Cloud Native Java Designing Resilient Systems With Spring Boot Spring Cloud And Cloud Foundry

How do you start? How should you build a plan for cloud migration for your entire portfolio? How will your organization be affected by these changes? This book, based on real-world cloud experiences by enterprise IT teams, seeks to provide the answers to these questions. Here, you'll see what makes the cloud so compelling to enterprises; with which applications you should start your cloud journey; how your organization will change, and how skill sets will evolve; how to measure progress; how to think about security, compliance, and business buy-in; and how to exploit the ever-growing feature set that the cloud offers to gain strategic and competitive advantage.

Accelerating Business and Mission Success with Cloud Computing. Key Features A step-by-step guide that will practically guide you through implementing Cloud computing services effectively and efficiently. Learn to choose the most ideal Cloud service model, and adopt appropriate Cloud design considerations for your organization. Leverage Cloud computing methodologies to successfully develop a cost-effective Cloud environment successfully. Book Description Cloud adoption is a core component of digital transformation. Scaling the IT environment, making it resilient, and reducing costs are what organizations want. Architecting Cloud Computing Solutions presents and explains critical Cloud solution design considerations and technology decisions required to choose and deploy the right Cloud service and deployment models, based on your business and technology service requirements. This book starts with the fundamentals of cloud computing and its architectural concepts. It then walks you through Cloud service models (IaaS, PaaS, and SaaS), deployment models (public, private, community, and hybrid) and implementation options (Enterprise, MSP, and CSP) to explain and describe the key considerations and challenges organizations face during cloud migration. Later, this book delves into how to leverage DevOps, Cloud-Native, and Serverless architectures in your Cloud environment and presents industry best practices for scaling your Cloud environment. Finally, this book addresses (in depth) managing essential cloud technology service components such as data storage, security controls, and disaster recovery. By the end of this book, you will have mastered all the design considerations and operational trades required to adopt Cloud services, no matter which cloud service provider you choose. What you will learn Manage changes in the digital transformation and cloud transition process Design and build architectures that support specific business cases Design, modify, and aggregate baseline cloud architectures Familiarize yourself with cloud application security and cloud computing security threats Design and architect small, medium, and large cloud computing solutions Who this book is for If you are an IT Administrator, Cloud Architect, or a Solution Architect keen to benefit from cloud adoption for your organization, then this book is for you. Small business owners, managers, or consultants will also find this book useful. No prior knowledge of Cloud computing is needed.

The way developers design, build, and run software has changed significantly with the evolution of microservices and containers. These modern architectures use new primitives that require a different set of practices than most developers, tech leads, and architects are accustomed to. With this focused guide, Bilgin Ibryam and Roland Huß from Red Hat provide common reusable elements, patterns, principles, and practices for designing and implementing cloud-native applications on Kubernetes. Each pattern includes a description of the problem and a proposed solution with Kubernetes specifics. Many patterns are also backed by concrete code examples. This book is ideal for developers already familiar with basic Kubernetes concepts who want to learn common cloud native patterns. You'll learn about the following pattern categories: Foundational patterns cover the core principles and practices for building container-based cloud-native applications. Behavioral patterns explore finer-grained concepts for managing various types of container and platform interactions. Structural patterns help you organize containers within a pod, the atom of the Kubernetes platform. Configuration patterns provide insight into how application configurations can be handled in Kubernetes. Advanced patterns covers more advanced topics such as extending the platform with operators.

Cloud Native JavaDesigning Resilient Systems with Spring Boot, Spring Cloud, and Cloud Foundry"O'Reilly Media, Inc."

Reactive Systems in Java

The what, why, and how of application modernization on Google Cloud

Briggs

Spring Microservices in Action

Architecting Cloud Computing Solutions

Build high performance, Kubernetes-native Java serverless applications

Reactive Spring

Solve all your Spring 5 problems using complete and real-world code examples. When you start a new project, you'll be able to copy the code and configuration files from this book, and then modify them for your needs. This can save you a great deal of work over creating a project from scratch. The recipes in Spring 5 Recipes cover Spring fundamentals such as Spring IoC container, Spring AOP/ AspectJ, and more. Other recipes include Spring enterprise solutions for topics such as Spring Java EE integration, Spring Integration, Spring Batch, Spring Remoting, messaging, transactions, and working with big data and the cloud using Hadoop and MongoDB. Finally, Spring web recipes cover Spring MVC, other dynamic scripting, integration with the popular Grails Framework (and Groovy), REST/web services, and more. You'll also see recipes on new topics such as Spring Framework 5, reactive Spring, Spring 5 microservices, the functional web framework and much more. This book builds upon the best-selling success of the previous editions and focuses on the latest Spring Framework features for building enterprise Java applications. What You'll Learn Get re-usable code recipes and snippets for core Spring, annotations and other development tools Access Spring MVC for web development Work with Spring REST and microservices for web services development and integration into your enterprise Java applications Use Spring Batch, NoSQL and big data for building and integrating various cloud computing services and resources Integrate Java Enterprise Edition and other Java APIs for use in Spring Use Grails code and much more Who This Book Is For Experienced Java and Spring programmers.

In todayÂ€??s IT architectures, microservices and serverless functions play increasingly important roles in process automation. But how do you create meaningful, comprehensive, and connected business solutions when the individual components are decoupled and independent by design? Targeted at developers and architects, this book presents a framework through examples, practical advice, and use cases to help you design and automate complex processes. As systems are more distributed, asynchronous, and reactive, process automation requires state handling to deal with long-running interactions. Author Bernd Ruecker demonstrates how to leverage process automation technology like workflow engines to orchestrate software, humans, decisions, or bots. Learn how modern process automation compares to business process management, service-oriented architecture, batch processing, event streaming, and data pipeline solutions Understand how to use workflow engines and executable process models with BPMN Understand the difference between orchestration and choreography and how to balance both

Summary Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microservices break up your code into small, distributed, and independent services that require careful forethought and design. Fortunately, Spring Boot and Spring Cloud simplify your microservice applications, just as the Spring Framework simplifies enterprise Java development. Spring Boot removes the boilerplate code involved with writing a REST-based service. Spring Cloud provides a suite of tools for the discovery, routing, and deployment of microservices to the enterprise and the cloud. About the Book Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. You'll learn to do microservice design as you build and deploy your first Spring Cloud application. Throughout the book, carefully selected real-life examples expose microservice-based patterns for configuring, routing, scaling, and deploying your services. You'll see how Spring's intuitive tooling can help augment and refactor existing applications with micro services. What's Inside Core microservice design principles Managing configuration with Spring Cloud Config Client-side resiliency with Spring, Hystrix, and Ribbon Intelligent routing using Netflix Zuul Deploying Spring Cloud applications About the Reader This book is written for developers with Java and Spring experience. About the Author John Carnell is a senior cloud engineer with twenty years of experience in Java. Table of contents Welcome to the cloud, Spring Building microservices with Spring Boot Controlling your configuration with Spring Cloud configuration server On service discovery When bad things happen: client resiliency patterns with Spring Cloud and Netflix Hystrix Service routing with Spring Cloud and Zuul Securing your microservices Event-driven architecture with Spring Cloud Stream Distributed tracing with Spring Cloud Sleuth and Zipkin Deploying your microservices

Use Spring Boot to build lightning-fast apps About This Book Get up to date with the defining characteristics of Spring Boot 2.0 in Spring Framework 5 Learn to perform Reactive programming with SpringBoot Learn about developer tools, AMQP messaging, WebSockets, security, MongoDB data access, REST, and more Who This Book Is For This book is designed for both novices and experienced Spring developers. It will teach you how to override Spring Boot's opinions and frees you from the need to define complicated configurations. What You Will Learn Create powerful, production-grade applications and services with minimal fuss Support multiple environments with one artifact, and add production-grade support with features Find out how to tweak your apps through different properties Use custom metrics to track the number of messages published and consumed Enhance the security model of your apps Make use of reactive programming in Spring Boot Build anything from lightweight unit tests to fully running embedded web container integration tests In Detail Spring Boot provides a variety of features that address today's business needs along with today's scalable requirements. In this book, you will learn how to leverage powerful databases and Spring Boot's state-of-the-art WebFlux framework. This practical guide will help you get up and running with all the latest features of Spring Boot, especially the new Reactor-based toolkit. The book starts off by helping you build a simple app, then shows you how to bundle and deploy it to the cloud. From here, we take you through reactive programming, showing you how to interact with controllers and templates and handle data access. Once you're done, you can start writing unit tests, slice tests, embedded container tests, and even autoconfiguration tests. We go into detail about developer tools, AMQP messaging, WebSockets, security, and deployment. You will learn how to secure your application using both routes and method-based rules. By the end of the book, you'll have built a social media platform from which to apply the lessons you have learned to any problem. If you want a good understanding of building scalable applications using the core functionality of Spring Boot, this is the book for you. Style and approach This book takes a tutorial-based approach to teach you all you need to know to get up and running with the latest version of Spring Boot. Filled with examples, you will gain hands-on experience of every area that Spring tackles.

Reusable Elements for Designing Cloud-Native Applications

The Definitive Guide to Modernizing Applications on Google Cloud

Build microservice-based cloud-native applications that dynamically scale

Spring 5 Recipes

A Problem-Solution Approach

Develop microservice-based high performance web apps for the cloud with Go

A guide for programmers interested in developing cloud native applications using Ballerina Swan Lake

Solve difficult service-to-service communication challenges around security, observability, routing, and resilience with an Istio-based service mesh. Istio allows you to define these traffic policies as configuration and enforce them consistently without needing any service-code changes. In Istio in Action you will learn: Why and when to use a service mesh Envoy's role in Istio's service mesh Allowing “North-South” traffic into a mesh Fine-grained traffic routing Make your services robust to network failures Gain observability over your syste with telemetry “golden signals” How Istio makes your services secure by default Integrate cloud-native applications with legacy workloads such as in VMs Reduce the operational complexity of your microservices with an Istio-powered service mesh! Istio in Action shows you how to implement this powerful new architecture and move your application-networking concerns to a dedicated infrastructure layer. Non-functional concerns stay separate from your application, so your code is easier to understand, maintain, and adapt regardless o programming language. In this practical guide, you'll go hands-on with the full-featured Istio service mesh to manage microservices communication. Helpful diagrams, example configuration, and examples make it easy to understand how to control routing, secure container applications, and monitor network traffic. About the technology Offload complex microservice communication layer challenges to Istio! The industry-standard Istio service mesh radically simplifies security, routing, observability, and other service-to-service communica challenges. With Istio, you use a straightforward declarative configuration style to establish application-level network policies. By separating communication from business logic, your services are easier to write, maintain, and modify. About the book Istio in Action teaches you how to implement an Istio-based service mesh that can handle complex routing scenarios, traffic encryption, authorization, and other common network-related tasks. You'll start by defining a basic service mesh and exploring the data plane with Istio's service proxy Envoy. Then, you'll dive into core topics like traffic routing and visualization and service-to-service authentication, as you expand your service mesh to workloads on multiple clusters and legacy VMs. What's inside Comprehensive coverage of Istio resources Practical examples to showcase service mesh capabilities Implementation of multi-cluster service meshes How to extend Istio with WebAssembly Traffic routing and observability VM integration into the mesh About the reader For developers, architects, and operations engineers. A author Christian Posta is a well-known architect, speaker, and contributor. Rinor Maloku is an engineer at Solo.io working on application networking solutions. Table of Contents PART 1 UNDERSTANDING ISTIO 1 Introducing the Istio service mesh 2 First steps with Istio 3 Istio's data plane: The Envoy proxy PART 2 SECURING, OBSERVING, AND CONTROLLING YOUR SERVICE'S NETWORK TRAFFIC 4 Istio gateways: Getting traffic into a cluster 5 Traffic control: Fine-grained traffic routing 6 Resilience: Solving application networking challenges 7 Observability: Understanding the behavior of your services 8 Observability: Visualizing network behavior with Grafana, Jaeger, and Kiali 9 Securing microservice communication PART 3 ISTIO DAY-2 OPERATIONS 10 Troubleshooting the data plane 11 Performance-tuning the control plane PART 4 ISTIO IN YOUR ORGANIZATION 12 Scaling Istio in your organization 13 Incorporating virtual machine workloads into the mesh 14 Extending Istio on the request path

Learn how to build scalable cloud native applications with the new-generation Ballerina language using expert tips and best practices Key FeaturesWork with code samples based on the Ballerina Swan Lake Beta1 versionExplore the in-built networking protocol support in Ballerina to develop secure distributed appsBuild a Ballerina app with an automated CI/CD pipeline with observability to simplify maintenance and deploymentBook Description The Ballerina programming language was created by WSO2 for the modern needs of devel where cloud native development techniques have become ubiquitous. Ballerina simplifies how programmers develop and deploy cloud native distributed apps and microservices. Cloud Native Applications with Ballerina will guide you through Ballerina essentials, including variables, types, functions, flow control, security, and more. You'll explore networking as an in-built feature in Ballerina, which makes it a first-class language for distributed computing. With this app development book, you'll learn about different networking protocols as as different architectural patterns that you can use to implement services on the cloud. As you advance, you'll explore multiple design patterns used in microservice architecture and use serverless in Amazon Web Services (AWS) and Microsoft Azure platforms. You will also get to grips with Docker, Kubernetes, and serverless platforms to simplify maintenance and the deployment process. Later, you'll focus on the Ballerina testing framework along with deployment tools and monitoring tools to build fully automated observable cloud applications. By the end of this book, you will have learned how to apply the Ballerina language for building scalable, resilient, secured, and easy-to-maintain cloud native Ballerina projects and applications. What you will learnUnderstand the concepts and models in cloud native architectureGet to grips with the high-level concepts of building applications with the Ballerina languageUse cloud native architectural design patterns to develop cloud native Ballerina applicationsDiscover how to automate, maintain, and observe cloud native Ba applicationsUse a container to deploy and maintain a Ballerina application with Docker and KubernetesExplore serverless architecture and use Microsoft Azure and the AWS platform to build serverless applicationsWho this book is for This Ballerina Swan Lake book is for cloud developers, integration developers, and microservices developers who are facing challenges with legacy tooling and are looking for the latest tools and technologies to solve them. Beginner-level programming knowledge is required before getting started with thi Ballerina book.

Get to grips with the tools, services, and functions needed for application migration to help you move from legacy applications to cloud-native on Google Cloud Key FeaturesDiscover how a sample legacy application can be transformed into a cloud-native application on Google CloudLearn where to start and how to apply application modernization techniques and toolingWork with real-world use cases and instructions to modernize an application on Google CloudBook Description Legacy applications, which comprise 75–80% of all ente applications, often end up being stuck in data centers. Modernizing these applications to make them cloud-native enables them to scale in a cloud environment without taking months or years to start seeing the benefits. This book will help software developers and solutions architects to modernize their applications on Google Cloud and transform them into cloud-native applications. This book helps you to build on your existing knowledge of enterprise application development and takes you on a journey through the six Rs: rehosting, replatforming, rearchitecting, repurchasing, retiring, and retaining. You'll learn how to modernize a legacy enterprise application on Google Cloud and build on existing assets and skills effectively. Taking an iterative and incremental approach to modernization, the book introduces the main services in Google Cloud in an easy-to-understand way that can be applied immediately to an application. By the end of this Google Cloud book, you'll have learned how to modernize a legacy enterprise application by exploring various interim archite and tooling to develop a cloud-native microservices-based application. What you will learnDiscover the principles and best practices for building cloud-native applicationsStudy the six Rs of migration strategy and learn when to choose which strategyRehost a legacy enterprise application on Google Compute EngineReplatform an application to use Google Load Balancer and Google Cloud SQLRefactor into a single-page application (SPA) supported by REST servicesReplatform an application to use Google Identity Platform and Fireba AuthenticationRefactor to microservices using the strangler patternAutomate the deployment process using a CI/CD pipeline with Google Cloud BuildWho this book is for This book is for software developers and solutions architects looking to gain experience in modernizing their enterprise applications to run on Google Cloud and transform them into cloud-native applications. Basic knowledge of Java and Spring Boot is necessary. Prior knowledge of Google Cloud is useful but not mandatory.

With over 75 million downloads per month, Spring Boot is the most widely used Java framework available. Its ease and power have revolutionized application development from monoliths to microservices. Yet Spring Boot's simplicity can also be confounding. How do developers learn enough to be productive immediately? This practical book shows you how to use this framework to write successful mission-critical applications. Mark Heckler from VMware, the company behind Spring, guides you through Spring Boot's architecture and approach, covering topics such as debugging, testing, and deployment. If you want to develop cloud native Java or Kotlin applications with Spring Boot rapidly and effectively--using reactive programming, building APIs, and creating database access of all kinds--this book is for you. Learn how Spring Boot simplifies cloud native application development and deployment Build reactive applications and extend communication across the network boundary to create distributed systems Understand how Spring Boot's architecture and approa increase developer productivity and application portability Deploy Spring Boot applications for production workloads rapidly and reliably Monitor application and system health for optimal performance and reliability Debug, test, and secure cloud-based applications painlessly

Build cloud-ready, reactive systems with Spring 5 and Project Reactor

Learning Spring Boot 2.0

Spring Boot in Action

Designing Resilient Systems with Spring Boot, Spring Cloud, and Cloud Foundry

Build self-healing, microservices-based, distributed systems using Spring Cloud

Enterprise Cloud epUB _1

While containers, microservices, and distributed systems dominate discussions in the tech world, the majority of applications in use today still run monolithic architectures that follow traditional development processes. This practical book helps developers examine long-established Java-based models and demonstrates how to bring these monolithic applications successfully into the future. Relying on their years of experience modernizing applications, authors Markus Eisele and Natale Vinto walk you through the steps necessary to update your organization's Java applications. You'll discover how to dismantle your monolithic application and move to an up-to-date software stack that works across cloud and on-premises installations. Learn cloud native application basics to understand what parts of your organization's Java-based applications and platforms need to migrate and modernize Understand how enterprise Java specifications can help you transition projects and teams Build a cloud native platform that supports effective development without falling into buzzword traps Find a starting point for your migration projects by identifying candidates and staging them through modernization steps Discover how to complement a traditional enterprise Java application with components on top of containers and Kubernetes

Discover practical techniques to build cloud-native apps that are scalable, reliable, and always available. Key Features Build well-designed and secure microservices. Enrich your microservices with continous integration and monitoring. Containerize your application with Docker Deploy your application to AWS. Learn how to utilize the powerful AWS services from within your application Book Description Awarded as one of the best books of all time by BookAuthority, Cloud Native Programming with Golang will take you on a journey into the world of microservices and cloud computing with the help of Go. Cloud computing and microservices are two very important concepts in modern software architecture. They represent key skills that ambitious software engineers need to acquire in order to design and build software applications capable of performing and scaling. Go is a modern cross-platform programming language that is very powerful yet simple; it is an excellent choice for microservices and cloud applications. Go is gaining more and more popularity, and becoming a very attractive skill. This book starts by covering the software architectural patterns of cloud applications, as well as practical concepts regarding how to scale, distribute, and deploy those applications. You will also learn how to build a JavaScript-based front-end for your application, using TypeScript and React. From there, we dive into microservices and cloud offerings by covering AWS. Finally, we conclude our book by providing some overviews of other concepts and technologies that you can explore, to move from where the book leaves off. What you will learn Understand modern software applications architectures Build secure microservices that can effectively communicate with other services Get to know about event-driven architectures by diving into message queues such as Kafka, Rabbitmq, and AWS SQS. Understand key modern database technologies such as MongoDB, and Amazon's DynamoDB Leverage the power of containers Explore Amazon cloud services fundamentals Know how to utilize the power of the Go language to access key services in the Amazon cloud such as S3, SQS, DynamoDB and more. Build front-end applications using ReactJS with Go Implement CD for modern applications Who this book is for This book is for developers who want to begin building secure, resilient, robust, and scalable Go applications that are cloud native. Some knowledge of the Go programming language should be sufficient.To build the front-end application, you will also need some knowledge of JavaScript programming.

Spring Roo goes a step beyond the Spring Framework by bringing true Rapid Application Development to Java—just as Grails has done with Groovy. This concise introduction shows you how to build applications with Roo, using the framework's shell as an intelligent and timesaving code-completion tool. It's an ideal RAD tool because Roo does much of the tedious code maintenance. You'll get started by building a simple customer relationship management application, complete with step-by-step instructions and code examples. Learn how to control any part of the application with Roo's opt-in feature, while using this open source framework to automate the rest of the code. Set up a Spring application and working Maven build to see Roo in action Address persistence with JPA and the Neo4j graph database—and learn how Roo supports NoSQL databases Use Roo's database reverse-engineering feature to generate a data model from an existing schema Build Roo applications with Spring MVC, Spring WebFlow, Google Web Toolkit, Vaadin, and other web frameworks Secure and test your application

What is this book about? Expert One-on-One J2EE Development without EJB shows Javadevelopers and architects how to build robust J2EE applicationswithout having to use Enterprise JavaBeans (EJB). This practical,code-intensive guide provides best practices for using simpler andmore effective methods and tools, including JavaServer pages,servlets, and lightweight frameworks. What does this book cover? The book begins by examining the limits of EJB technology— what it does well and not so well. Then the authors guideyou through alternatives to EJB that you can use to create higherquality applications faster and at lower cost — both agilemethods as well as new classes of tools that have evolved over thepast few years. They then dive into the details, showing solutions based on thelightweight framework they pioneered on SourceForge — one ofthe most innovative open source communities. They demonstrate howto leverage practical techniques and tools, including the popularopen source Spring framework and Hibernate. This book also guidesyou through productive solutions to core problems, such astransaction management, persistence, remoting, and Web tier design.You will examine how these alternatives affect testing,performance, and scalability, and discover how lightweightarchitectures can slash time and effort on many projects. What will you learn from this book? Here are some details on what you'll find in this book: How to find the simplest and most maintainable architecture foryour application Effective transaction management without EJB How to solve common problems in enterprise software developmentusing AOP and Inversion of Control Web tier design and the place of the Web tier in awell-designed J2EE application Effective data access techniques for J2EE applications withJDBC, Hibernate, and JDO How to leverage open source products to improve productivityand reduce custom coding How to design for optimal performance and scalability

A quick-start guide to building high-performance reactive microservices for Java developers

Build modern, cloud-native, and distributed systems using Spring Boot

Hands-On Microservices with Spring Boot and Spring Cloud

Cloud Native DevOps with Kubernetes

Cloud Native Spring in Action

Build cloud strategies that align technology and economics while effectively managing risk

Getting Started with Roo

Kubernetes is the operating system of the cloud native world, providing a reliable and scalable platform for running containerized workloads. In this friendly, pragmatic book, cloud experts John Arundel and Justin Domingus show you what Kubernetes can do—and what you can do with it. You'll learn all about the Kubernetes ecosystem, and use battle-tested solutions to everyday problems. You'll build, step by step, an example cloud native application and its supporting infrastructure, along with a development environment and continuous deployment pipeline that you can use for your own applications. Understand containers and Kubernetes from first principles; no experience necessary Run your own clusters or choose a managed Kubernetes service from Amazon, Google, and others Use Kubernetes to manage resource usage and the container lifecycle Optimize clusters for cost, performance, resilience, capacity, and scalability Learn the best tools for developing, testing, and deploying your applications Apply the latest industry practices for security, observability, and monitoring Adopt DevOps principles to help make your development teams lean, fast, and effective

Cloud Native Spring in Action teaches you effective Spring and Kubernetes cloud development techniques that you can immediately apply to enterprise-grade applications. To really benefit from the reliability and scalability you get with cloud platforms, your applications need to be designed for that environment. Cloud Native Spring in Action is a practical guide for planning, designing, and building your first cloud native apps using the powerful, industry-standard Spring framework Cloud Native Spring in Action teaches you effective Spring and Kubernetes cloud development techniques that you can immediately apply to enterprise-grade applications. As you develop an online bookshop, you'll learn how to build and test a cloud native app with Spring, containerize it with Docker, and deploy it to the public cloud with Kubernetes. Including coverage of security, continuous delivery, and configuration, this hands-on guide is the perfect primer for navigating the increasingly complex cloud landscape. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Microservices and big-data increasingly confront us with the limitations of traditional input/output. In traditional IO, work that is IO-bound dominates threads. This wouldn't be such a big deal if we could add more threads cheaply, but threads are expensive on the JVM, and most other platforms. Even if threads were cheap and infinitely scalable, we'd still be confronted with the faulty nature of networks. Things break, and they often do so in subtle, but non-exceptional ways. Traditional approaches to integration bury the faulty nature of networks behind overly simplifying abstractions. We need something better.Join Spring Developer Advocate Josh Long for an introduction to reactive programming in the Spring ecosystem, leveraging the reactive streams specification, Reactor, Spring Boot, Spring Cloud and so much more.This book will cover important concepts in reactive programming including project Reactor and the reactive streams specification, data access, web programming, RPC with protocols like RSocket, testing, and integration and composition, and more.

Build robust and reliable Java applications that works on modern infrastructure, such as containers and cloud, using the new features in Quarkus 1.0 Key FeaturesBuild apps with faster boot time and low RSS memory using the latest Quarkus 1.0 featuresSeamlessly integrate imperative and reactive programming models to build modern Java applicationsDiscover effective solutions for running Java on serverless apps, microservices, containers, FaaS, and the cloudBook Description Quarkus is a new Kubernetes-native framework that allows Java developers to combine the power of containers, microservices, and cloud-native to build reliable applications. The book is a development guide that will teach you how to build Java-native applications using Quarkus and GraalVM. We start by learning about the basic concepts of a cloud-native application and its advantages over standard enterprise applications. Then we will quickly move on to application development, by installing the tooling required to build our first application on Quarkus. Next, we'll learn how to create a container-native image of our application and execute it in a Platform-as-a-Service environment such as Minishift. Later, we will build a complete real-world application that will use REST and the Contexts and Dependency injection stack with a web frontend. We will also learn how to add database persistence to our application using PostgreSQL. We will learn how to work with various APIs available to Quarkus such as Camel, Eclipse MicroProfile, and Spring DI. Towards the end, we will learn advanced development techniques such as securing applications, application configuration, and working with non-blocking programming models using Vert.x. By the end of this book, you will be proficient with all the components of Quarkus and develop-blazing fast applications leveraging modern technology infrastructure. What you will learnBuild a native application using Quarkus and GraalVMSecure your applications using Elytron and the MicroProfile JWT extensionManage data persistence with Quarkus using PostgreSQLUse a non-blocking programming model with QuarkusLearn how to get Camel and Infinispan working in native modeDeploy an application in a Kubernetes-native environment using MinishiftDiscover Reactive Programming with Vert.xWho this book is for The book is for Java developers and software architects who are interested in learning a promising microservice architecture for building reliable and robust applications. Knowledge of Java, Spring Framework, and REST APIs is assumed.

Hands-On Cloud-Native Applications with Java and Quarkus

Simplify the development of lightning fast applications based on microservices and reactive programming

Cloud Native Microservices with Spring and Kubernetes

Build resilient and scalable microservices using Spring Cloud, Istio, and Kubernetes, 2nd Edition

Practical Process Automation

Kubernetes Patterns

Design high-availability and cost-effective applications for the cloud

Explore different aspects of building modular microservices such as development, testing, maintenance, and deployment using the Micronaut framework Key FeaturesLearn how to build scalable, fast, and resilient microservices with this concise guideExplore the many advantages of using reflection-free, compile-time dependency injections and aspect-oriented programmingBuild cloud-native applications easily with the Micronaut frameworkBook Description The open source Micronaut® framework is a JVM-based toolkit designed to create microservices quickly and easily. This book will help full-stack and Java developers build modular, high-performing, and reactive microservice-based apps using the Micronaut framework. You'll start by building microservices and learning about the core components, such as ahead-of-time compilation, reflection-less dependency injection, and reactive baked-in HTTP clients and servers. Next, you will work on a real-time microservice application and learn how to integrate Micronaut projects with different kinds of relational and non-relational databases. You'll also learn how to employ different security mechanisms to safeguard your microservices and integrate microservices using event-driven architecture in the Apache Kafka ecosystem. As you advance, you'll get to grips with automated testing and popular testing tools. The book will help you understand how you can easily handle microservice concerns in Micronaut projects, such as service discovery, API documentation, distributed configuration management, fallbacks, and circuit breakers. Finally, you'll explore the deployment and maintenance aspects of microservices and get up to speed with the Internet of Things (IoT) using the Framework. By the end of this book, you'll be able to build, test, deploy, and maintain your own microservice apps using the framework. What you will learnUnderstand why the Micronaut framework is best suited for building microservicesBuild web endpoints and services in the Micronaut frameworkSafeguard microservices using Session, JWT, and OAuth in Micronaut projectsGet to grips with event-driven architecture in Micronaut applicationsDiscover how to automate testing at various levels using built-in tools and testing frameworksDeploy your microservices to containers and cloud platformsBecome well-versed with distributed logging, tracing, and monitoring in Micronaut projectsGet hands-on with the IoT using Alexa and the Micronaut frameworkWho this book is for This book is for developers who have been building microservices on traditional frameworks such as Spring Boot and are looking for a faster alternative. Intermediate-level knowledge of Java programming and implementing web services development in Java is required.

Learn how to build, test, secure, deploy, and efficiently consume services across distributed systems. Key Features - Explore the wealth of options provided by Spring Cloud for wiring service dependencies in microservice systems. - Create microservices utilizing Spring Cloud's Netflix OSS - Architect your cloud-native data using Spring Cloud. Book Description Developing, deploying, and operating cloud applications should be as easy as local applications. This should be the governing principle behind any cloud platform, library, or tool. Spring Cloud–an open-source library–makes it easy to develop JVM applications for the cloud. In this book, you will be introduced to Spring Cloud and will master its features from the application developer's point of view. This book begins by introducing you to microservices for Spring and the available feature set in Spring Cloud. You will learn to configure the Spring Cloud server and run the Eureka server to enable service registration and discovery. Then you will learn about techniques related to load balancing and circuit breaking and utilize all features of the Feign client. The book now delves into advanced topics where you will learn to implement distributed tracing solutions for Spring Cloud and build message-driven microservice architectures. Before running an application on Docker container s, you will master testing and securing techniques with Spring Cloud. What you will learn - Abstract Spring Cloud's feature set - Create microservices utilizing Spring Cloud's Netflix OSS - Create synchronous API microservices based on a message-driven architecture. - Explore advanced topics such as distributed tracing, security, and contract testing. - Manage and deploy applications on the production environment Who this book is for This book appeals to developers keen to take advantage of Spring cloud, an open source library which helps developers quickly build distributed systems. Knowledge of Java and Spring Framework will be helpful, but no prior exposure to Spring Cloud is required.

Highly available microservice-based web apps for Cloud with Java Key Features Take advantage of the simplicity of Spring to build a full-fledged application Let your applications run faster while generating smaller cloud service bills Integrate your application with various tools such as Docker and ElasticSearch and use specific tools in Azure and AWS Book Description Businesses today are evolving so rapidly that they are resorting to the elasticity of the cloud to provide a platform to build and deploy their highly scalable applications. This means developers now are faced with the challenge of building build applications that are native to the cloud. For this, they need to be aware of the environment, tools, and resources they're coding against. If you're a Java developer who wants to build secure, resilient, robust, and scalable applications that are targeted for cloud-based deployment, this is the book for you. It will be your one stop guide to building cloud-native applications in Java Spring that are hosted in On-prem or cloud providers - AWS and Azure The book begins by explaining the driving factors for cloud adoption and shows you how cloud deployment is different from regular application deployment on a standard data centre. You will learn about design patterns specific to applications running in the cloud and find out how you can build a microservice in Java Spring using REST APIs You will then take a deep dive into the lifecycle of building, testing, and deploying applications with maximum automation to reduce the deployment cycle time. Gradually, you will move on to configuring the AWS and Azure platforms and working with their APIs to deploy your application. Finally, you'll take a look at API design concerns and their best practices. You'll also learn how to migrate an existing monolithic application into distributed cloud native applications. By the end, you will understand how to build and monitor a scalable, resilient, and robust cloud native application that is always available and fault tolerant. What you will learn See the benefits of the cloud environment when it comes to variability, provisioning, and tooling support Understand the architecture patterns and considerations when developing on the cloud Find out how to perform cloud-native techniques/patterns for request routing, RESTful service creation, Event Sourcing, and more Create Docker containers for microservices and set up continuous integration using Jenkins Monitor and troubleshoot an application deployed in the cloud environment Explore tools such as Docker and Kubernetes for containerization and the ELK stack for log aggregation and visualization Use AWS and Azure specific tools to design, develop, deploy, and manage applications Migrate from monolithic architectures to a cloud native deployment Who this book is for Java developers who want to build secure, resilient, robust and scalable applications that are targeted for cloud based deployment, will find this book helpful. Some knowledge of Java, Spring, web programming and public cloud providers (AWS, Azure) should be sufficient to get you through the book.

What separates the traditional enterprise from the likes of Amazon, Netflix, and Etsy? Those companies have refined the art of cloud native development to maintain their competitive edge and stay well ahead of the competition. This practical guide shows Java/JVM developers how to build better software, faster, using Spring Boot, Spring Cloud, and Cloud Foundry. Many organizations have already waded into cloud computing, test-driven development, microservices, and continuous integration and delivery. Authors Josh Long and Kenny Bastani fully immerse you in the tools and methodologies that will help you transform your legacy application into one that is genuinely cloud native. In four sections, this book takes you through: The Basics: learn the motivations behind cloud native thinking; configure and test a Spring Boot application; and move your legacy application to the cloud Web Services: build HTTP and RESTful services with Spring; route requests in your distributed system; and build edge services closer to the data Data Integration: manage your data with Spring Data, and integrate distributed services with Spring's support for event-driven, messaging-centric architectures Production: make your system observable; use service brokers to connect stateful services; and understand the big ideas behind continuous delivery

Building, Deploying, and Scaling Modern Applications in the Cloud

Cloud Native Programming with Golang

Design Patterns for Cloud Native Applications

Patterns for Scalable Infrastructure and Applications in a Dynamic Environment

Cloud Foundry

Mastering Spring Boot 2.0

Mastering Spring Cloud

With the immense cost savings and scalability the cloud provides, the rationale for building cloud native applications is no longer in question. The real issue is how. With this practical guide, developers will learn about the most commonly used design patterns for building cloud native applications using APIs, data, events, and streams in both greenfield and brownfield development. You'll learn how to incrementally design, develop, and deploy large and effective cloud native applications that you can manage and maintain at scale with minimal cost, time, and effort. Authors Kasun Indrasiri and Sriskandarajah Suhothayan highlight use cases that effectively demonstrate the challenges you might encounter at each step. Learn the fundamentals of cloud native applications Explore key cloud native communication, connectivity, and composition patterns Learn decentralized data management techniques Use event-driven architecture to build distributed and scalable cloud native applications Explore the most commonly used patterns for API

management and consumption Examine some of the tools and technologies you'll need for building cloud native systems
Reactive systems and event-driven architecture are becoming indispensable to application design, and companies are taking note. Reactive systems ensure that applications are responsive, resilient, and elastic no matter what failures or errors may be occurring, while event-driven architecture offers a flexible and composable option for distributed systems. This practical book helps Java developers bring these approaches together using Quarkus 2.x, the Kubernetes-native Java framework. Clement Escoffier and Ken Finnigan show you how to take advantage of event-driven and reactive principles to build robust distributed systems, reducing latency and increasing throughput, particularly in microservices and serverless applications. You'll also get a foundation in Quarkus to help you create true Kubernetes-native applications for the cloud. Understand the fundamentals of reactive systems and event-driven architecture Learn how to use Quarkus to build reactive applications Combine Quarkus with Apache Kafka or AMQP to build reactive systems
Develop microservices that utilize messages with Quarkus for use in event-driven architectures Learn how to integrate external messaging systems, such as Apache Kafka, with Quarkus Build applications with Quarkus using reactive systems and reactive programming concepts
If you create, manage, operate, or configure systems running in the cloud, you're a cloud engineer--even if you work as a system administrator, software developer, data scientist, or site reliability engineer. With this book, professionals from around the world provide valuable insight into today's cloud engineering role. These concise articles explore the entire cloud computing experience, including fundamentals, architecture, and migration. You'll delve into security and compliance, operations and reliability, and software development. And examine networking, organizational culture, and more. You're sure to find 1, 2, or 97 things that inspire you to dig deeper and expand your own career. "Three Keys to Making the Right Multicloud Decisions," Brendan O'Leary "Serverless Bad Practices," Manases Jesus Galindo Bello "Failing a Cloud Migration," Lee Atchison "Treat Your Cloud Environment as If It Were On Premises," Iyana Garry "What Is Toil, and Why Are SREs Obsessed with It?", Zachary Nickens "Lean QA: The QA Evolving in the DevOps World," Theresa Neate "How Economies of Scale Work in the Cloud," Jon Moore "The Cloud Is Not About the Cloud," Ken Corless "Data Gravity: The Importance of Data Management in the Cloud," Geoff Hughes "Even in the Cloud, the Network Is the Foundation," David Murray "Cloud Engineering Is About Culture, Not Containers," Holly Cummins
Learn and understand the need to architect cloud applications and migrate your business to cloud efficiently Key Features Understand the core design elements required to build scalable systems Plan resources and technology stacks effectively for high security and fault tolerance Explore core architectural principles using real-world examples Book Description Cloud computing has proven to be the most revolutionary IT development since virtualization. Cloud native architectures give you the benefit of more flexibility over legacy systems. To harness this, businesses need to refresh their development models and architectures when they find they don't port to the cloud. Cloud Native Architectures demonstrates three essential components of deploying modern cloud native architectures: organizational transformation, deployment modernization, and cloud native architecture patterns. This book starts with a quick introduction to cloud native architectures that are used as a base to define and explain what cloud native architecture is and is not.
You will learn what a cloud adoption framework looks like and develop cloud native architectures using microservices and serverless computing as design principles. You'll then explore the major pillars of cloud native design including scalability, cost optimization, security, and ways to achieve operational excellence. In the concluding chapters, you will also learn about various public cloud architectures ranging from AWS and Azure to the Google Cloud Platform. By the end of this book, you will have learned the techniques to adopt cloud native architectures that meet your business requirements. You will also understand the future trends and expectations of cloud providers. What you will learn Learn the difference between cloud native and traditional architecture Explore the aspects of migration, when and why to use it Identify the elements to consider when selecting a technology for your architecture Automate security controls and configuration management Use infrastructure as code and CICD pipelines to run environments in a sustainable manner Understand the management and monitoring capabilities for AWS cloud native application architectures Who this book is for Cloud Native Architectures is for software architects who are keen on designing resilient, scalable, and highly available applications that are native to the cloud.
Cloud Native Patterns
The Cloud-Native Platform
Microservices with Spring Boot and Spring Cloud
Spring in Action
Cloud Native Infrastructure
Cloud Native Java
Spring Boot: Up and Running
Summary Cloud Native Patternsis your guide to developing strong applications that thrive in the dynamic, distributed, virtual world of the cloud. This book presents a mental model for cloud-native applications, along with the patterns, practices, and tooling that set them apart. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Cloud platforms promise the holy grail: near-zero downtime, infinite scalability, short feedback cycles, fault-tolerance, and cost control. But how do you get there? By applying cloudnative designs, developers can build resilient, easily adaptable, web-scale distributed applications that handle massive user traffic and data loads. Learn these fundamental patterns and practices, and you'll be ready to thrive in the dynamic, distributed, virtual world of the cloud. About the Book With 25 years of experience under her belt, Cornelia Davis teaches you the practices and patterns that set cloud-native applications apart. With realistic examples and expert advice for working with apps, data, services, routing, and more, she shows you how to design and build software that functions beautifully on modern cloud platforms. As you read, you will start to appreciate that cloud-native computing is more about the how and why rather than the where. What's inside The lifecycle of cloud-native apps Cloud-scale configuration management Zero downtime upgrades, versioned services, and parallel deploys Service discovery and dynamic routing Managing interactions between services, including retries and circuit breakers About the Reader Requires basic software design skills and an ability to read Java or a similar language. About the Author Cornelia Davis is Vice President of Technology at Pivotal Software. A teacher at heart, she's spent the last 25 years making good software and great software developers. Table of Contents PART 1 - THE CLOUD-NATIVE CONTEXT You keep using that word: Defining "cloud-native" Running cloud-native applications in production The platform for cloud-native software PART 2 - CLOUD-NATIVE PATTERNS Event-driven microservices: It's not just request/response App redundancy: Scale-out and statelessness Application configuration: Not just environment variables The application lifecycle: Accounting for constant change Accessing apps: Services, routing, and service discovery Interaction redundancy: Retries and other control loops Fronting services: Circuit breakers and API gateways Troubleshooting: Finding the needle in the haystack Cloud-native data: Breaking the data monolith
Apply cloud native patterns and practices to deliver responsive, resilient, elastic, and message-driven systems with confidence Key FeaturesDiscover best practices for applying cloud native patterns to your cloud applicationsExplore ways to effectively plan resources and technology stacks for high security and fault toleranceGain insight into core architectural principles using real-world examplesBook Description Cloud computing has proven to be the most revolutionary IT development since virtualization. Cloud native architectures give you the benefit of more flexibility over legacy systems. This Learning Path teaches you everything you need to know for designing industry-grade cloud applications and efficiently migrating your business to the cloud. It begins by exploring the basic patterns that turn your database inside out to achieve massive scalability. You'll learn how to develop cloud native architectures using microservices and serverless computing as your design principles. Then, you'll explore ways to continuously deliver production code by implementing continuous observability in production. In the concluding chapters, you'll learn about various public cloud architectures ranging from AWS and Azure to the Google Cloud Platform, and understand the future trends and expectations of cloud providers. By the end of this Learning Path, you'll have learned the techniques to adopt cloud native architectures that meet your business requirements. This Learning Path includes content from the following Packt products: Cloud Native Development Patterns and Best Practices by John GilbertCloud Native Architectures by Erik Farr et al.What you will learnUnderstand the difference between cloud native and traditional architectureAutomate security controls and configuration managementMinimize risk by evolving your monolithic systems into cloud native applicationsExplore the aspects of migration, when and why to use itApply modern delivery and testing methods to continuously deliver production codeEnable massive scaling by turning your database inside outWho this book is for This Learning Path is designed for developers who want to progress into building cloud native services and are keen to learn the patterns involved. Software architects, who are keen on designing scalable and highly available cloud native applications, will also find this Learning Path very useful. To easily grasp these concepts, you will need basic knowledge of programming and cloud computing.
Explore the reactive system and create efficient microservices with Spring Boot 2.1 and Spring Cloud Key Features Understand the kind of system modern businesses require with Spring Gain deeper insights into reactive programming with Reactor and Spring Cloud Get in-depth knowledge on asynchronous and nonblocking communication with Spring 5 WebFlux Book Description These days, businesses need a new type of system that can remain responsive at all times. This is achievable with reactive programming; however, the development of these kinds of systems is a complex task, requiring a deep understanding of the domain. In order to develop highly responsive systems, the developers of the Spring Framework came up with Project Reactor. Hands-On Reactive Programming in Spring 5 begins with the fundamentals of Spring Reactive programming. You'll explore the endless possibilities of building efficient reactive systems with the Spring 5 Framework along with other tools such as WebFlux and Spring Boot. Further on, you'll study reactive programming techniques and apply them to databases and cross-server communication. You will advance your skills in scaling up Spring Cloud Streams and run independent, high-performant reactive microservices. By the end of the book, you will be able to put your skills to use and get on board with the reactive revolution in Spring 5.1! What you will learn Discover the difference between a reactive system and reactive programming Explore the benefits of a reactive system and understand its applications Get to grips with using reactive programming in Spring 5 Gain an understanding of Project Reactor Build a reactive system using Spring 5 and Project Reactor Create a highly efficient reactive microservice with Spring Cloud Test, monitor, and release reactive applications Who this book is for This book is for Java developers who use Spring to develop their applications and want to build robust and reactive applications that can scale in the cloud. Basic knowledge of distributed systems and asynchronous programming will help you understand the concepts covered in this book.
Cloud native infrastructure is more than servers, network, and storage in the cloud—it is as much about operational hygiene as it is about elasticity and scalability. In this book, you'll learn practices, patterns, and requirements for creating infrastructure that meets your needs, capable of managing the full life cycle of cloud native applications. Justin Garrison and Kris Nova reveal hard-earned lessons on architecting infrastructure from companies such as Google, Amazon, and Netflix. They draw inspiration from projects adopted by the Cloud Native Computing Foundation (CNCF), and provide examples of patterns seen in existing tools such as Kubernetes. With this book, you will: Understand why cloud native infrastructure is necessary to effectively run cloud native applications Use guidelines to decide when—and if—your business should adopt cloud native practices Learn patterns for deploying and managing infrastructure and applications Design tests to prove that your infrastructure works as intended, even in a variety of edge cases Learn how to secure infrastructure with policy as code
Designing change-tolerant software
Building Microservices with Micronaut®
Istio in Action
Microservices Best Practices for Java
97 Things Every Cloud Engineer Should Know
Design and Build Modern Cloud Native Applications using Spring and Kubernetes (English Edition)
Cloud Native Architectures
Summary A developer-focused guide to writing applications using Spring Boot. You'll learn how to bypass the tedious configuration steps so that you can concentrate on your application's behavior. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The Spring Framework simplifies enterprise Java development, but it does require lots of tedious configuration work. Spring Boot radically streamlines spinning up a Spring application. You get automatic configuration and a model with established co dependencies. You also get a handy command-line interface you can use to write scripts in Groovy. Developers who use Spring Boot often say that they can't imagine going back to hand configuring their applications. About the Book Spring Boot in Action is a developer-focused guide to writing applications using Spring Boot. In it, you'll learn how to bypass configuration steps so you can focus on your application's behavior. Spring expert Craig Walls uses interesting and practical examples to teach you both how to use the default settings effectively and how to override and cu environment. Along the way, you'll pick up insights from Craig's years of Spring development experience. What's inside Develop Spring apps more efficiently Minimal to no configuration Runtime metrics with the Actuator Covers Spring Boot 1.3 About the Reader Written for readers familiar with the Spring Framework. About the Author Craig Walls is a software developer, author of the popular book Spring in Action, Fourth Edition, and a frequent speaker at conferences. Table of Contents Bootstarting Spring Developing your first Spring Boot application Customizing configuratio Groovy with the Spring Boot CLI Applying Grails in Spring Boot Taking a peek inside with the Actuator Deploying Spring Boot applications APPENDIXES Spring Boot developer tools Spring Boot starters Configuration properties Spring Boot dependencies
Build and deploy scalable cloud native microservices using the Spring framework and Kubernetes. KEY FEATURES ? Complete coverage on how to design, build, run, and deploy modern cloud native microservices. ? Includes numerous sample code exercises on microservices, Spring and Kubernetes. ? Develop a stronghold on Kubernetes, Spring, and the microservices architecture. ? Complete guide of application containerization on Kubernetes containers. ? Coverage on managing modern applications and infrastructure using observability tools. DESCRIPTION The main cloud native microservices, their architecture, design patterns, best practices, real use cases and practical coverage of modern applications. This book covers a strong understanding of the fundamentals of microservices, API first approach, Testing, observability, API Gateway, Service Mesh and Kubernetes alternatives of Spring Cloud. This book covers the implementation of various design patterns of developing cloud native microservices using Spring framework docker and Kubernetes libraries. It covers containerization concepts and hands-on lab exercises like how to build using Kubernetes. After reading this book, the readers will have a holistic understanding of building, running, and managing cloud native microservices applications on Kubernetes containers. WHAT YOU WILL LEARN ? Learn fundamentals of microservice and design patterns. ? Learn microservices development using Spring Boot and Kubernetes. ? Learn to develop reactive, event-driven, and batch microservices. ? Perform end-to-end microservices testing using Cucumber. ? Implement API gateway,authentication & authorization,load balancing, caching, rate limiting. ? Lea of microservices. WHO THIS BOOK IS FOR This book is for the Spring Developers, Microservice Developers, Cloud Engineers, DevOps Consultants, Technical Architect and Solution Architects, who have some familiarity with application development, Docker and Kubernetes containers. TABLE OF CONTENTS 1. Overview of Cloud Native microservices 2. Microservice design patterns 3. API first approach 4. Build microservices using the Spring Framework 5. Batch microservices 6. Build reactive and event-driven microservices 7. The API gateway, security, and distributed c and API mocking 9. Microservices observability 10. Containers and Kubernetes overview and architecture 11. Run microservices on Kubernetes 12. Service Mesh and Kubernetes alternatives of Spring Cloud
A step-by-step guide to creating and deploying production-quality microservices-based applications Key FeaturesBuild cloud-native production-ready microservices with this comprehensively updated guideUnderstand the challenges of building large-scale microservice architecturesLearn how to get the best out of Spring Cloud, Kubernetes, and Istio in combinationBook Description With this book, you'll learn how to efficiently build and deploy microservices. This new edition has been updated for the most recent versions of Spring, Java, Kubernetes, and Istio, demonstrating fa local Kubernetes clusters, and Istio installation. The expanded scope includes native compilation of Spring-based microservices, support for Mac and Windows with WSL2, and an introduction to Helm 3 for packaging and deployment. A revamped security chapter now follows the OAuth 2.1 specification and makes use of the newly launched Spring Authorization Server from the Spring team. Starting with a set of simple cooperating microservices, you'll add persistence and resilience, make your microservices reactive, and document their APIs using OpenAPI. You'll understand to add important functionality, such as service discovery with Netflix Eureka and edge servers with Spring Cloud Gateway. You'll learn how to deploy your microservices using Kubernetes and adopt Istio. You'll explore centralized log management using the Elasticsearch, Fluentd, and Kibana (EFK) stack and monitor microservices using Prometheus and Grafana. By the end of this book, you'll be confident in building microservices that are scalable and robust using Spring Boot and Spring Cloud. What you will learnBuild reactive microservices using Spring BootDevelop resilien CloudUse OAuth 2.1/OIDC and Spring Security to protect public APIsImplement Docker to bridge the gap between development, testing, and productionDeploy and manage microservices with KubernetesApply Istio for improved security, observability, and traffic managementWrite and run automated microservice tests with JUnit, testcontainers, Gradle, and bashWho this book is for If you are a Java or Spring Boot developer who wants to learn how to build microservice landscapes from scratch, this book is for you. No familiarity with microservices architecture is required.
Microservices is an architectural style in which large, complex software applications are composed of one or more smaller services. Each of these microservices focuses on completing one task that represents a small business capability. These microservices can be developed in any programming language. This IBM® Redbooks® publication covers Microservices best practices for Java. It focuses on creating cloud native applications using the latest version of IBM WebSphere® Application Server Liberty, IBM Bluemix® and other Open Source Frameworks in the Microservice practices for Java.
Cloud-Native Applications in Java
Cloud Native Applications with Ballerina
Architecting Cloud Native Applications
Expert One-on-One J2EE Development without EJB
Hands-On Reactive Programming in Spring 5
Modernizing Enterprise Java
Design high-performing and cost-effective applications for the cloud
Learn to develop, test, and deploy your Spring Boot distributed application and explore various best practices. Key Features Build and deploy your microservices architecture in the cloud Build event-driven resilient systems using Hystrix and Turbine Explore API management tools such as KONG and API documentation tools such as Swagger Book Description Spring is one of the best frameworks on the market for developing web, enterprise, and cloud ready software. Spring Boot simplifies the building of complex software dramatically by reducing the amount of boilerplate code, and by providing production-ready features and a simple deployment model. This book will address the challenges related to power that come with Spring Boot's great configurability and flexibility. You will understand how Spring Boot configuration works under the hood, how to overwrite default configurations, and how to use advanced techniques to prepare Spring Boot applications to work in production. This book will also introduce readers to a relatively new topic in the Spring ecosystem - cloud native patterns, reactive programming, and applications. Get up to speed with microservices with Spring Boot and Spring Cloud. Each chapter aims to solve a specific problem or teach you a useful skillset. By the end of this book, you will be proficient in building and deploying your Spring Boot application. What you will learn Build logically structured and highly maintainable Spring Boot applications Configure RESTful microservices using Spring Boot Make the application production and operation-friendly with Spring Actuator Build modern, high-performance distributed applications using cloud patterns Manage and deploy your Spring Boot application to the cloud (AWS) Monitor distributed applications using log aggregation and ELK Who this book is for The book is targeted at experienced Spring and Java developers who have a basic knowledge of working with Spring Boot. The reader should be familiar with Spring Boot basics, and aware of its benefits over traditional Spring Framework-based applications.
Apply microservices patterns to build resilient and scalable distributed systems Key FeaturesUnderstand the challenges of building large-scale microservice landscapesBuild cloud-native production-ready microservices with this comprehensive guideDiscover how to get the best out of Spring Cloud, Kubernetes, and Istio when used togetherBook Description Microservices architecture allows developers to build and maintain applications with ease, and enterprises are rapidly adopting it to build software using Spring Boot as their default framework. With this book, you'll learn how to efficiently build and deploy microservices using Spring Boot. This microservices book will take you through tried and tested approaches to building distributed systems and implementing microservices architecture in your organization. Starting with a set of simple cooperating microservices developed using Spring Boot, you'll learn how you can add functionalities such as persistence, make your microservices reactive, and describe their APIs using Swagger/OpenAPI. As you advance, you'll understand how to add different services from Spring Cloud to your microservice system. The book also demonstrates how to deploy your microservices using Kubernetes and manage them with Istio for improved security and traffic management. Finally, you'll explore centralized log management using the EFK stack and monitor microservices using Prometheus and Grafana. By the end of this book, you'll be able to build microservices that are scalable and robust using Spring Boot and Spring Cloud. What you will learnBuild reactive microservices using Spring BootDevelop resilient and scalable microservices using Spring CloudUse OAuth 2.0/OIDC and Spring Security to protect public APIsImplement Docker to bridge the gap between development, testing, and productionDeploy and manage microservices using KubernetesApply Istio for improved security, observability, and traffic managementWho this book is for This book is for Java and Spring developers and architects who want to learn how to break up their existing monoliths into microservices and deploy them either on-premises or in the cloud using Kubernetes as a container orchestrator and Istio as a service Mesh. No familiarity with microservices architecture is required to get started with this book.
What exactly is a cloud-native platform? It's certainly a hot topic in IT, as enterprises today assess this option for developing and delivering software quickly and repeatedly. This O'Reilly report explains the capabilities of cloud-native platforms and examines the fundamental changes enterprises need to make in process, organization, and culture if they're to take real advantage of this approach. Author Duncan Winn focuses on the open source platform Cloud Foundry, one of the more prominent cloud-native providers. You'll learn how cloud-native applications are designed to be "infrastructure unaware" so they can thrive and move at will in the highly distributed and constantly evolving cloud environment. With this report, you'll explore: Technical driving forces that are rapidly changing the way organizations develop and deliver software today How key concepts underpinning the Cloud Foundry platform leverage each of the technical forces discussed How cloud-native platforms remove the requirement to perform undifferentiated heavy lifting, such as provisioning VMs, middleware, and databases Why cloud-native platforms enable fast feedback loops as you move from agile development to agile deployment Recommended changes and practical considerations for organizations that want to build cloud-native applications
Summary Spring in Action, 5th Edition is the fully updated revision of Manning's bestselling Spring in Action. This new edition includes all Spring 5.0 updates, along with new examples on reactive programming, Spring WebFlux, and microservices. You'll also find the latest Spring best practices, including Spring Boot for application setup and configuration. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Spring Framework makes life easier for Java developers. New features in Spring 5 bring its productivity-focused approach to microservices, reactive development, and other modern application designs. With Spring Boot now fully integrated, you can start even complex projects with minimal configuration code. And the upgraded WebFlux framework supports reactive apps right out of the box! About the Book Spring in Action, 5th Edition guides you through Spring's core features, explained in Craig Walls' famously clear style. You'll roll up your sleeves and build a secure database-backed web app step by step. Along the way, you'll explore reactive programming, microservices, service discovery, RESTful APIs, deployment, and expert best practices. Whether you're just discovering Spring or leveling up to Spring 5.0, this Manning classic is your ticket! What's inside Building reactive applications Spring MVC for web apps and RESTful web services Securing applications with Spring Security Covers Spring 5.0 Over 100,000 copies sold! About the Reader For intermediate Java developers. About the Author Craig Walls is a principal software engineer at Pivotal, a popular author, an enthusiastic supporter of Spring Framework, and a frequent conference speaker. Table of Contents PART 1 - FOUNDATIONAL SPRING Getting started with Spring Developing web applications Working with data Securing Spring Working with configuration properties PART 2 - INTEGRATED SPRING Creating REST services Consuming REST services Sending messages asynchronously Integrating Spring PART 3 - REACTIVE SPRING Introducing Reactor Developing reactive APIs Persisting data reactively PART 4 CLOUD-NATIVE SPRING Discovering services Managing configuration Handling failure and latency PART 5 - DEPLOYED SPRING Working with Spring Boot Actuator Administering Spring Monitoring Spring with JMX Deploying Spring
Build and deploy Java microservices using Spring Cloud, Istio, and Kubernetes