- Crash Sensors
- Traffic Alerts
- Hazard Alerts
- Ultrasonic Sensors
- Personalization
- Radar Sensors

MQTT

STREAMING PLATFORM
Royal Bank of Canada  Event-Driven Banking

- 30+ Use-cases
- 50+ apps
- 10+ different lines of businesses

- Consumer Credit Services
- Corporate Real Estate
- Investor Services
- Treasury Services
- ...

STREAMING PLATFORM

- Microservices
- Data Warehouse
- SaaS
- Digital Marketing
- Fraud
- Security
Internet of Things
Banking
Retail
What is a Streaming Platform?
The Streaming Platform

Technical Capabilities

Publish & Subscribe  Store  Process
Three Lenses
Messaging done right.
Way More Than Message Queue

Messaging done right.

Scalability

True Storage

Real-time Processing
Hadoop made fast.
Stream Processing
Applications are different

Hadoop made fast.
ETL and Data Integration as a platform.
Scalable Streaming Data Pipelines
Stream Processing is for more than data pipelines

ETL and Data Integration as a platform.
Journey to an Event-Driven Enterprise
Streaming Adoption Journey

- Pre-Streaming
- Streaming Awareness and Pilot
- Early Production Streaming
- Mission Critical, Integrated Streaming
- Global Streaming
- Central Nervous System

INVESTMENT & TIME

VALUE
What does the Event-Driven Architecture look like in its end state?
An Event-Driven Enterprise

What are the possibilities?

- Everything is an event
- Available instantly to all applications in a company
- Ability to query data as it arrives vs when it is too late
- Simplifying the data architecture by deploying a single platform
An open streaming platform around Kafka and its ecosystem
Thank You