Course Outline

# Building Microservices with Spring Boot

## Course Summary

### Description

Small Server approach to deploying applications. Spring Boot is a tech that builds on the Spring Framework to allow deployment of Spring-based applications as stand-alone jar files that host their own web servers. This class shows you how.

### Objectives

- Use Spring Boot to build standalone microservices and RESTful services
- Secure the transport layer via HTTPS
- Implement asynchronous messaging
- Discuss Netflix OSS to implement patterns for service discovery, load balancing, fault tolerance, and other key concerns for scalable distributed systems
- Monitor microservices with Sleuth and Zipkin
- Filter requests to your microservices using Zuul

### Topics

- Demystifying Microservices
- Building Microservices with Spring Boot
- Microservices Applied
- Microservices Use Case
- Reviewing BrownField's PSS Implementation
- Autoscaling Microservices
- Logging and Monitoring
- Containerizing your Microservice
- Deploying your Microservice with Kubernetes
- Resources

### Prerequisites

There are no prerequisites for this course.

### Duration

Four days

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### *I. Demystifying Microservices*
A. Microservices Progression and Architecture
B. Characteristics of microservices
C. Microservices benefits
D. Microservices Relationship with SOA & Twelve Factor apps
E. Microservices Uses

### *II. Building Microservices with Spring Boot*
A. Spring Boot to Build Microservices
B. Lab : Installing Spring Tool Suite, Maven and Java
C. Lab Solution : Install STS and Java - Visual
D. Lab Solution : Maven Installation
E. POM and HATEOAS
F. Spring Boot Configuration
G. Securing Microservices
H. Enabling cross-origin access for Microservices

### *III. Microservices Applied*
A. Challenges around Microservices
B. Communication and Orchestration of Microservices
C. BPM and Workflows with Microservices
D. Service Design Endpoints
E. Service Version

### *IV. Microservices Use Case*
A. Understanding the Application
B. Why Microservices?
C. Business Case
D. Key Questions to be Answered
E. Monolithic to Microservices
F. Integration with other systems

### *V. Reviewing BrownField's PSS Implementation*
A. Spring Cloud
B. Config Server
C. Feign as a declarative REST client
D. Eureka Discovery
E. Zuul
F. Streams for reactive microservices

### *VI. Autoscaling Microservices*
A. Autoscaling Microservices
B. Components

### *VII. Logging and Monitoring*
A. Logging and Monitoring
B. Turbine

### *VIII. Containerizing your Microservice*
A. Containerizing your Microservice
B. Docker

### *IX. Deploying your Microservice with Kubernetes*
A. Deploying your Microservice with Kubernetes

### *X. Resources*
A. Downloads
B. Lab 1 Develop a RESTful Service
C. Lab 2 CLI
D. Lab 3 Create a Spring Boot Java Microservice with STS
E. Lab 4 Create a Restful Service and End Point
F. Lab 5 HATEOAS
G. Lab 6 Read a Custom Property File
H. Lab 7 - Implement OAuth2
I. Lab 8 Spring Boot Messaging
J. Lab 9 Developing a Comprehensive Microservice
K. Lab 10