

# Kubernetes Cookbook Building Cloud Native Applica

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**Google Cloud Cookbook** Rui Costa 2021-10-08 Get quick hands-on experience with Google Cloud. This cookbook provides a variety of self-contained recipes that show you how to use Google Cloud services for your enterprise application. Whether you're looking for practical ways to apply microservices, AI, analytics, security, or networking solutions, these recipes take you step-by-step through the process and provide discussions that explain how and why the recipes work. Ideal for system engineers and administrators, developers, network and database administrators, and data analysts, this cookbook helps you get started with Google Cloud regardless of your level of experience. Google veterans Rui Costa and Drew Hodun also cover advanced-level Google Cloud services for those who have appreciable experience with the platform. Learn how to get started with Google Cloud Understand the depth of services Google Cloud provides Gain hands-on experience using practical examples and labs Explore topics that include BigQuery, Cloud Run, and Kubernetes Build and run mobile and web applications on Google Cloud Examine ways to build your cloud applications for scale Build a minimum viable product (MVP) app to use in production Learn data platform and pipeline skills

*Cloud Native with Kubernetes* Alexander Raul 2021-01-04 Harness Kubernetes' extensibility to deploy modern patterns and learn to effectively handle production issues Key FeaturesBuild and run efficient cloud-native applications on Kubernetes using industry best practicesOperate Kubernetes in a production environment, troubleshoot clusters, and address security concernsDeploy cutting-edge Kubernetes patterns such as service mesh and serverless to your clusterBook Description Kubernetes is a modern cloud native container orchestration tool and one of the most popular open source projects worldwide. In addition to the technology being powerful and highly flexible, Kubernetes engineers are in high demand across the industry. This book is a comprehensive guide to deploying, securing, and operating modern cloud native applications on Kubernetes. From the fundamentals to Kubernetes best practices, the book covers essential aspects of configuring applications. You'll even explore real-world techniques for running clusters in production, tips for setting up observability for cluster resources, and valuable troubleshooting techniques. Finally, you'll learn how to extend and customize Kubernetes, as well as gaining tips for deploying service meshes, serverless tooling, and more on your cluster. By the end of this Kubernetes book, you'll be equipped with the tools you need to confidently run and extend modern applications on Kubernetes. What you will learnSet up Kubernetes and configure its authenticationDeploy your applications to KubernetesConfigure and provide storage to Kubernetes applicationsExpose Kubernetes applications outside the clusterControl where and how applications are

run on Kubernetes  
Set up observability for Kubernetes  
Build a continuous integration and continuous deployment (CI/CD) pipeline for Kubernetes  
Extend Kubernetes with service meshes, serverless, and more  
Who this book is for  
This book is for developers, architects, DevOps engineers, or anyone interested in developing and managing cloud-native applications. Those already running cloud applications and looking for a better way to manage their platform or others interested in a career change given the recent popularity of Kubernetes will also find this book helpful. Some familiarity with cloud computing, containers and DevOps is required, but no prior knowledge of building production applications using Kubernetes is needed to get started with this book.

*Kubernetes Cookbook* Hideto Saito 2016-06-30  
Learn how to automate and manage your Linux containers and improve the overall performance of your system  
About This Book- Are you using containers in your organization and want to better manage, scale, and orchestrate apps on the container? Use the recipes in the book to find a reliable solution from experts- This is the first and only book on the market on Kubernetes, and it will show how to manage your containers in production using Kubernetes- Buy this book, simply follow the recipes, and you will be the master of your Linux containers  
Who This Book Is For  
The book is aimed at system administrators who have intermediate level of knowledge with Kubernetes and want to better manage their applications deployed over containers. Also, it will help those administrators who want to maintain and scale applications on these containers.  
What You Will Learn- Get to know how to build your own container cluster- Deploy and manage highly scalable applications using Kubernetes- Discover how to build high availability Kubernetes clusters- Find out how to build a continuous delivery pipeline for your application- Track metrics and logs for every container running in your cluster- Streamline the way you deploy and manage your applications with large-scale container orchestration  
In Detail  
Kubernetes is Google's solution to managing a cluster of containers. Kubernetes provides a declarative API to manage clusters while giving us a lot of flexibility. This book will provide you with recipes to better manage containers in different scenarios in production using Kubernetes.  
We will start by giving you a quick brush up on how Kubernetes works with containers along with an overview of the main Kubernetes features such as Pods, Replication Controllers, and more. Next, we will teach you how to create Kubernetes cluster and how to run programs on Kubernetes. We'll explain features such as High Availability Kubernetes master setup, using Kubernetes with Docker, and orchestration with Kubernetes using AWS. Later, will show you how to use Kubernetes-UI, and how to set up and manage Kubernetes clusters on the cloud and bare metal.  
Upon completion of this book, you will be able use Kubernetes in production and will have a better understanding of how to manage your containers using Kubernetes.  
Style and approach  
This recipe-based book precisely teaches you how to use Kubernetes in production and how to better manage your containers using Kubernetes.

**Cloud Native Patterns** Cornelia Davis 2019-05-12  
Summary  
Cloud Native Patterns is 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

[JavaScript Cloud Native Development Cookbook](#) John Gilbert 2018-09-27 Master over 60 recipes to help you deliver completely scalable and serverless cloud-native applications Key Features Develop global scale and event-driven autonomous services Continuously deploy, test, observe, and optimize your services Practical Node.js recipes for serverless cloud-native development Book Description Cloud-native development is a modern approach to building and running applications that leverages the merits of the cloud computing model. With cloud-native development, teams can deliver faster and in a more lean and agile manner as compared to traditional approaches. This recipe-based guide provides quick solutions for your cloud-native applications. Beginning with a brief introduction, JavaScript Cloud-Native Development Cookbook guides you in building and deploying serverless, event-driven, cloud-native microservices on AWS with Node.js. You'll then move on to the fundamental patterns of developing autonomous cloud-native services and understand the tools and techniques involved in creating globally scalable, highly available, and resilient cloud-native applications. The book also covers multi-regional deployments and leveraging the edge of the cloud to maximize responsiveness, resilience, and elasticity. In the latter chapters you'll explore techniques for building fully automated, continuous deployment pipelines and gain insights into polyglot cloud-native development on popular cloud platforms such as Azure and Google Cloud Platform (GCP). By the end of the book, you'll be able to apply these skills to build powerful cloud-native solutions. What you will learn Implement patterns such as Event Streaming, CQRS, and Event Sourcing Deploy multi-regional, multi-master solutions Secure your cloud-native services with OAuth and OpenID Connect Create a robust cloud-native continuous deployment pipeline Run services on AWS, Azure, and GCP Implement autonomous services to limit the impact of failures Who this book is for If you want to develop powerful serverless, cloud-native solutions, this book is for you. You are expected to have basic knowledge of concepts of microservices and hands-on experience with Node.js to understand the recipes in this book.

[Kubernetes Patterns](#) Bilgin Ibryam 2019-04-09 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 Java** Josh Long 2017-08-11 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

*Kubernetes Cookbook* Hideto Saito 2018-05-30 Learn how to automate and manage your containers and reduce the overall operation burden on your system. Key Features Use containers to manage, scale and orchestrate apps in your organization Transform the latest concept of Kubernetes 1.10 into examples Expert techniques for orchestrating containers effectively Book Description Kubernetes is an open source orchestration platform to manage containers in a cluster environment. With Kubernetes, you can configure and deploy containerized applications easily. This book gives you a quick brush up on how Kubernetes works with containers, and an overview of main Kubernetes concepts, such as Pods, Deployments, Services and etc. This book explains how to create Kubernetes clusters and run applications with proper authentication and authorization configurations. With real-world recipes, you'll learn how to create high availability Kubernetes clusters on AWS, GCP and in on-premise datacenters with proper logging and monitoring setup. You'll also learn some useful tips about how to build a continuous delivery pipeline for your application. Upon completion of this book, you will be able to use Kubernetes in production and will have a better understanding of how to manage containers using Kubernetes. What you will learn Build your own container cluster Deploy and manage highly scalable, containerized applications with Kubernetes Build high-availability Kubernetes clusters Build a continuous delivery pipeline for your application Track metrics and logs for every container running in your cluster Streamline the way you deploy and manage your applications with large-scale container orchestration Who this book is for This book is for system administrators, developers, DevOps engineers, or any stakeholder who wants to understand how Kubernetes works using a recipe-based approach. Basic knowledge of Kubernetes and Containers is required.

Modernizing Enterprise Java Markus Eisele 2021-10-21 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

*Terraform: Up & Running* Yevgeniy Brikman 2019-09-06 Terraform has become a key player in the DevOps world for defining, launching, and managing infrastructure as code (IaC) across a variety of cloud and virtualization platforms, including AWS, Google Cloud, Azure, and more. This hands-on second edition, expanded and thoroughly updated for Terraform version 0.12 and beyond, shows you the fastest way to get up and running. Gruntwork cofounder Yevgeniy (Jim) Brikman walks you through code examples that demonstrate Terraform's simple, declarative programming language for deploying and managing infrastructure with a few commands. Veteran sysadmins, DevOps engineers, and novice developers will quickly go from Terraform basics to running a full stack that can support a massive amount of traffic and a large team of developers. Explore changes from Terraform 0.9 through 0.12, including backends, workspaces, and first-class expressions Learn how to write production-grade Terraform modules Dive into manual and automated testing for Terraform code Compare Terraform to Chef, Puppet, Ansible, CloudFormation, and Salt Stack Deploy server clusters, load balancers, and databases Use Terraform to manage the state of your infrastructure Create reusable infrastructure with Terraform modules Use advanced Terraform syntax to achieve zero-downtime deployment

**Kubernetes Operators** Jason Dobies 2020-02-21 Operators are a way of packaging, deploying, and managing Kubernetes applications. A Kubernetes application doesn't just run on Kubernetes; it's composed and managed in Kubernetes terms. Operators add application-specific operational knowledge to a Kubernetes cluster, making it easier to automate complex, stateful applications and to augment the platform. Operators can coordinate application upgrades seamlessly, react to failures automatically, and streamline repetitive maintenance like backups. Think of Operators as site reliability engineers in software. They work by extending the Kubernetes control plane and API, helping systems integrators, cluster administrators, and application developers reliably deploy and manage key services and components. Using real-world examples, authors Jason Dobies and Joshua Wood demonstrate how to use Operators today and how to create Operators for your applications with the Operator Framework and SDK. Learn how to establish a Kubernetes cluster and deploy an Operator Examine a range of Operators from usage to implementation Explore the three pillars of the Operator Framework: the Operator SDK, the Operator Lifecycle Manager, and Operator Metering Build Operators from the ground up using the Operator SDK Build, package, and run an Operator in development, testing, and production phases Learn how to distribute your Operator for installation on Kubernetes clusters

[Hands-On Cloud-Native Microservices with Jakarta EE](#) Luigi Fugaro 2019-01-31 Discover how cloud-native microservice architecture helps you to build dynamically scalable applications by using the most widely used and adopted runtime environments Key FeaturesBuild robust cloud-native applications using a variety of toolsUnderstand how to configure both Amazon Web Services (AWS) and Docker clouds for high availabilityExplore common design patterns used in building and deploying microservices architecture.Book Description Businesses today are evolving rapidly, and developers now

face the challenge of building applications that are resilient, flexible, and native to the cloud. To achieve this, you'll need to be aware of the environment, tools, and resources that you're coding against. The book will begin by introducing you to cloud-native architecture and simplifying the major concepts. You'll learn to build microservices in Jakarta EE using MicroProfile with Thorntail and Narayana LRA. You'll then delve into cloud-native application x-rays, understanding the MicroProfile specification and the implementation/testing of microservices. As you progress further, you'll focus on continuous integration and continuous delivery, in addition to learning how to dockerize your services. You'll also cover concepts and techniques relating to security, monitoring, and troubleshooting problems that might occur with applications after you've written them. By the end of this book, you will be equipped with the skills you need to build highly resilient applications using cloud-native microservice architecture. What you will learn

- Integrate reactive principles in MicroProfile microservices architecture
- Explore the 12-factors-app paradigm and its implications
- Get the best out of Java versions 8 and 9 to implement a microservice based on Thorntail
- Understand what OpenShift is and why it is so important for an elastic architecture
- Build a Linux container image using Docker and scale the application using Kubernetes
- Implement various patterns such as, Circuit Breaker and bulkheads
- Get to grips with the DevOps methodology using continuous integration (CI) and continuous deployment (CD)

Who this book is for This book is for developers with basic knowledge of Java EE and HTTP-based application principles who want to learn how to build, test and scale Java EE microservices. No prior experience of writing microservices in Java EE is required.

Kubernetes: Up and Running Kelsey Hightower 2017-09-07 Legend has it that Google deploys over two billion application containers a week. How's that possible? Google revealed the secret through a project called Kubernetes, an open source cluster orchestrator (based on its internal Borg system) that radically simplifies the task of building, deploying, and maintaining scalable distributed systems in the cloud. This practical guide shows you how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency. Authors Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and other organizations—explain how this system fits into the lifecycle of a distributed application. You will learn how to use tools and APIs to automate scalable distributed systems, whether it is for online services, machine-learning applications, or a cluster of Raspberry Pi computers. Explore the distributed system challenges that Kubernetes addresses

- Dive into containerized application development, using containers such as Docker
- Create and run containers on Kubernetes, using the docker image format and container runtime
- Explore specialized objects essential for running applications in production
- Reliably roll out new software versions without downtime or errors
- Get examples of how to develop and deploy real-world applications in Kubernetes

Mastering Kubernetes Gigi Sayfan 2017-05-25 Master the art of container management utilizing the power of Kubernetes. About This Book This practical guide demystifies Kubernetes and ensures that your clusters are always available, scalable, and up to date

- Discover new features such as autoscaling, rolling updates, resource quotas, and cluster size
- Master the skills of designing and deploying large clusters on various cloud platforms

Who This Book Is For The book is for system administrators and developers who have intermediate level of knowledge with Kubernetes and are now waiting to master its advanced features. You should also have basic networking knowledge. This advanced-level book provides a pathway to master Kubernetes. What You Will Learn

- Architect a robust Kubernetes cluster for long-time operation
- Discover the advantages of running Kubernetes on GCE, AWS, Azure, and bare metal
- See the identity model of Kubernetes and options for cluster federation
- Monitor and troubleshoot Kubernetes clusters and run a highly available Kubernetes
- Create and configure custom Kubernetes resources and use third-party resources in your automation workflows
- Discover the art of running

complex stateful applications in your container environment Deliver applications as standard packages In Detail Kubernetes is an open source system to automate the deployment, scaling, and management of containerized applications. If you are running more than just a few containers or want automated management of your containers, you need Kubernetes. This book mainly focuses on the advanced management of Kubernetes clusters. It covers problems that arise when you start using container orchestration in production. We start by giving you an overview of the guiding principles in Kubernetes design and show you the best practises in the fields of security, high availability, and cluster federation. You will discover how to run complex stateful microservices on Kubernetes including advanced features as horizontal pod autoscaling, rolling updates, resource quotas, and persistent storage back ends. Using real-world use cases, we explain the options for network configuration and provides guidelines on how to set up, operate, and troubleshoot various Kubernetes networking plugins. Finally, we cover custom resource development and utilization in automation and maintenance workflows. By the end of this book, you'll know everything you need to know to go from intermediate to advanced level. Style and approach Delving into the design of the Kubernetes platform, the reader will be exposed to the advanced features and best practices of Kubernetes. This book will be an advanced level book which will provide a pathway to master Kubernetes

**Docker Cookbook** Sébastien Goasguen 2015-11-04 Whether you're deploying applications on-premise or in the cloud, this cookbook is for developers, operators, and IT professionals who need practical solutions for using Docker. The recipes in this book will help developers go from zero knowledge to distributed applications packaged and deployed within a couple of chapters. IT professionals will be able to use this cookbook to solve everyday problems, as well as create, run, share, and deploy Docker images quickly. Operators will learn and understand what developers are excited about and start to adopt the tools that will change the way they work.--

**Kubernetes Best Practices** Brendan Burns 2019-11-14 In this practical guide, four Kubernetes professionals with deep experience in distributed systems, enterprise application development, and open source will guide you through the process of building applications with this container orchestration system. Based on the experiences of companies that are running Kubernetes in production successfully, many of the methods are also backed by concrete code examples. This book is ideal for those already familiar with basic Kubernetes concepts who want to learn common best practices. You'll learn exactly what you need to know to build your best app with Kubernetes the first time. Set up and develop applications in Kubernetes Learn patterns for monitoring, securing your systems, and managing upgrades, rollouts, and rollbacks Understand Kubernetes networking policies and where service mesh fits in Integrate services and legacy applications and develop higher-level platforms on top of Kubernetes Run machine learning workloads in Kubernetes

The The Kubernetes Workshop Zachary Arnold 2020-09-24 This workshop takes you through a Kubernetes-oriented application delivery pipeline in a practical way. You'll learn how to manage containers efficiently and scale and stabilize cloud-native applications using Kubernetes.

*Cloud Native Infrastructure* Justin Garrison 2017-10-25 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

*Cloud Native DevOps with Kubernetes* John Arundel 2019-03-08 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

Architecting Cloud Native Applications Kamal Arora 2019-04-16 Apply cloud native patterns and practices to deliver responsive, resilient, elastic, and message-driven systems with confidence Key Features Discover best practices for applying cloud native patterns to your cloud applications Explore ways to effectively plan resources and technology stacks for high security and fault tolerance Gain insight into 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. 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 Gilbert *Cloud Native Architectures* by Erik Farr et al. What you will learn Understand the difference between cloud native and traditional architecture Automate security controls and configuration management Minimize risk by evolving your monolithic systems into cloud native applications Explore the aspects of migration, when and why to use it Apply modern delivery and testing methods to continuously deliver production code Enable massive scaling by turning your database inside out Who this book is for This Learning Path is designed for developers who want to progress into building cloud native systems 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.

**97 Things Every Cloud Engineer Should Know** Emily Freeman 2020-12-04 If you create, manage,

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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

**Knative Cookbook** Burr Sutter 2020-04-09 Enterprise developers face several challenges when it comes to building serverless applications, such as integrating applications and building container images from source. With more than 60 practical recipes, this cookbook helps you solve these issues with Knative—the first serverless platform natively designed for Kubernetes. Each recipe contains detailed examples and exercises, along with a discussion of how and why it works. If you have a good understanding of serverless computing and Kubernetes core resources such as deployment, services, routes, and replicas, the recipes in this cookbook show you how to apply Knative in real enterprise application development. Authors Kamesh Sampath and Burr Sutter include chapters on autoscaling, build and eventing, observability, Knative on OpenShift, and more. With this cookbook, you'll learn how to: Efficiently build, deploy, and manage modern serverless workloads Apply Knative in real enterprise scenarios, including advanced eventing Monitor your Knative serverless applications effectively Integrate Knative with CI/CD principles, such as using pipelines for faster, more successful production deployments Deploy a rich ecosystem of enterprise integration patterns and connectors in Apache Camel K as Kubernetes and Knative components

**Quarkus Cookbook** Alex Soto Bueno 2020-07-14 Optimized for Kubernetes, Quarkus is designed to help you create Java applications that are cloud first, container native, and serverless capable. With this cookbook, authors Alex Soto Bueno and Jason Porter from Red Hat provide detailed solutions for installing, interacting with, and using Quarkus in the development and production of microservices. The recipes in this book show midlevel to senior developers familiar with Java enterprise application development how to get started with Quarkus quickly. You'll become familiar with how Quarkus works within the wider Java ecosystem and discover ways to adapt this framework to your particular needs. You'll learn how to: Shorten the development cycle by enabling live reloading in dev mode Connect to and communicate with Kafka Develop with the reactive programming model Easily add fault tolerance to your services Build your application as a Kubernetes-ready container Ease development with OpenAPI and test a native Quarkus application

**Beginning Quarkus Framework** Tayo Koleoso 2020-10-12 Harness the power of Quarkus, the supersonic subatomic cloud-native Java platform from Red Hat. This book covers everything you need to know to get started with the platform, which has been engineered from the ground up for superior performance and cloud-native deployment. You'll start with an overview of the Quarkus framework and its features. Next, you'll dive into building your first microservice using Quarkus, including the use of JAX-RS, Swagger, Microprofile, REST, reactive programming, and more. You'll see how to seamlessly

add Quarkus to existing Spring framework projects. The book continues with a dive into the dependency injection pattern and how Quarkus supports it, working with annotations and facilities from both Jakarta EE CDI and the Spring framework. You'll also learn about dockerization and serverless technologies to deploy your microservice. Next you'll cover how data access works in Quarkus with Hibernate, JPA, Spring Boot, MongoDB, and more. This will also give you an eye for efficiency with reactive SQL, microservices, and many more reactive components. You'll also see tips and tricks not available in the official documentation for Quarkus. Lastly, you'll test and secure Quarkus-based code and use different deployment scenarios to package and deploy your Quarkus-based microservice for the cloud, using Amazon Web Services as a focus. After reading and using *Beginning Quarkus Framework*, you'll have the essentials to build and deploy cloud-native microservices and full-fledged applications. Author Tayo Koleoso goes to great lengths to ensure this book has up to date material including brand new and some unreleased features!

**What You Will Learn**

- Build and deploy cloud-native Java applications with Quarkus
- Create Java-based microservices
- Integrate existing technologies such as the Spring framework and vanilla Java EE into the Quarkus framework
- Work with the Quarkus data layer on persistence with SQL, reactive SQL, and NoSQL
- Test code in Quarkus with the latest versions of JUnit and Testcontainers
- Secure your microservices with JWT and other technologies
- Package your microservices with Docker containers and GraalVM native image tooling
- Tips and techniques you won't find in the official Quarkus documentation

**Who This Book Is For** Intermediate Java developers familiar with microservices, the cloud in general, and REST web services, but interested in modern approaches.

**AWS Certified Developer - Associate Guide** Vipul Tankariya 2017-09-27 An effective guide to becoming an AWS Certified Developer

**About This Book** This fast-paced guide will help you clear the exam with confidence

**Learn to design, develop, and deploy cloud-based solutions using AWS**

**Enhance your AWS skills with practice questions and mock tests**

**Who This Book Is For** This book is for IT professionals and developers looking to clear the AWS Certified Developer - Associate 2017 exam. Developers looking to develop and manage their applications on the AWS platform will also find this book useful. No prior AWS experience is needed.

**What You Will Learn**

- Create and manage users, groups, and permissions using AWS Identity and Access Management services
- Create a secured Virtual Private Cloud (VPC) with Public and Private Subnets, Network Access Control, and Security groups
- Get started with Elastic Compute Cloud (EC2), launching your first EC2 instance, and working with it
- Handle application traffic with Elastic Load Balancing (ELB) and monitor AWS resources with CloudWatch
- Work with AWS storage services such as Simple Storage Service (S3), Glacier, and CloudFront
- Get acquainted with AWS DynamoDB - a NoSQL database service
- Coordinate work across distributed application components using Simple Workflow Service (SWF)

**In Detail**

**AWS Certified Developer - Associate Guide** starts with a quick introduction to AWS and the prerequisites to get you started. Then, this book gives you a fair understanding of core AWS services and basic architecture. Next, this book will describe about getting familiar with Identity and Access Management (IAM) along with Virtual private cloud (VPC). Moving ahead you will learn about Elastic Compute cloud (EC2) and handling application traffic with Elastic Load Balancing (ELB). Going ahead you we will talk about Monitoring with CloudWatch, Simple storage service (S3) and Glacier and CloudFront along with other AWS storage options. Next we will take you through AWS DynamoDB - A NoSQL Database Service, Amazon Simple Queue Service (SQS) and CloudFormation Overview. Finally, this book covers understanding Elastic Beanstalk and overview of AWS lambda. At the end of this book, we will cover enough topics, tips and tricks along with mock tests for you to be able to pass the AWS Certified Developer - Associate exam and develop as well as manage your applications on the AWS platform.

**Style and approach** This step-by-step guide includes exercises and mock tests to clear the AWS certification exam and become a successful AWS developer.

*Apache Camel Developer's Cookbook* Scott Cranton 2013-12-26 This book is written in a Cookbook style with short recipes showing developers how to effectively implement EIP without breaking everything in the process. It is concise and to the point, and it helps developers get their data flowing between different components without the need to read through page upon page of theory, while also enabling the reader to learn how to create exciting new projects. Camel Enterprise Integration Cookbook is intended for developers who have some familiarity with Apache Camel and who want a quick lookup reference to practical, proven tips on how to perform common tasks. Every recipe also includes a summary and reference pointers for more details that make it easy for you to get a deeper understanding of the Apache Camel capabilities that you will use day to day.

[Kubernetes for Full-Stack Developers](#) 2020-02-04 This book is designed to help newcomers and experienced users alike learn about Kubernetes. Its chapters are designed to introduce core Kubernetes concepts and to build on them to a level where running an application on a production cluster is a familiar, repeatable, and automated process. From there, more advanced topics are introduced, like how to manage a Kubernetes cluster itself.

*Kubernetes Cookbook* Sébastien Goasguen 2018-02-14 Kubernetes is becoming the de-facto standard for container orchestration and distributed applications management across a microservices framework. With this practical cookbook, you'll learn hands-on recipes for automating the deployment, scaling, and operations of application containers across clusters of hosts. The book's easy-lookup problem-solution-discussion format helps you find the detailed answers you need—quickly. Kubernetes lets you deploy your applications quickly and predictably, so you can efficiently respond to customer demand. This cookbook, ideal for developers and system administrators alike, provides the essential knowledge you need to get there. You'll find recipes for: Kubernetes installation Kubernetes API, API groups Application primitives Monitoring Troubleshooting

[Learn Helm](#) Andrew Block 2020-06-10 A comprehensive introduction to automated application deployment on Kubernetes for beginners Key FeaturesEffectively manage applications deployed in Kubernetes using HelmLearn to install, upgrade, share, and manage applications deployed in KubernetesGet up and running with a package manager for KubernetesBook Description Containerization is currently known to be one of the best ways to implement DevOps. While Docker introduced containers and changed the DevOps era, Google developed an extensive container orchestration system, Kubernetes, which is now considered the frontrunner in container orchestration. With the help of this book, you'll explore the efficiency of managing applications running on Kubernetes using Helm. Starting with a short introduction to Helm and how it can benefit the entire container environment, you'll then delve into the architectural aspects, in addition to learning about Helm charts and its use cases. You'll understand how to write Helm charts in order to automate application deployment on Kubernetes. Focused on providing enterprise-ready patterns relating to Helm and automation, the book covers best practices for application development, delivery, and lifecycle management with Helm. By the end of this Kubernetes book, you will have learned how to leverage Helm to develop an enterprise pattern for application delivery. What you will learnDevelop an enterprise automation strategy on Kubernetes using HelmCreate easily consumable and configurable Helm chartsUse Helm in orchestration tooling and Kubernetes operatorsExplore best practices for application delivery and life cycle managementLeverage Helm in a secure and stable manner that is fit for your enterpriseDiscover the ins and outs of automation with HelmWho this book is for This book is for Kubernetes developers or administrators who are interested in learning Helm to provide automation for application development on Kubernetes. Although no prior knowledge of Helm is required, basic knowledge of Kubernetes application development will be useful.

**Effortless Cloud-Native App Development Using Skaffold** Ashish Choudhary 2021-10-15 A practical guide to solving inner development loop problems in cloud-native applications by automating build, push, and deploy boilerplate using Skaffold Key Features Learn how to build and deploy cloud-native applications quickly with Kubernetes Create a production-ready continuous integration and continuous delivery (CI/CD) pipeline for cloud-native apps Discover ways to create a GitOps-style CD workflow for cloud-native applications Book Description Kubernetes has become the de facto standard for container orchestration, drastically improving how we deploy and manage cloud-native apps. Although it has simplified the lives of support professionals, we cannot say the same for developers who need to be equipped with better tools to increase productivity. An automated workflow that solves a wide variety of problems that every developer faces can make all the difference! Enter Skaffold - a command-line tool that automates the build, push, and deploy steps for Kubernetes applications. This book is divided into three parts, starting with common challenges encountered by developers in building apps with Kubernetes. The second part covers Skaffold features, its architecture, supported container image builders, and more. In the last part, you'll focus on practical implementation, learning how to deploy Spring Boot apps to cloud platforms such as Google Cloud Platform (GCP) using Skaffold. You'll also create CI/CD pipelines for your cloud-native apps with Skaffold. Although the examples covered in this book are written in Java and Spring Boot, the techniques can be applied to apps built using other technologies too. By the end of this Skaffold book, you'll develop skills that will help accelerate your inner development loop and be able to build and deploy your apps to the Kubernetes cluster with Skaffold. What you will learn Overcome challenges faced while working in an inner development loop using Skaffold Accelerate your development workflow using Skaffold Understand Skaffold's architecture, internal working, and supported CLI commands Build and deploy containers to Kubernetes using the Skaffold CLI and Cloud Code Deploy Spring Boot applications to fully managed Kubernetes services such as Google Kubernetes Engine using Skaffold Explore best practices for developing an app with Skaffold Avoid common pitfalls when developing cloud-native apps with Skaffold in Kubernetes Who this book is for Cloud-native application developers, software engineers working with Kubernetes, and DevOps professionals who are looking for a solution to simplify and improve their software development life cycle will find this book useful. Beginner-level knowledge of Docker, Kubernetes, and the container ecosystem is required to get started with this book.

**Ansible: Up and Running** Lorin Hochstein 2014-12-08 Among the many configuration management tools available, Ansible has some distinct advantages—it's minimal in nature, you don't need to install anything on your nodes, and it has an easy learning curve. This practical guide shows you how to be productive with this tool quickly, whether you're a developer deploying code to production or a system administrator looking for a better automation solution. Author Lorin Hochstein shows you how to write playbooks (Ansible's configuration management scripts), manage remote servers, and explore the tool's real power: built-in declarative modules. You'll discover that Ansible has the functionality you need and the simplicity you desire. Understand how Ansible differs from other configuration management systems Use the YAML file format to write your own playbooks Learn Ansible's support for variables and facts Work with a complete example to deploy a non-trivial application Use roles to simplify and reuse playbooks Make playbooks run faster with ssh multiplexing, pipelining, and parallelism Deploy applications to Amazon EC2 and other cloud platforms Use Ansible to create Docker images and deploy Docker containers

**Programming Kubernetes** Michael Hausenblas 2019-07-18 If you're looking to develop native applications in Kubernetes, this is your guide. Developers and AppOps administrators will learn how to build Kubernetes-native applications that interact directly with the API server to query or update the state of resources. AWS developer advocate Michael Hausenblas and Red Hat principal software

engineer Stefan Schimanski explain the characteristics of these apps and show you how to program Kubernetes to build them. You'll explore the basic building blocks of Kubernetes, including the client-go API library and custom resources. All you need to get started is a rudimentary understanding of development and system administration tools and practices, such as package management, the Go programming language, and Git. Walk through Kubernetes API basics and dive into the server's inner structure Explore Kubernetes's programming interface in Go, including Kubernetes API objects Learn about custom resources—the central extension tools used in the Kubernetes ecosystem Use tags to control Kubernetes code generators for custom resources Write custom controllers and operators and make them production ready Extend the Kubernetes API surface by implementing a custom API server

**Cloud Native Go** Kevin Hoffman 2016-12-05 The Complete Guide to Building Cloud-Based Services Cloud Native Go shows developers how to build massive cloud applications that meet the insatiable demands of today's customers, and will dynamically scale to handle virtually any volume of data, traffic, or users. Kevin Hoffman and Dan Nemeth describe the modern cloud-native application in detail, illuminating factors, disciplines, and habits associated with rapid, reliable cloud-native development. They also introduce Go, a "simply elegant" high-performance language that is especially well-suited for cloud development. You'll walk through creating microservices in Go, adding front-end web components using ReactJS and Flux, and mastering advanced Go-based cloud-native techniques. Hoffman and Nemeth show how to build a continuous delivery pipeline with tools like Wercker, Docker, and Dockerhub; automatically push apps to leading platforms; and systematically monitor app performance in production. Learn "The Way of the Cloud": why developing good cloud software is fundamentally about mindset and discipline Discover why Go is ideal for cloud-native microservices development Plan cloud apps that support continuous delivery and deployment Design service ecosystems, and then build them in a test-first manner Push work-in-progress to a cloud Use Event Sourcing and CQRS patterns to react and respond to enormous volume and throughput Secure cloud-based web applications: do's, don'ts, and options Create reactive applications in the cloud with third-party messaging providers Build massive-scale, cloud-friendly GUIs with React and Flux Monitor dynamic scaling, failover, and fault tolerance in the cloud

**Kubernetes - A Complete DevOps Cookbook** Murat Karslioglu 2020-03-13 Leverage Kubernetes and container architecture to successfully run production-ready workloads Key FeaturesImplement Kubernetes to orchestrate and scale applications proficientlyLeverage the latest features of Kubernetes to resolve common as well as complex problems in a cloud-native environmentGain hands-on experience in securing, monitoring, and troubleshooting your applicationBook Description Kubernetes is a popular open source orchestration platform for managing containers in a cluster environment. With this Kubernetes cookbook, you'll learn how to implement Kubernetes using a recipe-based approach. The book will prepare you to create highly available Kubernetes clusters on multiple clouds such as Amazon Web Services (AWS), Google Cloud Platform (GCP), Azure, Alibaba, and on-premises data centers. Starting with recipes for installing and configuring Kubernetes instances, you'll discover how to work with Kubernetes clients, services, and key metadata. You'll then learn how to build continuous integration/continuous delivery (CI/CD) pipelines for your applications, and understand various methods to manage containers. As you advance, you'll delve into Kubernetes' integration with Docker and Jenkins, and even perform a batch process and configure data volumes. You'll get to grips with methods for scaling, security, monitoring, logging, and troubleshooting. Additionally, this book will take you through the latest updates in Kubernetes, including volume snapshots, creating high availability clusters with kops, running workload operators, new inclusions around kubectl and more. By the end of this book, you'll have developed the skills required to implement Kubernetes in production and manage containers proficiently. What you will learnDeploy cloud-native applications on KubernetesAutomate

testing in the DevOps workflowDiscover and troubleshoot common storage issuesDynamically scale containerized services to manage fluctuating traffic needsUnderstand how to monitor your containerized DevOps environmentBuild DevSecOps into CI/CD pipelinesWho this book is for This Kubernetes book is for developers, IT professionals, and DevOps engineers and teams who want to use Kubernetes to manage, scale, and orchestrate applications in their organization. Basic understanding of Kubernetes and containerization is necessary.

*The Kubernetes Book* Nigel Poulton 2021-04-06 April 2021 edition. Brought to you by best-selling author and video trainer, Nigel Poulton. Every page and every example has been checked and updated against the latest versions of Kubernetes (1.20+) and the latest trends in the cloud-native ecosystem. Containers have revolutionized the way we package and run applications. However, like most things, containers come with a bunch of challenges. This is where Kubernetes comes into play. Kubernetes helps you deploy and manage containerized applications at scale. It also abstracts the underlying infrastructure so that you don't need to care if you're deploying applications to Amazon Web Services, Microsoft Azure, or your own on-premises datacenter. With Kubernetes, you can develop applications on your laptop, deploy to your favourite cloud platform, migrate to a different cloud platform, and even migrate to your on-premises datacenters. The Kubernetes Book starts from the beginning, explains all concepts in a clear and friendly way, and covers everything you need to become proficient at Kubernetes. You'll learn: - Kubernetes architecture - How to build Kubernetes - How to deploy, self-heal, scale, and perform rolling updates on applications - What the Kubernetes API is and how it works - How to secure Kubernetes - The meaning of terms such as; cloud-native, microservices, desired state, containerized, and more... Finally, Kubernetes and cloud technologies are developing fast! That's why this book will be updated every year, meaning it's always up-to-date with the latest versions of Kubernetes and the latest trends in the cloud-native ecosystem.

**Cloud-Native Applications in Java** Ajay Mahajan 2018-02-26 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.

**Istio: Up and Running** Lee Calcote 2019-09-27 You did it. You successfully transformed your application into a microservices architecture. But now that you're running services across different environments—public to public, private to public, virtual machine to container—your cloud native software is beginning to encounter reliability issues. How do you stay on top of this ever-increasing complexity? With the Istio service mesh, you'll be able to manage traffic, control access, monitor, report, get telemetry data, manage quota, trace, and more with resilience across your microservice. In this book, Lee Calcote and Zack Butcher explain why your services need a service mesh and demonstrate step-by-step how Istio fits into the life cycle of a distributed application. You'll learn about the tools and APIs for enabling and managing many of the features found in Istio. Explore the observability challenges Istio addresses Use request routing, traffic shifting, fault injection, and other features essential to running a solid service mesh Generate and collect telemetry information Try different deployment patterns, including A/B, blue/green, and canary Get examples of how to develop and deploy real-world applications with Istio support

Managing Kubernetes Brendan Burns 2018-11-12 While Kubernetes has greatly simplified the task of deploying containerized applications, managing this orchestration framework on a daily basis can still be a complex undertaking. With this practical book, site reliability and DevOps engineers will learn how to build, operate, manage, and upgrade a Kubernetes cluster—whether it resides on cloud infrastructure or on-premises. Brendan Burns, cofounder of Kubernetes, and Craig Tracey, staff field engineer at Heptio, dissect how Kubernetes works internally and demonstrate ways to maintain, adjust, and improve the cluster to suit your particular use case. You'll learn how to make architectural choices for designing a cluster, managing access control, monitoring and alerting, and upgrading Kubernetes. Dive in and discover how to take full advantage of this orchestration framework's capabilities. Learn how your cluster operates, how developers use it to deploy applications, and how Kubernetes can facilitate a developer's job Adjust, secure, and tune your cluster by understanding Kubernetes APIs and configuration options Detect cluster-level problems early and learn the steps necessary to respond and recover quickly Determine how and when to add libraries, tools, and platforms that build on, extend, or otherwise improve a Kubernetes cluster

Docker: Up & Running Sean P. Kane 2018-09-07 Docker is rapidly changing the way organizations deploy software at scale. However, understanding how Linux containers fit into your workflow—and getting the integration details right—is not a trivial task. With the updated edition of this practical guide, you'll learn how to use Docker to package your applications with all of their dependencies and then test, ship, scale, and support your containers in production. This edition includes significant updates to the examples and explanations that reflect the substantial changes that have occurred over the past couple of years. Sean Kane and Karl Matthias have added a complete chapter on Docker Compose, deeper coverage of Docker Swarm mode, introductions to both Kubernetes and AWS Fargate, examples on how to optimize your Docker images, and much more. Learn how Docker simplifies

dependency management and deployment workflow for your applications Start working with Docker images, containers, and command line tools Use practical techniques to deploy and test Docker containers in production Debug containers by understanding their composition and internal processes Deploy production containers at scale inside your data center or cloud environment Explore advanced Docker topics, including deployment tools, networking, orchestration, security, and configuration

**Cloud Native** Boris Scholl 2019-08-21 Developers often struggle when first encountering the cloud. Learning about distributed systems, becoming familiar with technologies such as containers and functions, and knowing how to put everything together can be daunting. With this practical guide, you'll get up to speed on patterns for building cloud native applications and best practices for common tasks such as messaging, eventing, and DevOps. Authors Boris Scholl, Trent Swanson, and Peter Jausovec describe the architectural building blocks for a modern cloud native application. You'll learn how to use microservices, containers, serverless computing, storage types, portability, and functions. You'll also explore the fundamentals of cloud native applications, including how to design, develop, and operate them. Explore the technologies you need to design a cloud native application Distinguish between containers and functions, and learn when to use them Architect applications for data-related requirements Learn DevOps fundamentals and practices for developing, testing, and operating your applications Use tips, techniques, and best practices for building and managing cloud native applications Understand the costs and trade-offs necessary to make an application portable