Course : Spring: Big Data and new architectures around Kafka and the Cloud

Practical course - 4d - 28h00 - Ref. SGG
Price : 2100 € E.T.

In this course, which is aimed at both developers and architects, you'll create a Java program in which microservices communicate via a KAFKA broker. During this project, you will use the Spring framework and connect the application to a NoSQL database such as MongoDB or ElasticSearch.

Teaching objectives

At the end of the training, the participant will be able to:

- Understanding the concept of big data
- Discover Hadoop and Spark
- Understanding reactive architecture with Kafka
- Setting up a project in the cloud (AWS)
- Mastering serverless

Intended audience
Java/Java EE developers, software architects.

Prerequisites
Knowledge equivalent to that acquired in the course "Spring 5 training, developing enterprise applications" (ref. SPG). Knowledge of Docker and Big Data.

Course schedule

PARTICIPANTS
Java/Java EE developers, software architects.

PREREQUISITES
Knowledge equivalent to that acquired in the course "Spring 5 training, developing enterprise applications" (ref. SPG). Knowledge of Docker and Big Data.

TRAINER QUALIFICATIONS
The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS
The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 Key concepts and tools

- Evolving technologies.
- Docker containers and virtualization.
- The cloud.
- NoSQL.
- The Spring framework.
- Big data.
- Hadoop.
- Kafka.

Hands-on work

2 Pre-design analysis and implementation with Spring

- Analysis of user stories.
- Application modeling.
- Spring in MVC, hexagonal layers.
- Creating Spring microservices from the DDD.
- Ubiquitous language.
- Model and Bounded Context.
- Pitfalls to avoid.
- Best practices.

Hands-on work
Based on a business problem, we're going to use DDD to build a set of micro-services that communicate with each other.

3 Reactive/asynchronous architecture with Kafka

- Message brokers.
- Discover Kafka.
- Push/pull data and producers.
- Consumers and brokers.
- Topics and scores.
- Offset and ZooKeeper.
- Implementation of Kafka in a micro-service architecture.

Hands-on work
Design of a reactive architecture with the Kafka broker linking the microservices.

4 Application and software architecture

- Micro-service architecture.
- CQRS and Event-sourcing.
- Reactive architecture.
- Serverless processing in the cloud.

Hands-on work
Analysis and implementation of previous exercises and improvements by presenting architecture concepts.

5   Big data and the creation of a cloud-based data lake

- Architecture and operation of big data.
- Data lake and data mining concepts.
- Presentation of cloud and non-cloud solutions.

Hands-on work
Implementation of a cloud-based data lake in which a set of data will be deposited for subsequent processing.

6   Big data and data analysis with Hadoop

- Concept and tools.
- Hadoop: introduction to the environment.
- Map Reduce.
- HDFS and HBase.
- Spark: introduction to the environment.
- Comparison with Map Reduce.
- Hadoop integration.
- Data handling.

Hands-on work
Retrieve and analyze data from the data lake using a Spark Hadoop solution. The results can then be represented graphically.

Dates and locations

REMOTE CLASS
2026 : 2 June, 15 Sep., 1 Dec.

PARIS LA DÉFENSE
2026 : 2 June, 15 Sep., 1 Dec.