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# Access Free Docker In Practice

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## CLINTON VANESSA

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Get a comprehensive understanding of gRPC fundamentals through real-world examples. With this practical guide, you'll learn how this high-performance interprocess communication protocol is capable of connecting polyglot services in microservices architecture, while providing a rich framework for defining service contracts and data types. Complete with hands-on examples written in Go, Java, Node, and Python, this book also covers the essential techniques and best practices to use gRPC in production systems. Authors Kasun Indrasiri and Danesh Kuruppu discuss the im-

portance of gRPC in the context of microservices development.

Docker is a next-generation platform for simplifying application containerization life-cycle. Docker allows you to create a robust and resilient environment in which you can generate portable, composable, scalable, and stable application containers. This book is a step-by-step guide that will walk you through the various features of Docker from Docker software installation to the impenetrable security of containers. The book starts off by elucidating the installation procedure for Docker and a few troubleshooting techniques. You will be introduced to the process of download-

ing Docker images and running them as containers. You'll learn how to run containers as a service (CaaS) and also discover how to share data among containers. Later on, you'll explore how to establish the link between containers and orchestrate containers using Docker Compose. You will also come across relevant details about application testing inside a container. You will discover how to debug a container using the `docker exec` command and the `nstenter` tool. Finally, you will learn how to secure your containers with SELinux and other proven methods.

Run Docker on AWS and build real-world, secure, and scalable container platforms

on cloud Key Features Configure Docker for the ECS environment Integrate Docker with different AWS tools Implement container networking and deployment at scale Book Description Over the last few years, Docker has been the gold standard for building and distributing container applications. Amazon Web Services (AWS) is a leader in public cloud computing, and was the first to offer a managed container platform in the form of the Elastic Container Service (ECS). Docker on Amazon Web Services starts with the basics of containers, Docker, and AWS, before teaching you how to install Docker on your local machine and establish access to your AWS account. You'll then dig deeper into the ECS, a native container management platform provided by AWS that simplifies management and operation of your Docker clusters and applications for no additional cost. Once you have got to grips with the basics, you'll solve key operational challenges, including secrets management and auto-scaling your infrastructure and applications. You'll explore alternative strategies for deploying and running your Docker applications on AWS, including Fargate and ECS Service Discovery, Elastic Bean-

stalk, Docker Swarm and Elastic Kubernetes Service (EKS). In addition to this, there will be a strong focus on adopting an Infrastructure as Code (IaC) approach using AWS CloudFormation. By the end of this book, you'll not only understand how to run Docker on AWS, but also be able to build real-world, secure, and scalable container platforms in the cloud. What you will learn Build, deploy, and operate Docker applications using AWS Solve key operational challenges, such as secrets management Exploit the powerful capabilities and tight integration of other AWS services Design and operate Docker applications running on ECS Deploy Docker applications quickly, consistently, and reliably using IaC Manage and operate Docker clusters and applications for no additional cost Who this book is for Docker on Amazon Web Services is for you if you want to build, deploy, and operate applications using the power of containers, Docker, and Amazon Web Services. Basic understanding of containers and Amazon Web Services or any other cloud provider will be helpful, although no previous experience of working with these is required.

Quickly learn how to use Docker and con-

tainers in general to create packaged images for easy management, testing, and deployment of software. This practical guide lets you hit the ground running by demonstrating how Docker allows developers to package their application with all of its dependencies and to test and then ship the exact same bundle to production. You'll also learn how Docker enables operations engineers to help the development team quickly iterate on their software. Learn Docker's philosophy, design, and intent Use your own custom software to build Docker images Launch Docker images as running containers Explore advanced Docker concepts and topics Get valuable references to related tools in the Docker ecosystem

Docker does for DevOps what Rails did for web development--it gives you a new set of superpowers. Gone are "works on my machine" woes and lengthy setup tasks, replaced instead by a simple, consistent, Docker-based development environment that will have your team up and running in seconds. Gain hands-on, real-world experience with a tool that's rapidly becoming fundamental to software development. Go

from zero all the way to production as Docker transforms the massive leap of deploying your app in the cloud into a baby step. Docker makes life as a Ruby and Rails developer easier. It helps build, ship, and run your applications, solving major problems you face every day. It allows you to run applications at scale, adding new resources as needed. Docker provides a reliable, consistent environment that's guaranteed to work the same everywhere. Docker lets you do all things DevOps without needing a PhD in infrastructure and operations. Want to spin up a cluster to run your app? No problem. Scale it up or down at will? You bet. Start by running a Ruby script without having Ruby installed on the local machine. Then Dockerize a Rails application and run it using containers, including creating your own custom Docker images tailored for running Rails apps. Describe your app declaratively using Docker Compose, specifying the software dependencies along with everything needed to run the application. Then set up continuous integration, as well as your deployment pipeline and infrastructure. Along the way, find out the best practices for using Docker in development and production

environments. This book gives you a solid foundation on using Docker and fitting it into your development workflow and deployment process. What You Need: All you need is a Windows, Mac OS X or Linux machine to do development on. This book guides you through the process of installing Docker. Some basic familiarity with Linux/Unix is recommended even if you're using a Windows machine.

Use DevOps principles with Google Cloud Platform (GCP) to develop applications and services. This book builds chapter by chapter to a complete real-life scenario, explaining how to build, monitor, and maintain a complete application using DevOps in practice. Starting with core DevOps concepts, continuous integration, and continuous delivery, you'll cover common tools including Jenkins, Docker, and Kubernetes in the context of a real microservices application to deploy in the cloud. You will also create a monitor for your cloud and see how to use its data to prevent errors and improve the stability of the system. By the end of Pro DevOps with Google Cloud Platform, you will be able to deploy, maintain, and monitor a real application with GCP. What You Will Learn Build and deploy appli-

cations and services using DevOps on Google Cloud Platform Maintain a complete continuous integration (CI) and continuous delivery (CD) pipeline Use containerization with Docker and Kubernetes Carry out CD with GCP and Jenkins Create microservices with Jenkins, Docker, and Kubernetes Monitor your newly deployed application and its deployment and performance Set up security and manage your network with GCP Who This Book Is For Developers and software architects who want to implement DevOps in practice. Some prior programming experience is recommended as well as a basic knowledge of a Linux command-line environment.

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. Dock-

er 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.

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

Everyone is capable of accomplishing extraordinary things. If you share this belief, then this book was written for you. In business and in life, handing over the reins to others is inevitable. Everyone will eventually leave their team, retire from being the CEO, or see their kids leave home and lead their own lives. Leading from the Jumpseat enables us to embrace this inevitability. Leading from the Jumpseat is a metaphor for how we can choose to lead. It's about the journey we take so we can hand over

control to others, who are then equipped to continue forward. Peter Docker, co-author of Find Your Why and formerly a founding Igniter at Simon Sinek Inc., delivers the message that leadership is about lifting people up and giving them the space they need so that, when the time is right, they can take the lead. Drawing on his 25-year career in the Royal Air Force, and over 14 years spent partnering with businesses around the world, Peter's goal is to inspire others to Lead from the Jumpseat. Jumpseat Leadership is a way of interacting with people that will enhance performance in any given situation - during normal business, times of crisis, and life in general. Becoming a Jumpseat Leader takes practice and this book is your practical guide to handing over control.

Summary An open source container system, Docker makes deploying applications painless and flexible. Docker is powerful and simple to use, and it makes life easier for developers and administrators alike providing shorter build times, fewer production bugs, and effortless application roll-out. About the Book Docker in Practice is a hands-on guide that covers 101 specific techniques you can use to get the most

out of Docker. Following a cookbook-style Problem/Solution/Discussion format, this practical handbook gives you instantly useful solutions for important problems like effortless server maintenance and configuration, deploying microservices, creating safe environments for experimentation, and much more. As you move through this book, you'll advance from basics to Docker best practices like using it with your Continuous Integration process, automating complex container creation with Chef, and orchestration with Kubernetes. What's Inside Speeding up your DevOps pipeline Cheaply replacing VMs Streamlining your cloud workflow Using the Docker Hub Navigating the Docker ecosystem About the Reader For anyone interested in real-world Docker. About the Authors Ian Miell and Aidan Hobson Sayers have contributed to Docker and have extensive experience building and maintaining commercial Docker-based infrastructures in large-scale environments. Table of Contents PART 1: DOCKER FUNDAMENTALS DISCOVERING DOCKER UNDERSTANDING DOCKER - INSIDE THE ENGINE ROOM PART 2: DOCKER AND DEVELOPMENT USING DOCKER AS A LIGHTWEIGHT VIRTUAL MACHINE DAY-TO--

DAY DOCKER CONFIGURATION MANAGEMENT - GETTING YOUR HOUSE IN ORDER PART 3: DOCKER AND DEVOPS CONTINUOUS INTEGRATION: SPEEDING UP YOUR DEVELOPMENT PIPELINE CONTINUOUS DELIVERY: A PERFECT FIT FOR DOCKER PRINCIPLES NETWORK SIMULATION: REALISTIC ENVIRONMENT TESTING WITHOUT THE PAIN PART 4: DOCKER IN PRODUCTION CONTAINER ORCHESTRATION: MANAGING MULTIPLE DOCKER CONTAINERS DOCKER AND SECURITY PLAIN SAILING - DOCKER IN PRODUCTION AND OPERATIONAL CONSIDERATIONS DOCKER IN PRODUCTION: DEALING WITH CHALLENGES

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 in-

terfaces 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](http://informit.com/register) for convenient access to downloads, updates, and/or corrections as they become available.

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 applica-

tion 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.

Enhance your software deployment workflow using containers Key Features ●Get up-and-running with basic to advanced concepts of Docker ●Get acquainted with concepts such as Docker containers, Docker images, orchestrators and so on. ●Practical test-based approach to learning a prominent containerization tool Book Description Docker containers have revolutionized the software supply chain in small and big enterprises. Never before has a new technology so rapidly penetrated the top 500 enterprises worldwide. Companies that embrace containers and containerize their traditional mission-critical applications have reported savings of at least 50% in total maintenance cost and a reduction of 90% (or more) of the time required to deploy new versions of those

applications. Furthermore they are benefitting from increased security just by using containers as opposed to running applications outside containers. This book starts from scratch, introducing you to Docker fundamentals and setting up an environment to work with it. Then we delve into concepts such as Docker containers, Docker images, Docker Compose, and so on. We will also cover the concepts of deployment, orchestration, networking, and security. Furthermore, we explain Docker functionalities on public clouds such as AWS. By the end of this book, you will have hands-on experience working with Docker containers and orchestrators such as SwarmKit and Kubernetes. What you will learn ●Containerize your traditional or microservice-based application ●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 via encapsulation, networks, and secrets ●Know your options when deploying your containerized app into the cloud Who this

book is for This book is targeted at 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. Learn Docker "infrastructure as code" technology to define a system for performing standard but non-trivial data tasks on medium- to large-scale data sets, using Jupyter as the master controller. It is not uncommon for a real-world data set to fail to be easily managed. The set may not fit well into access memory or may require prohibitively long processing. These are significant challenges to skilled software engineers and they can render the standard Jupyter system unusable. As a solution to this problem, Docker for Data Science proposes using Docker. You will learn how to use existing pre-compiled public images created by the major open-source technologies—Python, Jupyter, Postgres—as well as using the Dockerfile to extend these images to suit your specific purposes. The Docker-Compose technology is examined and you will learn how it can be used to build a linked system with Python churning data behind the scenes and

Jupyter managing these background tasks. Best practices in using existing images are explored as well as developing your own images to deploy state-of-the-art machine learning and optimization algorithms. What You'll Learn Master interactive development using the Jupyter platform Run and build Docker containers from scratch and from publicly available open-source images Write infrastructure as code using the docker-compose tool and its docker-compose.yml file type Deploy a multi-service data science application across a cloud-based system Who This Book Is For Data scientists, machine learning engineers, artificial intelligence researchers, Kagglers, and software developers Start from scratch and develop the essential skills needed to create, deploy, and manage cloud-native applications using Docker Key Features Get a solid understanding of Docker and containers Overcome common problems while containerizing an application Master Docker commands needed for creating, deploying, and running applications Book Description Most applications, even the funky cloud-native microservices ones, need high-performance, production-grade infrastructure to run on. Having im-

peccable knowledge of Docker will help you to thrive in the modern cloud-first world. With this book, you'll gain the skills you need to work with Docker and its containers. The book begins with an introduction to containers and explains its functionality and application in the real world. You'll then get an overview of VMware, Kubernetes, and Docker and learn to install Docker on Windows, Mac, and Linux. Once you've understood the Ops and Dev perspective of Docker, you'll be able to see the big picture and understand what Docker exactly does. The book then turns its attention to the more technical aspects, guiding your through practical exercises covering Docker engine, Docker images, and Docker containers. You'll learn techniques for containerizing an app, deploying apps with Docker Compose, and managing cloud-native applications with Swarm. You'll also build Docker networks and Docker overlay networks and handle applications that write persistent data. Finally, you'll deploy apps with Docker stacks and secure your Docker environment. By the end of this book, you'll be well-versed in Docker and containers and have developed the skills to create, deploy, and run

applications on the cloud. What you will learn Become familiar with the applications of Docker and containers Discover how to pull images into Docker host's local registry Find out how to containerize an app Build and test a Docker overlay network in the swarm mode Use Docker compose to deploy and manage multi-container applications Securely share sensitive data with containers and Swarm services Who this book is for Whether you are a beginner or an experienced developer looking to utilize Docker to develop and operate cloud-native microservices apps, this book is for you. Anyone who wants to learn Docker orchestration, networking, imaging, and security will also find it useful. No prior knowledge of Docker is necessary.

Docker is rapidly changing the way organizations deploy software at scale. However, understanding how Linux containers fit into your workflow—and getting the integration details right—is not a trivial task. With the updated edition of this practical guide, you'll learn how to use Docker to package your applications with all of their dependencies and then test, ship, scale, and support your containers in production. This edition includes significant updates to the ex-

amples and explanations that reflect the substantial changes that have occurred over the past couple of years. Sean Kane and Karl Matthias have added a complete chapter on Docker Compose, deeper coverage of Docker Swarm mode, introductions to both Kubernetes and AWS Fargate, examples on how to optimize your Docker images, and much more. Learn how Docker simplifies dependency management and deployment workflow for your applications Start working with Docker images, containers, and command line tools Use practical techniques to deploy and test Docker containers in production Debug containers by understanding their composition and internal processes Deploy production containers at scale inside your data center or cloud environment Explore advanced Docker topics, including deployment tools, networking, orchestration, security, and configuration

Summary Docker in Action teaches readers how to create, deploy, and manage applications hosted in Docker containers. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Tech-

nology The idea behind Docker is simple. Create a tiny virtual environment, called a container, that holds just your application and its dependencies. The Docker engine uses the host operating system to build and account for these containers. They are easy to install, manage, and remove. Applications running inside containers share resources, making their footprints small. About the Book Docker in Action teaches readers how to create, deploy, and manage applications hosted in Docker containers. After starting with a clear explanation of the Docker model, you will learn how to package applications in containers, including techniques for testing and distributing applications. You will also learn how to run programs securely and how to manage shared resources. Using carefully designed examples, the book teaches you how to orchestrate containers and applications from installation to removal. Along the way, you'll discover techniques for using Docker on systems ranging from dev-and-test machines to full-scale cloud deployments. What's Inside Packaging containers for deployment Installing, managing, and removing containers Working with Docker images Distributing with Docker-

Hub About the Reader Readers need only have a working knowledge of the Linux OS. No prior knowledge of Docker is assumed. About the Author Jeff Nickoloff, a software engineer, has presented Docker and its applications to hundreds of developers and administrators at Desert Code Camp, Amazon.com, and technology meetups. Table of Contents PART 1 KEEPING A TIDY COMPUTER Welcome to Docker Running software in containers Software installation simplified Persistent storage and shared state with volumes Network exposure Limiting risk with isolation PART 2 PACKAGING SOFTWARE FOR DISTRIBUTION Packaging software in images Build automation and advanced image considerations Public and private software distribution Running customized registries PART 3 MULTI-CONTAINER AND MULTI-HOST ENVIRONMENTS Declarative environments with Docker Clusters with Machine and Swarm A concise, fast-paced guide to orchestrating and deploying scalable services with Docker About This Book Explore the new features added to the core Docker Engine to make multi-container orchestration easy Leverage tools such as Docker Machine, Swarm, Compose, and third-party

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

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

Develop and build your Docker images and deploy your Docker containers securely. Key Features Learn Docker installation on different types of OS Get started with developing Docker images Use Docker with your

Jenkins CI/CD system  
Book Description  
Docker is an open source software platform that helps you with creating, deploying, and running your applications using containers. This book is your ideal introduction to Docker and containerization. You will learn how to set up a Docker development environment on a Linux, Mac, or Windows workstation, and learn your way around all the commands to run and manage your Docker images and containers. You will explore the Dockerfile and learn how to build your own enterprise-grade Docker images. Then you will learn about Docker networks, Docker swarm, and Docker volumes, and how to use these features with Docker stacks in order to define, deploy, and maintain highly-scalable, fault-tolerant multi-container applications. Finally, you will learn how to leverage Docker with Jenkins to automate the building of Docker images and the deployment of Docker containers. By the end of this book, you will be well prepared when it comes to using Docker for your next project. What you will learn  
Set up your Docker workstation on various platforms  
Utilize a number of Docker commands with parameters  
Create Docker images using Dock-

erfiles  
Learn how to create and use Docker volumes  
Deploy multi-node Docker swarm infrastructure  
Create and use Docker local and remote networks  
Deploy multi-container applications that are HA and FT  
Use Jenkins to build and deploy Docker images  
Who this book is for  
This guide is for anyone who needs to make a quick decision about using Docker for their next project. It is for developers who want to get started using Docker right away.

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 ex-

plore 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.

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. Learn the key differences between containers and virtual machines. Adopting a project based approach, this book introduces you to a simple Python application to be developed and containerized with Docker. After an introduction to Containers and Docker you'll be guided through Docker installation and configuration. You'll also learn basic functions and commands used in Docker by running a simple container using Docker commands. The book then

moves on to developing a Python based Messaging Bot using required libraries and virtual environment where you'll add Docker Volumes to your project, ensuring your container data is safe. You'll create a database container and link your project to it and finally, bring up the Bot-associated database all at once with Docker Compose. What You'll Learn Build, run, and distribute Docker containers Develop a Python App and containerize it Use Dockerfile to run the Python App Define and run multi-container applications with Docker Compose Work with persisting data generated by and used by Docker containers Who This Book Is For Intermediate developers/DevOps practitioners who are looking to improve their build and release workflow by containerizing applications 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 read-

er 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 roll-backs 15. Configuring Docker for secure re-

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Summary OpenShift in Action is a full reference to Red Hat OpenShift that breaks down this robust container platform so you can use it day-to-day. Combining Docker and Kubernetes, OpenShift is a powerful platform for cluster management, scaling, and upgrading your enterprise apps. It doesn't matter why you use OpenShift—by the end of this book you'll be able to handle every aspect of it, inside and out! Foreword by Jim Whitehurst, Red Hat. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Containers let you package everything into one neat place, and with Red Hat OpenShift you can build, deploy, and run those

packages all in one place! Combining Docker and Kubernetes, OpenShift is a powerful platform for cluster management, scaling, and upgrading your enterprise apps. About the Book OpenShift in Action is a full reference to Red Hat OpenShift that breaks down this robust container platform so you can use it day-to-day. Starting with how to deploy and run your first application, you'll go deep into OpenShift. You'll discover crystal-clear explanations of namespaces, cgroups, and SELinux, learn to prepare a cluster, and even tackle advanced details like software-defined networks and security, with real-world examples you can take to your own work. It doesn't matter why you use OpenShift—by the end of this book you'll be able to handle every aspect of it, inside and out! What's Inside Written by lead OpenShift architects Rock-solid fundamentals of Docker and Kubernetes Keep mission-critical applications up and running Manage persistent storage About the Reader For DevOps engineers and administrators working in a Linux-based distributed environment. About the Authors Jamie Duncan is a cloud solutions architect for Red Hat, focusing on large-scale OpenShift deployments. John Osborne is a principal

OpenShift architect for Red Hat. Table of Contents PART 1 - FUNDAMENTALS Getting to know OpenShift Getting started Containers are Linux PART 2 - CLOUD-NATIVE APPLICATIONS Working with services Autoscaling with metrics Continuous integration and continuous deployment PART 3 - STATEFUL APPLICATIONS Creating and managing persistent storage Stateful applications PART 4 - OPERATIONS AND SECURITY Authentication and resource access Networking Security

Unleash the combination of Docker and Jenkins in order to enhance the DevOps workflow About This Book Build reliable and secure applications using Docker containers. Create a complete Continuous Delivery pipeline using Docker, Jenkins, and Ansible. Deliver your applications directly on the Docker Swarm cluster. Create more complex solutions using multi-containers and database migrations. Who This Book Is For This book is intended to provide a full overview of deep learning. From the beginner in deep learning and artificial intelligence to the data scientist who wants to become familiar with Theano and its supporting libraries, or have an extended un-

derstanding of deep neural nets. Some basic skills in Python programming and computer science will help, as well as skills in elementary algebra and calculus. What You Will Learn Get to grips with docker fundamentals and how to dockerize an application for the Continuous Delivery process Configure Jenkins and scale it using Docker-based agents Understand the principles and the technical aspects of a successful Continuous Delivery pipeline Create a complete Continuous Delivery process using modern tools: Docker, Jenkins, and Ansible Write acceptance tests using Cucumber and run them in the Docker ecosystem using Jenkins Create multi-container applications using Docker Compose Managing database changes inside the Continuous Delivery process and understand effective frameworks such as Cucumber and Flyweight Build clustering applications with Jenkins using Docker Swarm Publish a built Docker image to a Docker Registry and deploy cycles of Jenkins pipelines using community best practices In Detail The combination of Docker and Jenkins improves your Continuous Delivery pipeline using fewer resources. It also helps you scale up your builds, automate tasks and speed up

Jenkins performance with the benefits of Docker containerization. This book will explain the advantages of combining Jenkins and Docker to improve the continuous integration and delivery process of app development. It will start with setting up a Docker server and configuring Jenkins on it. It will then provide steps to build applications on Docker files and integrate them with Jenkins using continuous delivery processes such as continuous integration, automated acceptance testing, and configuration management. Moving on you will learn how to ensure quick application deployment with Docker containers along with scaling Jenkins using Docker Swarm. Next, you will get to know how to deploy applications using Docker images and testing them with Jenkins. By the end of the book, you will be enhancing the DevOps workflow by integrating the functionalities of Docker and Jenkins. Style and approach The book is aimed at DevOps Engineers, developers and IT Operations who want to enhance the DevOps culture using Docker and Jenkins. Even small applications have dozens of components. Large applications may have thousands, which makes them challenging

to install, maintain, and remove. Docker bundles all application components into a package called a container that keeps things tidy and helps manage any dependencies on other applications or infrastructure. Docker in Action, Second Edition teaches you the skills and knowledge you need to create, deploy, and manage applications hosted in Docker containers. This bestseller has been fully updated with new examples, best practices, and entirely new chapters. You'll start with a clear explanation of the Docker model and learn how to package applications in containers, including techniques for testing and distributing applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. Whether you're deploying applications on-premise or in the cloud, this cookbook is for developers, operators, and IT professionals who need practical solutions for using Docker. The recipes in this book will help developers go from zero knowledge to distributed applications packaged and deployed within a couple of chapters. IT professionals will be able to use this cookbook to solve everyday problems, as well as create, run, share, and deploy Docker images

quickly. Operators will learn and understand what developers are excited about and start to adopt the tools that will change the way they work.--

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 State-

fulSets: 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

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 Cont-

inuous 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

Deploy, configure, and run clusters of Docker containers with Swarm About This Book Get to grips with Docker Swarm, one of the key components of the Docker ecosystem. Optimize Swarm and SwarmKit features for scaling massive applications through containers. Learn about Docker's scheduling tricks, high availability, security, and platform scalability. Who This Book Is For If you are a Linux admin or a Docker user who wants to natively manage Docker clusters, then this is the book for you. What You Will Learn Create and manage Swarm Mode clusters of any size Get a backstage view of the biggest Swarms ever built : Swarm2k and Swarm3k, with their 2,300 and 4,700 nodes Discovery

mechanisms and Raft Deploy your containerized app on Swarm Administer Swarm clusters on AWS, Azure, and DigitalOcean Integrate Flocker volumes with Swarm Create and manage Swarms on OpenStack Magnum In Detail Docker Swarm serves as one of the crucial components of the Docker ecosystem and offers a native solution for you to orchestrate containers. It's turning out to be one of the preferred choices for Docker clustering thanks to its recent improvements. This book covers Swarm, Swarm Mode, and SwarmKit. It gives you a guided tour on how Swarm works and how to work with Swarm. It describes how to set up local test installations and then moves to huge distributed infrastructures. You will be shown how Swarm works internally, what's new in Swarmkit, how to automate big Swarm deployments, and how to configure and operate a Swarm cluster on the public and private cloud. This book will teach you how to meet the challenge of deploying massive production-ready applications and a huge number of containers on Swarm. You'll also cover advanced topics that include volumes, scheduling, a Libnetwork deep dive, security, and platform scalabili-

ty. Style and approach A comprehensive guide that covers all aspects of Docker Swarm from setup to customization.

To facilitate scalability and resilience, many organizations now run applications in cloud native environments using containers and orchestration. But how do you know if the deployment is secure? This practical book examines key underlying technologies to help developers, operators, and security professionals assess security risks and determine appropriate solutions. Author Liz Rice, Chief Open Source Officer at Isovalent, looks at how the building blocks commonly used in container-based systems are constructed in Linux. You'll understand what's happening when you deploy containers and learn how to assess potential security risks that could affect your deployments. If you run container applications with kubectl or docker and use Linux command-line tools such as ps and grep, you're ready to get started. Explore attack vectors that affect container deployments Dive into the Linux constructs that underpin containers Examine measures for hardening containers Understand how misconfigurations can compromise container isolation Learn best prac-

tices for building container images Identify container images that have known software vulnerabilities Leverage secure connections between containers Use security tooling to prevent attacks on your deployment

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-de-

mand 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 stu-

dents, 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

Learn how to deploy and test Linux-based Docker containers with the help of real-world use cases **Key Features** Understand how to make a deployment workflow run smoothly with Docker containers Learn Docker and DevOps concepts such as continuous integration and continuous deploy-

ment (CI/CD) Gain insights into using various Docker tools and libraries Book Description Docker is the de facto standard for containerizing apps, and with an increasing number of software projects migrating to containers, it is crucial for engineers and DevOps teams to understand how to build, deploy, and secure Docker environments effectively. Docker for Developers will help you understand Docker containers from scratch while taking you through best practices and showing you how to address security concerns. Starting with an introduction to Docker, you'll learn how to use containers and VirtualBox for development. You'll explore how containers work and develop projects within them after you've explored different ways to deploy and run containers. The book will also show you how to use Docker containers in production in both single-host set-ups and in clusters and deploy them using Jenkins, Kubernetes, and Spinnaker. As you advance, you'll get to grips with monitoring, securing, and scaling Docker using tools such as Prometheus and Grafana. Later, you'll be able to deploy Docker containers to a variety of environments, including the cloud-native Amazon Elastic Kubernetes

Service (Amazon EKS), before finally delving into Docker security concepts and best practices. By the end of the Docker book, you'll be able to not only work in a container-driven environment confidently but also use Docker for both new and existing projects. What you will learn Get up to speed with creating containers and understand how they work Package and deploy your containers to a variety of platforms Work with containers in the cloud and on the Kubernetes platform Deploy and then monitor the health and logs of running containers Explore best practices for working with containers from a security perspective Become familiar with scanning containers and using third-party security tools and libraries Who this book is for If you're a software engineer new to containerization or a DevOps engineer responsible for deploying Docker containers in the cloud and building DevOps pipelines for container-based projects, you'll find this book useful. This Docker containers book is also a handy reference guide for anyone working with a Docker-based DevOps ecosystem or interested in understanding the security implications and best practices for working in container-driven environments.

Get started with Docker on your local machine and progress towards deploying useful applications in production with this simplified, practical guide Key Features Get a working understanding of Docker containers by incorporating them in your development process Complete interesting exercises to learn how to secure and control access of your containers Work with advanced features of Docker to make your development process smoother and reliable Book Description No doubt Docker Containers are the future of highly-scalable software systems and have cost and runtime efficient supporting infrastructure. But learning it might look complex as it comes with many technicalities. This is where The Docker Workshop will help you. Through this workshop, you'll quickly learn how to work with containers and Docker with the help of practical activities. The workshop starts with Docker containers, enabling you to understand how it works. You'll run third party Docker images and also create your own images using Dockerfiles and multi-stage Dockerfiles. Next, you'll create environments for Docker images, and expedite your deployment and testing process with Continuous Integra-

tion. Moving ahead, you'll tap into interesting topics and learn how to implement production-ready environments using Docker Swarm. You'll also apply best practices to secure Docker images and to ensure that production environments are running at maximum capacity. Towards the end, you'll gather skills to successfully move Docker from development to testing, and then into production. While doing so, you'll learn how to troubleshoot issues, clear up resource bottlenecks and optimize the performance of services. By the end of this workshop, you'll be able to utilize Docker containers in real-world use cases. What you will learn

Get a solid understanding of how Docker containers work

Network Docker images and environments to allow communication between services

Build and publish docker images from a CI/CD pipeline

Use Docker Swarm to implement production-ready environments

Find out how to replace Swarm with Kubernetes clusters

Extend your Docker images with Plugins

Who this book is for

This is the right learning asset if you are a developer or a beginner who wants to get a practical understanding of Docker containers. If you have experienced in running command shells or

knowledge of IntelliJ, atom, or VSCode editors, then you will grasp the topics covered here quickly.

Summary

Cloud Native Patterns is your guide to developing strong applications that thrive in the dynamic, distributed, virtual world of the cloud. This book presents a mental model for cloud-native applications, along with the patterns, practices, and tooling that set them apart. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the Technology

Cloud platforms promise the holy grail: near-zero downtime, infinite scalability, short feedback cycles, fault-tolerance, and cost control. But how do you get there? By applying cloudnative designs, developers can build resilient, easily adaptable, web-scale distributed applications that handle massive user traffic and data loads. Learn these fundamental patterns and practices, and you'll be ready to thrive in the dynamic, distributed, virtual world of the cloud.

About the Book

With 25 years of experience under her belt, Cornelia Davis teaches you the practices and patterns that set cloud-native applications apart. With realistic examples and expert advice for work-

ing with apps, data, services, routing, and more, she shows you how to design and build software that functions beautifully on modern cloud platforms. As you read, you will start to appreciate that cloud-native computing is more about the how and why rather than the where. What's inside

The lifecycle of cloud-native apps

Cloud-scale configuration management

Zero downtime upgrades, versioned services, and parallel deploys

Service discovery and dynamic routing

Managing interactions between services, including retries and circuit breakers

About the Reader

Requires basic software design skills and an ability to read Java or a similar language.

About the Author

Cornelia Davis is Vice President of Technology at Pivotal Software. A teacher at heart, she's spent the last 25 years making good software and great software developers.

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You're a developer who knows nothing to Docker. Which is fine, except that you need to create and run your first containerized application using Docker. Don't worry: I have you covered. I've been training hundreds of developers like you during 17 years, and converted my experience into this book. I know from experience teaching what takes more time to learn in Docker, and will spend time only where appropriate. Plus this book is packed with exercises and samples where you run your own containers and create your own Docker images. Read this book, and you can create and run your first containerized application using Docker within a week.

Summary Docker in Practice, Second Edition presents over 100 practical techniques, hand-picked to help you get the

most out of Docker. Following a Problem/Solution/Discussion format, you'll walk through specific examples that you can use immediately, and you'll get expert guidance on techniques that you can apply to a whole range of scenarios. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Docker's simple idea-wrapping an application and its dependencies into a single deployable container-created a buzz in the software industry. Now, containers are essential to enterprise infrastructure, and Docker is the undisputed industry standard. So what do you do after you've mastered the basics? To really streamline your applications and transform your dev process, you need relevant examples and experts who can walk you through them. You need this book. About the Book Docker in Practice, Second Edition teaches you rock-solid, tested Docker techniques, such as replacing VMs, enabling microservices architecture, efficient network modeling, offline productivity, and establishing a container-driven continuous delivery process. Following a cookbook-style problem/solution format, you'll explore real-world use cases

and learn how to apply the lessons to your own dev projects. What's inside Continuous integration and delivery The Kubernetes orchestration tool Streamlining your cloud workflow Docker in swarm mode Emerging best practices and techniques About the Reader Written for developers and engineers using Docker in production. About the Author Ian Miell and Aidan Hobson Sayers are seasoned infrastructure architects working in the UK. Together, they used Docker to transform DevOps at one of the UK's largest gaming companies. Table of Contents PART 1 - DOCKER FUNDAMENTALS Discovering Docker Understanding Docker: Inside the engine room PART 2 - DOCKER AND DEVELOPMENT Using Docker as a lightweight virtual machine Building images Running containers Day-to-day Docker Configuration management: Getting your house in order PART 3 - DOCKER AND DEVOPS Continuous integration: Speeding up your development pipeline Continuous delivery: A perfect fit for Docker principles Network simulation: Realistic environment testing without the pain PART 4 - ORCHESTRATION FROM A SINGLE MACHINE TO THE CLOUD A primer on container orchestration The data center as an

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challenges

Giving you the confidence you need to  
take on Docker in the real world, this

guide is the ultimate book for learning  
Docker, brought to you by Docker Captain  
and leading educator in the container  
ecosystem. --