Docker Hands On: Deploy, Administer Docker Platform

This book is designed to help newcomers and experienced users alike learn about Kubernetes. Its chapters are designed to introduce core Kubernetes concepts and to build on them to a level where running an application on a production cluster is a familiar, repeatable, and automated process. From there, more advanced topics are introduced, like how to manage a Kubernetes cluster itself.

Build, package, and deploy applications as easily manageable and shippable containers. About This Book Discover the secret to building highly portable apps that run on any machine with Windows Server 2016 anywhere, from laptops, desktop servers, and public or private clouds, without any changes to the code Build your company cost-effective, container-based apps that support large-scale, virtual cloud environments The most up-to-date help on the market, offering developers expert guidance in building and shipping high-quality apps, and also helping admins create infrastructure that's simple to maintain Who This Book Is For This book is for application developers with a basic programming knowledge of C#, ASP.NET, and PowerShell. IT Administrators or DevOps engineers with basic PowerShell experience can benefit by extending their learning to use PowerShell to manage containers on Windows environments and use additional management tools. What You Will Learn Build and deploy ASP.NET web applications as Windows Containers on Windows 10 (Desktop) and Azure using Visual Studio 2015, Docker, and PowerShell Build and manage custom images using Windows Server Core base OS image and Docker CLI, publish images to Docker, tag images, author Docker files, and so on Create enterprise-scale, production-grade container environments using Redis Cache containers and SQL Server containers with storage volumes, set up custom container networks, continuous integration, and deployment pipelines using VSTS, Azure, and Git Deploy a composite container environment using Docker Compose on Windows Learn to build applications using Microsoft's thinnest server platform - Nano Servers. Build custom Nano Server images and Nano Containers using Windows PowerShell and configure using PowerShell Core, DSC In Detail Windows Server Containers are independent, isolated, manageable and portable application environments which are light weight and shippable. Decomposing your application into smaller manageable components or MicroServices helps in building scalable and distributed application environments. Windows Server Containers have a significant impact on application developers, development operations (DevOps) and infrastructure management teams. Applications can be built, shipped and deployed in a fast-paced manner on an easily manageable and updatable environment. Learning Windows Server Containers teaches you to build simple to advanced production grade container based application using Asp.Net Core, Visual Studio, Azure, Docker and PowerShell technologies. The book teaches you to build and deploy simple web applications as Windows and Hyper-V containers on Windows 10 and Windows Server 2016 on Azure. You will learn to build on top of Windows Container Base OS Images, integrate with existing images from Docker Hub, create custom images and publish to Hub. You will also learn to work with storage containers built using Volumes and SQL Server as container, create and configure custom networks, integrate with Redis Cache containers, configure continuous integration and deployment pipelines using VSTS and Git Repository. Further you can also learn to manage resources for a container, setting up monitoring and diagnostics, deploy composite container environments using Docker Compose on Windows and manage container clusters using Docker Swarm. The last chapter of the book focuses on building applications using Microsoft's new and thinnest server platform – Nano Servers. Style and approach This hands-on tutorial helps you get started with Windows Server containers, the new trend in the container market. This example-driven guide is packed with real-world scenarios of Windows Server containers in production environments.

A step-by-step guide to building microservices using Python and Docker, along with managing and orchestrating them with Kubernetes Key Features Learn to use Docker containers to create, operate, and deploy your microservices Create workflows to manage independent deployments on coordinating services using CI and GitOps through GitHub, Travis CI, and Flux Develop a REST microservice in Python using the Flask framework and Postgres database Book Description Microservices architecture helps create complex systems with multiple, interconnected services that can be maintained by independent teams working in parallel. This book guides you on how to develop these complex systems with the help of containers. You'll start by learning to design an efficient strategy for migrating a legacy monolithic system to microservices. You'll build a RESTful microservice with Python and learn how to encapsulate the code for the services into a container using Docker. While developing the services, you'll understand how to use tools such as GitHub and Travis CI to ensure continuous delivery (CD) and continuous integration (CI). As the systems become complex and grow in size, you'll be introduced to Kubernetes and explore how to orchestrate a system of containers while managing multiple services. Next, you'll configure Kubernetes clusters for production-ready environments and secure them for reliable deployments. In the concluding chapters, you'll learn how to detect and debug critical problems with the help of logs and metrics. Finally, you'll discover a variety of strategies for working with multiple teams dealing with different microservices for effective collaboration. By the end of this book, you'll be able to build production-grade microservices as well as orchestrate a complex system of services using containers. What you will learn Discover how to design, test, and operate scalable microservices Coordinate and deploy different services using Kubernetes Use Docker to construct scalable and manageable applications with microservices Understand how to monitor a complete system to ensure early detection of problems Become well versed with migrating from an existing monolithic system to a microservice one Use load balancing to ensure seamless operation between the old monolith and the new service Who this book is for This book is for developers, engineers, or software architects who are trying to move away from traditional approaches for building complex multi-service systems by adopting

microservices and containers. Although familiarity with Python programming is assumed, no prior knowledge of Docker is required.
Deploy and execute Microsoft Azure container and containerized applications on Azure. This second book in author Shimon Ifrah's series on containers will help you manage and scale containers along with their applications, tools and services. You'll start by setting up the Azure environment and quickly work through techniques and methods of managing container images with Azure Container Registry (ACR). As you move forward, deploying containerized applications with Azure container instances and Azure Kubernetes Service is discussed in detail, and in the process, you'll see how to install Docker container host on Azure Virtual Machine. This is followed by a discussion on security in Azure containers where you'll learn how to monitor containers and containerized applications backed by illustrative examples. Next, you will review how to scale containers along with methods for backing up and restoring containers and containerized applications on Azure. Towards the end, the book demonstrates troubleshooting applications and Docker container host issues in Azure. Getting Started with Containers in Azure will equip you to deploy, manage and secure containerized applications using Azure tools and services for containers. What You'll Learn Explore containers on Microsoft Azure. Store Docker images on Azure Container Registry Automate deployment of container services using Azure CLI and Azure Cloud Shell Use Azure Container Instances (ACI) for smaller deployment Who This Book Is For Azure administrators, developers, and architects who want to get started and learn more about containers and containerized applications on Microsoft Azure.
Hands-On Docker for Microservices with Python
Docker and Kubernetes for Java Developers
Learning Windows Server Containers
Deploy, build, manage, and migrate applications with OpenShift Origin 3.9
Run your applications securely and at scale on the most widely adopted orchestration platform
Containers in OpenStack
Containerization Is the New Virtualization

Manage Linux Servers on-premises and cloud with advanced DevOps techniques using Kubernetes KEY FEATURES ● Detailed coverage on architecture of Web Servers, Databases, and Cloud Servers. ● Practical touch on deploying your application and managing cloud infrastructure using Docker and Terraform. ● Simplified implementation of Infrastructure as Code with Vagrant. ● Explore the use of different cloud services for better provisioning, scalability, and reliability of enterprise applications. DESCRIPTION Hands-on DevOps with Linux brings you advanced learnings on how to make the best use of Linux commands in managing the DevOps infrastructure to keep enterprise applications up-to-date. The book begins by introducing you to the Linux world with the most used commands by DevOps experts and teaches how to set up your own infrastructure in your environment. The book covers exclusive coverage on production scenarios using Kubernetes and how the entire container orchestration is managed. Throughout the book, you will get accustomed to the most widely used techniques among DevOps Engineers in their routine. You will explore how infrastructure as code works, working with Vagrant, Docker and Terraform through which you can manage the entire cloud deployment of applications along with how to scale them on your own. WHAT YOU WILL LEARN ● Create Infrastructure as Code to replicate the configuration to your infrastructure. ● Learn best methods and techniques to build continuous delivery pipeline using Jenkins. ● Learn to Distribute and scale your applications using Kubernetes. ● Get insights by analyzing millions of server logs using Kibana and Logstash. WHO THIS BOOK IS FOR This book is best suited for DevOps Engineers and DevOps professionals who want to make best use of Linux commands in managing the DevOps infrastructure daily. It is a good handy guide for Linux administrators and system administrators too to get familiar with the use of Linux in Devops and advance their skillset in DevOps. TABLE OF CONTENTS 1. Getting started with Linux 2. Working with Bash 3. Setting up a service 4. Configuring a reverse proxy with Nginx 5. Deploying your application using Docker 6. Automating your Infrastructure as Code 7. Creating your infrastructure using cloud services 8. Working with Terraform 9. Working with Git 10. Continuous integration and Continuous Delivery using Jenkins 11. Deploying and scaling your application using Kubernetes 12. Logs with open source Tools

Transition to Microservices and DevOps to Transform Your Software Development Effectiveness Thanks to the tech sector's latest game-changing innovations—the Internet of Things (IoT), software-enabled networking, and software as a service (SaaS), to name a few—there is now a seemingly insatiable demand for platforms and architectures that can improve the process of application development and deployment. In Microservices and Containers, longtime systems architect and engineering team leader Parminder Kocher analyzes two of the hottest new technology trends: microservices and containers. Together, as Kocher demonstrates, microservices and Docker containers can bring unprecedented agility and scalability to application development and deployment, especially in large, complex projects where speed is crucial but small errors can be disastrous. Learn how to leverage microservices and Docker to drive modular architectural design, on-demand scalability, application performance and reliability, time-to-market, code reuse, and exponential improvements in DevOps effectiveness. Kocher offers detailed guidance and a complete roadmap for transitioning from monolithic architectures, as well as an in-depth case study that walks the reader through the migration of an enterprise-class SOA system. Understand how microservices enable you to organize applications into standalone components that are easier to manage, update, and scale Decide whether microservices and containers are worth your investment, and manage the organizational learning curve associated with them Apply best practices for interprocess communication among microservices Migrate monolithic systems in an orderly fashion Understand Docker containers, installation, and interfaces Network, orchestrate, and manage Docker containers effectively Use Docker to maximize scalability in microservices-based applications Apply your learning with an in-depth, hands-on case study Whether you are a software architect/developer or systems professional looking to move on from older approaches or a manager trying to maximize the business value of these technologies, Microservices and Containers will be an invaluable addition to your library. Register your product at informit.com/register for convenient access to downloads, updates, and/or corrections as they become available.

An effective guide to learning how to build a large-scale distributed application using the wide range of functionalities in Gin Key Features Explore the commonly used functionalities of Gin to build web applications Become well-versed with rendering HTML templates with the Gin engine Solve commonly occurring challenges such as scaling, caching, and deployment Book Description Gin is a high-performance HTTP web framework used to build web applications and microservices in Go. This book is designed to teach you the ins and outs of the Gin framework with the help of practical examples. You'll start by exploring the basics of the Gin framework, before progressing to build a real-world RESTful API. Along the way, you'll learn how to write custom middleware and understand the routing mechanism, as well as how to bind user data and validate incoming HTTP requests. The book also demonstrates how to store and retrieve data at scale with a NoSQL database such as MongoDB, and how to implement a caching layer with Redis. Next, you'll understand how to secure and test your API endpoints with authentication protocols such as OAuth 2 and JWT. Later chapters will guide you through rendering HTML templates on the server-side and building a frontend application with the React web framework to consume API responses. Finally, you'll deploy your application on Amazon Web Services (AWS) and learn how to automate the deployment process with a continuous integration/continuous delivery (CI/CD) pipeline. By the end of this Gin book, you will be able to design, build, and deploy a production-ready distributed application from scratch using the Gin framework. What you will learn Build a production-ready REST API with the Gin framework Scale web applications with event-driven architecture Use NoSQL databases for data persistence Set up authentication middleware with JWT and Auth0 Deploy a Gin-based RESTful API on AWS with Docker and Kubernetes Implement a CI/CD workflow for Gin web apps Who this book is for This book is for Go developers who are comfortable with the Go language and seeking to learn REST API design and development with the Gin framework. Beginner-level knowledge of the Go programming language is required to make the most of this book. 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.

A Practical Guide to Container Orchestration

Introduction to Kubernetes Using Docker

Building Distributed Applications in Gin

Hands-On Linux Administration on Azure

Build, deploy, and manage scalable microservices on Kubernetes

Tips, Tricks, and Techniques

Leverage the lethal combination of Docker and Kubernetes to automate deployment and management of Java applications About This Book Master using Docker and Kubernetes to build, deploy and manage Java applications in a jiff Learn how to create your own Docker image and customize your own cluster using Kubernetes Empower the journey from development to production using this practical guide. Who This Book Is For The book is aimed at Java developers who are eager to build, deploy, and manage applications very quickly using container technology. They need have no knowledge of Docker and Kubernetes. What You Will Learn Package Java applications into Docker images Understand the running of containers locally Explore development and deployment options with Docker Integrate Docker into Maven builds Manage and monitor Java applications running on Kubernetes clusters Create Continuous Delivery pipelines for Java applications deployed to Kubernetes In Detail Imagine creating and testing Java EE applications on Apache Tomcat Server or Wildfly Application server in minutes along with deploying and managing Java applications swiftly. Sounds too good to be true? But you have a reason to cheer as such scenarios are only possible by leveraging Docker and Kubernetes. This book will start by introducing Docker and delve deep into its networking and persistent storage concepts. You will then proceed to learn how to refactor monolith application into separate services by building an application and then packaging it into Docker containers. Next, you will create an image containing Java Enterprise Application and later run it using Docker. Moving on, the book will focus on Kubernetes and its features and you will learn to deploy a Java application to Kubernetes using Maven and monitor a Java application in production. By the end of the book, you will get hands-on with some more advanced topics to further extend your knowledge about Docker and Kubernetes. Style and approach An easy-to-follow, practical

guide that will help Java developers develop, deploy, and manage Java applications efficiently.
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.
Start using Kubernetes in complex big data and enterprise applications, including Docker containers. Starting with installing Kubernetes on a single node, the book introduces Kubernetes with a simple Hello example and discusses using environment variables in Kubernetes. Next, Kubernetes Microservices with Docker discusses using Kubernetes with all major groups of technologies such as relational databases, NoSQL databases, and in the Apache Hadoop ecosystem. The book concludes with using multi container pods and installing Kubernetes on a multi node cluster. /div "a concise but clear introduction to containers, Docker and Kubernetes, using simple real-world examples to pass on the core concepts, via repetition, and is a very useful enabler." 10/10 Dave Hay MBCS CITP: review for BCS, The Chartered Institute for IT (http://www.bcs.org/content/conWebDoc/58512) What You Will Learn Install Kubernetes on a single node Set environment variables Create multi-container pods using Docker Use volumes Use Kubernetes with the Apache Hadoop ecosystem, NoSQL databases, and RDBMSs Install Kubernetes on a multi-node cluster Who This Book Is For Application developers including Apache Hadoop developers, database developers and NoSQL developers.
Become a proficient Linux administrator by learning the art of container networking with elevated efficiency using DockerAbout This Book• Set up, configure, and monitor a virtual network of containers using a bridge network and virtual switches• Master the skill of networking Docker Containers using frameworks such as Kubernetes, Docker Swarm, and Mesosphere• Acquire hands-on experience through practical examples of Docker networking spanning multiple containers, over multiple hosts, clubbed with various frameworks Who This Book Is ForIf you are a Linux administrator who wants to learn networking using Docker to ensure the efficient administration of core elements and applications, then this book is for you. Basic knowledge of LXC/Docker is assumed.What You Will Learn• Get to know the basics of networking and see how Docker networking works• Expose the strengths and weaknesses of the current Docker network implementation and third party landscape• Understand Docker networking spanning multiple containers over multiple hosts through practical examples• Observe the pitfalls of Docker networking and how to overcome them• Learn how Docker networking works for Docker Swarm and Kubernetes• Configure Networking using Docker's container network model (CNM)• Explore OpenvSwitch to connect containIn DetailDocker is a Linux container implementation that enables the creation of light weight portable development and production environments. These environments can be updated incrementally. Docker achieves this by leveraging containment principles like cgroups and Linux namespaces along with Overlay filesystem based portable images. Docker provides the networking primitives that allow administrators to specify how different containers network with each application and connect each of its components, then distribute them across a large number of servers and ensure coordination between them irrespective of the host or VM they are running in.This book will show you how to create, deploy, and manage a virtual network for connecting containers spanning single or multiple hosts.Style and approachThis step-by-step guide covers the fundamentals relating to typical applications with a practical approach. There is a focus on providing the practical skills required to develop applications, with a summary of the key concepts where necessary.
Deploy, Manage, and Secure Containerized Applications

Learn OpenShift
Design and Build Modern Cloud Native Applications using Spring and Kubernetes (English Edition)
Microservices for Java Developers
Design, Deploy, and Operate a Complex System with Multiple Microservices Using Docker and Kubernetes
Bootstrapping Microservices with Docker, Kubernetes, and Terraform
Build, test, ship, and run containers with Docker and Kubernetes, 2nd Edition

Start deploying, managing, and scaling containerized applications into AWS container infrastructure using Docker on Amazon EC2, Amazon Elastic Container Service (ECS), and AWS Elastic Kubernetes Service (EKS). This step by step practical book will cover all the available container services on AWS and review the usage of each one based on your required scale and cost. Further, you will see how to set up each environment and finally deploy, manage, and scale containerized applications on each one. In the chapter about Elastic Kubernetes Service (EKS), you will learn the process of building and managing Kubernetes clusters on AWS and see how to provision hosts in a matter of minutes, while deploying containers in seconds and making them available globally. Deploy Containers on AWS shows you how to get started with AWS container offerings and manage production or test environments of containerized applications using a hands-on approach with step-by-step instructions. What You Will Learn Deploy and manage containers with Docker on Amazon EC2 Store and retrieve container images using the Amazon EC2 container registry Orchestrate containers with Amazon Elastic Container Service (ECS) Run Kubernetes-managed infrastructure on AWS (EKS) Monitor, manage, back up, and restore containers on AWS Who This Book Is ForDevelopers, cloud and systems administrators, and architects
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

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.

Get hands-on recipes to automate and manage Linux containers with the Docker 1.6 environment and jump-start your Puppet developmentAbout This Book* Successfully deploy DevOps with proven solutions and recipes* Automate your infrastructure with Puppet and combine powerful DevOps methods* Deploy and manage highly scalable applications using Kubernetes* streamline the way you manage your applicationsWho This Book Is ForThis Learning Path is for developers, system administrators, and DevOps engineers who want to use Puppet, Docker, and Kubernetes in their development, QA, or production environments. This Learning Path assumes experience with Linux administration and requires some experience with command-line usage and basic text file editing.What You Will Learn* Discover how to build high availability Kubernetes clusters* Deal with inherent issues with container virtualization and container concepts* Create services with Docker to enable the swift development and deployment of applications* Make optimum use of Docker in a testing environment* Create efficient manifests to streamline your deployments* Automate Puppet master deployment using Git hooks, r10k, and PuppetDBIn DetailWith so many IT management and DevOps tools on the market, both open source and commercial, it's difficult to know where to start. DevOps is incredibly powerful when implemented correctly, and here's how to get it done.This Learning Path covers three broad areas: Puppet, Docker, and Kubernetes. This Learning Path is a large resource of recipes to ease your daily DevOps tasks. We begin with recipes that help you develop a complete and expert understanding of Puppet's latest and most advanced features. Then we provide recipes that help you efficiently work with the Docker environment. Finally, we show you how to better manage containers in different scenarios in production using Kubernetes.This course is based on these books:* Puppet Cookbook, Third Edition* Docker Cookbook* Kubernetes CookbookStyle and approachThis easy-to-follow tutorial-style guide teaches you precisely how to configure complex systems in Puppet and manage your containers using Kubernetes.

Using Docker
Build and Deploy DevOps Pipelines Using Linux Commands, Terraform, Docker, Vagrant, and Kubernetes (English Edition)
Learn Kubernetes in a Month of Lunches
Learning Docker Networking
Hands-on Data Virtualization with Polybase
Hands-on Microservices with Python
Hands-On Kubernetes on Azure - Second Edition

Learn to efficiently run Linux-based workloads in Azure Key Features Manage and deploy virtual machines in your Azure environment Explore various open source tools to integrate automation and orchestration Leverage Linux features to create, run, and manage containers Book Description Azure’s market share has increased massively and enterprises are adopting it rapidly. Linux is a widely-used operating system and has proven to be one of the most popular workloads on Azure. It has become crucial for Linux administrators and Microsoft professionals to be well versed with the concepts of managing Linux workloads in an Azure environment. Hands-On Linux Administration on Azure starts by introducing you to the fundamentals of Linux and Azure, after which you will explore advanced Linux features and see how they are managed in an Azure environment. Next, with the help of real-world scenarios, you will learn how to deploy virtual machines(VMs) in Azure, along with extending Azure VMs capabilities and managing them efficiently. You will then understand continuous configuration automation and use Ansible, SaltStack and Powershell DSC for orchestration. As you make your way through the chapters, you will understand containers and how they work, along with managing containers and the various tasks you can perform with them. In the concluding chapters, you will cover some Linux troubleshooting techniques on Azure, and you will also be able to monitor Linux in Azure using different open source tools. By the end of this book, you will be able to administer Linux on Azure and make the most of the important tools required for deployment. What you will learn Understand why Azure is the ideal solution for your open source workloads Master essential Linux skills and learn to find your way around the Linux environment Deploy Linux in an Azure environment Use configuration management to manage Linux in Azure Manage containers in an Azure environment Enhance Linux security and use Azure’s identity management systems Automate deployment with Azure Resource Manager (ARM) and Powershell Employ Ansible to manage Linux instances in an Azure cloud environment Who this book is for Hands-On Linux Administration on Azure is for Linux administrators and Microsoft professionals that need to deploy and manage their workloads in Azure. Prior knowledge of Linux and Azure isn't necessary.

Deploy, manage, and secure containers and containerized applications on Google Cloud Platform (GCP). This book covers each container service in GCP from the ground up and teaches you how to deploy and manage your containers on each service. You will start by setting up and configuring GCP tools and the tenant environment. You then will store and manage Docker container images with GCP Container Registry (ACR). Next, you will deploy containerized applications with GCP Cloud Run and create an automated CI/CD deployment pipeline using Cloud Build. The book covers GCP’s flagship service, Google Kubernetes Service (GKE), and deployment of a Kubernetes cluster using clear steps and considering GCP best practices using the GCP management console and gcloud command-line tool. Also covered is monitoring containers and containerized applications on GCP with Cloud Monitoring, and backup and restore containers and containerized applications on GCP. By the end of the book, you will know how to get started with GCP container services and understand the fundamentals of each service and the supporting services needed to run containers in a production environment. This book also assists you in transferring your skills from AWS and Azure to GCP using the knowledge you have acquired on each platform and leveraging it to gain more skills. What You Will Learn Get started with Google Cloud Platform (GCP) Store Docker images on GCP Container Registry Deploy Google Kubernetes Engine (GKE) cluster Secure containerized applications on GCP Use Cloud Build to deploy containers Use GCP Batch for batch job processing on Kubernetes Who This Book Is For Google Cloud administrators, developers, and architects who want to get started and learn more about containers and containerized applications on Google Cloud Platform (GPC)

Summary The best way to learn microservices development is to build something! Bootstrapping Microservices with Docker, Kubernetes, and Terraform guides you from zero through to a complete microservices project, including fast prototyping, development, and deployment. You’ll get your feet wet using industry-standard tools as you learn and practice the practical skills you’ll use for every microservices application. Following a true bootstrapping approach, you’ll begin with a simple, familiar application and build up your knowledge and skills as you create and deploy a real microservices project. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Taking microservices from proof of concept to production is a complex, multi-step operation relying on tools like Docker, Terraform, and Kubernetes for packaging and deployment. The best way to learn the process is to build a project from the ground up, and that’s exactly what you’ll do with this book! About the book In Bootstrapping Microservices with Docker, Kubernetes, and Terraform, author Ashley Davis lays out a comprehensive approach to building microservices. You’ll start with a simple design and work layer-by-layer until you’ve created your own video streaming application. As you go, you’ll learn to configure cloud infrastructure with Terraform, package microservices using Docker, and deploy your finished project to a Kubernetes cluster. What's inside Developing and testing microservices applications Working with cloud providers Applying automated testing Implementing infrastructure as code and setting up a continuous delivery pipeline Monitoring, managing, and troubleshooting About the reader Examples are in JavaScript. No experience with microservices, Kubernetes, Terraform, or Docker required. About the author Ashley Davis is a software developer, entrepreneur, stock trader, and the author of Manning’s Data Wrangling with JavaScript. Table of Contents 1 Why microservices? 2 Creating your first microservice 3 Publishing your first microservice 4 Data management for microservices 5 Communication between microservices 6 Creating your production environment 7 Getting to continuous delivery 8 Automated testing for microservices 9 Exploring FlixTube 10 Healthy microservices 11 Pathways to scalability

Start thinking about your development pipeline as a mission-critical application. Discover techniques for implementing code-driven infrastructure and CI/CD workflows using Jenkins, Docker, Terraform, and cloud-native services. In Pipeline as Code, you will master: Building and deploying a Jenkins cluster from scratch Writing pipeline as code for cloud-native applications Automating the deployment of Dockerized and Serverless applications Containerizing applications with Docker and Kubernetes Deploying Jenkins on AWS, GCP and Azure Managing, securing and monitoring a Jenkins cluster in production Key principles for a successful DevOps culture Pipeline as Code is a practical guide to automating your development pipeline in a cloud-native, service-driven world. You'll use the latest infrastructure-as-code tools like Packer and Terraform to develop reliable CI/CD pipelines for numerous cloud-native applications. Follow this book's insightful best practices, and you'll soon be delivering software that's quicker to market, faster to deploy, and with less last-minute production bugs. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Treat your CI/CD pipeline like the real application it is. With the Pipeline as Code approach, you create a collection of scripts that replace the tedious web UI wrapped around most CI/CD systems. Code-driven pipelines are easy to use, modify, and maintain, and your entire CI pipeline becomes more efficient because you directly interact with core components like Jenkins, Terraform, and Docker. About the book In Pipeline as Code you'll learn to build reliable CI/CD pipelines for cloud-native applications. With Jenkins as the backbone, you'll programmatically control all the pieces of your pipeline via modern APIs. Hands-on examples include building CI/CD workflows for distributed Kubernetes applications, and serverless functions. By the time you're finished, you'll be able to swap manual UI-based adjustments with a fully automated approach! What's inside Build and deploy a Jenkins cluster on scale Write pipeline as code for cloud-native applications Automate the deployment of Dockerized and serverless applications Deploy Jenkins on AWS, GCP, and Azure Grasp key principles of a successful DevOps culture About the reader For developers familiar with Jenkins and Docker. Examples in Go. About the author Mohamed Labouardy is the CTO and co-founder of Crew.work, a Jenkins contributor, and a DevSecOps evangelist. Table of Contents PART 1 GETTING STARTED WITH JENKINS 1 What's CI/CD? 2 Pipeline as code with Jenkins PART 2 OPERATING A SELF-HEALING JENKINS CLUSTER 3 Defining Jenkins architecture 4 Baking machine images with Packer 5 Discovering Jenkins as code with Terraform 6 Deploying HA Jenkins on multiple cloud providers PART 3 HANDS-ON CI/CD PIPELINES 7 Defining a pipeline as code for microservices 8 Running automated tests with Jenkins 9 Building Docker images within a CI pipeline 10 Cloud-native applications on Docker Swarm 11 Dockerized microservices on K8s 12 Lambda-based serverless functions PART 4 MANAGING, SCALING, AND MONITORING JENKINS 13 Collecting continuous delivery metrics 14 Jenkins administration and best practices

Docker Demystified

Explore the essential Linux administration skills you need to deploy and manage Azure-based workloads

Docker

Kubernetes Microservices with Docker

Developing and Deploying Software with Containers

Apply continuous integration models, deploy applications quicker, and scale at large by putting Docker to work

With Docker, CoreOS Linux, and Other Platforms

Run queries and analysis on big data clusters across relational and non relational databases KEY FEATURES ● Connect to Hadoop, Azure, Spark, Oracle, Teradata, Cassandra, MongoDB, CosmosDB, MySQL, PostgreSQL, MariaDB, and SAP HANA. ● Numerous techniques on how to query data and troubleshoot Polybase for better data analytics. ● Exclusive coverage on Azure Synapse Analytics and building Big Data clusters. DESCRIPTION This book brings exciting coverage on establishing and managing data virtualization using polybase. This book teaches how to configure polybase on almost all relational and nonrelational databases. You will learn to set up the test environment for any tool or software instantly without hassle. You will practice how to design and build some of the high performing data warehousing solutions and that too in a few minutes of time. You will almost become an expert in connecting to all databases including hadoop, cassandra, MySQL, PostgreSQL, MariaDB and Oracle database. This book also brings exclusive coverage on how to build data clusters on Azure and using Azure Synapse Analytics. By the end of this book, you just don't administer the polybase for managing big data clusters but rather you learn to optimize and boost the performance for enabling data analytics and ease of data accessibility. WHAT YOU WILL LEARN ● Learn to configure Polybase and process Transact SQL queries with ease. ● Create a Docker container with SQL Server 2019 on Windows and Polybase. ● Establish SQL Server instance with any other software or tool using Polybase ● Connect with Cassandra, MongoDB, MySQL, PostgreSQL, MariaDB, and IBM DB2. WHO THIS BOOK IS FOR This book is for database developers and administrators familiar with the SQL language and command prompt. Managers and decision-makers will also find this book useful. No prior knowledge of any other technology or language is required. TABLE OF CONTENTS 1. What is Data Virtualization (Polybase) 2. History of Polybase 3. Polybase current state 4. Differences with other technologies 5. Usage 6. Future 7. SQL Server 8. Hadoop Cloudera and Hortonworks 9. Windows Azure Storage Blob 10. Spark 11. From Azure Synapse Analytics 12. From Big Data Clusters 13. Oracle 14. Teradata 15. Cassandra 16. MongoDB 17. CosmosDB 18. MySQL 19. PostgreSQL 20. MariaDB 21. SAP HANA 22. IBM DB2 23. Excel

Hands-on DevOps with LinuxBuild and Deploy DevOps Pipelines Using Linux Commands, Terraform, Docker, Vagrant, and Kubernetes (English Edition)BPB Publications

"This course provides an introduction to Docker and Kubernetes using Google cloud platform. You will learn how to use Docker for developing, shipping, and running applications. Also, students will learn how to use Kubernetes to automate deployment, scaling, and management of containerized applications. The hands-on training walks you through the installation of a Docker and Kubernetes cluster from scratch. Students will also learn how to run a Docker container, build a new Docker image and configure it. Over the length of the course, students will use Kubernetes to deploy and manage a simple web application. This is a project based course, and you will work with 02 real world projects within this course: First project is installing WordPress using Google cloud platforms. It includes creating Docker file, images, and containers along with deploying live site Second project entails creation and configuration of back-end and front end master and slave nodes with replication controllers, apps managed by Kubernetes using a cluster of VM's."--Resource description page.

Kick-start your DevOps career by learning how to effectively deploy Kubernetes on Azure in an easy, comprehensive, and fun way with hands-on coding tasks Key Features Understand the fundamentals of Docker and Kubernetes Learn to implement microservices architecture using the Kubernetes platform Discover how you can scale your application workloads in Azure Kubernetes Service (AKS) Book Description From managing versioning efficiently to improving security and portability, technologies such as Kubernetes and Docker have greatly helped cloud deployments and application development. Starting with an introduction to Docker, Kubernetes, and Azure Kubernetes Service (AKS), this book will guide you through deploying an AKS cluster in different ways. You'll then explore the Azure portal by deploying a sample guestbook application on AKS and installing complex Kubernetes apps using Helm. With the help of real-world examples, you'll also get to grips with scaling your application and cluster. As you advance, you'll understand how to overcome common challenges in AKS and secure your application with HTTPS and Azure AD (Active Directory). Finally, you'll explore serverless functions such as HTTP triggered Azure functions and queue triggered functions. By the end of this Kubernetes book, you'll be well-versed with the fundamentals of Azure Kubernetes Service and be able to deploy containerized workloads on Microsoft Azure with minimal management overhead. What you will learn Plan, configure, and run containerized applications in production Use Docker to build apps in containers and deploy them on Kubernetes Improve the configuration and deployment of apps on the Azure Cloud Store your container images securely with Azure Container Registry Install complex Kubernetes applications using Helm Integrate Kubernetes with multiple Azure PaaS services, such as databases, Event Hubs and Functions. Who this book is for This book is for aspiring DevOps professionals, system administrators, developers, and site reliability engineers looking to understand test and deployment processes and improve their efficiency. If you're new to working with containers and orchestration, you'll find this book useful.

Docker for Cross Platform

Learning to Develop, Deploy and Scale Using Docker

Getting Started with Containers in Azure

A Hands-on Introduction to Frameworks and Containers

DevOps: Puppet, Docker, and Kubernetes

Kubernetes Management Design Patterns

Administer Big Data, SQL Queries and Data Accessibility Across Hadoop, Azure, Spark, Cassandra, MongoDB, CosmosDB, MySQL and PostgreSQL (English Edition)

This book will help readers to Deploy web applications securely in Microsoft Azure with docker container and having the need for clustering services to achieve high availability, dynamic scalability, and to monitor applications

*Updated for Docker Community Edition v18.09! Docker book designed for SysAdmins, SREs, Operations staff, Developers and DevOps who are interested in deploying the open source container service Docker. In this book, we'll walk you through installing, deploying, managing, and extending Docker. We're going to do that by first introducing you to the basics of Docker and its components. Then we'll start to use Docker to build containers and services to perform a variety of tasks. We're going to take you through the development lifecycle, from testing to production, and see where Docker fits in and how it can make your life easier. We'll make use of Docker to build test environments for new projects, demonstrate how to integrate Docker with continuous integration workflow, and then how to build application services and platforms. Finally, we'll show you how to use Docker's API and how to extend Docker yourself. We'll teach you how to: * Install Docker. * Take your first steps with a Docker container. * Build Docker images. * Manage and share Docker images. * Run and manage more complex Docker containers. * Deploy Docker containers as part of your testing pipeline. * Build multi-container applications and environments. * Learn about orchestration using Compose and Swarm for the orchestration of Docker containers and Consul for service*

*discovery. * Explore the Docker API. * Getting Help and Extending Docker.*

Leverage Docker best practices in your production apps About This Video Use Docker tricks and techniques to make your Docker-based applications more robust and fault-tolerant Leverage Docker networking and persistence in Docker images to make them fully production-ready Learn how to undertake orchestration of multi-container setups in the cloud using Docker compose In Detail This course will give you new possibilities to get the best out of Docker and enhance your skill set. It covers the key aspects of Docker to allow you to create, deploy, and run production-ready applications with Docker using a practical hands-on approach. In this course, you'll learn to make your storage robust using Docker volumes, ensuring no data loss between containers by leveraging volume lifecycle. You will create and troubleshoot networking in Docker. Next, you will be able to make inter-container communication with best-practice, proven tricks and techniques. We will create a robust image packaging mechanism, and diagnose and debug the most common Docker problems.You will also learn to improve the performance of your set-up by leveraging advanced Docker commands. We will use Kubernetes with Docker to tackle more complex problems of deployment. Finally, you will leverage Docker Compose for orchestrating complex architecture and to create the cloud deployment of multi-container setup with AWS, Azure and GCP. By the end of this course, you will be armed with crucial tips, best practices, and techniques on Docker. You will be able to tackle and troubleshoot Docker issues in production applications. Please note that proficiency with Docker and AWS is assumed for taking this course.

"Feeling uncertain about how to use Docker in the real world? This course will put you at ease. Beginning with single-app deployments and managing a database all the way to building a dynamic architecture with automated service discovery, the course gives examples and code on how to build and deploy your apps in a Docker environment. To get the most out of the class, learners will need access to the toolsets listed in the bullets below, and have a basic understanding of Docker and basic Docker commands."--Resource description page.

Kubernetes: Deploying and managing highly-available and fault-tolerant applications at scale

With EC2, ECS, and EKS

Real World Docker

Cloud Native Microservices with Spring and Kubernetes

A project-based guide

Hands-On Microservices with Kubernetes

Learn Docker in a Month of Lunches

"Docker is used more and more by developers, system administrators & IT administrators every day. Originally, native to Linux it is now being adopted across all platforms. The container idea comes to simplifying application development, testing, and deployment. Using Docker, you have a unique way to package your application. We are going to start with Docker fundamentals, explaining how it works, how to set up and work with it. We will cover advanced topics such as running it on productions and build custom containers.Docker containers wrap up a piece of software in a complete filesystem that contains everything it needs to run: code, runtime, system tools, and system libraries-anything you can install on a server. This guarantees that it will always run the same, regardless of the environment it is running in. Docker Compose is a tool for defining and running multi-container Docker applications. With Compose, you use a Compose file to configure your application's services. Then, using a single command, you create and start all the services from your configuration.You will learn how to host your own Docker Registry and use it to store your images to deploy to production. This is the beginner course on Docker which covers everything required for you to run Docker on your development and production environments."--Resource description page.

Summary Go from zero to production readiness with Docker in 22 bite-sized lessons! Learn Docker in a Month of Lunches is an accessible task-focused guide to Docker on Linux, Windows, or Mac systems. In it, you'll learn practical Docker skills to help you tackle the challenges of modern IT, from cloud migration and microservices to handling legacy systems. There's no excessive theory or niche-use cases—just a quick-and-easy guide to the essentials of Docker you'll use every day. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology The idea behind Docker is simple: package applications in lightweight virtual containers that can be easily installed. The results of this simple idea are huge! Docker makes it possible to manage applications without creating custom infrastructures. Free, open source, and battle-tested, Docker has quickly become must-know technology for developers and administrators. About the book Learn Docker in a Month of Lunches introduces Docker concepts through a series of brief hands-on lessons. Following a learning path perfected by author Elton Stoneman, you'll run containers by chapter 2 and package applications by chapter 3. Each lesson teaches a practical skill you can practice on Windows, macOS, and Linux systems. By the end of the month you'll know how to containerize and run any kind of application with Docker. What's inside Package applications to run in containers Put containers into production Build optimized Docker images Run containerized apps at scale About the reader For IT professionals. No previous Docker experience required. About the author Elton Stoneman is a consultant, a former architect at Docker, a Microsoft MVP, and a Pluralsight author. Table of Contents PART 1 - UNDERSTANDING DOCKER CONTAINERS AND IMAGES 1. Before you begin 2. Understanding Docker and running Hello World 3. Building your own Docker images 4. Packaging applications from source code into Docker Images 5. Sharing images with Docker Hub and other registries 6. Using Docker volumes for persistent storage PART 2 - RUNNING DISTRIBUTED APPLICATIONS IN CONTAINERS 7. Running multi-container apps with Docker Compose 8. Supporting reliability with health checks and dependency checks 9. Adding observability with containerized monitoring 10. Running multiple environments with Docker Compose 11. Building and testing applications with Docker and Docker Compose PART 3 - RUNNING AT SCALE WITH A CONTAINER ORCHESTRATOR 12. Understanding orchestration: Docker Swarm and Kubernetes 13. Deploying distributed applications as stacks in Docker Swarm 14. Automating releases with upgrades and rollbacks 15. Configuring Docker for secure remote access and CI/CD 16. Building Docker images that run anywhere: Linux, Windows, Intel, and Arm PART 4 - GETTING YOUR CONTAINERS READY FOR PRODUCTION 17. Optimizing your Docker images for size, speed, and security 18. Application configuration management in containers 19. Writing and managing application logs with Docker 20. Controlling HTTP traffic to containers with a reverse proxy 21. Asynchronous communication with a message queue 22. Never the end

Get hands-on recipes to automate and manage Linux containers with the Docker 1.6 environment and jump-start your Puppet development About This Book Successfully deploy DevOps with proven solutions and recipes Automate your infrastructure with Puppet and combine powerful DevOps methods Deploy and manage highly scalable applications using Kubernetes streamline the way you manage your applications Who This Book Is For This Learning Path is for developers, system administrators, and DevOps engineers who want to use Puppet, Docker, and Kubernetes in their development, QA, or production environments. This Learning Path assumes experience with Linux administration and requires some experience with command-line usage and basic text file editing. What You Will Learn Discover how to build high availability Kubernetes clusters Deal with inherent issues with container virtualization and container concepts Create services with Docker to enable the swift development and deployment of applications Make optimum use of Docker in a testing environment Create efficient manifests to streamline your deployments Automate Puppet master deployment using Git hooks, r10k, and PuppetDB In Detail With so many IT management and DevOps tools on the market, both open source and commercial, it's difficult to know where to start. DevOps is incredibly powerful when implemented correctly, and here's how to get it done.This Learning Path covers three broad areas: Puppet, Docker, and Kubernetes. This Learning Path is a large resource of recipes to ease your daily DevOps tasks. We begin with recipes that help you develop a complete and expert understanding of Puppet's latest and most advanced features. Then we provide recipes that help you efficiently work with the Docker environment. Finally, we show you how to better manage containers in different scenarios in production using Kubernetes. This course is based on these books: Puppet Cookbook, Third Edition Docker Cookbook Kubernetes Cookbook Style and approach This easy-to-follow tutorial-style guide teaches you precisely how to configure complex systems in Puppet and manage your containers using Kubernetes.

A practical guide to rapidly and efficiently mastering Docker containers, along with tips and tricks learned in the field. About This Book Use Docker containers, horizontal node scaling, modern orchestration tools (Docker Swarm, Kubernetes, and Mesos) and Continuous Integration/Continuous Delivery to manage your infrastructure. Increase service density by turning often-idle machines into hosts for numerous Docker services. Learn what it takes to build a true container infrastructure that is scalable, reliable, and resilient in the face of increased complexities from using container infrastructures. Find out how to identify, debug, and mitigate most real-world, undocumented issues when deploying your own Docker infrastructure. Learn tips and tricks of the trade from existing Docker infrastructures running in production environments. Who This Book Is For This book is aimed at system administrators, developers, DevOps engineers, and software engineers who want to get concrete, hands-on experience deploying multi-tier web applications and containerized microservices using Docker. This book is also for anyone who has worked on deploying services in some fashion and wants to take their small-scale setups to the next level (or simply to learn more about the process). What You Will Learn Set up a working development environment and create a simple web service to demonstrate the basics Learn how to make your service more usable by adding a database and an app server to process logic Add resilience to your services by learning how to horizontally scale with a few containers on a single node Master layering isolation and messaging to simplify and harden the connectivity between containers Learn about numerous issues encountered at scale and their workarounds, from the kernel up to code versioning Automate the most important parts of your infrastructure with continuous integration In Detail Deploying Docker into production is considered to be one of the major pain points in developing large-scale infrastructures, and the documentation available online leaves a lot to be desired. With this book, you will learn everything you wanted to know to effectively scale your deployments globally and build a resilient, scalable, and containerized cloud platform for your own use. The book starts by introducing you to the containerization ecosystem with some concrete and easy-to-digest examples; after that, you will delve into examples of launching multiple instances of the same container. From there, you will cover orchestration, multi-node setups, volumes, and almost every relevant component of this new approach to deploying services. Using intertwined approaches, the book will cover battle-tested tooling, or issues likely to be encountered in real-world scenarios, in detail. You will also learn about the other supporting components required for a true PaaS deployment and discover common options to tie the whole infrastructure together. At the end of the book, you learn to build a small, but functional, PaaS (to appreciate the power of the containerized service approach) and continue to explore real-world approaches to implementing even larger global-scale services. Style and approach This in-depth learning guide shows you how to deploy your applications in production using Docker (from the basic steps to advanced concepts) and how to overcome challenges in Docker-based infrastructures. The book also covers practical use-cases in real-world examples, and provides tips and tricks on the various topics.

Deploy Containers on AWS

Continuous Delivery with Jenkins, Kubernetes, and Terraform

Hands-On Kubernetes on Azure

Deployment with Docker

Pipeline as Code

Introducing Azure Kubernetes Service

Getting Started with Containers in Google Cloud Platform

Build robust and secure applications using the building blocks of DockerKey Featuresa- Understand the fundamentals of Containers.a- Understand the working of the entire Docker ecosystem.a- Learn how to utilize Docker Networking capabilities to its fullest.a- Learn how to secure Docker Containers.a- Get familiar and work with Docker Enterprise Edition.DescriptionThe book starts by introducing Containers and explains how they are different from virtual machines, and why they are the preferred tool for developing applications. You will understand the working of Images, Containers, and their associated Storage and will see how all the moving parts bind together to work synchronously.The book will then focus on Docker Swarm, the mechanism for orchestrating several running Docker containers. It then delves deeper into Docker Networking. Towards the end, you will learn how to secure your applications, especially by leveraging the native features of Docker Enterprise Edition.What will you learna- Learn how to use Docker Images.a- Get to know more about Docker Storage.a- Learn how to use Volume plugins in Docker services.a- Learn how to deploy a service to the Swarm.a- Learn how to manage, scale, and maintain containerized applications.Who this book is forThis book is for anyone who is looking to learn Docker. It is also useful for professionals who are looking to build and deploy web apps using Docker.Table of Contents1. Introduction to Containerization and Docker2. Containers and Images3. Storage Drivers and Volumes4. The Container Network Model and the Docker Bridge5. Docker Swarm6. Docker Networking7. Docker Security-18. Docker Security-IIAbout the AuthorsSaibal Ghosh has spent a substantial part of his career working with databases. However, in the last few years, he gravitated towards the cloud, cloud security, and newer technologies like Docker and Kubernetes. He has developed a deep understanding of these concepts and technologies bolstered by the insight gained from many years of experience working with applications, databases, storage and infrastructure, and the understanding of how data is stored, moved, and secured.He currently works as a Principal Architect in Ericsson India Ltd. and spends a substantial amount of time playing around with Docker and Kubernetes. He holds numerous certifications around applications, databases, cloud, and cloud security and is also a member of Leader's Excellence, Harvard Square.Your LinkedIn Profile:https://www.linkedin.com/in/saibal-ghosh-mle%E2%84%A0-ccsk-prince2-%C2%AE-469b0a7/

Enhance your skills in building scalable infrastructure for your cloud-based applications Key Features Learn to design a scalable architecture by building continuous integration (CI) pipelines with Kubernetes Get an in-depth understanding of role-based access control (RBAC), continuous deployment (CD), and observability Monitor a Kubernetes cluster with Prometheus and Grafana Book Description Kubernetes is among the most popular open-source platforms for automating the deployment, scaling, and operations of application containers across clusters of hosts, providing a container-centric infrastructure. Hands-On Microservices with Kubernetes starts by providing you with in-depth insights into the synergy between Kubernetes and microservices. You will learn how to use Delinkcious, which will serve as a live lab throughout the book to help you understand microservices and Kubernetes concepts in the context of a real-world application. Next, you will get up to speed with setting up a CI/CD pipeline and configuring microservices using Kubernetes ConfigMaps. As you cover later chapters, you will gain hands-

on experience in securing microservices, and implementing REST, gRPC APIs, and a Delinkcious data store. In addition to this, you'll explore the Nuclio project, run a serverless task on Kubernetes, and manage and implement data-intensive tests. Toward the concluding chapters, you'll deploy microservices on Kubernetes and learn to maintain a well-monitored system. Finally, you'll discover the importance of service meshes and how to incorporate Istio into the Delinkcious cluster. By the end of this book, you'll have gained the skills you need to implement microservices on Kubernetes with the help of effective tools and best practices. What you will learn Understand the synergy between Kubernetes and microservices Create a complete CI/CD pipeline for your microservices on Kubernetes Develop microservices on Kubernetes with the Go kit framework using best practices Manage and monitor your system using Kubernetes and open-source tools Expose your services through REST and gRPC APIs Implement and deploy serverless functions as a service Externalize authentication, authorization and traffic shaping using a service mesh Run a Kubernetes cluster in the cloud on Google Kubernetes Engine Who this book is for This book is for developers, DevOps engineers, or anyone who wants to develop large-scale microservice-based systems on top of Kubernetes. If you are looking to use Kubernetes on live production projects or want to migrate existing systems to a modern containerized microservices system, then this book is for you. Coding skills, together with some knowledge of Docker, Kubernetes, and cloud concepts will be useful.

"This course covers microservice fundamentals and advanced topics with a hands-on demonstration of how to implement microservices using real-world examples. Learn how to design and build a microservice software architecture in Python. You will learn to make your applications more reliable and fault-tolerant using microservices with Python, no matter how complex the business logic. This course demonstrates how to design and build an application using a series of microservices. The application in question is an order management system, which we will split up into individual services. In a hands-on manner, you will learn topics such as data modeling, data storage, writing API requests, and you will learn to secure, monitor, and scale your microservices. Finally, you will learn to use Docker's containerization technology to isolate, manage, monitor, and deploy microservices in Docker containers."--Resource description page.

A practical book which will help the readers understand how the container ecosystem and OpenStack work together. About This Book Gets you acquainted with containerization in private cloud Learn to effectively manage and secure your containers in OpenStack Practical use cases on container deployment and management using OpenStack components Who This Book Is For This book is targeted towards cloud engineers, system administrators, or anyone from the production team who works on OpenStack cloud. This book act as an end to end guide for anyone who wants to start using the concept of containerization on private cloud. Some basic knowledge of Docker and Kubernetes will help. What You Will Learn Understand the role of containers in the OpenStack ecosystem Learn about containers and different types of container runtimes tools. Understand containerization in OpenStack with respect to the deployment framework, platform services, application deployment, and security Get skilled in using OpenStack to run your applications inside containers Explore the best practices of using containers in OpenStack. In Detail Containers are one of the most talked about technologies of recent times. They have become increasingly popular as they are changing the way we develop, deploy, and run software applications. OpenStack gets tremendous traction as it is used by many organizations across the globe and as containers gain in popularity and become complex, it's necessary for OpenStack to provide various infrastructure resources for containers, such as compute, network, and storage. Containers in OpenStack answers the question, how can OpenStack keep ahead of the increasing challenges of container technology? You will start by getting familiar with container and OpenStack basics, so that you understand how the container ecosystem and OpenStack work together. To understand networking, managing application services and deployment tools, the book has dedicated chapters for different OpenStack projects: Magnum, Zun, Kuryr, Murano, and Kolla. Towards the end, you will be introduced to some best practices to secure your containers and COE on OpenStack, with an overview of using each OpenStack projects for different use cases. Style and approach An end to end guide for anyone who wants to start using the concept of containerization on private cloud.

The DevOps 2.3 Toolkit
Microservices and Containers
Leverage OpenStack services to make the most of Docker, Kubernetes and Mesos
Learn Docker – Fundamentals of Docker 19.x
Hands-on DevOps with Linux
The Docker Book
Kubernetes for Full-Stack Developers

Take container cluster management to the next level; learn how to administer and configure Kubernetes on CoreOS; and apply suitable management design patterns such as Configmaps, Autoscaling, elastic resource usage, and high availability. Some of the other features discussed are logging, scheduling, rolling updates, volumes, service types, and multiple cloud provider zones. The atomic unit of modular container service in Kubernetes is a Pod, which is a group of containers with a common filesystem and networking. The Kubernetes Pod abstraction enables design patterns for containerized applications similar to object-oriented design patterns. Containers provide some of the same benefits as software objects such as modularity or packaging, abstraction, and reuse. CoreOS Linux is used in the majority of the chapters and other platforms discussed are CentOS with OpenShift, Debian 8 (jessie) on AWS, and Debian 7 for Google Container Engine. CoreOS is the main focus becayse Docker is pre-installed on CoreOS out-of-the-box. CoreOS: Supports most cloud providers (including Amazon AWS EC2 and Google Cloud Platform) and virtualization platforms (such as VMWare and VirtualBox) Provides Cloud-Config for declaratively configuring for OS items such as network configuration (flannel), storage (etcd), and user accounts Provides a production-level infrastructure for containerized applications including automation, security, and scalability Leads the drive for container industry standards and founded appc Provides the most advanced container registry, Quay Docker was made available as open source in March 2013 and has become the most commonly used containerization platform. Kubernetes was open-sourced in June 2014 and has become the most widely used container cluster manager. The first stable version of CoreOS Linux was made available in July 2014 and since has become one of the most commonly used operating system for containers. What You'll Learn Use Kubernetes with Docker Create a Kubernetes cluster on CoreOS on AWS Apply cluster management design patterns Use multiple cloud provider zones Work with Kubernetes and tools like Ansible Discover the Kubernetes-based PaaS platform OpenShift Create a high availability website Build a high availability Kubernetes master cluster Use volumes, configmaps, services, autoscaling, and rolling updates Manage compute resources Configure logging and scheduling Who This Book Is For Linux admins, CoreOS admins, application developers, and container as a service (CAAS) developers. Some pre-requisite knowledge of Linux and Docker is required. Introductory knowledge of Kubernetes is required such as creating a cluster, creating a Pod, creating a service, and creating

and scaling a replication controller. For introductory Docker and Kubernetes information, refer to Pro Docker (Apress) and Kubernetes Microservices with Docker (Apress). Some pre-requisite knowledge about using Amazon Web Services (AWS) EC2, CloudFormation, and VPC is also required.

Docker containers offer simpler, faster, and more robust methods for developing, distributing, and running software than previously available. With this hands-on guide, you'll learn why containers are so important, what you'll gain by adopting Docker, and how to make it part of your development process. Ideal for developers, operations engineers, and system administrators—especially those keen to embrace a DevOps approach—Using Docker will take you from Docker and container basics to running dozens of containers on a multi-host system with networking and scheduling. The core of the book walks you through the steps needed to develop, test, and deploy a web application with Docker. Get started with Docker by building and deploying a simple web application Use Continuous Deployment techniques to push your application to production multiple times a day Learn various options and techniques for logging and monitoring multiple containers Examine networking and service discovery: how do containers find each other and how do you connect them? Orchestrate and cluster containers to address load-balancing, scaling, failover, and scheduling Secure your system by following the principles of defense-in-depth and least privilege

Explore the core functionality of containerizing your applications and making them production-ready Key Features Grasp basic to advanced Docker concepts with this comprehensive guide Get acquainted with Docker containers, Docker images, orchestrators, cloud integration, and networking Learn to simplify dependencies and deploy and test containers in production Book Description Containers enable you to package an application with all the components it needs, such as libraries and other dependencies, and ship it as one package. Docker containers have revolutionized the software supply chain in both small and large enterprises. Starting with an introduction to Docker fundamentals and setting up an environment to work with it, you'll delve into concepts such as Docker containers, Docker images, and Docker Compose. As you progress, the book will help you explore deployment, orchestration, networking, and security. Finally, you'll get to grips with Docker functionalities on public clouds such as Amazon Web Services (AWS), Azure, and Google Cloud Platform (GCP), and learn about Docker Enterprise Edition features. Additionally, you'll also discover the benefits of increased security with the use of containers. By the end of this Docker book, you'll be able to build, ship, and run a containerized, highly distributed application on Docker Swarm or Kubernetes, running on-premises or in the cloud. What you will learn Containerize your traditional or microservice-based applications Develop, modify, debug, and test an application running inside a container Share or ship your application as an immutable container image Build a Docker Swarm and a Kubernetes cluster in the cloud Run a highly distributed application using Docker Swarm or Kubernetes Update or rollback a distributed application with zero downtime Secure your applications with encapsulation, networks, and secrets Troubleshoot a containerized, highly distributed application in the cloud Who this book is for This book is for Linux professionals, system administrators, operations engineers, DevOps engineers, and developers or stakeholders who are interested in getting started with Docker from scratch. No prior experience with Docker containers is required. Users with a Linux system would be able to take full advantage of this book.

Learn Kubernetes in a Month of Lunches is your guide to getting up and running with Kubernetes. Summary In Learn Kubernetes in a Month of Lunches you'll go from "what's a Pod?" to automatically scaling clusters of containers and components in just 22 hands-on lessons, each short enough to fit into a lunch break. Every lesson is task-focused and covers an essential skill on the road to Kubernetes mastery. You'll learn how to smooth container management with Kubernetes, including securing your clusters, and upgrades and rollbacks with zero downtime. No development stack, platform, or background is assumed. Author Elton Stoneman describes all patterns generically, so you can easily apply them to your applications and port them to other projects! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Create apps that 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. Table of Contents PART 1 - FAST TRACK TO KUBERNETES 1 Before you begin 2 Running containers in Kubernetes with Pods and Deployments 3 Connecting Pods over the network with Services 4 Configuring applications with ConfigMaps and Secrets 5 Storing data with volumes, mounts, and claims 6 Scaling applications across multiple Pods with controllers PART 2 - KUBERNETES IN THE REAL WORLD 7 Extending applications with multicontainer Pods 8 Running data-heavy apps with StatefulSets and Jobs 9 Managing app releases with rollouts and rollbacks 10 Packaging and managing apps with Helm 11 App development—Developer workflows and CI/CD PART 3 - PREPARING FOR PRODUCTION 12 Empowering self-healing apps 13 Centralizing logs with Fluentd and Elasticsearch 14 Monitoring applications with Kubernetes with Prometheus 15 Managing incoming traffic with Ingress 16 Securing applications with policies, contexts, and admission control PART 4 - PURE AND APPLIED KUBERNETES 17 Securing resources with role-based access control 18 Deploying Kubernetes: Multinode and multiarchitecture clusters 19 Controlling workload placement and automatic scaling 20 Extending Kubernetes with custom resources and Operators 21 Running serverless

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A hands-on guide for Go developers to build and deploy distributed web apps with the Gin framework