

The Kubernetes

Kubernetes: Up and Running *Managing Kubernetes* *Kubernetes in Action* **Learn Kubernetes in a Month of Lunches** **The Kubernetes Bible** **Mastering Kubernetes** **Kubernetes on AWS** **The Complete Kubernetes Guide** Core Kubernetes Getting Started with Kubernetes, Second Edition *The Kubernetes Book* **Mastering Kubernetes** *Hands-On Kubernetes on Windows* **kubect!l: Command-Line Kubernetes in a Nutshell** *Kubernetes in Production* *Best Practices* Production Kubernetes Cloud Native DevOps with Kubernetes **DevOps with Kubernetes** The The Kubernetes Workshop **Kubernetes Patterns** *Kubernetes Best Practices* Cloud Native with Kubernetes **Mastering Azure Kubernetes Service (AKS)** Cloud Native Microservices with Spring and Kubernetes **Beginning Kubernetes on the Google Cloud Platform** **Learn Kubernetes Security** **Advanced Platform Development with Kubernetes** Kubernetes Cookbook **Rancher Deep Dive** **Introduction to DevOps with Kubernetes** *Kubernetes Cracking Containers with Docker and Kubernetes* *Introducing Azure Kubernetes Service* **Kubernetes** *Kubernetes Cookbook* *DevOps with Kubernetes* **Kubernetes** **Kubernetes** **Programming Kubernetes** **Kubernetes – An Enterprise Guide**

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Kubernetes Dec 02 2019 Would you like to manage your work easily and effectively and live a stress-free life? Do you have the zeal to make a big impact in the world of technology but you don't have the adequate knowledge to do so? Or maybe, you have heard about Kubernetes and its usefulness and you want to learn about it? If your answer is "yes" to at least one of these questions, then this audiobook is for you. Kubernetes is a language that's gradually dominating the programming world as it's becoming the future of app development and no other bbook teaches it better than this one. It contains useful tricks and tips that would help you perform difficult tasks with just a simple command and these teachings are done with clear representations making it very easy to understand. Kubernetes (commonly stylized as k8s, a numeronym or Kube) is an open-source container orchestration system for automating application deployment, scaling, and management. It's regarded as the future of app development because it allows you to deploy cloud-native applications anywhere and manage them exactly as you like. It's a must-learn especially if you are planning on maintaining a long term career in this field and thankfully, Robert Clarke has formulated an book that teaches it excellently and it can be yours for just a token. Here are some of the few reasons why you shouldn't miss it; GETTING STARTED WITH KUBERNETES: Prepare yourself for challenging technical assessments with this mind-blowing book. It teaches you everything you need to know about Kubernetes without wasting your time with outdated information. It doesn't only show you step by step procedures on how to make Kubernetes work for you but it also provides you with lessons formulated by professionals. EASY TO UNDERSTAND: Mastering Kubernetes has always been a problem for so many people. It's indeed complicated but with this fascinating book, you would be able to learn it with ease. It shows detail representations of commands and the teachings can be easily comprehended by both advanced learners and beginners. It's impossible not to understand the teachings of this book LEARN NEW TRICKS AND TIPS: Sometimes what it really takes to work efficiently are some little tweak here and there. You can perform strenuous tasks with just a single line of command and this book is jam-packed with such useful and helpful tips that would increase the efficiency of your work. It would help you in ways you can't imagine, making sure you get the best results at a quicker time. IDEAL GIFT: If you're not too into the programming world and you know someone who is and you would like to surprise that person with a wonderful gift, give him this epic book and be dazzled by his reaction. This book is capable of enlightening a person in a very special way, teaching tips and tricks in Kubernetes that cannot be found anywhere else so anybody would be glad to behold it. Whether you're a beginner or an advanced learner you would gain a lot from this epic book so much so that you would be forced to come back here and drop your testimony. Step into a new world of automating application deployment and scaling as well as management by leveraging the full power of Kubernetes with this breath-taking book.

Cloud Native DevOps with Kubernetes Aug 22 2021 Kubernetes is the operating system of the cloud native world, providing a reliable and scalable platform for running containerized workloads. In this friendly, pragmatic book, cloud experts John Arundel and Justin Domingus show you what Kubernetes can do—and what you can do with it. You'll learn all about the Kubernetes ecosystem, and use battle-tested solutions to everyday problems. You'll build, step by step, an example cloud native application and its supporting infrastructure, along with a development environment and continuous deployment pipeline that you can use for your own applications. Understand containers and Kubernetes from first principles; no experience necessary Run your own clusters or choose a managed Kubernetes service from Amazon, Google, and others Use Kubernetes to manage resource usage and the container lifecycle Optimize clusters for cost, performance, resilience, capacity, and scalability Learn the best tools for developing, testing, and deploying your applications Apply the latest industry practices for security, observability, and monitoring Adopt DevOps principles to help make your development teams lean, fast, and effective

Kubernetes Best Practices Apr 17 2021 You've learned everything there is to know about Kubernetes. Now it's time to put that knowledge into practice. With this practical book, tech leads, DevOps engineers, developers, and architects will learn real-world best practices for putting Kubernetes into action with actual applications. You'll understand how to build and deploy complete solutions in Kubernetes--everything from CI/CD to application design, deployments, and experiments. You'll also learn how other companies have delivered solutions in Kubernetes.

Cracking Containers with Docker and Kubernetes May 07 2020 A book that will help you become the Mozart of Microservices KEY FEATURES ? All codes tested on the latest software versions with visual illustrations. ? Covers bleeding-edge DevOps skills to build a future-proof job profile. ? Includes expert advice, industry insights, and logical analogies to craft a technical narrative. DESCRIPTION “Cracking Containers with Docker and Kubernetes” aims to be a comprehensive guide for learning and referencing all of the essential topics related to creating, managing, and running containers with Docker and Kubernetes. Students and professionals working on Containerized web applications can use this book to lay strong conceptual foundations and sharpen their skills. The first few chapters provide an overall picture of resource virtualization in computing and demonstrate the potential of containers. The intermediate chapters get to extensive detail about Docker and Kubernetes. You will gain in-demand skills such as Docker and Kubernetes CLI, as well as how to write Dockerfiles, Compose files, and Kubernetes YAML Manifests. Topics like Networking, Storage, Access Control, and Security are discussed with real-world implications. The final chapters move Kubernetes and Containers to the cloud while expanding their ecosystem with tools for Serverless deployment, logging and monitoring, CI/CD, and more for a highly available production-ready setup. After reading this book you will be able to plan your application’s migration to containers, prepare for Docker and Kubernetes Certifications, or apply for six digit DevOps jobs. WHAT YOU WILL LEARN ? Learn to create, manage and orchestrate Containers using Docker and Kubernetes. ? Practice writing Dockerfiles, Compose Files and Kubernetes YAML Manifests. ? Perform container networking, storage, authorization, security, and scaling in a production environment. ? Explore shipping, CI/CD, Service Mesh, Logging & Monitoring in detail. ? Get the Cracking Containers with Docker and Kubernetes know-how of hosted and Serverless Kubernetes on Cloud. WHO THIS BOOK IS FOR This book is intended for students, enthusiasts, and professionals in Software Development, DevOps, and Cloud Computing who want to put their career progress on a pedestal by reducing the operational and scaling costs of their web applications and optimizing their IT infrastructure utilization. TABLE OF CONTENTS 1. Prologue to the Containers 2. Hello Containers! 3. Introduction to Docker 4. Writing Dockerfiles 5. Gearing up the toolbox! 6. Connectivity and Storage 7. Multi Container Applications with Docker Compose 8. Container Orchestration with Docker Swarm 9. Introduction to Kubernetes 10. Workload Orchestration with Kubernetes 11. Networking and Storage with Kubernetes 12. Advanced Orchestration with Kubernetes 13. Hosted Kubernetes on Cloud 14. Containers in Production with GKE 15. Serverless Containers 16. The Checkpoint

Introduction to DevOps with Kubernetes Jul 09 2020 Become familiar with Kubernetes and explore techniques to manage your containerized workloads and services Key FeaturesLearn everything from creating a cluster to monitoring applications in KubernetesUnderstand and develop DevOps primitives using KubernetesUse Kubernetes to solve challenging real-life DevOps problemsBook Description Kubernetes and DevOps are the two pillars that can keep your business at the

top by ensuring high performance of your IT infrastructure. Introduction to DevOps with Kubernetes will help you develop the skills you need to improve your DevOps with the power of Kubernetes. The book begins with an overview of Kubernetes primitives and DevOps concepts. You'll understand how Kubernetes can assist you with overcoming a wide range of real-world operation challenges. You will get to grips with creating and upgrading a cluster, and then learn how to deploy, update, and scale an application on Kubernetes. As you advance through the chapters, you'll be able to monitor an application by setting up a pod failure alert on Prometheus. The book will also guide you in configuring Alertmanager to send alerts to the Slack channel and trace down a problem on the application using kubectl commands. By the end of this book, you'll be able to manage the lifecycle of simple to complex applications on Kubernetes with confidence. What you will learn Create and manage Kubernetes clusters in on-premise systems and cloud Exercise various DevOps practices using Kubernetes Explore configuration, secret, and storage management, and exercise these on Kubernetes Perform different update techniques and apply them on Kubernetes Use the built-in scaling feature in Kubernetes to scale your applications up and down Use various troubleshooting techniques and have a monitoring system installed on Kubernetes Who this book is for If you are a developer who wants to learn how to apply DevOps patterns using Kubernetes, then this book is for you. Familiarity with Kubernetes will be useful, but not essential.

Production Kubernetes Sep 22 2021 Kubernetes has become the dominant container orchestrator, but many organizations that have recently adopted this system are still struggling to run actual production 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

Kubernetes in Action Nov 05 2022 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 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 Managing pods' computational resources Automatic scaling of pods and cluster nodes Advanced scheduling Best practices for developing apps Extending Kubernetes

Kubernetes on AWS Jul 01 2022 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 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.

Mastering Azure Kubernetes Service (AKS) Feb 13 2021 Become an expert in running containerization operations using serverless Kubernetes and Microsoft Azure KEY FEATURES ? Includes production ready examples and demonstration on the use of Azure Kubernetes Service. ? In detail coverage on Kubernetes administration, security aspects, and container deployment. ? Cutting edge coverage on best practices for end to end enterprise containerization. ? Includes Serverless Kubernetes and Kubernetes based Event-Driven Autoscaling (KEDA). DESCRIPTION This book teaches you how to build, deploy, and manage the Azure Kubernetes Service cluster on both Linux and Windows operating systems. It includes new capabilities of Kubernetes like Serverless Kubernetes using Virtual Kubelet and Kubernetes based Event-Driven Autoscaling (KEDA). The book builds strong hold on foundational concepts of containers and Kubernetes. It explores the container-based offerings on Azure and looks at all necessary Azure container-based services required to work on Azure Kubernetes Service. It deals with creating an Azure Kubernetes cluster, deploying to the cluster, performing operational activities on the cluster, and monitoring and troubleshooting issues on the cluster. You will explore different options and tool sets like Kubectl commands, Azure CLI commands, and Helm Charts to work on the Azure Kubernetes Service cluster. Furthermore, it covers advanced areas like Serverless Kubernetes using Virtual Kubelet, Kubernetes based Event-Driven Autoscaling (KEDA), and the Azure Kubernetes Service cluster on Windows. It explains how to build Azure DevOps pipelines for deployments on Azure Kubernetes Service. By the end of this book, you become proficient in Azure Kubernetes Service and equips yourself with all the necessary skills to design and build production-grade containerized solutions using Azure Kubernetes Service. WHAT YOU WILL LEARN ? Build strong fundamentals of Azure Kubernetes Service and Containerization. ? Learn to administer, manage, and monitor Azure Kubernetes Service. ? Run Linux and Windows-based workloads on Azure Kubernetes Service. ? Practice how to deploy Serverless Kubernetes using Kubelet and KEDA. ? Learn to work with kubectl commands, Helm Charts, and Azure DevOps. ? Explore best practices to design and implement Azure Kubernetes Service enterprise-wide. WHO THIS BOOK IS FOR This book is for all Docker and DevOps professionals who wish to get upskilled to know how to use Azure Kubernetes Service and become an expert in implementing it across the enterprise. Software Architects and Developers proficient in Azure fundamentals can also make use of this book to get expert practical knowledge on Azure Kubernetes Service. AUTHOR BIO Abhishek Mishra is an architect with a leading Fortune 500 software multinational company and is an expert in designing and building Enterprise-grade Intelligent Azure and .NET based architectures. He is an expert in .NET Full-stack, Azure (PaaS, IaaS, Serverless), Infrastructure as Code, Azure Machine Learning, Intelligent Azure (Azure Bot Services and Cognitive Services), and Robotics Process Automation. He has a rich 15+ years of experience working across top organizations in the industry. He loves blogging and is an active blogger on C# Corner. He has been awarded C# Corner Most Valuable Professional (MVP) - December 2018, December 2019, and December 2020 three times in a row for his contributions to the developer community. He is an active speaker and delivers sessions on Azure. He has spoken in leading conferences like C# Corner Azure Conference 2020, nopCommerce Days 2019 Mumbai, C# Corner Pune Conference 2019, Global Power Platform Bootcamp Pune, and many more. Certifications to his credit – TOGAF Certified, Microsoft Certified Solutions Associate in Machine Learning, Microsoft Certified Azure Developer Associate, and many more

Core Kubernetes Apr 29 2022 Take a deep dive into Kubernetes inner components and discover what really powers a Kubernetes cluster. This in-depth guide shines a light on Kubernetes' murky internals, to help you better plan cloud native architectures and ensure the reliability of your systems. To build and operate reliable Kubernetes-based systems, you need to understand what's going on below the surface. Core Kubernetes is an in-depth guide to Kubernetes' internal workings written by Kubernetes contributors Chris Love and Jay Vyas. It's packed with experience-driven insights and advanced techniques you won't find anywhere else. You'll understand the unique security concerns of container-based applications, minimize costly unused capacity, and get pro tips for maximizing performance. Diagrams, labs, and hands-on examples ensure that the complex ideas are easy to understand and practical to apply.

Getting Started with Kubernetes, Second Edition Mar 29 2022 Learn how to schedule and run application containers using Kubernetes. About This Book* Get well-versed with the fundamentals of Kubernetes and get it production-ready for deployments* Confidently manage your container clusters and networks using Kubernetes* This practical guide will show you container application examples throughout to illustrate the concepts and features of Kubernetes Who This Book Is

For This book is for developers, sys admins, and DevOps engineers who want to automate the deployment process and scale their applications. You do not need any knowledge about Kubernetes. What You Will Learn* Download, install, and configure the Kubernetes codebase* Understand the core concepts of a Kubernetes cluster* Be able to set up and access monitoring and logging for Kubernetes clusters* Set up external access to applications running in the cluster* Understand how CoreOS and Kubernetes can help you achieve greater performance and container implementation agility* Run multiple clusters and manage from a single control plane* Explore container security as well as securing Kubernetes clusters* Work with third-party extensions and tools In Detail Kubernetes has continued to grow and achieve broad adoption across various industries, helping you to orchestrate and automate container deployments on a massive scale. This book will give you a complete understanding of Kubernetes and how to get a cluster up and running. You will develop an understanding of the installation and configuration process. The book will then focus on the core Kubernetes constructs such as pods, services, replica sets, replication controllers, and labels. You will also understand how cluster level networking is done in Kubernetes. The book will also show you how to manage deployments and perform updates with minimal downtime. Additionally, you will learn about operational aspects of Kubernetes such as monitoring and logging. Advanced concepts such as container security and cluster federation will also be covered. Finally, you will learn about the wider Kubernetes ecosystem with OCP, CoreOS, and Tectonic and explore the third-party extensions and tools that can be used with Kubernetes. By the end of the book, you will have a complete understanding of the Kubernetes platform and will start deploying applications on it. Style and approach This straightforward guide will help you understand how to move your container applications into production through best practices and a step-by-step walkthrough tied to real-world operational strategies.

Hands-On Kubernetes on Windows Dec 26 2021 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 nodes Book 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.

Cloud Native Microservices with Spring and Kubernetes Jan 15 2021 Build and deploy scalable cloud native microservices using the Spring framework and Kubernetes. KEY FEATURES ? Complete coverage on how to design, build, run, and deploy modern cloud native microservices. ? Includes numerous sample code exercises on microservices, Spring and Kubernetes. ? Develop a stronghold on Kubernetes, Spring, and the microservices architecture. ? Complete guide of application containerization on Kubernetes containers. ? Coverage on managing modern applications and infrastructure using observability tools. DESCRIPTION The main objective of this book is to give an overview of cloud native microservices, their architecture, design patterns, best practices, real use cases and practical coverage of modern applications. This book covers a strong understanding of the fundamentals of microservices, API first approach, Testing, observability, API Gateway, Service Mesh and Kubernetes alternatives of Spring Cloud. This book covers the implementation of various design patterns of developing cloud native microservices using Spring framework docker and Kubernetes libraries. It covers containerization concepts and hands-on lab exercises like how to build, run and manage microservices applications using Kubernetes. After reading this book, the readers will have a holistic understanding of building, running, and managing cloud native microservices applications on Kubernetes containers. WHAT YOU WILL LEARN ? Learn fundamentals of microservice and design patterns. ? Learn microservices development using Spring Boot and Kubernetes. ? Learn to develop reactive, event-driven, and batch microservices. ? Perform end-to-end microservices testing using Cucumber. ? Implement API gateway, authentication & authorization, load balancing, caching, rate limiting. ? Learn observability and monitoring techniques of microservices. WHO THIS BOOK IS FOR This book is for the Spring Developers, Microservice Developers, Cloud Engineers, DevOps Consultants, Technical Architect and Solution Architects, who have some familiarity with application development, Docker and Kubernetes containers. TABLE OF CONTENTS 1. Overview of Cloud Native microservices 2. Microservice design patterns 3. API first approach 4. Build microservices using the Spring Framework 5. Batch microservices 6. Build reactive and event-driven microservices 7. The API gateway, security, and distributed caching with Redis 8. Microservices testing and API mocking 9. Microservices observability 10. Containers and Kubernetes overview and architecture 11. Run microservices on Kubernetes 12. Service Mesh and Kubernetes alternatives of Spring Cloud

The Kubernetes Book Feb 25 2022 April 2021 edition. Brought to you by best-selling author and video trainer, Nigel Poulton. Every page and every example has been checked and updated against the latest versions of Kubernetes (1.20+) and the latest trends in the cloud-native ecosystem. Containers have revolutionized the way we package and run applications. However, like most things, containers come with a bunch of challenges. This is where Kubernetes comes into play. Kubernetes helps you deploy and manage containerized applications at scale. It also abstracts the underlying infrastructure so that you don't need to care if you're deploying applications to Amazon Web Services, Microsoft Azure, or your own on-premises datacenter. With Kubernetes, you can develop applications on your laptop, deploy to your favourite cloud platform, migrate to a different cloud platform, and even migrate to your on-premises datacenters. The Kubernetes Book starts from the beginning, explains all concepts in a clear and friendly way, and covers everything you need to become proficient at Kubernetes. You'll learn: - Kubernetes architecture - How to build Kubernetes - How to deploy, self-heal, scale, and perform rolling updates on applications - What the Kubernetes API is and how it works - How to secure Kubernetes - The meaning of terms such as; cloud-native, microservices, desired state, containerized, and more... Finally, Kubernetes and cloud technologies are developing fast! That's why this book will be updated every year, meaning it's always up-to-date with the latest versions of Kubernetes and the latest trends in the cloud-native ecosystem.

The The Kubernetes Workshop Jun 19 2021 This workshop takes you through a Kubernetes-oriented application delivery pipeline in a practical way. You'll learn how to manage containers efficiently and scale and stabilize cloud-native applications using Kubernetes.

Kubernetes: Up and Running Jan 07 2023 Legend has it that Google deploys over two billion application containers a week. How's that possible? Google revealed the secret through a project called Kubernetes, an open source cluster orchestrator (based on its internal Borg system) that radically simplifies the task of building, deploying, and maintaining scalable distributed systems in the cloud. This practical guide shows you how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency. Authors Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and other organizations—explain how this system fits into the lifecycle of a distributed application. You will learn how to use tools and APIs to automate scalable distributed systems, whether it is for online services, machine-learning applications, or a cluster of Raspberry Pi computers. Explore the distributed system challenges that Kubernetes addresses Dive into containerized application development, using containers such as Docker Create and run containers on Kubernetes, using the docker image format and container runtime Explore specialized objects essential for running applications in production Reliably roll out new software versions without downtime or errors Get examples of how to develop and deploy real-world applications in Kubernetes

Learn Kubernetes in a Month of Lunches Oct 04 2022 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! about the technology Create apps that 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.

Kubernetes Patterns May 19 2021 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 cover more advanced topics such as extending the platform with operators.

Kubernetes in Production Best Practices Oct 24 2021 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.

Mastering Kubernetes Jan 27 2022 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 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-level book provides a smooth pathway to mastering Kubernetes.

Kubernetes Jun 07 2020 Master all the concepts and tools necessary to start administering a Kubernetes cluster and deploying applications to production. You will cover the entire curricula of the two Kubernetes certifications (for application developers and administrators). The initial chapters guide you through deployment of a Kubernetes cluster on virtual machines and explore the different components of the control plane. Next, you will work with the kubectl command-line tool; namespaces, labels, selectors, and annotations—common resources used through the Kubernetes API. The following chapters describe the principle of controllers and detail how workload controllers work as well as the possibilities for configuring deployed applications. You will also learn how to deploy a scalable and self-healing application, how pods are scheduled to nodes, how parts of the application can communicate, and how the application is discoverable from the outside. Next, you will cover security concerns describing the different authentication methods, the RBAC authorization mode, security contexts, network policies, and how to secure container images. You will also cover using persistent volumes for your containers to store long-term data, monitoring your clusters and applications and implementing design patterns for multi-container pods. The concluding chapters guide you through the upgrade of your deployed cluster. After reading this book, you will have enough knowledge to deploy a complex application using a Kubernetes cluster and be ready for the certification exams. What You Will Learn Deploy a Kubernetes cluster with kubeadm and learn how the control plane works Discover how the Kubernetes API is structured Deploy secure, auto-scaled, and self-healing applications Master the kubectl command-line tool Who This Book Is For Administrators and application developers with good knowledge of micro-services development and deployment.

Cloud Native with Kubernetes Mar 17 2021 Harness Kubernetes' extensibility to deploy modern patterns and learn to effectively handle production issues Key Features Build and run efficient cloud-native applications on Kubernetes using industry best practices Operate Kubernetes in a production environment, troubleshoot clusters, and address security concerns Deploy cutting-edge Kubernetes patterns such as service mesh and serverless to your cluster Book Description Kubernetes is a modern cloud native container orchestration tool and one of the most popular open source projects worldwide. In addition to the technology being powerful and highly flexible, Kubernetes engineers are in high demand across the industry. This book is a comprehensive guide to deploying, securing, and operating modern cloud native applications on Kubernetes. From the fundamentals to Kubernetes best practices, the book covers essential aspects of configuring applications. You'll even explore real-world techniques for running clusters in production, tips for setting up observability for cluster resources, and valuable troubleshooting techniques. Finally, you'll learn how to extend and customize Kubernetes, as well as gaining tips for deploying service meshes, serverless tooling, and more on your cluster. By the end of this Kubernetes book, you'll be equipped with the tools you need to confidently run and extend modern applications on Kubernetes. What you will learn Set up Kubernetes and configure its authentication Deploy your applications to Kubernetes Configure and provide storage to Kubernetes applications Expose Kubernetes applications outside the cluster Control where and how applications are run on Kubernetes Set up observability for Kubernetes Build a continuous integration and continuous deployment (CI/CD) pipeline for Kubernetes Extend Kubernetes with service meshes, serverless, and more Who this book is for This book is for developers, architects, DevOps engineers, or anyone interested in developing and managing cloud-native applications. Those already running cloud applications and looking for a better way to manage their platform or others interested in a career change given the recent popularity of Kubernetes will also find this book helpful. Some familiarity with cloud computing, containers and DevOps is required, but no prior knowledge of building production applications using Kubernetes is needed to get started with this book.

Introducing Azure Kubernetes Service Apr 05 2020 Go from zero to sixty deploying and running a Kubernetes cluster on Microsoft Azure! This hands-on practical guide to Microsoft's Azure Kubernetes Service (AKS), a managed container orchestration platform, arms you with the tools and knowledge you need to easily deploy and operate on this complex platform. Take a journey inside Docker containers, container registries, Kubernetes architecture, Kubernetes components, and core Kubectl commands. Drawing on hard-earned experience in the field, the authors provide just enough theory to help you grasp important concepts, teaching the practical straightforward knowledge you need to start running your own AKS cluster. You will dive into topics related to the deployment and operation of AKS, including Rancher for management, security, networking, storage, monitoring, backup, scaling, identity, package management with HELM, and AKS in CI/CD. What You Will Learn Develop core knowledge of Docker containers, registries, and Kubernetes Gain AKS skills for Microsoft's fastest growing services in the cloud Understand the pros and cons of deploying and operating AKS Deploy and manage applications on the AKS platform Use AKS within a DevOps CI/CD process Who This Book Is For IT professionals who work with DevOps, the cloud, Docker, networking, storage, Linux, or Windows. Experience with cloud, DevOps, Docker, or application development is helpful.

Beginning Kubernetes on the Google Cloud Platform Dec 14 2020 Use this beginner's guide to understand and work with Kubernetes on the Google Cloud Platform and go from single monolithic Pods (the smallest unit deployed and managed by Kubernetes) all the way up to distributed, fault-tolerant stateful backing stores. You need only a familiarity with Linux, Bash, and Python to successfully use this book. Proficiency in Docker or cloud technology is not required. You will follow a learn-by-doing approach, running small experiments and observing the effects. Google open sourced Kubernetes in 2015 and now it is the industry standard in container orchestration. It has been adopted by all leading vendors of cloud, on-prem, and hybrid infrastructure services: Microsoft (Azure AKS), Amazon (AWS EKS), IBM (IBM Cloud Kubernetes Services), Alibaba Cloud (ACK), RedHat (OpenShift), and Pivotal (PKS). Even though Kubernetes is offered by all of the market-leading cloud providers, the Google Cloud Platform (GCP) offers an integrated shell (Google Cloud Shell) and a \$300 credit to get started, which makes it the ideal platform to not only learn Kubernetes but also to implement final production workloads.

What You Will Learn Set up a Kubernetes cluster in GCPDeploy simple Docker images using monolithic PodsArrange highly available and highly scalable applications using DeploymentsAchieve zero-downtime deployments using the Service controllerExternalize configuration using ConfigMaps and SecretsSet up batch processes and recurrent tasks using Jobs and CronJobsInstall horizontal (sidecar pattern) services using DaemonSetsImplement distributed, stateful backing stores using StatefulSets Who This Book Is For Beginners with basic Linux admin and scripting skills (Bash and Python). Proficiency with Docker is not required as all examples in the book use off-the-shelf public images from Docker Hub.

Rancher Deep Dive Aug 10 2020 Effectively build, manage, and secure your Kubernetes workloads to implement CI/CD Key FeaturesGain a complete understanding of how Rancher worksDiscover how to design and deploy Kubernetes clusters using RancherUnderstand how to extend Kubernetes and Rancher's capabilities to take your apps to the next levelBook Description Knowing how to use Rancher enables you to manage multiple clusters and applications without being locked into a vendor's platform. This book will guide you through Rancher's capabilities while deepening your understanding of Kubernetes and helping you to take your applications to a new level. The book begins by introducing you to Rancher and Kubernetes, helping you to learn and implement best practices. As you progress through the chapters, you'll understand the strengths and limitations of Rancher and Kubernetes and discover all the different ways to deploy Rancher. You'll also find out how to design and deploy Kubernetes clusters to match your requirements. The concluding chapters will show you how to set up a continuous integration and continuous deployment (CI/CD) pipeline for deploying applications into a Rancher cluster, along with covering supporting services such as image registries and Helm charts. By the end of this Kubernetes book, you'll be able to confidently deploy your mission-critical production workloads on Rancher-managed Kubernetes clusters. What you will learnDeploy Rancher in a production-ready configurationArchitect an application cluster to support mission-critical workloadsBuild the type of Kubernetes cluster that makes sense for your environmentDiscover the tools and services needed to make a new, ready-to-deploy clusterPrepare your applications to be deployed into Rancher for KubernetesExpand your Kubernetes cluster by providing additional services such as Longhorn, OPA, and monitoringWho this book is for This book is for DevOps engineers looking to deploy Kubernetes in a fast and easy way. A basic understanding of Linux administration and containerization is needed to get the most out of this book.

The Kubernetes Bible Sep 03 2022 Get up and running with Kubernetes 1.19 and simplify the way you build, deploy, and maintain scalable distributed systems Key Features Design and deploy large clusters on various cloud platforms Explore containerized application deployment, debugging, and recovery with the latest Kubernetes version 1.19 Become well-versed with advanced Kubernetes topics such as traffic routing or Pod autoscaling and scheduling Book Description With its broad adoption across various industries, Kubernetes is helping engineers with the orchestration and automation of container deployments on a large scale, making it the leading container orchestration system and the most popular choice for running containerized applications. This Kubernetes book starts with an introduction to Kubernetes and containerization, covering the setup of your local development environment and the roles of the most important Kubernetes components. Along with covering the core concepts necessary to make the most of your infrastructure, this book will also help you get acquainted with the fundamentals of Kubernetes. As you advance, you'll learn how to manage Kubernetes clusters on cloud platforms, such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP), and develop and deploy real-world applications in Kubernetes using practical examples. Additionally, you'll get to grips with managing microservices along with best practices. By the end of this book, you'll be equipped with battle-tested knowledge of advanced Kubernetes topics, such as scheduling of Pods and managing incoming traffic to the cluster, and be ready to work with Kubernetes on cloud platforms. What you will learn Manage containerized applications with Kubernetes Understand Kubernetes architecture and the responsibilities of each component Set up Kubernetes on Amazon Elastic Kubernetes Service, Google Kubernetes Engine, and Microsoft Azure Kubernetes Service Deploy cloud applications such as Prometheus and Elasticsearch using Helm charts Discover advanced techniques for Pod scheduling and auto-scaling the cluster Understand possible approaches to traffic routing in Kubernetes Who this book is for This book is for software developers and DevOps engineers looking to understand how to work with Kubernetes for orchestrating containerized applications and services in the cloud. Prior experience with designing software running in operating system containers, as well as a general background in DevOps best practices, will be helpful. Basic knowledge of Kubernetes, Docker, and leading cloud service providers assist with grasping the concepts covered easily.

Kubernetes – An Enterprise Guide Aug 29 2019 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 FeaturesExtensively revised edition to cover the latest updates and new releases along with two new chapters to introduce IstioGet a firm command of Kubernetes from a dual perspective of an admin as well as a developerUnderstand advanced topics including load balancing, externalDNS, global load balancing, authentication integration, policy, security, auditing, backup, Istio and CI/CDBook 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 learnCreate a multinode Kubernetes cluster using KinDImplement Ingress, MetalLB, ExternalDNS, and the new sandbox project, K8GBConfigure a cluster OIDC and impersonationDeploy a monolithic application in Istio service meshMap enterprise authorization to KubernetesSecure clusters using OPA and GateKeeperEnhance auditing using Falco and ECKBack up your workload for disaster recovery and cluster migrationDeploy to a GitOps platform using Tekton, GitLab, and ArgoCDWho 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.

Advanced Platform Development with Kubernetes Oct 12 2020 Leverage Kubernetes for the rapid adoption of emerging technologies. Kubernetes is the future of enterprise platform development and has become the most popular, and often considered the most robust, container orchestration system available today. This book focuses on platforming technologies that power the Internet of Things, Blockchain, Machine Learning, and the many layers of data and application management supporting them. Advanced Platform Development with Kubernetes takes you through the process of building platforms with these in-demand capabilities. You'll progress through the development of Serverless, CICD integration, data processing pipelines, event queues, distributed query engines, modern data warehouses, data lakes, distributed object storage, indexing and analytics, data routing and transformation, query engines, and data science/machine learning environments. You'll also see how to implement and tie together numerous essential and trending technologies including: Kafka, NiFi, Airflow, Hive, Keycloak, Cassandra, MySQL, Zookeeper, Mosquitto, Elasticsearch, Logstash, Kibana, Presto, Mino, OpenFaaS, and Ethereum. The book uses Golang and Python to demonstrate the development integration of custom container and Serverless functions, including interaction with the Kubernetes API. The exercises throughout teach Kubernetes through the lens of platform development, expressing the power and flexibility of Kubernetes with clear and pragmatic examples. Discover why Kubernetes is an excellent choice for any individual or organization looking to embark on developing a successful data and application platform. What You'll Learn Configure and install Kubernetes and k3s on vendor-neutral platforms, including generic virtual machines and bare metal Implement an integrated development toolchain for continuous integration and deployment Use data pipelines with MQTT, NiFi, Logstash, Kafka and Elasticsearch Install a serverless platform with OpenFaaS Explore blockchain network capabilities with Ethereum Support a multi-tenant data science platform and web IDE with JupyterHub, MLflow and Seldon Core Build a hybrid cluster, securely bridging on-premise and cloud-based Kubernetes nodes Who This Book Is For System and software architects, full-stack developers, programmers, and DevOps engineers with some experience building and using containers. This book also targets readers who have started with Kubernetes and need to progress from a basic understanding of the technology and "Hello World" example to more productive, career-building projects.

Kubernetes Cookbook Sep 10 2020 Learn how to automate and manage your containers and reduce the overall operation burden on your system. Key Features Use containers to manage, scale and orchestrate apps in your organization Transform the latest concept of Kubernetes 1.10 into examples Expert techniques for orchestrating containers effectively Book Description Kubernetes is an open source orchestration platform to manage containers in a cluster environment. With Kubernetes, you can configure and deploy containerized applications easily. This book gives you a quick brush up on how Kubernetes works with containers, and an overview of main Kubernetes concepts, such as Pods, Deployments, Services and etc. This book explains how to create Kubernetes clusters and run applications with proper authentication and authorization configurations. With real-world recipes, you'll learn how to create high availability Kubernetes clusters on AWS, GCP and in on-premise datacenters with proper logging and monitoring setup. You'll also learn some useful tips about how to build a continuous delivery pipeline for your application. Upon completion of this book, you will be able to use Kubernetes in production and will have a better understanding of how to manage containers using Kubernetes. What you will learn Build your own container cluster Deploy and manage highly scalable, containerized applications with Kubernetes Build high-availability Kubernetes clusters Build a continuous delivery pipeline for your application Track metrics and logs for every container running in your cluster Streamline the way you deploy and manage your applications with large-scale container orchestration Who this book is for This book is for system administrators, developers, DevOps engineers, or any stakeholder who wants to understand how Kubernetes works using a recipe-based approach. Basic knowledge of Kubernetes and Containers is required.

Programming Kubernetes Sep 30 2019 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

Managing Kubernetes Dec 06 2022 While Kubernetes has greatly simplified the task of deploying containerized applications, managing this orchestration framework on a daily basis can still be a complex undertaking. With this practical book, site reliability and DevOps engineers will learn how to build, operate, manage, and upgrade a Kubernetes cluster—whether it resides on cloud infrastructure or on-premises. Brendan Burns, cofounder of Kubernetes, and Craig Tracey, staff field engineer at Heptio, dissect how Kubernetes works internally and demonstrate ways to maintain, adjust, and improve the cluster to suit your particular use case. You'll learn how to make architectural choices for designing a cluster, managing access control, monitoring and alerting, and upgrading Kubernetes. Dive in and discover how to take full advantage of this orchestration framework's capabilities. Learn how your cluster operates, how developers use it to deploy applications, and how Kubernetes can facilitate a developer's job Adjust, secure, and tune your cluster by understanding Kubernetes APIs and configuration options Detect cluster-level problems early and learn the steps necessary to respond and recover quickly Determine how and when to add libraries, tools, and platforms that build on, extend, or otherwise improve a Kubernetes cluster

Kubernetes Mar 05 2020 Have you been looking for the most efficient way to develop and deploy applications fast with Kubernetes and make your software development process (and test process) simpler but don't know how to get started? If you've answered YES, keep reading... You Are 1-Click Away From Discovering How To Leverage The Power Of Kubernetes To Streamline And Fasten The Process Of Developing, Deploying And Testing Applications! Truth is, deploying containers is simple, and many software companies don't have a problem with it -at that level. However, when it comes to doing the actual running of containers in production, it becomes a huge problem because then you can end up with countless (sometimes even millions) containers -if you're using micro-services- over time. There is need to deploy, manage and connect them to the outside world- which includes scheduling and distribution, and I bet you wouldn't dare think of going about this process manually because of the size of dev or ops army you'd require to achieve that. Which is where Kubernetes, the best container orchestration system comes in. But you already know that, don't you? Perhaps you're here because you've been wondering: What is Kubernetes, and how does it work? How is Kubernetes different from other container management systems? What can Kubernetes do? How would it help me? How do I get Kubernetes on my computer system and get started? If you've been asking yourself these or similar questions, this book is about to become the best thing that has happened to your life and business recently (or ever). From the basics of this platform, its main features and pros, to how you can benefit from it and get started with it like a professional, this book offers to you everything you've been looking for! Here's a snapshot of what you'll learn from it: What Kubernetes is and how it works What containers are, and why they're important Why Google Kubernetes is stands out from many of other similar platforms out there The basic features of Kubernetes Details about the Kubernetes master, Node Components and Network How to set up Kubernetes in simple steps on Mac, Windows, Linux, Google Cloud, Microsoft Azure and AWS How to run containers on Kubernetes What you need to learn in advanced Kubernetes concepts including Kubectl, pods, ReplicaSet and Deployments How to work with services, load balancing and networks ...And much more! Are you ready to simplify your daily container workflow to make the (promised) potential of container technology a reality through automation? Are you ready to be able to handle storage, networking, alerting, logs and other tasks for all your containers automatically and join the countless enterprises that are enjoying increased efficiency and high returns following their adoption of this amazing technology? If you are, Scroll up and click Buy Now With 1-Click or Buy Now to get started!

Learn Kubernetes Security Nov 12 2020 Secure your container environment against cyberattacks and deliver robust deployments with this practical guide Key FeaturesExplore a variety of Kubernetes components that help you to prevent cyberattacksPerform effective resource management and monitoring with Prometheus and built-in Kubernetes toolsLearn techniques to prevent attackers from compromising applications and accessing resources for crypto-coin miningBook Description Kubernetes is an open source orchestration platform for managing containerized applications. Despite widespread adoption of the technology, DevOps engineers might be unaware of the pitfalls of containerized environments. With this comprehensive book, you'll learn how to use the different security integrations available on the Kubernetes platform to safeguard your deployments in a variety of scenarios. Learn Kubernetes Security starts by taking you through the Kubernetes architecture and the networking model. You'll then learn about the Kubernetes threat model and get to grips with securing clusters. Throughout the book, you'll cover various security aspects such as authentication, authorization, image scanning, and resource monitoring. As you advance, you'll learn about securing cluster components (the kube-apiserver, CoreDNS, and kubelet) and pods (hardening image, security context, and PodSecurityPolicy). With the help of hands-on examples, you'll also learn how to use open source tools such as Anchore, Prometheus, OPA, and Falco to protect your deployments. By the end of this Kubernetes book, you'll have gained a solid understanding of container security and be able to protect your clusters from cyberattacks and mitigate cybersecurity threats. What you will learnUnderstand the basics of Kubernetes architecture and networkingGain insights into different security integrations provided by the Kubernetes platformDelve into Kubernetes' threat modeling and security domainsExplore different security configurations from a variety of practical examplesGet to grips with using and deploying open source tools to protect your deploymentsDiscover techniques to mitigate or prevent known Kubernetes hacksWho this book is for This book is for security consultants, cloud administrators, system administrators, and DevOps engineers interested in securing their container deployments. If you're looking to secure your Kubernetes clusters and cloud-based deployments, you'll find this book useful. A basic understanding of cloud computing and containerization is necessary to make the most of this book.

Mastering Kubernetes Aug 02 2022 Go beyond simply learning Kubernetes fundamentals and its deployment, and explore more advanced concepts, including serverless computing and service meshes with the latest updates Key Features Master Kubernetes architecture and design to build and deploy secure distributed applications Learn advanced concepts like autoscaling, cluster federation, serverless computing, and service mesh integration for observability Explore Kubernetes 1.18 features and its rich ecosystem of tools like Kubectl, Knative, and Helm Book Description The third edition of Mastering Kubernetes is updated with the latest tools and code enabling you to learn Kubernetes 1.18's latest features. This book primarily concentrates on diving deeply into complex concepts and Kubernetes best practices to help you master the skills of designing and deploying large clusters on various cloud platforms. The book trains you to run complex stateful microservices on Kubernetes including advanced features such as horizontal pod autoscaling, rolling updates, resource quotas, and persistent storage backend. With the two new chapters, you will gain expertise in serverless computing and utilizing service meshes. As you proceed through the chapters, you will explore different options for network configuration and learn to set up, operate, and troubleshoot Kubernetes networking plugins through real-world use cases. Furthermore, you will understand the mechanisms of custom resource development and its utilization in automation and maintenance workflows. By the end of this Kubernetes book, you will graduate from an intermediate to advanced Kubernetes professional. What you will learn Master the fundamentals of Kubernetes architecture and design Build and run stateful applications and complex microservices on Kubernetes Use tools like Kubectl, secrets, and Helm to manage resources and storage Master Kubernetes Networking with load balancing options like Ingress Achieve high-availability Kubernetes clusters Improve Kubernetes observability with tools like Prometheus, Grafana, and Jaeger Extend Kubernetes working with Kubernetes API, plugins, and webhooks Who this book is for If you are a system administrator or a cloud developer with working knowledge of Kubernetes and are keen to master its advanced features, along with learning everything from building microservices to utilizing service meshes, Mastering Kubernetes is for you. Basic familiarity with networking concepts will be helpful.

kubectl: Command-Line Kubernetes in a Nutshell Nov 24 2021 Manage Kubernetes applications using kubectl and discover the different Kubernetes clusters Key FeaturesExplore the Kubernetes command line for deploying applications, inspecting clusters, and viewing logsLeverage kubectl for Kubernetes application management and container debuggingApply your knowledge of Docker to learn kubectl equivalent commands for Docker subcommandsBook Description The kubectl command line tool lets you control Kubernetes clusters to manage nodes in the cluster and perform all types of Kubernetes operations. This introductory guide will get you up to speed with kubectl in no time. The book is divided into four parts, touching base on the installation and providing a general overview of kubectl in the first part. The second part introduces you to managing Kubernetes clusters and working with nodes. In the third part, you'll be taken through the different ways in which you can manage Kubernetes applications, covering how to create, update, delete, view, and debug applications. The last part of the book focuses on various Kubernetes plugins and commands. You'll get to grips with using Kustomize and discover Helm, a Kubernetes package manager. In addition to this, you'll explore how you can use equivalent Docker commands in kubectl. By the end of this book, you'll have learned how to install and update an application on Kubernetes, view its logs, and inspect clusters effectively. What you will learnGet to grips with the basic kubectl commandsDelve into different cluster nodes and their resource usagesUnderstand the most essential features of kubectlDiscover how to patch Kubernetes deployments with KustomizeFind out ways to extend kubectl tools with their own pluginsExplore how to use Helm as an advanced tool for deploying appsWho this book is for This book is for developers, system administrators, and anyone who wants to use the kubectl command-line tool to perform Kubernetes functionalities. A basic understanding of Kubernetes and Docker is required to get started with this book.

The Complete Kubernetes Guide May 31 2022 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.

DevOps with Kubernetes Jul 21 2021 Leverage the power of Kubernetes to build an efficient software delivery pipeline. Key Features

- Learn about DevOps, containers, and Kubernetes all within one handy book
- A practical guide to container management and orchestration
- Learn how to monitor, log, and troubleshoot your Kubernetes applications

Book Description

Kubernetes has been widely adopted across public clouds and on-premise data centers. As we're living in an era of microservices, knowing how to use and manage Kubernetes is an essential skill for everyone in the IT industry. This book is a guide to everything you need to know about Kubernetes—from simply deploying a container to administrating Kubernetes clusters wisely. You'll learn about DevOps fundamentals, as well as deploying a monolithic application as microservices and using Kubernetes to orchestrate them. You will then gain an insight into the Kubernetes network, extensions, authentication and authorization. With the DevOps spirit in mind, you'll learn how to allocate resources to your application and prepare to scale them efficiently. Knowing the status and activity of the application and clusters is crucial, so we'll learn about monitoring and logging in Kubernetes. Having an improved ability to observe your services means that you will be able to build a continuous delivery pipeline with confidence. At the end of the book, you'll learn how to run managed Kubernetes services on three top cloud providers: Google Cloud Platform, Amazon Web Services, and Microsoft Azure.

What you will learn

- Learn fundamental and advanced DevOps skills and tools
- Get a comprehensive understanding of containers
- Dockerize an application
- Administrate and manage Kubernetes cluster
- Extend the cluster functionality with custom resources
- Understand Kubernetes network and service mesh
- Implement Kubernetes logging and monitoring
- Manage Kubernetes services in Amazon Web Services, Google Cloud Platform, and Microsoft Azure

Who this book is for

This book is for anyone who wants to learn containerization and clustering in a practical way using Kubernetes. No prerequisite skills are required, however, essential DevOps skill and public/private Cloud knowledge will accelerate the reading speed. If you're advanced, you can get a deeper understanding of all the tools and technique described in the book.

Kubernetes Cookbook Feb 02 2020 If your organization is preparing to move toward a cloud-native computing architecture, this cookbook shows you how to successfully use Kubernetes, the de-facto standard for automating the deployment, scaling, and management of containerized applications. With more than 80 proven recipes, developers, system administrators, and architects will quickly learn how to get started with Kubernetes and understand its powerful API. Through the course of the book, authors S•bastien Goasguen and Michael Hausenblas provide several detailed solutions for installing, interacting with, and using Kubernetes in development and production. You'll learn how to adapt the system to your particular needs and become familiar with the wider Kubernetes ecosystem. Each standalone chapter features recipes written in O'Reilly's popular problem-solution-discussion format. Recipes in this cookbook focus on:

- Creating a Kubernetes cluster
- Using the Kubernetes command-line interface
- Managing fundamental workload types
- Working with services
- Exploring the Kubernetes API
- Managing stateful and non-cloud native apps
- Working with volumes and configuration data
- Cluster-level and application-level scaling
- Securing your applications
- Monitoring and logging
- Maintenance and troubleshooting

DevOps with Kubernetes Jan 03 2020 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 Oct 31 2019 With Kubernetes, it is possible and easy for you to automate the deployment, management, and scaling of any containerized applications. You can use this container to group containers which make up a particular application into a number of logical units to make it easy for discovery and management. This container operates by use of the same technique which makes Google run many containers numbering in the billions on a weekly basis, and it can scale and you will not be required to increase the ops team. Kubernetes is a very flexible container, whether you are running it locally or on a global enterprise, and it will allow you to be able to deliver your container in an easier and more consistent manner despite how complex it might be. It is open source, and you are able to move your workloads to where you need. A large number of major companies appreciate the potential to save on costs when it comes to containers and Kubernetes. In particular, containers are more lightweight than VMs and can share a single OS, which causes a significant decrease in the costs of infrastructure. Their maintenance costs are also low. Additionally, they have faster CI/CD pipelines and allow your development and engineering teams better coordination with each other. Adding Kubernetes to the equation more benefits are gained. By autoscaling you can save more. The other benefits include efficient application scheduling, efficient cluster-level resource management, and rolling updates.

- How Kubernetes operates
- Deployment
- Kubernetes pods
- Kubernetes services
- Kubernetes design patterns
- Kubernetes cliene libraries and extensions
- Logging

The intricacies of this management plane in Kubernetes

- Cluster federation
- Kubernetes ingress

...And much more

Overall, you can expect to save your team's time and also make a two-digit saving all thanks to both containerized applications and container orchestration. Applications are deployed through containers focusing on operating-system-level virtualization as opposed to hardware virtualization. This enables us to put an end to the limitations of the host by selecting executable file-systems, libraries, and etc. With Kubernetes, connecting applications with appropriate services through configuring firewalls of the cloud service providers can be made at once. In complex configurations, it creates an external load-balancer and discovering cross-cluster service through the use of federated services.