

Course : Real-time Big Data processing with Spark and Storm

Practical course - 3d - 21h00 - Ref. DSS

Price : 2360 CHF E.T.

Big Data, known for its ability to process massive data, is now integrating a real-time component with the arrival of tools such as Spark and Storm. You'll discover the advantages of these tools, their real-time distributed computing systems and the notion of Streaming Big Data.

Teaching objectives

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

- ✓ Understand the fundamentals of real-time big data application development
- ✓ Evaluating Spark and Storm
- ✓ Applying Storm and Spark real-time distributed computing systems
- ✓ Process large quantities of data in real time

Intended audience

Designers, developers, architects.

Prerequisites

Good knowledge of software development. An understanding of big data issues is a plus.

Course schedule

1 Introduction to real-time architecture

- Real-time processing.
- Lambda architectures.
- Kappa architectures.
- SMACK architectures.

Hands-on work

Study of the implementation of a Kappa architecture for Spark and Storm.

PARTICIPANTS

Designers, developers, architects.

PREREQUISITES

Good knowledge of software development. An understanding of big data issues is a plus.

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.

TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

2 Kafka architecture

- The Kafka Producers, Brokers, Consumers overview.
- Kafka's log files.
- Avro schematics. Using ZooKeeper.

Hands-on work

Study of Kafka configuration in Kappa architecture.

3 Apache Storm architecture

- Definition of the development environment.
- Creation of Storm-based projects.
- Definition of Storm components (Spout and Bolt).
- Storm flow definition.
- Data model (key, value).
- Nimbus and ZooKeeper roles.

Case study

Kappa architecture implementation study for Storm.

4 Handling Storm messages

- Service programming with Clojure, Java, Python.
- Message life cycle.
- The Storm API for defining reliability.
- Reliability implementation strategy for a Big Data application.

Hands-on work

Implementation of a real-time social network processing project in the Kappa architecture.

5 Apache Spark architecture

- The different versions of Spark (Scala, Python, R and Java).
- Comparison with the Storm environment.
- The different Spark modules.
- The different types of architecture: Standalone, Apache Mesos or Hadoop YARN.

Hands-on work

Study of the implementation of the SMACK architecture for Spark.

6 Real time with Spark Streaming

- Introducing Resilient Distributed Dataset (RDD)?
- Create, manipulate and reuse RDDs.
- Accumulators and broadcast variables.
- Operating principle.
- The different types of source.
- Comparison with Apache Storm.

Hands-on work

Implementation of a real-time social network processing project.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

7 Other market players

- Comparison of all streaming tools in the ecosystem (Storm, Spark Streaming, Flink, Samza).
- Focus on Samza architecture.

Hands-on work

Study of the implementation of Kappa architecture with Samza.