

Kubernetes Resources Reference From The Openapi S

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*Kubernetes Resources
Reference From The
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2021-12-15

CARLY JOVANY

End-to-End Automation with Kubernetes and Crossplane Packt Publishing Ltd
Gain hands-on experience of installing OpenShift Origin 3.9 in a production configuration and managing applications using the platform you built
Key Features
Gain hands-on experience of working with Kubernetes and Docker
Learn how to deploy and manage applications in OpenShift
Get a practical approach to managing applications on a cloud-based platform
Explore multi-site and HA architectures of OpenShift for production
Book Description
Docker containers transform application delivery technologies to make them faster and more reproducible, and to reduce the amount of time wasted on configuration. Managing Docker containers in the multi-node or multi-datacenter environment is a big challenge, which is why container management platforms are required. OpenShift is a new generation of container management platforms built on top of both Docker and Kubernetes. It brings additional functionality to the table, something that is lacking in Kubernetes. This new functionality significantly helps software development teams to bring software development processes to a whole new level. In this book, we'll start by explaining the container architecture, Docker, and CRI-O overviews. Then, we'll look at container orchestration and Kubernetes. We'll cover OpenShift installation, and its basic and advanced components. Moving on, we'll deep dive into concepts such as deploying application OpenShift. You'll learn how to set up an end-to-end delivery pipeline while working with applications in OpenShift as a developer or DevOps. Finally, you'll discover how to properly design OpenShift in production environments. This book gives you hands-on experience of designing, building, and operating OpenShift Origin 3.9, as well as building new applications or migrating existing applications to OpenShift. What you will learn
Understand the core

concepts behind containers and container orchestration tools
Understand Docker, Kubernetes, and OpenShift, and their relation to CRI-O
Install and work with Kubernetes and OpenShift
Understand how to work with persistent storage in OpenShift
Understand basic and advanced components of OpenShift, including security and networking
Manage deployment strategies and application's migration in OpenShift
Understand and design OpenShift high availability
Who this book is for
The book is for system administrators, DevOps engineers, solutions architects, or any stakeholder who wants to understand the concept and business value of OpenShift.
[Kubernetes from scratch](#) Packt Publishing Ltd

A concise, fast-paced guide to orchestrating and deploying scalable services with Docker
About This Book
Explore the new features added to the core Docker Engine to make multi-container orchestration easy
Leverage tools such as Docker Machine, Swarm, Compose, and third-party tools such as Kubernetes, Mesosphere, and CoreOS to orchestrate containers
Use Docker Compose with Swarm and apply rolling updates for zero downtime deployments
Who This Book Is For
This book is aimed at Sysadmins and DevOps engineers who know what Docker does and are now looking to manage multiple containers on multiple hosts using the orchestration feature.
What You Will Learn
Build scalable, reliable services with Docker
See how to manage a service in Docker using Docker Swarm, Kubernetes, and Mesosphere
Discover simpler orchestration tools such as CoreOS/Fleet and Rancher Cattle
Understand cluster-wide logging, system monitoring, and troubleshooting
Build, test, and deploy containers using Continuous Integration
Deploy cluster hosts on cloud services and automate your infrastructure
In Detail
Docker orchestration is what you need when transitioning from deploying containers individually on a single host to deploying complex multi-container apps on many machines. This book covers the new orchestration features of Docker 1.12 and helps you efficiently build, test, and

deploy your application using Docker. You will be shown how to build multi-container applications using Docker Compose. You will also be introduced to the building blocks for multi-host Docker clusters such as registry, overlay networks, and shared storage using practical examples. This book gives an overview of core tools such as Docker Machine, Swarm, and Compose which will enhance your orchestration skills. You'll learn how to set up a swarm using the decentralized building block. Next, you'll be shown how to make the most out of the in-built orchestration feature of Docker engine and you'll use third-party tools such as Kubernetes, Mesosphere, and CoreOS to orchestrate your existing process. Finally, you will learn to deploy cluster hosts on cloud services and automate your infrastructure.
Style and approach
This comprehensive guide will take you through the orchestration feature of Docker. Using practical examples, you will discover various tools that can be used to manage multiple containers with ease.

Implementing DevSecOps with Docker and Kubernetes Packt Publishing Ltd
Design, build, and operate scalable and reliable Kubernetes infrastructure for 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 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.

Kubernetes Programming with Go Apress
In just five years, Kubernetes has radically changed the way developers and ops personnel build, deploy, and maintain applications in the cloud. With this book's updated third edition, you'll learn how this popular container orchestrator can help your company achieve new levels of velocity, agility, reliability, and efficiency--whether you're new to distributed systems or have been deploying cloud native apps for some time. Brendan Burns, Joe Beda, Kelsey Hightower, and Lachlan Evenson--who have worked on Kubernetes at Google and beyond--explain how this system fits into the life cycle of a distributed application. Software developers, engineers, and architects will learn ways to use tools and APIs to automate scalable distributed systems for online services, machine learning applications, or even a cluster of Raspberry Pi computers. This guide shows you how to: 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

The DevOps 2.3 Toolkit BPB Publications

This book is generated from the specifications of the Kubernetes API. It references the latest versions of all the resources: workloads, services, configuration and storage, metadata and cluster resources. For each resource, the fields are classified when necessary, and are described recursively. It contains two indices: one index of the resources and one index of the fields. This reference will help you edit the YAML manifests of your Kubernetes resources and understand all the associated concepts, through the detailed explanations for all the fields of these resources found in the OpenAPI specification of the Kubernetes API.

Kubect! Reference Packt Publishing Ltd

This graduate-level textbook is ideally suited for lecturing the most relevant topics of Edge Computing and its ties to Artificial Intelligence (AI) and Machine Learning (ML) approaches. It starts from basics and gradually advances, step-by-step, to ways AI/ML concepts can help or benefit from Edge Computing platforms. The book is structured into seven chapters; each comes with its own dedicated set of teaching materials (practical skills, demonstration videos, questions, lab assignments, etc.). Chapter 1 opens the book and comprehensively introduces the concept of distributed computing continuum systems that led to the creation of Edge Computing. Chapter 2 motivates the use of container technologies and how they are used to implement programmable edge computing platforms. Chapter 3 introduces ways to employ AI/ML approaches to optimize service lifecycles at the edge. Chapter 4 goes deeper in the use of AI/ML and introduces ways to optimize spreading computational tasks along edge computing platforms. Chapter 5 introduces AI/ML pipelines to efficiently process generated data on the edge. Chapter 6 introduces ways to implement AI/ML systems on the edge and ways to deal with their training and inferencing procedures considering the limited resources available at the edge-nodes. Chapter 7 motivates the creation of a new orchestrator independent object model to descriptive objects (nodes, applications, etc.) and requirements (SLAs) for

underlying edge platforms. To provide hands-on experience to students and step-by-step improve their technical capabilities, seven sets of Tutorials-and-Labs (TaLs) are also designed. Codes and Instructions for each TaL is provided on the book website, and accompanied by videos to facilitate their learning process.

Mastering Kubernetes Packt Publishing Ltd
The kubectl reference book describes all the commands available with the kubectl command-line interface and all their options. The kubectl tool is the used to control your Kubernetes clusters and resources.

Edge Intelligence O'Reilly Media

This book aims to introduce someone with no knowledge of containers to the world of containers with Kubernetes. I will explain step by step how you can transform a non-containerized application into a container so that it works on any container runtime that complies with the "Open Container Initiative Runtime Specification". With an introduction to Docker and similar tools. Once we understand how containers work, we will talk about how to install and manage a Kubernetes cluster for both production and testing purposes, how to manage its resources, and ultimately how to handle Kubernetes at a professional level. In summary, in this book, you will learn everything needed to start working with Kubernetes in both production, development, and integration environments. Of course, apart from reading the book, it is necessary to practice everything that is explained in it to consolidate knowledge.

Kubernetes API Reference No Starch Press

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 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, 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.

Kubernetes in Production Best Practices
"O'Reilly Media, Inc."

Conquer the CNCF Certified Kubernetes Administrator (CKA) exam KEY FEATURES ● This Kubernetes technical guide covers the entire CNCF syllabus for the CKA exam. ● Contains extensive hands-on manifest code, command line examples and task walkthroughs. ● Includes two practice CKA exams with fully-worked solutions. DESCRIPTION Kubernetes is the de facto industry-standard for production-grade container orchestration. The CNCF Certified Kubernetes Administrator (CKA) Certification is an in-demand, industry-recognised benchmark denoting the

holder as possessing the expertise required to create, secure, manage and troubleshoot Kubernetes clusters. The CNCF CKA exam is a fully hands-on, command line based assessment. This guide structure follows the CKA curriculum. Start with need-to-know Kubernetes concepts and implementation details using hands-on code examples and command line walkthroughs. You will explore core concepts including cluster architecture, installation and configuration. As the book progresses, you will master security principles with RBAC, confidently deploy and manage applications, and explore the intricacies of Kubernetes storage and networking. The following chapters on Troubleshooting and Exam Preparation provide important exam and assessment environment hints and tips, command line techniques and crucial exam strategies. The final two chapters present full-length CKA practice exams with fully-worked exam-grade solutions. This pragmatic blend of theory, worked examples, and analysis techniques ensures the reader is primed to be successful in the real Certified Kubernetes Administrator (CKA) exam. WHAT YOU WILL LEARN ● The skills and knowledge required to professionally administer Kubernetes clusters. ● Understanding of Kubernetes command line examples and task walkthroughs. ● Insight from detailed fully-worked solutions for two CKA practice exams. ● Working details for the CNCF CKA exam environment. ● How to manage Kubernetes clusters with precision and control. WHO THIS BOOK IS FOR This book is for cloud application developers, devops engineers, cloud architects and datacentre administrators who want to conquer the CNCF CKA exam, certifying their Kubernetes skills in the marketplace. TABLE OF CONTENTS 1. Introduction 2. Cluster Architecture, Installation and Configuration 3. Workloads and Scheduling 4. Services and Networking 5. Storage 6. Troubleshooting 7. CKA Exam Preparation 8. CKA Mock Exam 1 with Solutions 9. CKA Mock Exam 2 with Solutions

Containers for Developers Handbook
"O'Reilly Media, Inc."

Learn from an expert on how to use Kubernetes, the most adopted container orchestration platform. About This Book Get a detailed, hands-on exploration of everything from the basic to the most advanced aspects of Kubernetes Explore the tools behind not only the official project but also the third-party add-ons Learn how to create a wide range of tools, including clusters, Role Bindings, and Ingress Resources with default backends, among many applicable, real-word

creations Discover how to deploy and manage highly available and fault-tolerant applications at scale with zero downtime Who This Book Is For This book is for professionals experienced with Docker, looking to get a detailed overview from the basics to the advanced features of Kubernetes. What You Will Learn Let Viktor show you the wide range of features available in Kubernetes—from the basic to the most advanced features Learn how to use the tools not only from the official project but also from the wide range of third-party add-ons Understand how to create a pod, how to Scale Bids with Replica Sets, and how to install both Kubectl and Minikube Explore the meaning of terms such as container scheduler and Kubernetes Discover how to create a local Kubernetes cluster and what to do with it In Detail Building on The DevOps 2.0 Toolkit, The DevOps 2.1 Toolkit: Docker Swarm, and The DevOps 2.2 Toolkit: Self-Sufficient Docker Clusters, Viktor Farcic brings his latest exploration of the DevOps Toolkit as he takes you on a journey to explore the features of Kubernetes. The DevOps 2.3 Toolkit: Kubernetes is a book in the series that helps you build a full DevOps Toolkit. This book in the series looks at Kubernetes, the tool designed to, among other roles, make it easier in the creation and deployment of highly available and fault-tolerant applications at scale, with zero downtime. Within this book, Viktor will cover a wide range of emerging topics, including what exactly Kubernetes is, how to use both first and third-party add-ons for projects, and how to get the skills to be able to call yourself a "Kubernetes ninja." Work with Viktor and dive into the creation and exploration of Kubernetes with a series of hands-on guides. Style and approach Readers join Viktor Farcic as he continues his exploration of DevOps and begins to explore the opportunities presented by Kubernetes.

Programming Kubernetes Packt Publishing Ltd

A step-by-step guide to implement Continuous Integration and Continuous Delivery (CI/CD) for Flutter, Ionic, Android, and Angular applications. KEY FEATURES ● This book covers all Declarative Pipelines that can be utilized in real-life scenarios with sample applications written in Android, Angular, Ionic Cordova, and Flutter. ● This book utilizes the YAML Pipeline feature of Jenkins. A step-by-step implementation of Continuous Practices of DevOps makes it easy to understand even for beginners. DESCRIPTION This book brings solid practical knowledge on how to create YAML pipelines using Jenkins for

efficient and scalable CI/CD pipelines. It covers an introduction to various essential topics such as DevOps, DevOps History, Benefits of DevOps Culture, DevOps and Value Streams, DevOps Practices, different types of pipelines such as Build Pipeline, Scripted Pipeline, Declarative Pipeline, YAML Pipelines, and Blue Ocean. This book provides an easy journey to readers in creating YAML pipelines for various application systems, including Android, AngularJS, Flutter, and Ionic Cordova. You will become a skilled developer by learning how to run Static Code Analysis using SonarQube or Lint tools, Unit testing, calculating code coverage, publishing unit tests and coverage reports, verifying the threshold of code coverage, creating build/package, and distributing packages across different environments. By the end of this book, you will be able to try out some of the best practices to implement DevOps using Jenkins and YAML.

WHAT YOU WILL LEARN

- Write successful YAML Pipeline codes for Continuous Integration and Continuous Delivery.
- Explore the working of CI/CD pipelines across Android, Angular, Ionic Cordova, and Flutter apps.
- Learn the importance of Continuous Code Inspection and Code Quality.
- Understand the importance of Continuous Integration and Continuous Delivery.
- Learn to publish Unit Tests and Code Coverage in Declarative Pipelines.
- Learn to deploy apps on Azure and distribute Mobile Apps to App Centers.

WHO THIS BOOK IS FOR This book is suitable for beginners, DevOps consultants, DevOps evangelists, DevOps engineers, technical specialists, technical architects, and Cloud experts. Some prior basic knowledge of application development and deployment, Cloud computing, and DevOps practices will be helpful.

TABLE OF CONTENTS

1. Introducing Pipelines
2. Basic Components of YAML Pipelines
3. Building CI/CD Pipelines with YAML for Flutter Applications
4. Building CI/CD Pipelines with YAML for Ionic Cordova Applications
5. Building CI/CD Pipelines with YAML for Android Apps
6. Building CI/CD Pipelines with YAML for Angular Applications
7. Pipeline Best Practices

Kubernetes Resources Reference Packt Publishing Ltd

Build and deploy scalable cloud applications using Windows containers and Kubernetes

Key Features Run, deploy, and orchestrate containers on the Windows platform with this Kubernetes book

Use Microsoft SQL Server 2019 as a data store to deploy Kubernetes applications written in .NET Framework

Set up a Kubernetes development environment and deploy clusters with Windows Server 2019

nodesBook Description With the adoption of Windows containers in Kubernetes, you can now fully leverage the flexibility and robustness of the Kubernetes container orchestration system in the Windows ecosystem. This support will enable you to create new Windows applications and migrate existing ones to the cloud-native stack with the same ease as for Linux-oriented cloud applications. This practical guide takes you through the key concepts involved in packaging Windows-distributed applications into containers and orchestrating these using Kubernetes. You'll also understand the current limitations of Windows support in Kubernetes. As you advance, you'll gain hands-on experience deploying a fully functional hybrid Linux/Windows Kubernetes cluster for development, and explore production scenarios in on-premises and cloud environments, such as Microsoft Azure Kubernetes Service. By the end of this book, you'll be well-versed with containerization, microservices architecture, and the critical considerations for running Kubernetes in production environments successfully.

What you will learn

- Understand containerization as a packaging format for applications
- Create a development environment for Kubernetes on Windows
- Grasp the key architectural concepts in Kubernetes
- Discover the current limitations of Kubernetes on the Windows platform
- Provision and interact with a Kubernetes cluster from a Windows machine
- Create hybrid Windows Kubernetes clusters in on-premises and cloud environments

Who this book is for This book is for software developers, system administrators, DevOps engineers, and architects working with Kubernetes on Windows, Windows Server 2019, and Windows containers. Knowledge of Kubernetes as well as the Linux environment will help you get the most out of this book.

The Book of Kubernetes BPB Publications

Leverage Kubernetes and container architecture to successfully run production-ready workloads

Key Features

- Implement Kubernetes to orchestrate and scale applications proficiently
- Leverage the latest features of Kubernetes to resolve common as well as complex problems in a cloud-native environment
- Gain hands-on experience in securing, monitoring, and troubleshooting your application

Book 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 learn

- Deploy cloud-native applications on Kubernetes
- Automate testing in the DevOps workflow
- Discover and troubleshoot common storage issues
- Dynamically scale containerized services to manage fluctuating traffic needs
- Understand how to monitor your containerized DevOps environment
- Build DevSecOps into CI/CD pipelines

Who 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 Operator Framework Book](#)
Packt Publishing Ltd

Design, deploy, and manage large-scale containers using Kubernetes

Key Features Gain insight into the latest features of Kubernetes, including Prometheus and API aggregation

Discover ways to keep your clusters always available, scalable, and up-to-date

Master the skills of designing and deploying large clusters on various cloud platforms

Book Description If you are running a number of containers and want to be able to automate the way they're managed, it can be helpful to have Kubernetes at your disposal. This Learning Path guides you through core Kubernetes constructs, such as pods, services, replica sets, replication controllers, and labels. You'll get started

by learning how to integrate your build pipeline and deployments in a Kubernetes cluster. As you cover more chapters in the Learning Path, you'll get up to speed with orchestrating updates behind the scenes, avoiding downtime on your cluster, and dealing with underlying cloud provider instability in your cluster. With the help of real-world use cases, you'll also explore options for network configuration, and understand how to set up, operate, and troubleshoot various Kubernetes networking plugins. In addition to this, you'll gain insights into custom resource development and utilization in automation and maintenance workflows. By the end of this Learning Path, you'll have the expertise you need to progress from an intermediate to an advanced level of understanding Kubernetes. This Learning Path includes content from the following Packt products: Getting Started with Kubernetes - Third Edition by Jonathan Baier and Jesse White Mastering Kubernetes - Second Edition by Gigi Sayfan What you will learn Download, install, and configure the Kubernetes code base Create and configure custom Kubernetes resources Use third-party resources in your automation workflows Deliver applications as standard packages Set up and access monitoring and logging for Kubernetes clusters Set up external access to applications running in the cluster Manage and scale Kubernetes with hosted platforms on Amazon Web Services (AWS), Azure, and Google Cloud Platform (GCP) Run multiple clusters and manage them from a single control plane Who this book is for If you are a developer or a system administrator with an intermediate understanding of Kubernetes and want to master its advanced features, then this book is for you. Basic knowledge of networking is required to easily understand the concepts explained.

Kubernetes for Developers Packt Publishing Ltd

Is Kubernetes ready for stateful workloads? This open source system has become the primary platform for deploying and managing cloud native applications. But because it was originally designed for stateless workloads, working with data on Kubernetes has been challenging. If you want to avoid the inefficiencies and duplicative costs of having separate infrastructure for applications and data, this practical guide can help. Using Kubernetes as your platform, you'll learn open source technologies that are designed and built for the cloud. Authors Jeff Carpenter and Patrick McFadin provide case studies to

help you explore new use cases and avoid the pitfalls others have faced. You'll get an insider's view of what's coming from innovators who are creating next-generation architectures and infrastructure. With this book, you will: Learn how to use basic Kubernetes resources to compose data infrastructure Automate the deployment and operations of data infrastructure on Kubernetes using tools like Helm and operators Evaluate and select data infrastructure technologies for use in your applications Integrate data infrastructure technologies into your overall stack Explore emerging technologies that will enhance your Kubernetes-based applications in the future

DevOps with Kubernetes Apress

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.

The Complete Kubernetes Guide BPB Publications

This book begins by introducing the structure of the Kubernetes API and which operations it serves. Following chapters demonstrate how to write native Kubernetes resources definitions using Go structures defined in the API and API Machinery libraries. Miscellaneous utilities are described to help you work with different resource fields and to convert your resource definitions to or from YAML

or JSON. Next, you will learn how to interact with the Kubernetes API server to create, delete, update, and monitor resources in a cluster using the client-go library. A complete chapter is devoted to tools provided to test your programs using the client-go library. An example follows to wrap up the first part of the book, describing how to write a kubectl plugin. Next, you will learn how to extend the Kubernetes API using Custom Resource Definitions, and how to write Kubernetes resources in a generic way as well as how to create your own resources using the unstructured concept. The next chapters delve into the controller-runtime library, useful for extending Kubernetes by writing operators, and the kubebuilder framework, which leverages this library, to help you start writing operators in minutes. After reading this book, you will have a deep understanding of the Kubernetes API's structure and how Kubernetes resources are organized within it, and have at your disposal a complete toolbox to help you write Kubernetes clients and operators. What You Will Learn Understand how the Kubernetes API and its resources are organized Write Kubernetes resources in Go Create resources in a cluster Leverage your newly-gained knowledge to write Kubernetes clients and operators Who is this Book for: Software engineers and (Site Reliability Engineers) SREs wishing to write Kubernetes clients and operators using the Go language.

Kubernetes Patterns BPB Publications

A complete journey to automating infrastructure provisioning and cloud-native application deployment Key Features • Leverage Crossplane and Kubernetes for a unified automation experience of infrastructure and apps • Build a modern self-service infrastructure platform abstracting recipes and in-house policies • Clear guidance on trade-offs to manage Kubernetes configuration and ecosystem tools Book Description In the last few years, countless organizations have taken advantage of the disruptive application deployment operating model provided by Kubernetes. With Crossplane, the same benefits are coming to the world of infrastructure provisioning and management. The limitations of Infrastructure as Code with respect to drift management, role-based access control, team collaboration, and weak contract make people move towards a control-plane-based infrastructure automation, but setting it up requires a lot of know-how and effort. This book will cover a detailed journey to building a control-plane-based infrastructure automation platform with Kubernetes and Crossplane. The cloud-

native landscape has an overwhelming list of configuration management tools that can make it difficult to analyze and choose. This book will guide cloud-native practitioners to select the right tools for Kubernetes configuration management that best suit the use case. You'll learn about configuration management with hands-on modules built on popular configuration management tools such as Helm, Kustomize, Argo, and KubeVela. The hands-on examples will be patterns that one can directly use in their work. By the end of this book, you'll be well-versed with building a modern infrastructure automation platform to unify application and infrastructure automation. What you will learn

- Understand the context of Kubernetes-based infrastructure automation
- Get to grips with Crossplane concepts with the help of practical examples
- Extend Crossplane to build a modern infrastructure automation platform
- Use the right configuration management tools in the Kubernetes environment
- Explore patterns to unify application and infrastructure automation
- Discover top engineering practices for infrastructure platform as a product

Who this book is for This book is for cloud architects, platform engineers, infrastructure or application operators, and Kubernetes enthusiasts who want to simplify infrastructure and application automation. A basic understanding of Kubernetes and its building blocks like Pod, Deployment, Service, and Namespace is needed before you can get started with

this book.

Certified Kubernetes Application Developer (CKAD) Study Guide Packt Publishing Ltd

Master core Kubernetes concepts important to enterprises from security, policy, and management point-of-view. Learn to deploy a service mesh using Istio, build a CI/CD platform, and provide enterprise security to your clusters. Key Features

- Extensively revised edition to cover the latest updates and new releases along with two new chapters to introduce Istio
- Get a firm command of Kubernetes from a dual perspective of an admin as well as a developer
- Understand advanced topics including load balancing, externalDNS, global load balancing, authentication integration, policy, security, auditing, backup, Istio and CI/CD

Book Description Kubernetes has taken the world by storm, becoming the standard infrastructure for DevOps teams to develop, test, and run applications. With significant updates in each chapter, this revised edition will help you acquire the knowledge and tools required to integrate Kubernetes clusters in an enterprise environment. The book introduces you to Docker and Kubernetes fundamentals, including a review of basic Kubernetes objects. You'll get to grips with containerization and understand its core functionalities such as creating ephemeral multinode clusters using KinD. The book has replaced PodSecurityPolicies (PSP) with OPA/Gatekeeper for PSP-like enforcement. You'll integrate your

container into a cloud platform and tools including MetalLB, externalDNS, OpenID connect (OIDC), Open Policy Agent (OPA), Falco, and Velero. After learning to deploy your core cluster, you'll learn how to deploy Istio and how to deploy both monolithic applications and microservices into your service mesh. Finally, you will discover how to deploy an entire GitOps platform to Kubernetes using continuous integration and continuous delivery (CI/CD). What you will learn

- Create a multinode Kubernetes cluster using KinD
- Implement Ingress, MetalLB, ExternalDNS, and the new sandbox project, K8GB
- Configure a cluster OIDC and impersonation
- Deploy a monolithic application in Istio service mesh
- Map enterprise authorization to Kubernetes
- Secure clusters using OPA and GateKeeper
- Enhance auditing using Falco and ECK
- Back up your workload for disaster recovery and cluster migration
- Deploy to a GitOps 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.