

Kubernetes In Action

Updated for Docker Community Edition v18.09! Docker book designed for SysAdmins, SREs, Operations staff, Developers and DevOps who are interested in deploying the open source container service Docker. In this book, we'll walk you through installing, deploying, managing, and extending Docker. We're going to do that by first introducing you to the basics of Docker and its components. Then we'll start to use Docker to build containers and services to perform a variety of tasks. We're going to take you through the development lifecycle, from testing to production, and see where Docker fits in and how it can make your life easier. We'll make use of Docker to build test environments for new projects, demonstrate how to integrate Docker with continuous integration workflow, and then how to build application services and platforms. Finally, we'll show you how to use Docker's API and how to extend Docker yourself. We'll teach you how to:

- * Install Docker.
- * Take your first steps with a Docker container.
- * Build Docker images.
- * Manage and share Docker images.
- * Run and manage more complex Docker containers.
- * Deploy Docker containers as part of your testing pipeline.
- * Build multi-container applications and environments.
- * Learn about orchestration using Compose and Swarm for the orchestration of Docker containers and Consul for service discovery.
- * Explore the Docker API.
- * Getting Help and Extending Docker.

Design, build, and operate scalable and reliable Kubernetes infrastructure for

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production Key Features Implement industry best practices to build and manage production-grade Kubernetes infrastructure Learn how to architect scalable Kubernetes clusters, harden container security, and fine-tune resource management Understand, manage, and operate complex business workloads confidently Book Description Although out-of-the-box solutions can help you to get a cluster up and running quickly, running a Kubernetes cluster that is optimized for production workloads is a challenge, especially for users with basic or intermediate knowledge. With detailed coverage of cloud industry standards and best practices for achieving scalability, availability, operational excellence, and cost optimization, this Kubernetes book is a blueprint for managing applications and services in production. You'll discover the most common way to deploy and operate Kubernetes clusters, which is to use a public cloud-managed service from AWS, Azure, or Google Cloud Platform (GCP). This book explores Amazon Elastic Kubernetes Service (Amazon EKS), the AWS-managed version of Kubernetes, for working through practical exercises. As you get to grips with implementation details specific to AWS and EKS, you'll understand the design concepts, implementation best practices, and configuration applicable to other cloud-managed services. Throughout the book, you'll also discover standard and cloud-agnostic tools, such as Terraform and Ansible, for provisioning and configuring infrastructure. By the end of this book, you'll be able to leverage Kubernetes to operate and manage your production environments confidently. What you will learn Explore

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different infrastructure architectures for Kubernetes deployment Implement optimal open source and commercial storage management solutions Apply best practices for provisioning and configuring Kubernetes clusters, including infrastructure as code (IaC) and configuration as code (CAC) Configure the cluster networking plugin and core networking components to get the best out of them Secure your Kubernetes environment using the latest tools and best practices Deploy core observability stacks, such as monitoring and logging, to fine-tune your infrastructure Who this book is for This book is for cloud infrastructure experts, DevOps engineers, site reliability engineers, and engineering managers looking to design and operate Kubernetes infrastructure for production. Basic knowledge of Kubernetes, Terraform, Ansible, Linux, and AWS is needed to get the most out of this book.

"A complete guide to the challenges and solutions in securing microservices architectures." —Massimo Siani, FinDynamic Key Features Secure microservices infrastructure and code Monitoring, access control, and microservice-to-microservice communications Deploy securely using Kubernetes, Docker, and the Istio service mesh. Hands-on examples and exercises using Java and Spring Boot Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. Microservices Security in Action teaches you how to address microservices-specific security challenges throughout the system. This practical guide includes plentiful hands-on exercises using industry-leading open-source tools and

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examples using Java and Spring Boot. About The Book Design and implement security into your microservices from the start. Microservices Security in Action teaches you to assess and address security challenges at every level of a Microservices application, from APIs to infrastructure. You'll find effective solutions to common security problems, including throttling and monitoring, access control at the API gateway, and microservice-to-microservice communication. Detailed Java code samples, exercises, and real-world business use cases ensure you can put what you've learned into action immediately.

What You Will Learn
Microservice security concepts
Edge services with an API gateway
Deployments with Docker, Kubernetes, and Istio
Security testing at the code level
Communications with HTTP, gRPC, and Kafka
This Book Is Written For
For experienced microservices developers with intermediate Java skills.
About The Author
Prabath Siriwardena is the vice president of security architecture at WSO2. Nuwan Dias is the director of API architecture at WSO2. They have designed secure systems for many Fortune 500 companies.
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Conquering container security with Docker 11 Securing microservices on Kubernetes
12 Securing microservices with Istio service mesh PART 5 SECURE DEVELOPMENT
13 Secure coding practices and automation

Kubernetes radically changes the way applications are built and deployed in the cloud. Since its introduction in 2014, this container orchestrator has become one of the largest and most popular open source projects in the world. The updated edition of this practical book shows developers and ops personnel how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency. Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and beyond—explain how this system fits into the lifecycle of a distributed application. You'll learn how to use tools and APIs to automate scalable distributed systems, whether it's for online services, machine learning applications, or a cluster of Raspberry Pi computers. Create a simple cluster to learn how Kubernetes works Dive into the details of deploying an application using Kubernetes Learn specialized objects in Kubernetes, such as DaemonSets, jobs, ConfigMaps, and secrets Explore deployments that tie together the lifecycle of a complete application Get practical examples of how to develop and deploy real-world applications in Kubernetes 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

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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 Leverage the lethal combination of Docker and Kubernetes to automate deployment and management of Java applications About This Book Master using Docker and Kubernetes to build, deploy and manage Java applications in a jiff Learn how to create your own Docker image and customize your own cluster using Kubernetes Empower the journey from development to production using this practical guide. Who This Book Is For The book is aimed at Java developers who are eager to build, deploy, and manage applications very quickly using container technology. They need have no knowledge of Docker and Kubernetes. What You Will Learn Package Java applications into Docker images Understand the running of containers locally Explore development

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and deployment options with Docker Integrate Docker into Maven builds Manage and monitor Java applications running on Kubernetes clusters Create Continuous Delivery pipelines for Java applications deployed to Kubernetes In Detail Imagine creating and testing Java EE applications on Apache Tomcat Server or Wildfly Application server in minutes along with deploying and managing Java applications swiftly. Sounds too good to be true? But you have a reason to cheer as such scenarios are only possible by leveraging Docker and Kubernetes. This book will start by introducing Docker and delve deep into its networking and persistent storage concepts. You will then proceed to learn how to refactor monolith application into separate services by building an application and then packaging it into Docker containers. Next, you will create an image containing Java Enterprise Application and later run it using Docker. Moving on, the book will focus on Kubernetes and its features and you will learn to deploy a Java application to Kubernetes using Maven and monitor a Java application in production. By the end of the book, you will get hands-on with some more advanced topics to further extend your knowledge about Docker and Kubernetes. Style and approach An easy-to-follow, practical guide that will help Java developers develop, deploy, and manage Java applications efficiently.

Learn to implement DevOps using Docker & Kubernetes. About This Book Learning DevOps, container, and Kubernetes within one book. Leverage Kubernetes as a platform to deploy, scale, and run containers efficiently. A practical guide towards

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container management and orchestration Who This Book Is For This book is targeted for anyone, who wants to learn containerization and clustering in a practical way using Kubernetes. No prerequisite skills required, however, essential DevOps skill and public/private Cloud knowledge will accelerate the reading speed. If you're advanced readers, you can also get a deeper understanding of all the tools and technique described in the book. What You Will Learn Learn fundamental and advanced DevOps skills and tools Get a comprehensive understanding for container Learn how to move your application to container world Learn how to manipulate your application by Kubernetes Learn how to work with Kubernetes in popular public cloud Improve time to market with Kubernetes and Continuous Delivery Learn how to monitor, log, and troubleshoot your application with Kubernetes In Detail Containerization is said to be the best way to implement DevOps. Google developed Kubernetes, which orchestrates containers efficiently and is considered the frontrunner in container orchestration. Kubernetes is an orchestrator that creates and manages your containers on clusters of servers. This book will guide you from simply deploying a container to administrate a Kubernetes cluster, and then you will learn how to do monitoring, logging, and continuous deployment in DevOps. The initial stages of the book will introduce the fundamental DevOps and the concept of containers. It will move on to how to containerize applications and deploy them into. The book will then introduce networks in Kubernetes. We then move on to advanced DevOps skills such as monitoring,

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logging, and continuous deployment in Kubernetes. It will proceed to introduce permission control for Kubernetes resources via attribute-based access control and role-based access control. The final stage of the book will cover deploying and managing your container clusters on the popular public cloud Amazon Web Services and Google Cloud Platform. At the end of the book, other orchestration frameworks, such as Docker Swarm mode, Amazon ECS, and Apache Mesos will be discussed. Style and approach Readers will be taken through fundamental DevOps skills and Kubernetes concept and administration with detailed examples. It introduces comprehensive DevOps topics, including microservices, automation tools, containers, monitoring, logging, continuous delivery, and popular public cloud environments. At each step readers will learn how to leverage Kubernetes in their everyday lives and transform their original delivery pipeline for fast and efficient delivery.

Summary Sails.js in Action is a comprehensive guide to building enterprise-capable web applications using Node and Sails. Written by the creators of the Sails.js framework, this book carefully introduces each concept, technique, and tool with real-world examples and crystal clear explanations. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Sails makes professional web development a breeze. This instantly familiar MVC framework automatically handles the tedious application boilerplate, so you can concentrate on developing features and creating business value. You get powerful tools

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for rapid API development, task automation, an ORM, and easy integration with any web, mobile, or IoT frontend. And because you're using Node.js, it's JavaScript all the way down. About the Book Sails.js in Action is a comprehensive guide on how to build enterprise-capable web applications. Written by the creators of Sails.js, this book introduces each concept and technique with real-world examples and thorough explanations. As you read, you'll learn to build the backend of a typical web application while you explore real-time programming with WebSockets, security fundamentals, and best practices for building Sails/Node.js apps. What's Inside Creating the backend for a web, mobile, or IoT app Real-time programming with WebSockets User management, authentication, and password recovery Using Sails to autogenerate REST APIs Custom backend development and third-party API integrations About the Reader Readers should be comfortable with JavaScript and frontend web development. About the Author Mike McNeil is the creator of Sails.js. Irl Nathan is the producer of sailsCasts, a series focused on using Sails. Table of Contents Getting started First steps Using static assets Using the blueprint API Custom backend code Using models Custom actions Server-rendered views Authentication and sessions Policies and access control Refactoring Embedded data and associations Ratings, followers, and search Realtime with WebSockets Deployment, testing, and security

Kubernetes has become the dominant container orchestrator, but many organizations that have recently adopted this system are still struggling to run actual production

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workloads. In this practical book, four software engineers from VMware bring their shared experiences running Kubernetes in production and provide insight on key challenges and best practices. The brilliance of Kubernetes is how configurable and extensible the system is, from pluggable runtimes to storage integrations. For platform engineers, software developers, infosec, network engineers, storage engineers, and others, this book examines how the path to success with Kubernetes involves a variety of technology, pattern, and abstraction considerations. With this book, you will:

- Understand what the path to production looks like when using Kubernetes
- Examine where gaps exist in your current Kubernetes strategy
- Learn Kubernetes's essential building blocks--and their trade-offs
- Understand what's involved in making Kubernetes a viable location for applications
- Learn better ways to navigate the cloud native landscape

This book is designed to introduce you to using containers and Kubernetes for full-stack development. You'll learn how to develop a full-stack application using Node.js and MongoDB and how to and manage them using Docker, then Docker Compose, and finally Kubernetes.

Knative in Action teaches you to build complex and efficient serverless applications. Summary Take the pain out of managing serverless applications. Knative, a collection of Kubernetes extensions curated by Google, simplifies building and running serverless systems. Knative in Action guides you through the Knative toolkit, showing you how to

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launch, modify, and monitor event-based apps built using cloud-hosted functions like AWS Lambda. You'll learn how to use Knative Serving to develop software that is easily deployed and autoscaled, how to use Knative Eventing to wire together disparate systems into a consistent whole, and how to integrate Knative into your shipping pipeline. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology With Knative, managing a serverless application's full lifecycle is a snap. Knative builds on Kubernetes orchestration features, making it easy to deploy and run serverless apps. It handles low-level chores—such as starting and stopping instances—so you can concentrate on features and behavior. About the book Knative in Action teaches you to build complex and efficient serverless applications. You'll dive into Knative's unique design principles and grasp cloud native concepts like handling latency-sensitive workloads. You'll deliver updates with Knative Serving and interlink apps, services, and systems with Knative Eventing. To keep you moving forward, every example includes deployment advice and tips for debugging. What's inside Deploy a service with Knative Serving Connect systems with Knative Eventing Autoscale responses for different traffic surges Develop, ship, and operate software About the reader For software developers comfortable with CLI tools and an OO language like Java or Go. About the author Jacques Chester has worked in Pivotal and VMWare R&D since 2014, contributing to Knative and other projects. Table of Contents 1 Introduction 2 Introducing Knative

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Serving 3 Configurations and Revisions 4 Routes 5 Autoscaling 6 Introduction to Eventing 7 Sources and Sinks 8 Filtering and Flowing 9 From Conception to Production Apply Kubernetes beyond the basics of Kubernetes clusters by implementing IAM using OIDC and Active Directory, Layer 4 load balancing using MetalLB, advanced service integration, security, auditing, and CI/CD Key Features Find out how to add enterprise features to a Kubernetes cluster with theory and exercises to guide you Understand advanced topics including load balancing, externalDNS, IDP integration, security, auditing, backup, and CI/CD Create development clusters for unique testing requirements, including running multiple clusters on a single server to simulate an enterprise environment Book Description Containerization has changed the DevOps game completely, with Docker and Kubernetes playing important roles in altering the flow of app creation and deployment. This book will help you acquire the knowledge and tools required to integrate Kubernetes clusters in an enterprise environment. The book begins by introducing you to Docker and Kubernetes fundamentals, including a review of basic Kubernetes objects. You'll then get to grips with containerization and understand its core functionalities, including how to create ephemeral multinode clusters using kind. As you make progress, you'll learn about cluster architecture, Kubernetes cluster deployment, and cluster management, and get started with application deployment. Moving on, you'll find out how to integrate your container to a cloud platform and integrate tools including MetalLB, externalDNS, OpenID connect

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(OIDC), pod security policies (PSPs), Open Policy Agent (OPA), Falco, and Velero. Finally, you will discover how to deploy an entire platform to the cloud using continuous integration and continuous delivery (CI/CD). By the end of this Kubernetes book, you will have learned how to create development clusters for testing applications and Kubernetes components, and be able to secure and audit a cluster by implementing various open-source solutions including OpenUnison, OPA, Falco, Kibana, and Velero. What you will learn

- Create a multinode Kubernetes cluster using kind
- Implement Ingress, MetalLB, and ExternalDNS
- Configure a cluster OIDC using impersonation
- Map enterprise authorization to Kubernetes
- Secure clusters using PSPs and OPA
- Enhance auditing using Falco and EFK
- Back up your workload for disaster recovery and cluster migration
- Deploy to a platform using Tekton, GitLab, and ArgoCD

Who this book is for
This book is for anyone interested in DevOps, containerization, and going beyond basic Kubernetes cluster deployments. DevOps engineers, developers, and system administrators looking to enhance their IT career paths will also find this book helpful. Although some prior experience with Docker and Kubernetes is recommended, this book includes a Kubernetes bootcamp that provides a description of Kubernetes objects to help you if you are new to the topic or need a refresher.

Summary
Google Cloud Platform in Action teaches you to build and launch applications that scale, leveraging the many services on GCP to move faster than ever. You'll learn how to choose exactly the services that best suit your needs, and you'll be able to build

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applications that run on Google Cloud Platform and start more quickly, suffer fewer disasters, and require less maintenance. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Thousands of developers worldwide trust Google Cloud Platform, and for good reason. With GCP, you can host your applications on the same infrastructure that powers Search, Maps, and the other Google tools you use daily. You get rock-solid reliability, an incredible array of prebuilt services, and a cost-effective, pay-only-for-what-you-use model. This book gets you started. About the Book Google Cloud Platform in Action teaches you how to deploy scalable cloud applications on GCP. Author and Google software engineer JJ Geewax is your guide as you try everything from hosting a simple WordPress web app to commanding cloud-based AI services for computer vision and natural language processing. Along the way, you'll discover how to maximize cloud-based data storage, roll out serverless applications with Cloud Functions, and manage containers with Kubernetes. Broad, deep, and complete, this authoritative book has everything you need. What's inside The many varieties of cloud storage and computing How to make cost-effective choices Hands-on code examples Cloud-based machine learning About the Reader Written for intermediate developers. No prior cloud or GCP experience required. About the Author JJ Geewax is a software engineer at Google, focusing on Google Cloud Platform and API design. Table of Contents PART 1 - GETTING STARTED What is "cloud"? Trying it out: deploying WordPress on Google

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Cloud The cloud data center PART 2 - STORAGE Cloud SQL: managed relational storage Cloud Datastore: document storage Cloud Spanner: large-scale SQL Cloud Bigtable: large-scale structured data Cloud Storage: object storage PART 3 - COMPUTING Compute Engine: virtual machines Kubernetes Engine: managed Kubernetes clusters App Engine: fully managed applications Cloud Functions: serverless applications Cloud DNS: managed DNS hosting PART 4 - MACHINE LEARNING Cloud Vision: image recognition Cloud Natural Language: text analysis Cloud Speech: audio-to-text conversion Cloud Translation: multilanguage machine translation Cloud Machine Learning Engine: managed machine learning PART 5 - DATA PROCESSING AND ANALYTICS BigQuery: highly scalable data warehouse Cloud Dataflow: large-scale data processing Cloud Pub/Sub: managed event publishing Summary Kubernetes in Action is a comprehensive guide to effectively developing and running applications in a Kubernetes environment. Before diving into Kubernetes, the book gives an overview of container technologies like Docker, including how to build containers, so that even readers who haven't used these technologies before can get up and running. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Kubernetes is Greek for "helmsman," your guide through unknown waters. The Kubernetes container orchestration system safely manages the structure and flow of a distributed application, organizing containers and services for maximum efficiency. Kubernetes serves as an

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operating system for your clusters, eliminating the need to factor the underlying network and server infrastructure into your designs. About the Book Kubernetes in Action teaches you to use Kubernetes to deploy container-based distributed applications. You'll start with an overview of Docker and Kubernetes before building your first Kubernetes cluster. You'll gradually expand your initial application, adding features and deepening your knowledge of Kubernetes architecture and operation. As you navigate this comprehensive guide, you'll explore high-value topics like monitoring, tuning, and scaling. What's Inside Kubernetes' internals Deploying containers across a cluster Securing clusters Updating applications with zero downtime About the Reader Written for intermediate software developers with little or no familiarity with Docker or container orchestration systems. About the Author Marko Luksa is an engineer at Red Hat working on Kubernetes and OpenShift. Table of Contents PART 1 - OVERVIEW Introducing Kubernetes First steps with Docker and Kubernetes PART 2 - CORE CONCEPTS Pods: running containers in Kubernetes Replication and other controllers: deploying managed pods Services: enabling clients to discover and talk to pods Volumes: attaching disk storage to containers ConfigMaps and Secrets: configuring applications Accessing pod metadata and other resources from applications Deployments: updating applications declaratively StatefulSets: deploying replicated stateful applications PART 3 - BEYOND THE BASICS Understanding Kubernetes internals Securing the Kubernetes API server Securing cluster nodes and the network

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Managing pods' computational resources Automatic scaling of pods and cluster nodes
Advanced scheduling Best practices for developing apps Extending Kubernetes
Summary Rx.NET in Action teaches developers how to build event-driven applications
using the Reactive Extensions (Rx) library. Purchase of the print book includes a free
eBook in PDF, Kindle, and ePub formats from Manning Publications. About the
Technology Modern applications must react to streams of data such as user and
system events, internal messages, and sensor input. Reactive Extensions (Rx) is a
.NET library containing more than 600 operators that you can compose together to
build reactive client- and server-side applications to handle events asynchronously in a
way that maximizes responsiveness, resiliency, and elasticity. About the Book Rx.NET
in Action teaches developers how to build event-driven applications using the Rx
library. Starting with an overview of the design and architecture of Rx-based reactive
applications, you'll get hands-on with in-depth code examples to discover firsthand how
to exploit the rich query capabilities that Rx provides and the Rx concurrency model
that allows you to control both the asynchronicity of your code and the processing of
event handlers. You'll also learn about consuming event streams, using schedulers to
manage time, and working with Rx operators to filter, transform, and group events.
What's Inside Introduction to Rx in C# Creating and consuming streams of data and
events Building complex queries on event streams Error handling and testing Rx code
About the Reader Readers should understand OOP concepts and be comfortable

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coding in C#. About the Author Tamir Dresher is a senior software architect at CodeValue and a prominent member of Israel's Microsoft programming community.

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Writing asynchronous code in .NET The Rx Disposables library Testing Rx queries and operators

Exploit design, deployment, and management of large-scale containers

Key Features

Explore the latest features available in Kubernetes 1.10 Ensure that your clusters are always available, scalable, and up to date Master the skills of designing and deploying large clusters on various cloud platforms

Book Description

Kubernetes is an open source system that is used to automate the deployment, scaling, and management of containerized applications. If you are running more containers or want automated management of your containers, you need Kubernetes at your disposal. To put things into perspective, Mastering Kubernetes walks you through the advanced management of Kubernetes clusters. To start with, you will learn the fundamentals of both Kubernetes architecture and Kubernetes design in detail. You will discover how to run

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complex stateful microservices on Kubernetes including advanced features such as horizontal pod autoscaling, rolling updates, resource quotas, and persistent storage backend. Using real-world use cases, you will explore the options for network configuration, and understand how to set up, operate, and troubleshoot various Kubernetes networking plugins. In addition to this, you will get to grips with custom resource development and utilization in automation and maintenance workflows. To scale up your knowledge of Kubernetes, you will encounter some additional concepts based on the Kubernetes 1.10 release, such as Prometheus, Role-based access control, API aggregation, and more. By the end of this book, you'll know everything you need to graduate from intermediate to advanced level of understanding 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
- Understand the identity model of Kubernetes, along with the 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
- Enjoy the art of running complex stateful applications in your container environment
- Deliver applications as standard packages

Who this book is for

Mastering Kubernetes is for you if you are a system administrator or a developer who has an intermediate understanding of Kubernetes and wish to master its advanced features. Basic knowledge of networking would also be helpful. In all, this advanced-

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level book provides a smooth pathway to mastering Kubernetes. 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

Summary Docker in Action teaches readers how to create, deploy, and manage applications hosted in Docker containers. Purchase of the print book includes a

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free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The idea behind Docker is simple. Create a tiny virtual environment, called a container, that holds just your application and its dependencies. The Docker engine uses the host operating system to build and account for these containers. They are easy to install, manage, and remove. Applications running inside containers share resources, making their footprints small. About the Book Docker in Action teaches readers how to create, deploy, and manage applications hosted in Docker containers. After starting with a clear explanation of the Docker model, you will learn how to package applications in containers, including techniques for testing and distributing applications. You will also learn how to run programs securely and how to manage shared resources. Using carefully designed examples, the book teaches you how to orchestrate containers and applications from installation to removal. Along the way, you'll discover techniques for using Docker on systems ranging from dev-and-test machines to full-scale cloud deployments. What's Inside Packaging containers for deployment Installing, managing, and removing containers Working with Docker images Distributing with DockerHub About the Reader Readers need only have a working knowledge of the Linux OS. No prior knowledge of Docker is assumed. About the Author Jeff Nickoloff, a software engineer, has presented Docker and

its applications to hundreds of developers and administrators at Desert Code Camp, Amazon.com, and technology meetups. Table of Contents PART 1 KEEPING A TIDY COMPUTER Welcome to Docker Running software in containers Software installation simplified Persistent storage and shared state with volumes Network exposure Limiting risk with isolation PART 2 PACKAGING SOFTWARE FOR DISTRIBUTION Packaging software in images Build automation and advanced image considerations Public and private software distribution Running customized registries PART 3 MULTI-CONTAINER AND MULTI-HOST ENVIRONMENTS Declarative environments with Docker Clusters with Machine and Swarm

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

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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.

Summary HTTP/2 in Action is a complete guide to HTTP/2, one of the core protocols of the web. Because HTTP/2 has been designed to be easy to transition to, including keeping it backwards compatible, adoption is rapid and expected to increase over the next few years. Concentrating on practical matters, this interesting book presents key HTTP/2 concepts such as frames, streams, and multiplexing and explores how they affect the performance and behavior of your websites. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology HTTP—Hypertext Transfer Protocol—is the standard for exchanging messages between websites and browsers. And after 20 years, it's gotten a much-needed upgrade. With support for streams, server push, header compression, and prioritization, HTTP/2 delivers vast improvements in speed, security, and efficiency. About the Book HTTP/2 in Action teaches you everything you need to

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know to use HTTP/2 effectively. You'll learn how to optimize web performance with new features like frames, multiplexing, and push. You'll also explore real-world examples on advanced topics like flow control and dependencies. With ready-to-implement tips and best practices, this practical guide is sure to get you—and your websites—up to speed! What's Inside HTTP/2 for web developers Upgrading and troubleshooting Real-world examples and case studies QUIC and HTTP/3 About the Reader Written for web developers and site administrators. About the Authors Barry Pollard is a professional developer with two decades of experience developing, supporting, and tuning software and infrastructure. Table of Contents PART 1 MOVING TO HTTP/2 Web technologies and HTTP The road to HTTP/2 Upgrading to HTTP/2 PART 2 USING HTTP/2 HTTP/2 protocol basics Implementing HTTP/2 push Optimizing for HTTP/2 PART 3 ADVANCED HTTP/2 Advanced HTTP/2 concepts HPACK header compression PART 4 THE FUTURE OF HTTP TCP, QUIC, and HTTP/3 Where HTTP goes from here Istio in Action is a comprehensive guide to handling authentication, routing, retrying, load balancing, collecting data, security, and other common network-related tasks using the Istio service mesh platform. The “service mesh” pattern, implemented by platforms like Istio, helps you push operational issues into the infrastructure so the application code is easier to understand, maintain, and

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adapt. Istio in Action teaches you how to implement a full-featured Istio-based service mesh to manage a microservices application. Istio in Action is a comprehensive guide to handling authentication, routing, retrying, load balancing, collecting data, security, and other common network-related tasks using the Istio service mesh platform. With helpful diagrams and hands-on examples, you'll learn how to use this open-source service mesh to control routing, secure container applications, and monitor network traffic. You'll also bring Istio to legacy systems without changes to your applications and discover how to use Istio in a multi-cloud world with the data layer deployed on a cluster like Kubernetes. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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,

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provides the essential knowledge you need to get there. You'll find recipes for: Kubernetes installation Kubernetes API, API groups Application primitives Monitoring Troubleshooting

Logging in Action is a guide to streamlining your log processing, turning logged data into a tool that will boost your application's performance. Fluentd unifies your data collection in a language- and platform-agnostic manner. It brings together data from your databases, system logs, and application events, filters out the noise, and then structures that data so it can be easily fed out to multiple destinations. Logging in Action teaches you how to use this free and open source tool to make your log processing a real asset for your application. Logging in Action is a guide to streamlining your log processing, turning logged data into a tool that will boost your application's performance. It's packed with tips and tricks on how proper Fluentd log management can improve your application's security, speed, and cost-effectiveness. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Summary OpenShift in Action is a full reference to Red Hat OpenShift that breaks down this robust container platform so you can use it day-to-day. Combining Docker and Kubernetes, OpenShift is a powerful platform for cluster management, scaling, and upgrading your enterprise apps. It doesn't matter why

you use OpenShift—by the end of this book you'll be able to handle every aspect of it, inside and out! Foreword by Jim Whitehurst, Red Hat. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Containers let you package everything into one neat place, and with Red Hat OpenShift you can build, deploy, and run those packages all in one place! Combining Docker and Kubernetes, OpenShift is a powerful platform for cluster management, scaling, and upgrading your enterprise apps. About the Book OpenShift in Action is a full reference to Red Hat OpenShift that breaks down this robust container platform so you can use it day-to-day. Starting with how to deploy and run your first application, you'll go deep into OpenShift. You'll discover crystal-clear explanations of namespaces, cgroups, and SELinux, learn to prepare a cluster, and even tackle advanced details like software-defined networks and security, with real-world examples you can take to your own work. It doesn't matter why you use OpenShift—by the end of this book you'll be able to handle every aspect of it, inside and out! What's Inside Written by lead OpenShift architects Rock-solid fundamentals of Docker and Kubernetes Keep mission-critical applications up and running Manage persistent storage About the Reader For DevOps engineers and administrators working in a Linux-based distributed environment. About the Authors Jamie

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Duncan is a cloud solutions architect for Red Hat, focusing on large-scale OpenShift deployments. John Osborne is a principal OpenShift architect for Red Hat.

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Summary

The best way to learn microservices development is to build something! Bootstrapping Microservices with Docker, Kubernetes, and Terraform guides you from zero through to a complete microservices project, including fast prototyping, development, and deployment. You'll get your feet wet using industry-standard tools as you learn and practice the practical skills you'll use for every microservices application. Following a true bootstrapping approach, you'll begin with a simple, familiar application and build up your knowledge and skills as you create and deploy a real microservices project. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the technology

Taking microservices from proof of concept to production is a complex, multi-step operation relying on tools like Docker,

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Terraform, and Kubernetes for packaging and deployment. The best way to learn the process is to build a project from the ground up, and that's exactly what you'll do with this book! About the book In Bootstrapping Microservices with Docker, Kubernetes, and Terraform, author Ashley Davis lays out a comprehensive approach to building microservices. You'll start with a simple design and work layer-by-layer until you've created your own video streaming application. As you go, you'll learn to configure cloud infrastructure with Terraform, package microservices using Docker, and deploy your finished project to a Kubernetes cluster. What's inside

- Developing and testing microservices applications
- Working with cloud providers
- Applying automated testing
- Implementing infrastructure as code and setting up a continuous delivery pipeline
- Monitoring, managing, and troubleshooting

About the reader Examples are in JavaScript. No experience with microservices, Kubernetes, Terraform, or Docker required. About the author Ashley Davis is a software developer, entrepreneur, stock trader, and the author of Manning's Data Wrangling with JavaScript. Table of Contents

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10 Healthy microservices 11 Pathways to scalability

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 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

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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

GitOps and Kubernetes is half reference, half practical tutorial for operating Kubernetes the GitOps way. Through fast-paced chapters, you'll unlock the benefits of GitOps for flexible configuration management, monitoring, robustness, multi-environment support, and discover tricks and tips for managing secrets in the unique GitOps fashion. GitOps and Kubernetes introduces a radical

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idea--managing your infrastructure with the same Git pull requests you use to manage your codebase. In this in-depth tutorial, you'll learn to operate infrastructures based on powerful-but-complex technologies with the same Git version control tools most developers use daily. *GitOps and Kubernetes* is half reference, half practical tutorial for operating Kubernetes the GitOps way. Through fast-paced chapters, you'll unlock the benefits of GitOps for flexible configuration management, monitoring, robustness, multi-environment support, and discover tricks and tips for managing secrets in the unique GitOps fashion. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Summary *Microservices in Action* is a practical book about building and deploying microservice-based applications. Written for developers and architects with a solid grasp of service-oriented development, it tackles the challenge of putting microservices into production. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Invest your time in designing great applications, improving infrastructure, and making the most out of your dev teams. Microservices are easier to write, scale, and maintain than traditional enterprise applications because they're built as a system of independent components. Master a few

important new patterns and processes, and you'll be ready to develop, deploy, and run production-quality microservices. About the Book *Microservices in Action* teaches you how to write and maintain microservice-based applications. Created with day-to-day development in mind, this informative guide immerses you in real-world use cases from design to deployment. You'll discover how microservices enable an efficient continuous delivery pipeline, and explore examples using Kubernetes, Docker, and Google Container Engine. What's inside

- An overview of microservice architecture
- Building a delivery pipeline
- Best practices for designing multi-service transactions and queries
- Deploying with containers
- Monitoring your microservices

About the Reader Written for intermediate developers familiar with enterprise architecture and cloud platforms like AWS and GCP. About the Author Morgan Bruce and Paulo A. Pereira are experienced engineering leaders. They work daily with microservices in a production environment, using the techniques detailed in this book.

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microservices PART 4 - Observability and ownership Building a monitoring system Using logs and traces to understand behavior Building microservice teams

Learn to implement container orchestration on AWS with ease Key Features Leverage the power of Kubernetes on AWS to deploy highly scalable applications Provision Kubernetes clusters on Amazon EC2 environments Implement best practices to improve efficiency and security of Kubernetes on the cloud Book Description Docker containers promise to radicalize the way developers and operations build, deploy, and manage applications running on the cloud. Kubernetes provides the orchestration tools you need to realize that promise in production. Kubernetes on AWS guides you in deploying a production-ready Kubernetes cluster on the AWS platform. You will then discover how to utilize the power of Kubernetes, which is one of the fastest growing platforms for production-based container orchestration, to manage and update your applications. Kubernetes is becoming the go-to choice for production-grade deployments of cloud-native applications. This book covers Kubernetes from first principles. You will start by learning about Kubernetes' powerful abstractions - Pods and Services - that make managing container deployments easy. This will be followed by a guided tour through setting up a production-ready Kubernetes cluster on

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AWS, while learning the techniques you need to successfully deploy and manage your own applications. By the end of the book, you will have gained plenty of hands-on experience with Kubernetes on Amazon Web Services. You will also have picked up some tips on deploying and managing applications, keeping your cluster and applications secure, and ensuring that your whole system is reliable and resilient to failure. What you will learn

- Learn how to provision a production-ready Kubernetes cluster on AWS
- Deploy your own applications to Kubernetes with Helm
- Discover strategies for troubleshooting your cluster and know where to find help with issues
- Explore the best ways to monitor your cluster and the applications running on it
- Supercharge your cluster by integrating it with the tools provided by the AWS platform
- Architect your cluster for high availability

Who this book is for

If you're a cloud engineer, cloud solution provider, sysadmin, site reliability engineer, or developer with an interest in DevOps and are looking for an extensive guide to running Kubernetes in the AWS environment, this book is for you. Though any previous knowledge of Kubernetes is not expected, some experience with Linux and Docker containers would be a bonus.

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

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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. Core Kubernetes gives you a guided tour through all major aspects of

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Kubernetes, from managing iptables to setting up dynamically scaled clusters that respond to changes in load. To build and operate reliable cloud native systems, you need to understand what's going on below the surface. Core Kubernetes is packed with experience-driven insights and practical techniques, and takes you inside Kubernetes to teach you what you'll need to know to keep your system running like a well-oiled machine. Core Kubernetes gives you a guided tour through all major aspects of Kubernetes, from managing iptables to setting up dynamically scaled clusters that respond to changes in load. With this exclusive collection of undocumented internals, expert techniques, and practical guidance, you'll understand the unique security concerns of container-based applications, discover tips to minimize costly unused capacity, and get pro tips for maximizing performance. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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.

Klingon Edition - September 2020. This is a special Klingon tribute edition of The Kubernetes Book. The front cover has the title of the book and the YAML code in Klingon script, however,

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the rest of the book is written in English. Every page and every example has been checked against the latest versions of Kubernetes (1.18) 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 their own set of challenges. This is where Kubernetes enters the scene. 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 private cloud at your on-premises datacenter. The Kubernetes Book starts from the beginning, explains all concepts in a clear and friendly manner, and covers everything needed for you to become proficient at Kubernetes. It even includes two chapters dedicated to threat-modeling Kubernetes and real-world security. You'll learn:

- Kubernetes architecture
- How to build Kubernetes
- How to deploy, self-heal, scale, and perform rolling updates on applications
- 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 at least once per year, meaning it's always up-to-date with the latest versions of Kubernetes and the latest trends in the cloud-native ecosystem.

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

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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. Learn Kubernetes in a Month of Lunches is your guide to getting up and running with Kubernetes. Summary In Learn Kubernetes in a Month of Lunches you'll go from "what's a Pod?" to automatically scaling clusters of containers and components in just 22 hands-on lessons, each short enough to fit into a lunch break. Every lesson is task-focused and covers an essential skill on the road to Kubernetes mastery. You'll learn how to smooth container management with Kubernetes, including securing your clusters, and upgrades and rollbacks with zero downtime. No development stack, platform, or background is assumed. Author Elton Stoneman describes all patterns generically, so you can easily apply them to your applications and port them to other projects! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Create apps that

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perform identically on your laptop, data center, and cloud! Kubernetes provides a consistent method for deploying applications on any platform, making it easy to grow. By efficiently orchestrating Docker containers, Kubernetes simplifies tasks like rolling upgrades, scaling, and self-healing. About the book *Learn Kubernetes in a Month of Lunches* is your guide to getting up and running with Kubernetes. You'll progress from Kubernetes basics to essential skills, learning to model, deploy, and manage applications in production. Exercises demonstrate how Kubernetes works with multiple languages and frameworks. You'll also practice with new apps, legacy code, and serverless functions. What's inside

Deploying applications on Kubernetes clusters
Understanding the Kubernetes app lifecycle, from packaging to rollbacks
Self-healing and scalable apps
Using Kubernetes as a platform for new technologies
About the reader
For readers familiar with Docker and containerization. About the author
Elton Stoneman is a Docker Captain, a 11-time Microsoft MVP, and the author of *Learn Docker in a Month of Lunches*.

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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

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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

Even small applications have dozens of components. Large applications may have thousands, which makes them challenging to install, maintain, and remove. Docker bundles all application components into a package called a container that keeps things tidy and helps manage any dependencies on other applications or infrastructure. Docker in Action, Second Edition teaches you the skills and knowledge you need to create, deploy, and manage applications hosted in Docker containers. This bestseller has been fully updated with new examples, best practices, and entirely new chapters. You'll start with a clear explanation of the Docker model and learn how to package applications in containers, including techniques for testing and distributing applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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Kubeflow simplifies and automates machine learning tasks like interactive analysis, complex pipelines, and model training. Seamlessly push models to production in the containerized and distributed environment and scale your ML infrastructure from your laptop to a Kubernetes cluster. Kubeflow in Action shows you how to utilize Kubeflow to rapidly scale machine learning projects from a laptop to a distributed cluster. You'll kick off with a rapid introduction to containers, benefit from careful guidance on Kubeflow's installation and initial setup, and master core Kubeflow tasks like storing data, training models, and monitoring metrics. Detailed use cases help show how to construct complex pipelines, automate hyperparameter tuning, and implement network architecture search. You'll quickly progress to a deep dive into Kubeflow's more advanced uses, including training distributed models, deployment, A/B testing, and infrastructure monitoring to help trigger actions based on incoming data. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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