Docker Up Running Shipping Reliable Containers In Production

If you're reading this then you're interested in learning about Docker and how it works! Operators use Docker to run and manage apps side by side in isolated containers to get better compute density. Enterprises use Docker to build agile software delivery pipelines to ship new features faster, more securely and with confidence for both Linux and Windows software. Images of containers are called containers; they are the objects you'll deal with most. Containers are completely isolated environments; they can have their own processes for services, their own network interfaces, their own mounts just like washing machines except they all share the same OS kernel. An image is a package or a template just like a VM template that you might have worked with in the virtualization world. It is used to create one or more containers. Containers are running instances of images that are isolated and have their own environments and set of processes. In this book, we are coming up with an introduction and technical information about Docker. Everything is well explained in layman terms to help beginners learn, understand and master Docker very fast. This is a preview of what you will learn: - What containers are - What Docker is - Why you might need it - What it can do for you - How to run a Docker container - How to build your own Docker image - Networking in Docker - How to use Docker compose - What Docker registry is - How to deploy your own private registry - Docker for Windows and Mac - Introduction to container orchestration tools like Docker swarm and Kubernetes - And much more! Scroll up and click the BUY NOW button to get started.

Apply Kubernetes beyond the basics of Kubernetes clusters by implementing IAM using OIDC and Active Directory, Layer 4 load balancing using MetalLB, advanced service integration, security, auditing, and CI/CD Key Features Find out how to add enterprise features to a Kubernetes cluster with theory and exercises to guide you Understand advanced topics including load balancing, externalDNS, IDP integration, security, auditing, backup, and CI/CD Create development clusters for unique testing requirements, including running multiple clusters on a single server to simulate an environment Book Description Containerization has changed the DevOps game completely, with Docker and Kubernetes playing important roles in altering the flow of app creation and deployment. This book will help you acquire the knowledge and tools required to integrate Kubernetes clusters in an enterprise environment. The book begins by introducing you to Docker and Kubernetes fundamentals, including a review of basic Kubernetes objects. You'll then get to grips with containerization and understand its core functionalities, including how to create ephemeral multidose clusters using kind. As you make progress, you'll learn about cluster architecture, Kubernetes deployment, and cluster management, and get started with application deployment. Moving on, you'll find out how to integrate your container to a cloud platform and integrate tools including MetalLB, externalDNS, OpenID connect (OIDC), pod security policies (PSPs), Open Policy Agent (OPA), Falco, and Velero. Finally, you will discover how to deploy an entire platform to the cloud using continuous integration and continuous delivery (CI/CD). By the end of this Kubernetes book, you will have learned how to create development clusters for testing applications and Kubernetes components, and be able to secure and audit a cluster by implementing various open-source solutions including OpenUnison, OPA, Falco, Kibana, and Velero. What you will learn Create a multidose Kubernetes cluster using kind Implement Ingress, MetalLB, and ExternalDNS Configure a cluster OIDC using impersonation Map enterprise authorization to Kubernetes Secure clusters using PSPs and OPA Enhance auditing using Falco and EFK Back up your workload for disaster recovery and cluster migration Deploy to a platform using Tekton, GitLab, and ArgoCD Who this book is for This book is for anyone interested in DevOps, containerization, and going beyond basic Kubernetes cluster deployments. DevOps engineers, developers, and system administrators looking to enhance their IT career paths will also find this book helpful. Although some prior experience with Docker and Kubernetes is recommended, this book includes a Kubernetes bootcamp that provides a description of Kubernetes objects to help you if you are new to the topic or need a refresher. Summary 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 system, 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 the 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 source access Networking Security

Leverage Docker to unlock efficient and rapid container deployments to improve your development workflow Key Features Reconfigure Docker hosts to create a logging system with the ElasticSearch-Logstash-Kibana (ELK) stack Tackle the challenges of large-scale container deployment with this fast-paced guide Benchmark the performance of your Docker containers using Apache JMeter Book Description Docker is an enterprise-grade container platform that allows you to build and deploy your apps. Its portable format lets you run your code right from your desktop workstations to popular cloud computing providers. This comprehensive guide will improve your Docker work?ows and ensure your application's production environment runs smoothly. This book starts with a refresher on setting up and running Docker and details the basic setup for creating a Docker Swarm cluster. You will then learn how to automate this cluster by using Chef Server and Cookbook. After that, you will run the Docker
monitoring system with Prometheus and Grafana, and deploy the ELK stack. You will also learn some tips for optimizing Docker images. After deploying containers with the help of Jenkins, you will then move on to a tutorial on using Apache JMeter to analyze your application's performance. You will learn how to use Docker Swarm and NGINX to load-balance your application and how common debugging tools in Linux can be used to troubleshoot Docker containers. By the end of this book, you will be able to integrate all the optimizations that you have learned and put everything into practice in your applications. What you will learn

- Automate provisioning and setting up nodes in a Docker Swarm cluster
- Configure a monitoring system with Prometheus and Grafana
- Use Apache JMeter to create workloads for benchmarking the performance of Docker containers
- Understand how to load-balance an application with Docker Swarm and NGINX
- Deploy strace, tcdump, blktrace, and other Linux debugging tools to troubleshoot containers
- Integrate Docker optimizations for DevOps, Site Reliability Engineering, CI, and CD

Who this book is for

- If you are a software developer with a good understanding of managing Docker services and the Linux file system and are looking for ways to optimize working with Docker containers, then this is the book for you.
- Developers fascinated with containers and workflow automation with benefit from this book.

Includes International shipping & shipbuilding.

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
- 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
- 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.

Legend has it that Google deploys over two billion application containers a week. How's that possible? Google revealed the secret through a project called Kubernetes, an open source cluster orchestrator (based on its internal Borg system) that radically simplifies the task of building, deploying, and maintaining scalable distributed systems in the cloud. This practical guide shows you how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency.

Authors Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and other organizations—explain how this system fits into the lifecycle of a distributed application. You will learn how to use tools and APIs to automate scalable distributed systems, whether it is for online services, machine-learning applications, or a cluster of Raspberry Pi computers. Explore the distributed system challenges that Kubernetes addresses. Dive into containerized application development, using containers such as Docker Create and run containers on Kubernetes, using the docker image format and container runtime. Explore specialized objects essential for running applications in production. Reliably roll out new software versions without downtime or errors. Get examples of how to develop and deploy real-world applications in Kubernetes.

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 examples 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

Updated to cover Docker version 1.10 Docker is quickly changing the way that organizations are deploying software at scale. But understanding how Linux containers fit into your workflow—and getting the integration details right—are not trivial tasks. With 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. Two Lead Site Reliability Engineers at New Relic share much of what they have learned from using Docker in production since shortly after its initial release. Their goal is to help you reap the benefits of this technology while avoiding the many setbacks they experienced. 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-based Linux 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

Microservices offer faster change speeds, better scalability, and cleaner, evolvable system designs. But implementing your first microservices architecture is difficult. How do you make myriad choices, educate your team on all the technical details, and navigate the organization to a successful execution to maximize your chance of success? With this book, authors Ronnie Mitra and Irakli Nadareishvili provide step-by-step guidance for building an effective microservices architecture. Architects and engineers will follow an implementation journey based on techniques and architectures that have proven to work for microservices systems. You'll build an operating model, a microservices design, an infrastructure foundation, and two working microservices, then put those pieces together as a single implementation. For anyone tasked with building microservices or a microservices architecture, this guide is invaluable. Learn an effective and explicit end-to-end microservices system design Define teams, their responsibilities, and guidelines for working together Understand how to slice a big application into a collection of microservices Examine how to isolate and embed data into corresponding microservices Build a simple yet powerful CI/CD pipeline for infrastructure changes Write code for sample microservices Deploy a working microservices application on Amazon Web Services

What do Docker, Kubernetes, and Prometheus have in common? All of these cloud native technologies are written in the Go programming language. This practical book shows you how to use Go's strengths to develop cloud native services that are scalable and resilient, even in an unpredictable environment. You'll explore the composition and construction of these applications, from lower-level features of Go to mid-level design patterns to high-level architectural considerations. Each chapter builds on the lessons of the last, walking intermediate to advanced developers through Go to construct a simple but fully featured distributed key-value store. You'll learn best practices for adopting Go as your development language for solving cloud native management and deployment issues. Learn how cloud native applications differ from other software architectures Understand how Go can solve the challenges of designing scalable distributed services Leverage Go's lower-level features, such as channels and goroutines, to implement a reliable cloud native service Explore what "service reliability" is and what it has to do with cloud native Apply a variety of patterns, abstractions, and tooling to build and manage complex distributed systems 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 Dockerfiles 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. This book presents the latest trends in scientific methods and enabling technologies to advance e-business. It consists of selected high-quality papers from the 16th International Conference on E-Business Engineering (ICEBE 2019), held in Shanghai, China, on 11–13 October 2019. ICEBE is a leading international forum for researchers, engineers, and business specialists to exchange cutting-edge ideas, findings, and experiences in the field of e-business. The book covers a range of topics, including agents for e-business, big data for e-business, Internet of Things, mobile and autonomous computing, security/privacy/trust, service-oriented and cloud computing, software engineering, blockchain, and industry applications.

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 lightweight and shipappable. 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. Docker: Up & Running Shipping Reliable Containers in Production O'Reilly Media

This book constitutes the refereed proceedings of the 6th Latin American High Performance Computing Conference, CARLA 2019, held in Turrialba, Costa Rica, in September 2019. The 32 revised full papers presented were carefully reviewed and selected out of 62 submissions. The papers included in this book are organized according to the conference tracks - regular track on high performance computing: applications; algorithms and models; architectures and infrastructures; and special track on bioinspired processing (BIP): neural and evolutionary approaches; image and signal processing; biodiversity informatics and computational biology. Learn how to automate and manage your Linux containers and improve the overall performance of your system. About This Book- Are you using containers in your organization and want to better manage, scale, and orchestrate apps on the container? Use the recipes in the book to find a reliable solution from experts- This is the first and only book on the market on Kubernetes, and it will show how to manage your containers in production using Kubernetes- Buy this book, simply follow the recipes, and you will be the master of your Linux containers. Who This Book Is For The book is aimed at system administrators who have intermediate level of knowledge with Kubernetes and want to better manage their applications deployed over containers. Also, it will help those administrators who want to maintain and scale applications on these containers. What You Will Learn- Get to know how to build your own container cluster- Deploy and manage highly scalable applications using Kubernetes- Discover how to build high availability Kubernetes clusters- Find out how to build a continuous delivery pipeline for your application- Track metrics and logs for every container running in your cluster- Streamline the way you deploy and manage your applications with large-scale container orchestration- In DetailKubernetes is Google's solution to managing a cluster of containers. Kubernetes provides a declarative API to manage clusters while giving us a lot of flexibility. This book will provide you with recipes to better manage containers in different scenarios in production using Kubernetes. We will start by giving you a quick brush up on how Kubernetes works with containers along with an overview of the main Kubernetes features such as Pods, Replication Controllers, and more. Next, we will teach you how to create Kubernetes cluster and how to run programs on Kubernetes. We'll explain features such as High Availability Kubernetes master setup, using Kubernetes with Docker, and orchestration with Kubernetes.
use Kubernetes works Dive into the details of deploying an application using Kubernetes Learn specialized objects in Kubernetes, such as DaemonSets, jobs, ConfigMaps, and secrets Explore deployments that tie together the lifecycle of a complete application Get practical examples of how to develop and deploy real-world applications in Kubernetes Design, implement, and execute continuous delivery pipelines with a level of flexibility, control, and ease of maintenance that was not possible with Jenkins before. With this practical book, build administrators, developers, testers, and other professionals will learn how the features in Jenkins 2 let you define pipelines as code, leverage integration with other key technologies, and create automated, reliable pipelines to simplify and accelerate your DevOps environments. Author Brent Laster shows you how Jenkins is significantly different from the more traditional, web-only versions of this popular open source automation platform. If you're familiar with Jenkins and want to take advantage of the new technologies to transform your legacy pipelines or build new, automated continuous delivery environments, this is your book. Create continuous delivery pipelines as code with the Jenkins domain-specific language Get practical guidance on how to migrate existing jobs and pipelines Harness best practices and new methods for controlling access and security Explore the structure, implementation, and use of shared pipeline libraries Learn the differences between declarative syntax and scripted syntax Leverage new and existing project types in Jenkins Understand and use the new Blue Ocean graphical interface Take advantage of the capabilities of the underlying OS in your pipeline Integrate analysis tools, artifact management, and containers

Introduction -- Creating and running containers -- Deploying a Kubernetes cluster -- Common kubectl commands -- Pods -- Labels and annotations -- Service discovery -- ReplicaSets -- DaemonSets -- Jobs -- ConfigMaps and secrets -- Deployments -- Integrating storage solutions and Kubernetes -- Deploying real-world applications -- Building a Raspberry Pi Kubernetes cluster Have you ever desired to have an open source containerization platform that doesn't just package applications into containers to be portable for systems running the Windows OS and Linux OS, but one that ensures they run in any environment or platform, and one that ensures that the container can have different applications installed on it to save time? If you've answered YES, keep reading... You Are about to Discover the Ins And Outs of Docker So You Can Start Using It with Confidence, Even If You've Never Used It Before! Docker, which is a hot topic in cloud computing that is difficult to avoid, is the technology that you need to get familiar with to cash in on many opportunities, including continuous development and deployment, better automation of configuration management and world-class IT service agility. Popularly used for developing, shipping and running applications, Docker is the phenomenon that has been enabling developers to isolate applications from their underlying infrastructure to achieve supersonic software delivery while enjoying the benefits of the characteristic lightweight feature of the containers, as well as their flexibility, spaciousness, tenability and versatility. But like most technologies, Docker can feel confusing and overly complex, especially for someone who's new to cloud computing, or a little overwhelming to a developer who's just making the acquaintance of it. As such, you may wonder: What is Docker (good for)? How does this platform really work? How would I benefit from it exactly? How is it different from its predecessors? How do I get started with it? If that's you, then you came to the right place. You are looking at a simple, comprehensive and practical beginners' and intermediates' book that has all the answers to these and many more questions; one that will leave you with an all-inclusive understanding of this platform to know exactly why it has been causing ripples in the cloud computing community. Here's a tiny bit of what you'll discover: A detailed overview of the Docker platform and architecture How to install Docker on Linux, Windows and OSX How to pull Docker images and run containers How to use Docker containers like a pro How to work with Docker images efficiently What you need to know about containers network and data management, and how to work with them... And much more! A recent search on LinkedIn revealed almost 30,000 jobs across the country for developers with knowledge of Docker, a number that keeps increasing. If you're also looking to boost your business with better containerization and the amazing features of Docker, or just increase your skills and become a master Docker to become a DevOps guru, it's about time you made the one positive step, which is to learn and refine your skills. And even if this is your first encounter with Docker, by reading this book, you will feel confident getting started with Docker! Scroll up and click Buy Now With 1-Click or Buy Now to get started!