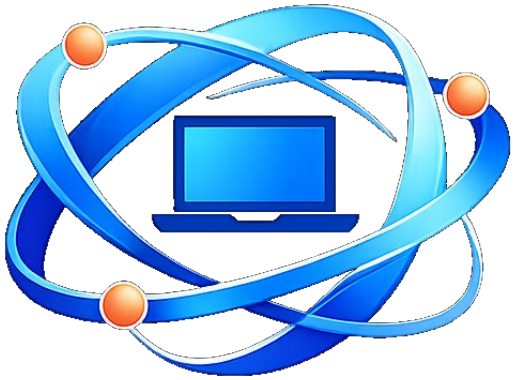

MFE-IT

Reference: CL-K

# Apache Kafka Training Course

## Master Real-Time Data Streaming, Distributed Architectures and Event-Driven Systems

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*Duration: 3 Days | Hours: 21 h*

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*Remote · Sessions guaranteed from 1 registrant · 60% hands-on practice*

## DESCRIPTION

In a permanently connected world, modern architectures must process data streams in real time, at scale, and without interruption. Apache Kafka has established itself as the reference standard for building robust, distributed event streaming systems.

This training course gives you the solid foundations needed to design, deploy and operate a Kafka architecture in a professional environment — covering producers, consumers, Streams, Connect, monitoring and operations.

## LEARNING OBJECTIVES

By the end of this training course, participants will be able to:

- Understand the distributed architecture of Kafka
- Install and configure a local or remote Kafka cluster
- Create producers and consumers in Java or Python
- Use Kafka Streams and Kafka Connect to process and integrate data
- Monitor, scale and secure a Kafka cluster in production

## PREREQUISITES

- Good foundations in software development (Java, Python or equivalent)
- Knowledge of messaging systems or distributed architecture is a plus
- Comfortable with command line and local deployment (Linux or Windows)

> *Because each participant is unique, a personalised interview is systematically organised in advance with our expert to design a training programme perfectly aligned with their objectives, level and professional challenges.*

## TARGET AUDIENCE

Developers, architects, DevOps and DataOps engineers, and integration managers wishing to master real-time data streaming with Apache Kafka.

# DETAILED PROGRAMME

> The training alternates between theoretical input and hands-on practice (approximately 60% of the time). Modules are built around practical exercises based on real-world business use cases.

## Module 1 – Introduction to event streaming and Kafka architecture

- Streaming versus messaging versus batch
- Kafka core concepts: brokers, topics, partitions, offsets
- Use cases: log aggregation, event sourcing, real-time analytics

## Module 2 – Installing and configuring a Kafka cluster

- Local installation and Docker setup
- Broker configuration and ZooKeeper / KRaft mode
- Topic creation and partition strategy

## Module 3 – Topics, partitions, replication and brokers

- Replication factors and ISR (in-sync replicas)
- Leader election and rebalancing
- Retention policies and log compaction

## Module 4 – Producers and consumers

- Producer APIs in Java and Python
- Consumer groups, offsets and delivery semantics
- Idempotent and transactional producers

## Module 5 – Kafka Streams for real-time processing

- Streams DSL: map, filter, aggregate, join
- Stateful processing and KTables
- Windowing and exactly-once processing

## Module 6 – Kafka Connect for data integration

- Source and sink connectors
- Common integrations: databases, S3, Elasticsearch
- Change Data Capture with Debezium

### Module 7 – Monitoring, scaling and securing in production

- Cluster sizing and capacity planning
- JMX metrics, Prometheus and Grafana dashboards
- Security: SSL/SASL, ACLs, schema registry

## TEACHING METHODS

### Format and Delivery

The training is delivered remotely via an interactive virtual classroom. It can also be delivered on-site, with content customised to match the needs of your professional project. The theory/practice split is approximately 40%/60%.

### MFE-IT Ultra-Personalised Format

Each session accommodates between 1 and 3 participants, ensuring highly individualised support. A preliminary interview allows us to tailor the content to each participant's profile. Inter-company sessions are guaranteed from just 1 registrant (except in cases of force majeure).

### Skills Assessment

Throughout the training, the trainer assesses participant progress through multiple-choice questions, role-playing exercises and hands-on work. At the end, a certificate of achievement is issued to each participant.

### Post-Training Support

For one month following the training, each participant can contact MFE-IT trainers with questions about implementing acquired knowledge. A response is provided by email or telephone within 48 working hours.

### Accessibility

MFE-IT is committed to welcoming people with disabilities. Contact: contact@mfe-it.com.

## PRACTICAL INFORMATION

### Trainer Resources

- Structured demonstrations aligned with the detailed programme
- Exercise briefs and solutions throughout the training
- A ready-to-use technical environment for practical workshops
- Trainer validation of acquired knowledge at the end of each workshop
- Digital reference documents

### Certification and Validation

At the end of the training, a certificate is sent by email specifying the objectives, nature, duration and assessment results. A completion certificate can also be provided on request.

### Benefits for Participants

- Train from your workplace or home, with no travel required
- Benefit from an expert trainer-consultant on the subject
- Enjoy an ultra-personalised format (1 to 3 participants)
- Continue training even in the event of unforeseen circumstances

### Benefits for the Organisation

- Optimise the training budget by reducing travel and accommodation costs
- Offer quality training to all employees, regardless of location
- Reduce absence time linked to travel
- Support team upskilling in all contexts