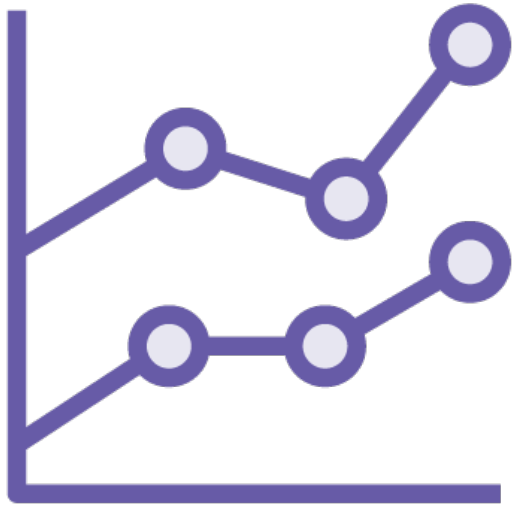
“Loosely coupled service oriented architecture with bounded context.”

Adrian Cockcroft, Battery Ventures

Why Are Microservices Architectures Popular?

Desire for faster changes

Need for greater availability



Motivation for fine-grained scaling

Compatible with a DevOps mindset

Core Characteristics of Microservices

- Components exposed as services
- Tied to a specific domain
- Loosely coupled
- Built to tolerate failure
- Delivered continuously via automation
- Built and run by independent teams

Questions About a Microservices Architecture

How do I find my service if URIs can change?

Should every app be turned into a set of microservices?

How am I supposed to ship changes continuously?

What if my team isn't arranged for DevOps?

How do services maintain consistent configurations, at scale?

How do I keep a poor-performing service from taking everything down?

Is there one single tech stack for these systems?

What's the right way to secure services?

How do I troubleshoot problems?

Isn't a monolith just simpler?

Microservices Scaffolding with Spring Cloud

- Released March 2015
- Build common distributed systems patterns
- Open source software
- Optimized for Spring apps
- Run anywhere
- Includes NetflixOSS technology

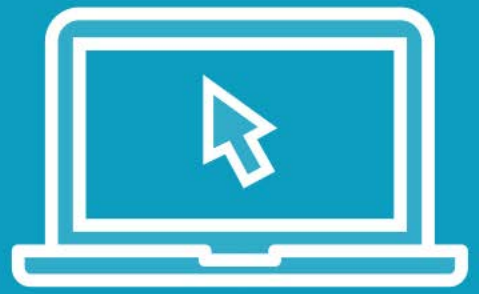
Catalog of Spring Cloud projects

Spring Cloud Config	Git-backed configuration server
Spring Cloud Netflix	Suite for service discovery, routing, availability
Spring Cloud Consul	Service discovery with Consul
Spring Cloud Security	Simplify OAuth 2.0 flows
Spring Cloud Sleuth	Distributed tracing
Spring Cloud Stream	Message bus abstraction
Spring Cloud Task	Short-lived, single-task microservices
Spring Cloud Dataflow	Orchestration of data microservices
Spring Cloud Zookeeper	Service discovery and configuration with Zookeeper
Spring Cloud for AWS	Exposes core AWS services to Spring developers
Spring Cloud Spinnaker	Multi-cloud deployment
Spring Cloud Contract	Stubs for service contracts

What Is Spring Boot?

- Offers opinionated runtime for Spring
- Convention, not configuration
- “Opinions” can be overridden
- Handles boilerplate setup
- Simple dependency management
- Embeds app server in executable JAR
- Built in endpoints for health metrics

Demo



- Reviewing the Spring INITIALIZR site
- Looking at Spring Tool Suite
- Creating a Spring Boot project
- Reviewing the POM file
- Editing the application.properties file
- Adding a REST endpoint
- Starting and running an application
- Viewing the Actuator endpoints

Spring Tool Suite

Maven build manager

Vagrant

Postman

GitHub account