



Spring Cloud for Microservices

This Spring Cloud Microservices Training course will help you implement the microservices architecture in Spring Framework, Spring Boot, and Spring Cloud. Using the latest specifications of Spring, you'll be able to build modern, Internet-scale Java applications in no time.

Prerequisites

[Spring / Hibernate](#), [Spring Boot](#)

Further training

[JEE](#) Courses if you have not done them yet.

Introduction to Microservices

- Spring Boot, Spring Data, and Spring Data REST
- What are Microservices?

Spring Cloud

- Spring Cloud Overview
- Spring Cloud Configuration – Centralized, Versioned Configuration
- Exercise : Spring Cloud Configuration
- Spring Cloud Eureka – Service Discovery
- Exercise Spring Cloud Eureka
- Spring Cloud Ribbon – Client-Side Load Balancing
- Spring Cloud Ribbon
- Spring Cloud Feign – Declarative REST Client
- Using Declarative REST Clients
- Feign
- Spring Cloud Hystrix – Circuit Breaker
- Hystrix
- Spring Cloud Bus – Dynamic Configuration Changes
- Spring Cloud Bus
- API Gateway – Part 1 – Purpose, and Spring Cloud Zuul
- API Gateway – Part 2 – Caching Options
- API Gateway – Part 3 – Resource Expansion
- API Gateway – Part 4 – Protocol Conversion
- Zuul and ETags

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Microservices

- The evolution of microservices
- What are microservices?
- Microservices the honeycomb analogy
- Principles of microservices
- Characteristics of microservices
- Microservices examples
- Microservices benefits
- Relationship with other architecture styles
- Microservice use cases

Building Microservices with Spring Boot

- Setting up a development environment
- Developing a RESTful service the legacy approach
- Moving from traditional web applications to microservices
- Using Spring Boot to build RESTful microservices
- Getting started with Spring Boot
- Developing the Spring Boot microservice using the CLI
- Developing the Spring Boot Java microservice using STS
- Developing the Spring Boot microservice using Spring Initializr the HATEOAS example
- The Spring Boot configuration
- Changing the default embedded web server
- Implementing Spring Boot security
- Enabling cross-origin access for microservices
- Implementing Spring Boot messaging
- Developing a comprehensive microservice example
- Spring Boot actuators
- Configuring application information
- Adding a custom health module

- Documenting microservices

Applying Microservices Concepts

- Patterns and common design decisions
- Microservices challenges
- The microservices capability model

Microservices Evolution : A Case Study

- Reviewing the microservices capability model
- Understanding the PSS application
- Death of the monolith
- Microservices to the rescue
- The business case
- Plan the evolution
- Migrate modules only if required
- Target architecture
- Target implementation view

Scaling Microservices with Spring Cloud

- Reviewing microservices capabilities
- Reviewing BrownField's PSS implementation
- What is Spring Cloud?
- Setting up the environment for BrownField PSS
- Spring Cloud Config
- Feign as a declarative REST client
- Ribbon for load balancing
- Eureka for registration and discovery
- Zuul proxy as the API gateway
- Streams for reactive microservices
- Summarizing the BrownField PSS architecture

Autoscaling Microservices

- Reviewing the microservice capability model
- Scaling microservices with Spring Cloud
- Understanding the concept of autoscaling
- Autoscaling approaches
- Autoscaling BrownField PSS microservices
- Summary

Logging and Monitoring Microservices

- Reviewing the microservice capability model
- Understanding log management challenges
- A centralized logging solution
- The selection of logging solutions
- Monitoring microservices
- Data analysis using data lakes

Containerizing Microservices with Docker

- Reviewing the microservice capability model

- Understanding the gaps in BrownField PSS microservices
- What are containers?
- The difference between VMs and containers
- The benefits of containers
- Microservices and containers
- Introduction to Docker
- Deploying microservices in Docker
- Running RabbitMQ on Docker
- Using the Docker registry
- Microservices on the cloud
- Running BrownField services on EC2
- Updating the life cycle manager
- The future of containerization unikernels and hardened security

Managing Dockerized Microservices with Mesos and Marathon

- Reviewing the microservice capability model
- The missing pieces
- Why cluster management is important
- What does cluster management do?
- Relationship with microservices
- Relationship with virtualization
- Cluster management solutions
- Cluster management with Mesos and Marathon
- Implementing Mesos and Marathon for BrownField microservices
- A place for the life cycle manager
- The technology metamodel

The Microservices Development Life Cycle

- Reviewing the microservice capability model
- The new mantra of lean IT DevOps
- Meeting the trio microservices, DevOps, and cloud
- Practice points for microservices development
- Microservices development governance, reference architectures, and libraries

Duration and pricing

- **Full-time** over 5 days (R9995)
- **Part-time** over 4 weeks (2 nights per week, 3 hour sessions) (R11995)
- **Part-time** over 8 Saturdays, 3 hour sessions (R11995)
- Please note : For **part-time** courses we do not have a fixed schedule and you will be placed on a waiting list until we get a group of 4+ together. Please book with no dates on the bookings form. This will automatically put you on the waiting list. We will confirm with you as soon as we have a part-time group together.
- **Distance-learning** over up to 3 months (R8995)
- International exams are not included in the course price.
- Prices exclude Vat for Vat-registered companies

Certificate

1. Upon completion of this course we will issue you with attendance certificate to certify your attendance and / or completion of the prescribed minimum examples.
2. You may sit for our competency assessment test and on passing you will obtain our competency certificate.

3. Our competency assessment can be booked and taken by someone who has not attended the course at a cost of R2950.

Bookings

You can download the course registration form on our home page or by clicking [here](#)

Brochure

You may download a pdf copy of this page by clicking on the pdf icon at the top of the page.

Questions

Please [email us](#)

Schedule

On the calendar below. If your browser doesn't display the calendar below, please click on [this link](#) or try using [Google Chrome](#), alternatively please enquire via our [Contact Us](#) page.