

# Apache Kafka – Fundamentals

## Description

Apache Kafka was built with the vision to become the central nervous system that makes real-time data available to all the applications that need to use it, with numerous use cases like stock trading and fraud detection, to transportation, data integration, and real-time analytics.

This course provides an overview of what Kafka is, what it's used for, and the core concepts that enable it to power a highly scalable, available and resilient real-time event streaming platform. The series begins with an introduction to the shift toward real-time data streaming, and continues all the way through to best practices for developing applications with Apache Kafka, how to integrate Kafka into your environment and the use of Confluent Platform.

## Course Content

### Module 1: Motivation and Customer Use Cases

- Motivation for a paradigm change to “Event-driven”
- How Kafka is the backbone of real-time event streaming
- How other major players in the market use Kafka
- Customer Use Cases
- Microservices, IoT and Edge Computing
- Core Banking, payments engine and fraud detection
- Cyber Data Collection and Dissemination
- ESB Replacement
- Data Pipelining
- eCommerce and Customer 360
- Mainframe offloading

### Module 2: Apache Kafka Fundamentals

- Architecture
- ZooKeeper's role
- Topics, Partitions and Segments
- The commit log and streams
- Brokers and Broker replication
- Producers Basics
- Consumers, Consumer groups and Offsets

### Module 3: How Kafka Works

- High-level code overview for a basic producer and a basic consumer
- High Availability through Replication
- Data Retention Policies
- Producer Design and Producer Guarantees
- Delivery Guarantees, including Exactly Once Semantic
- Partition strategies
- Consumer group rebalances
- Compacted Topics
- Troubleshooting strategies

- Security overview

## **Module 4: Integrating Kafka into your Environment**

- Get streams of data into and out of Kafka with Kafka Connect and REST Proxy
- Maintain data formats and ensure compatibility with Schema Registry and Avro
- Build real-time streaming applications with Confluent KSQL & Kafka Streams

## **Module 5: The Confluent Platform**

- The Streaming Platform as the Central Nervous System
- Deployment Models — on premise versus SaaS
- The Confluent Control Center
- Role Based Access Control (RBAC)
- The Confluent CLI
- Confluent Operator
- The Confluent Hub for Certified Connecto

## **Lab / Exercises**

- Launching and exploring a minimal Kafka cluster
- Using Kafka command line tools to explore cluster meta data in ZooKeeper, create topics on the cluster, and publish & consume messages
- Running a Java based consumer and observe consumer lag when scaling the consumer
- Configuring Kafka Connect with a MQTT Connector source to create a data pipeline
- Using Confluent Control Center to monitor your cluster and execute KSQL queries

## **Exam**

- This course prepares you to the Confluent Certified Developer for Apache Kafka. If you wish to take this exam, please contact our secretariat who will let you know the cost of the exam and will take care of all the necessary administrative procedures for you

## **Participant profiles**

- Professionals who work with a real-time event streaming platform powered by Apache Kafka
- Students attending Apache Kafka
- Administration by Confluent and/or the Confluent Skills for Building Apache Kafka

## **Prerequisites**

- Basic understanding of the Linux OS
- Experience in using a shell like Bash is beneficial

## **Objectives**

- Gain understanding of the Apache Kafka® and Confluent Platform
- Explore use cases
- Receive an overview of Kafka's core concepts that enable it to power a highly scalable, highly available and resilient real-time event streaming platform
- Be introduced to the Confluent Platform, offering an enterprise-ready, real-time event streaming platform powered by Apache Kafka
- Begin preparation to attend Apache Kafka Administration by Confluent and/or the Confluent Skills for Building

## **Niveau**

Fondamental

**Classroom Registration Price (CHF)**

800

**Virtual Classroom Registration Price (CHF)**

750

**Duration (in Days)**

1

**Reference**

KAF-FO