

Kubernetes For The Enterprise Ubuntu

Building models is a small part of the story when it comes to deploying machine learning applications. The entire process involves developing, orchestrating, deploying, and running scalable and portable machine learning workloads--a process Kubeflow makes much easier. This practical book shows data scientists, data engineers, and platform architects how to plan and execute a Kubeflow project to make their Kubernetes workflows portable and scalable. Authors Josh Patterson, Michael Katzenellenbogen, and Austin Harris demonstrate how this open source platform orchestrates workflows by managing machine learning pipelines. You'll learn how to plan and execute a Kubeflow platform that can support workflows from on-premises to cloud providers including Google, Amazon, and Microsoft. Dive into Kubeflow architecture and learn best practices for using the platform

Understand the process of planning your Kubeflow deployment
Install Kubeflow on an existing on-premises Kubernetes cluster
Deploy Kubeflow on Google Cloud Platform step-by-step from the command line
Use the managed Amazon Elastic Kubernetes Service (EKS) to deploy Kubeflow on AWS
Deploy and manage Kubeflow across a network of Azure cloud data centers around the world
Use KFServing to develop and deploy machine learning models

This is the Rough Cut version of the printed book Start out running a few Docker container images in Ubuntu, Fedora, RHEL, CoreOS or Project Atomic. End up deploying enterprise-quality, multi-container Kubernetes setups in a Linux or cloud environment. In between, learn best practices for building containers from Dockerfile files, integrating them with host storage and networking, and accessing special host privileges. Whether you are a system administrator, software developer or just an enthusiast, Docker Containers: From Start to Enterprise launches you into the latest Docker container technology. Examine fun and useful real-world Docker container examples and learn how to leverage them to build your own Dockerized applications. With Docker Containers: From Start to Enterprise you will be able to: install Docker on standard Linux or specialized container operating systems; set up a private Docker Registry; create, run and investigate Docker images and containers; pull and push containers between local systems and Docker Registries; integrate Docker containers with host networking and storage. orchestrate multiple containers into complex applications with Kubernetes; and employ best practices when developing containerized applications.

Build and deploy scalable cloud applications using Windows containers and Kubernetes

Key Features Run, deploy, and orchestrate containers on the Windows platform with this Kubernetes book Use Microsoft SQL Server 2019 as a data store to deploy Kubernetes applications written in .NET Framework Set up a Kubernetes development environment and deploy clusters with Windows Server 2019 nodes

Book Description With the adoption of Windows containers in Kubernetes, you can now fully leverage the flexibility and robustness of the Kubernetes container orchestration system in the Windows ecosystem. This support will enable you to create new Windows applications and migrate existing ones to the cloud-native stack with the same ease as for Linux-oriented cloud applications. This practical guide takes you through the key concepts involved in packaging Windows-distributed applications into containers and

orchestrating these using Kubernetes. You'll also understand the current limitations of Windows support in Kubernetes. As you advance, you'll gain hands-on experience deploying a fully functional hybrid Linux/Windows Kubernetes cluster for development, and explore production scenarios in on-premises and cloud environments, such as Microsoft Azure Kubernetes Service. By the end of this book, you'll be well-versed with containerization, microservices architecture, and the critical considerations for running Kubernetes in production environments successfully. What you will learn

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

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

Schedule and run application containers using Kubernetes

- Key Features
- Get to grips with a wide range of tools to monitor and secure your deployments
- Manage your container clusters and networks using Kubernetes

Get well-versed with the fundamentals of Kubernetes

Book Description Kubernetes has continued to grow and achieve broad adoption across various industries, helping you to orchestrate and automate container deployments on a massive scale. Based on the recent release of Kubernetes 1.12, *Getting Started with Kubernetes* gives you a complete understanding of how to install a Kubernetes cluster. The book focuses on core Kubernetes constructs, such as pods, services, replica sets, replication controllers, and labels. You will understand cluster-level networking in Kubernetes, and learn to set up external access to applications running in the cluster. As you make your way through the book, you'll understand how to manage deployments and perform updates with minimal downtime. In addition to this, you will explore operational aspects of Kubernetes, such as monitoring and logging, later moving on to advanced concepts such as container security and cluster federation. You'll get to grips with integrating your build pipeline and deployments within a Kubernetes cluster, and be able to understand and interact with open source projects. In the concluding chapters, you'll orchestrate updates behind the scenes, avoid downtime on your cluster, and deal with underlying cloud provider instability within your cluster. By the end of this book, you'll have a complete understanding of the Kubernetes platform and will start deploying applications on it.

What you will learn

- Download, install, and configure the Kubernetes code base
- Set up and access monitoring and logging for Kubernetes clusters
- Set up external access to applications running in the cluster
- Learn how to manage and scale kubernetes with hosted platforms on AWS, Azure, and GCP
- Run multiple clusters and manage them from a single control plane
- Discover top tools for deploying and managing a Kubernetes cluster
- Learn how to get production ready and harden Kubernetes operations, networking, and storage

Who this book is for *Getting Started with Kubernetes* is for developers, system administrators, and DevOps engineers who want to automate the deployment process and scale their applications. No prior knowledge of Kubernetes is required.

Kubernetes radically changes the way applications are built and deployed in the cloud. Since its introduction in 2014, this container orchestrator has become one of the largest and most popular open source projects in the world. The updated edition of this practical book shows developers and ops personnel how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency. Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and beyond—explain how this system fits into the lifecycle of a distributed application. You'll learn how to use tools and APIs to automate scalable distributed systems, whether it's for online services, machine learning applications, or a cluster of Raspberry Pi computers. Create a simple cluster to learn how Kubernetes works Dive into the details of deploying an application using Kubernetes Learn specialized objects in Kubernetes, such as DaemonSets, jobs, ConfigMaps, and secrets Explore deployments that tie together the lifecycle of a complete application Get practical examples of how to develop and deploy real-world applications in Kubernetes 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 enterprise 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 multinode clusters using kind. As you make progress, you'll learn about cluster architecture, Kubernetes cluster 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 multinode 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.

The industry favorite Linux guide Linux Bible, 10th Edition is the ultimate hands-on Linux user guide, whether you're a true beginner or a more advanced user navigating recent changes. This updated tenth edition covers the latest versions of Red Hat Enterprise Linux (RHEL 8), Fedora 30, and Ubuntu 18.04 LTS. It includes information on cloud computing, with new guidance on containerization, Ansible automation, and Kubernetes and OpenShift. With a focus on RHEL 8, this new edition teaches techniques for managing storage, users, and security, while emphasizing simplified administrative techniques with Cockpit. Written by a Red Hat expert, this book provides the clear explanations and step-by-step instructions that demystify Linux and bring the new features seamlessly into your workflow. This useful guide assumes a base of little or no Linux knowledge, and takes you step by step through what you need to know to get the job done. Get Linux up and running quickly Master basic operations and tackle more advanced tasks Get up to date on the recent changes to Linux server system management Bring Linux to the cloud using Openstack and Cloudforms Simplified Linux administration through the Cockpit Web Interface Automated Linux Deployment with Ansible Learn to navigate Linux with Amazon (AWS), Google (GCE), and Microsoft Azure Cloud services Linux Bible, 10th Edition is the one resource you need, and provides the hands-on training that gets you on track in a flash.

Kubernetes has become an essential part of the daily work for most system, network, and cluster administrators today. But to work effectively together on a production-scale Kubernetes system, they must be able to speak the same language. This book provides a clear guide to the layers of complexity and abstraction that come with running a Kubernetes network. Authors James Strong and Vallery Lancey bring you up to speed on the intricacies that Kubernetes has to offer for large container deployments. If you're to be effective in troubleshooting and maintaining a production cluster, you need to be well versed in the abstraction provided at each layer. This practical book shows you how. Learn the Kubernetes networking model Choose the best interface for your clusters from the CNCF Container Network Interface project Explore the networking and Linux primitives that power Kubernetes Quickly troubleshoot networking issues and prevent downtime Examine cloud networking and Kubernetes using the three major providers: Amazon Web Services, Google Cloud, and Microsoft Azure Learn the pros and cons of various network tools--and how to select the best ones for your stack A journey toward containerized applications in production with a cloud-portable, secure, robust and highly available Docker Enterprise platform. Key Features Get an insider's view into the container movement and Docker Enterprise Manage the transformation associated with enterprise container adoption Walk through the enterprise container adoption journey Book Description While known mostly as the open source engine behind tens of millions of server nodes, Docker also offers commercially supported enterprise tooling known as the Docker Enterprise. This platform leverages the deep roots from Docker Engine - Community (formerly Docker CE) and Kubernetes, but adds support and tooling to efficiently operate a secure container platform at scale. With hundreds of enterprises on board, best practices and adoption patterns are emerging rapidly. These learning points can be used to inform adopters and help manage the

enterprise transformation associated with enterprise container adoption. This book starts by explaining the case for Docker Enterprise, as well as its structure and reference architecture. From there, we progress through the PoC, pilot and production stages as a working model for adoption, evolving the platform's design and configuration for each stage and using detailed application examples along the way to clarify and demonstrate important concepts. The book concludes with Docker's impact on other emerging software technologies, such as Blockchain and Serverless computing. By the end of this book, you'll have a better understanding of what it takes to get your enterprise up and running with Docker Enterprise and beyond. What you will learn

Understand why containers are important to an enterprise
Understand the features and components of Docker Enterprise 2
Find out about the PoC, pilot, and production adoption phases
Get to know the best practices for installing and operating Docker Enterprise
Understand what is important for a Docker Enterprise in production
Run Kubernetes on Docker Enterprise
Who this book is for
This book is for Software Architects, DevOps Engineers, Tech Ops, Docker professionals, or any IT professional working with Docker and containers who wants to move containerized workloads to production. This book discusses the enterprise adoption of Docker and Kubernetes, therefore a basic understanding of Docker concepts will be helpful.

Get SQL Server up and running on the Linux operating system and containers. No database professional managing or developing SQL Server on Linux will want to be without this deep and authoritative guide by one of the most respected experts on SQL Server in the industry. Get an inside look at how SQL Server for Linux works through the eyes of an engineer on the team that made it possible. Microsoft SQL Server is one of the leading database platforms in the industry, and SQL Server 2017 offers developers and administrators the ability to run a database management system on Linux, offering proven support for enterprise-level features and without onerous licensing terms. Organizations invested in Microsoft and open source technologies are now able to run a unified database platform across all their operating system investments. Organizations are further able to take full advantage of containerization through popular platforms such as Docker and Kubernetes. Pro SQL Server on Linux walks you through installing and configuring SQL Server on the Linux platform. The author is one of the principal architects of SQL Server for Linux, and brings a corresponding depth of knowledge that no database professional or developer on Linux will want to be without. Throughout this book are internals of how SQL Server on Linux works including an in depth look at the innovative architecture. The book covers day-to-day management and troubleshooting, including diagnostics and monitoring, the use of containers to manage deployments, and the use of self-tuning and the in-memory capabilities. Also covered are performance capabilities, high availability, and disaster recovery along with security and encryption. The book covers the product-specific knowledge to bring SQL Server and its powerful features to life on the Linux platform, including coverage of containerization through Docker and Kubernetes. What You'll Learn

Learn about the history and internal of the unique SQL Server on Linux architecture.
Install and configure Microsoft's flagship database product on the Linux platform
Manage your deployments using container technology through Docker and Kubernetes
Know the basics of building databases, the T-SQL language, and developing applications against SQL Server on Linux
Use tools and features to

diagnose, manage, and monitor SQL Server on Linux Scale your application by learning the performance capabilities of SQL Server Deliver high availability and disaster recovery to ensure business continuity Secure your database from attack, and protect sensitive data through encryption Take advantage of powerful features such as Failover Clusters, Availability Groups, In-Memory Support, and SQL Server's Self-Tuning Engine Learn how to migrate your database from older releases of SQL Server and other database platforms such as Oracle and PostgreSQL Build and maintain schemas, and perform management tasks from both GUI and command line Who This Book Is For Developers and IT professionals who are new to SQL Server and wish to configure it on the Linux operating system. This book is also useful to those familiar with SQL Server on Windows who want to learn the unique aspects of managing SQL Server on the Linux platform and Docker containers. Readers should have a grasp of relational database concepts and be comfortable with the SQL language.

Master the art of container management utilizing the power of Kubernetes. About This Book This practical guide demystifies Kubernetes and ensures that your clusters are always available, scalable, and up to date Discover new features such as autoscaling, rolling updates, resource quotas, and cluster size Master the skills of designing and deploying large clusters on various cloud platforms Who This Book Is For The book is for system administrators and developers who have intermediate level of knowledge with Kubernetes and are now waiting to master its advanced features. You should also have basic networking knowledge. This advanced-level book provides a pathway to master Kubernetes. What You Will Learn Architect a robust Kubernetes cluster for long-time operation Discover the advantages of running Kubernetes on GCE, AWS, Azure, and bare metal See the identity model of Kubernetes and options for cluster federation Monitor and troubleshoot Kubernetes clusters and run a highly available Kubernetes Create and configure custom Kubernetes resources and use third-party resources in your automation workflows Discover the art of running complex stateful applications in your container environment Deliver applications as standard packages In Detail Kubernetes is an open source system to automate the deployment, scaling, and management of containerized applications. If you are running more than just a few containers or want automated management of your containers, you need Kubernetes. This book mainly focuses on the advanced management of Kubernetes clusters. It covers problems that arise when you start using container orchestration in production. We start by giving you an overview of the guiding principles in Kubernetes design and show you the best practises in the fields of security, high availability, and cluster federation. You will discover how to run complex stateful microservices on Kubernetes including advanced features as horizontal pod autoscaling, rolling updates, resource quotas, and persistent storage back ends. Using real-world use cases, we explain the options for network configuration and provides guidelines on how to set up, operate, and troubleshoot various Kubernetes networking plugins. Finally, we cover custom resource development and utilization in automation and maintenance workflows. By the end of this book, you'll know everything you need to know to go from intermediate to advanced level. Style and approach Delving into the design of the Kubernetes platform, the reader will be exposed to the advanced features and best practices of Kubernetes. This book will be an advanced level book which will provide a pathway to master Kubernetes

This book is for anyone who needs to run software using Docker and orchestrate it on Kubernetes. Whether you're a developer, a DevOps manager or a technician, this book should help you create Docker containers then plan and run them as Kubernetes workloads. I assume that you have no previous knowledge about containers or containers orchestration. I made my best to keep this book small, so that you can learn Kubernetes and Docker quickly without getting lost in petty details. If you are looking for a reference book where you'll find answers to all the questions you may have within the next 4 years of your Kubernetes practice, you'll find other heavy books for that. My purpose is to swiftly provide you with the tools you need to create and run your first cloud-ready application using Kubernetes and Docker, then be able to look for more by yourself when needed. Plus this book is packed with exercises and samples where you create, run and manage your own applications as Docker containers on your machine then on a Kubernetes cluster. Read this book, and you can create and run your first Kubernetes application within a week.

Learn how to combine SQL Server's analytics with Azure's flexibility and hybrid connectivity to achieve industry-leading performance and manageability for your cloud database. Key Features Understand platform availability for SQL Server in Azure Explore the benefits and deployment choices offered by SQL IaaS Get to grips with deploying SQL Server on the Linux development ecosystem Book Description Deploying SQL Server on Azure virtual machines allows you to work on full versions of SQL Server in the cloud without having to maintain on-premises hardware. The book begins by introducing you to the SQL portfolio in Azure and takes you through SQL Server IaaS scenarios, before explaining the factors that you need to consider while choosing an OS for SQL Server in Azure VMs. As you progress through the book, you'll explore different VM options and deployment choices for IaaS and understand platform availability, migration tools, and best practices in Azure. In later chapters, you'll learn how to configure storage to achieve optimized performance. Finally, you'll get to grips with the concept of Azure Hybrid Benefit and find out how you can use it to maximize the value of your existing on-premises SQL Server. By the end of this book, you'll be proficient in administering SQL Server on Microsoft Azure and leveraging the tools required for its deployment. What you will learn Choose an operating system for SQL Server in Azure VMs Use the Azure Management Portal to facilitate the deployment process Verify connectivity and network latency in cloud Configure storage for optimal performance and connectivity Explore various disaster recovery options for SQL Server in Azure Optimize SQL Server on Linux Discover how to back up databases to a URL Who this book is for SQL Server on Azure VMs is for you if you are a developer, data enthusiast, or anyone who wants to migrate SQL Server databases to Azure virtual machines. Basic familiarity with SQL Server and managed identities for Azure resources will be a plus.

Leverage the power of MongoDB 4.x to build and administer fault-tolerant database applications Key Features Master the new features and capabilities of MongoDB 4.x Implement advanced data modeling, querying, and administration techniques in MongoDB Includes rich case-studies and best practices followed by expert MongoDB developers Book Description MongoDB is the best platform for working with non-relational data and is considered to be the smartest tool for organizing data in line with business needs. The recently released MongoDB 4.x supports ACID transactions and

makes the technology an asset for enterprises across the IT and fintech sectors. This book provides expertise in advanced and niche areas of managing databases (such as modeling and querying databases) along with various administration techniques in MongoDB, thereby helping you become a successful MongoDB expert. The book helps you understand how the newly added capabilities function with the help of some interesting examples and large datasets. You will dive deeper into niche areas such as high-performance configurations, optimizing SQL statements, configuring large-scale sharded clusters, and many more. You will also master best practices in overcoming database failover, and master recovery and backup procedures for database security. By the end of the book, you will have gained a practical understanding of administering database applications both on premises and on the cloud; you will also be able to scale database applications across all servers. What you will learn Perform advanced querying techniques such as indexing and expressions Configure, monitor, and maintain a highly scalable MongoDB environment Master replication and data sharding to optimize read/write performance Administer MongoDB-based applications on premises or on the cloud Integrate MongoDB with big data sources to process huge amounts of data Deploy MongoDB on Kubernetes containers Use MongoDB in IoT, mobile, and serverless environments Who this book is for This book is ideal for MongoDB developers and database administrators who wish to become successful MongoDB experts and build scalable and fault-tolerant applications using MongoDB. It will also be useful for database professionals who wish to become certified MongoDB professionals. Some understanding of MongoDB and basic database concepts is required to get the most out of this book.

Kubernetes is the operating system of the cloud native world, providing a reliable and scalable platform for running containerized workloads. In this friendly, pragmatic book, cloud experts John Arundel and Justin Domingus show you what Kubernetes can do—and what you can do with it. You'll learn all about the Kubernetes ecosystem, and use battle-tested solutions to everyday problems. You'll build, step by step, an example cloud native application and its supporting infrastructure, along with a development environment and continuous deployment pipeline that you can use for your own applications. Understand containers and Kubernetes from first principles; no experience necessary Run your own clusters or choose a managed Kubernetes service from Amazon, Google, and others Use Kubernetes to manage resource usage and the container lifecycle Optimize clusters for cost, performance, resilience, capacity, and scalability Learn the best tools for developing, testing, and deploying your applications Apply the latest industry practices for security, observability, and monitoring Adopt DevOps principles to help make your development teams lean, fast, and effective While Kubernetes has greatly simplified the task of deploying containerized applications, managing this orchestration framework on a daily basis can still be a complex undertaking. With this practical book, site reliability and DevOps engineers will learn how to build, operate, manage, and upgrade a Kubernetes cluster—whether it resides on cloud infrastructure or on-premises. Brendan Burns, cofounder of Kubernetes, and Craig Tracey, staff field engineer at Heptio, dissect how Kubernetes works internally and demonstrate ways to maintain, adjust, and improve the cluster to suit your particular use case. You'll learn how to make architectural choices for designing a cluster, managing access control, monitoring and alerting, and upgrading

Kubernetes. Dive in and discover how to take full advantage of this orchestration framework's capabilities. Learn how your cluster operates, how developers use it to deploy applications, and how Kubernetes can facilitate a developer's job Adjust, secure, and tune your cluster by understanding Kubernetes APIs and configuration options Detect cluster-level problems early and learn the steps necessary to respond and recover quickly Determine how and when to add libraries, tools, and platforms that build on, extend, or otherwise improve a Kubernetes cluster

In the race to compete in today's fast-moving markets, large enterprises are busy adopting new technologies for creating new products, processes, and business models. But one obstacle on the road to digital transformation is placing too much emphasis on technology, and not enough on the types of processes technology enables. What if different lines of business could build their own services and applications—and decision-making was distributed rather than centralized? This report explores the concept of a digital business platform as a way of empowering individual business sectors to act on data in real time. Much innovation in a digital enterprise will increasingly happen at the edge, whether it involves business users (from marketers to data scientists) or IoT devices. To facilitate the process, your core IT team can provide these sectors with the digital tools they need to innovate quickly. This report explores: Key cultural and organizational changes for developing business capabilities through cross-functional product teams A platform for integrating applications, data sources, business partners, clients, mobile apps, social networks, and IoT devices Creating internal API programs for building innovative edge services in low-code or no-code environments Tools including Integration Platform as a Service, Application Platform as a Service, and Integration Software as a Service The challenge of integrating microservices and serverless architectures Event-driven architectures for processing and reacting to events in real time You'll also learn about a complete pervasive integration solution as a core component of a digital business platform to serve every audience in your organization.

What is the difference between a virtual machine and a Docker container? A virtual machine (VM) is like a house. It is fully contained with its own plumbing and heating and cooling system. If you want another house, you build a new foundation, with new walls, new plumbing, and its own heating and cooling system. VMs are large. They start their own operating systems. Containers are like apartments in an apartment building. They share infrastructure. They can be many different sizes. You can have different sizes depending on the needs. Containers "live" in a Docker host. If you build a house, you need many resources. If you build an apartment building, each unit shares resources. Like an apartment, Docker is smaller and satisfies specific needs, is more agile, and more easily changed. This IBM® Redbooks® publication examines the installation and operation of Docker Enterprise Edition on the IBM Z® platform.

Architect and design highly scalable, robust, clean and highly performant applications in .NET Core About This Book Incorporate architectural soft-skills such as DevOps and Agile methodologies to enhance program-level objectives Gain knowledge of architectural approaches on the likes of SOA architecture and microservices to provide traceability and rationale for architectural decisions Explore a variety of practical use cases and code examples to implement the tools and techniques described in the book Who This Book Is For This book is for experienced .NET developers who are aspiring

to become architects of enterprise-grade applications, as well as software architects who would like to leverage .NET to create effective blueprints of applications. What You Will Learn Grasp the important aspects and best practices of application lifecycle management Leverage the popular ALM tools, application insights, and their usage to monitor performance, testability, and optimization tools in an enterprise Explore various authentication models such as social media-based authentication, 2FA and OpenID Connect, learn authorization techniques Explore Azure with various solution approaches for Microservices and Serverless architecture along with Docker containers Gain knowledge about the recent market trends and practices and how they can be achieved with .NET Core and Microsoft tools and technologies In Detail If you want to design and develop enterprise applications using .NET Core as the development framework and learn about industry-wide best practices and guidelines, then this book is for you. The book starts with a brief introduction to enterprise architecture, which will help you to understand what enterprise architecture is and what the key components are. It will then teach you about the types of patterns and the principles of software development, and explain the various aspects of distributed computing to keep your applications effective and scalable. These chapters act as a catalyst to start the practical implementation, and design and develop applications using different architectural approaches, such as layered architecture, service oriented architecture, microservices and cloud-specific solutions. Gradually, you will learn about the different approaches and models of the Security framework and explore various authentication models and authorization techniques, such as social media-based authentication and safe storage using app secrets. By the end of the book, you will get to know the concepts and usage of the emerging fields, such as DevOps, BigData, architectural practices, and Artificial Intelligence. Style and approach Filled with examples and use cases, this guide takes a no-nonsense approach to show you the best tools and techniques required to become a successful software architect.

Kubernetes has become the dominant container orchestrator, but many organizations that have recently adopted this system are still struggling to run actual production workloads. In this practical book, four software engineers from VMware bring their shared experiences running Kubernetes in production and provide insight on key challenges and best practices. The brilliance of Kubernetes is how configurable and extensible the system is, from pluggable runtimes to storage integrations. For platform engineers, software developers, infosec, network engineers, storage engineers, and others, this book examines how the path to success with Kubernetes involves a variety of technology, pattern, and abstraction considerations. With this book, you will: Understand what the path to production looks like when using Kubernetes Examine where gaps exist in your current Kubernetes strategy Learn Kubernetes's essential building blocks--and their trade-offs Understand what's involved in making Kubernetes a viable location for applications Learn better ways to navigate the cloud native landscape

Kubernetes and Docker - An Enterprise Guide Effectively containerize applications, integrate enterprise systems, and scale applications in your enterprise Packt Publishing Ltd

Migrating Linux to Microsoft Azure enables your organization to maximize the existing investments on Linux and become sustainable with efficient migration of existing Linux

workloads to Azure.

Covers 18.04, 18.10, 19.04, and 19.10 Ubuntu Unleashed 2019 Edition is filled with unique and advanced information for everyone who wants to make the most of the Ubuntu Linux operating system. This new edition has been thoroughly updated, including two new chapters, by a long-time Ubuntu community leader to reflect the exciting new Ubuntu 18.04 LTS release, with forthcoming online updates for 18.10, 19.04, and 19.10 when they are released. Linux writer Matthew Helmke covers all you need to know about Ubuntu 18.04 LTS installation, configuration, productivity, multimedia, development, system administration, server operations, networking, virtualization, security, DevOps, and more—including intermediate-to-advanced techniques you won't find in any other book. Helmke presents up-to-the-minute introductions to Ubuntu's key productivity and web development tools, programming languages, hardware support, and more. You'll find new or improved coverage of the Ubuntu desktop experience, common web servers and software stacks, containers like Docker and Kubernetes, as well as a wealth of systems administration information that is stable and valuable over many years. Configure and use the Ubuntu desktop Get started with multimedia and productivity applications, including LibreOffice Manage Linux services, users, and software packages Administer and run Ubuntu from the command line Automate tasks and use shell scripting Provide secure remote access and configure a secure VPN Manage kernels and modules Administer file, print, email, proxy, LDAP, DNS, and HTTP servers (Apache, Nginx, or alternatives) Learn about new options for managing large numbers of servers Work with databases (both SQL and the newest NoSQL alternatives) Get started with virtualization and cloud deployment, including information about containers Learn the basics about popular programming languages including Python, PHP, Perl, and gain an introduction to new alternatives such as Go and Rust

This IBM® Redpaper™ publication shows you how to deploy a database instance within a container using an IBM Cloud™ Private cluster on IBM Z®. A preinstalled IBM Spectrum™ Scale 5.0.3 cluster file system provides back-end storage for the persistent volumes bound to the database. A container is a standard unit of software that packages code and all its dependencies, so the application runs quickly and reliably from one computing environment to another. By default, containers are ephemeral. However, stateful applications, such as databases, require some type of persistent storage that can survive service restarts or container crashes. IBM provides several products helping organizations build an environment on an IBM Z infrastructure to develop and manage containerized applications, including dynamic provisioning of persistent volumes. As an example for a stateful application, this paper describes how to deploy the relational database MariaDB using a Helm chart. The IBM Spectrum Scale V5.0.3 cluster file system is providing back-end storage for the persistent volumes. This document provides step-by-step guidance regarding how to install and configure the following components: IBM Cloud Private 3.1.2 (including Kubernetes) Docker 18.03.1-ce IBM Storage Enabler for Containers 2.0.0 and 2.1.0 This Redpaper demonstrates how we set up the example for a stateful application in our lab. The paper gives you insights about planning for your implementation. IBM Z server hardware, the IBM Z hypervisor z/VM®, and the IBM Spectrum Scale cluster file system are prerequisites to set up the example environment. The Redpaper is written with the

assumption that you have familiarity with and basic knowledge of the software products used in setting up the environment. The intended audience includes the following roles: Storage administrators IT/Cloud administrators Technologists IT specialists Start using Kubernetes in complex big data and enterprise applications, including Docker containers. Starting with installing Kubernetes on a single node, the book introduces Kubernetes with a simple Hello example and discusses using environment variables in Kubernetes. Next, Kubernetes Microservices with Docker discusses using Kubernetes with all major groups of technologies such as relational databases, NoSQL databases, and in the Apache Hadoop ecosystem. The book concludes with using multi container pods and installing Kubernetes on a multi node cluster. /div "a concise but clear introduction to containers, Docker and Kubernetes, using simple real-world examples to pass on the core concepts, via repetition, and is a very useful enabler." 10/10 Dave Hay MBCS CITP: review for BCS, The Chartered Institute for IT (<http://www.bcs.org/content/conWebDoc/58512>) What You Will Learn Install Kubernetes on a single node Set environment variables Create multi-container pods using Docker Use volumes Use Kubernetes with the Apache Hadoop ecosystem, NoSQL databases, and RDBMSs Install Kubernetes on a multi-node cluster Who This Book Is For Application developers including Apache Hadoop developers, database developers and NoSQL developers.

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 deployment (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.

Design, deploy, and manage large-scale containers using Kubernetes Key Features Gain insight into the latest features of Kubernetes, including Prometheus and API aggregation Discover ways to keep your clusters always available, scalable, and up-to-date Master the skills of designing and deploying large clusters on various cloud platforms Book Description If you are running a number of containers and want to be able to automate the way they're managed, it can be helpful to have Kubernetes at your disposal. This Learning Path guides you through core Kubernetes constructs, such as pods, services, replica sets, replication controllers, and labels. You'll get started by learning how to integrate your build pipeline and deployments in a Kubernetes cluster. As you cover more chapters in the Learning Path, you'll get up to speed with orchestrating updates behind the scenes, avoiding downtime on your cluster, and dealing with underlying cloud provider instability in your cluster. With the help of real-world use cases, you'll also explore options for network configuration, and understand how to set up, operate, and troubleshoot various Kubernetes networking plugins. In addition to this, you'll gain insights into custom resource development and utilization in automation and maintenance workflows. By the end of this Learning Path, you'll have the expertise you need to progress from an intermediate to an advanced level of understanding Kubernetes. This Learning Path includes content from the following Packt products: Getting Started with Kubernetes - Third Edition by Jonathan Baier and Jesse White Mastering Kubernetes - Second Edition by Gigi Sayfan What you will learn Download, install, and configure the Kubernetes code base Create and configure custom Kubernetes resources Use third-party resources in your automation workflows Deliver applications as standard packages Set up and access monitoring and logging for Kubernetes clusters Set up external access to applications running in the cluster Manage and scale Kubernetes with hosted platforms on Amazon Web Services (AWS), Azure, and Google Cloud Platform (GCP) Run multiple clusters and manage them from a single control plane Who this book is for If you are a developer or a system administrator with an intermediate understanding of Kubernetes and want to master its advanced features, then this book is for you. Basic knowledge of networking is required to easily understand the concepts explained.

An architect's guide to designing, implementing, and integrating DevOps in the enterprise Key Features Design a DevOps architecture that is aligned with the overall enterprise architecture Design systems that are ready for AIOps and make the move toward NoOps Architect and implement DevSecOps pipelines, securing the DevOps enterprise Book Description Digital transformation is the new paradigm in enterprises, but the big question remains: is the enterprise ready for transformation using native technology embedded in Agile/DevOps? With this book, you'll see how to design, implement, and integrate DevOps in the enterprise architecture while keeping the Ops team on board and remaining resilient. The focus of the book is not to introduce the hundreds of different tools that are available for implementing DevOps, but instead to show you how to create a successful DevOps architecture. This book provides an

architectural overview of DevOps, AIOps, and DevSecOps – the three domains that drive and accelerate digital transformation. Complete with step-by-step explanations of essential concepts, practical examples, and self-assessment questions, this DevOps book will help you to successfully integrate DevOps into enterprise architecture. You'll learn what AIOps is and what value it can bring to an enterprise. Lastly, you will learn how to integrate security principles such as zero-trust and industry security frameworks into DevOps with DevSecOps. By the end of this DevOps book, you'll be able to develop robust DevOps architectures, know which toolsets you can use for your DevOps implementation, and have a deeper understanding of next-level DevOps by implementing Site Reliability Engineering (SRE). What you will learn Create DevOps architecture and integrate it with the enterprise architecture Discover how DevOps can add value to the quality of IT delivery Explore strategies to scale DevOps for an enterprise Architect SRE for an enterprise as next-level DevOps Understand AIOps and what value it can bring to an enterprise Create your AIOps architecture and integrate it into DevOps Create your DevSecOps architecture and integrate it with the existing DevOps setup Apply zero-trust principles and industry security frameworks to DevOps Who this book is for This book is for enterprise architects and consultants who want to design DevOps systems for the enterprise. It provides an architectural overview of DevOps, AIOps, and DevSecOps. If you're looking to learn about the implementation of various tools within the DevOps toolchain in detail, this book is not for you.

The best reference for Ubuntu Linux Ubuntu Linux is a popular, powerful, and versatile operating system. Now you can get the most out of everything Ubuntu Linux has to offer with the Ubuntu Linux Bible. This complete and comprehensive guide introduces you to Ubuntu and shows you how to use it to its fullest, whether you're a typical desktop user or a system administrator. You'll learn to do everything from reading email to configuring wireless networks. You'll reap huge rewards from this book, regardless of how much prior experience you have with Ubuntu. Get started with Ubuntu Linux and see what's in the newest version (20.04) Learn how to read emails, surf the web, and create and publish documents Take on system administration tasks, like creating and managing users and adding new disks to the system Discover how to use Ubuntu Linux in an enterprise or personal environment Figure out how to set up Ubuntu Linux servers for the web, email, shared printing, and more Find out why Ubuntu Linux is the most popular Linux operating system in the world

Operators are a way of packaging, deploying, and managing Kubernetes applications. A Kubernetes application doesn't just run on Kubernetes; it's composed and managed in Kubernetes terms. Operators add application-specific operational knowledge to a Kubernetes cluster, making it easier to automate complex, stateful applications and to augment the platform. Operators can coordinate application upgrades seamlessly, react to failures automatically, and streamline repetitive maintenance like backups. Think of Operators as site reliability engineers in software. They work by extending the Kubernetes control plane and API, helping systems integrators, cluster administrators, and application developers reliably deploy and manage key services and components. Using real-world examples, authors Jason Dobies and Joshua Wood demonstrate how to use Operators today and how to create Operators for your applications with the Operator Framework and SDK. Learn how to establish a Kubernetes cluster and deploy an Operator Examine a range of Operators from usage to implementation Explore the

three pillars of the Operator Framework: the Operator SDK, the Operator Lifecycle Manager, and Operator Metering Build Operators from the ground up using the Operator SDK Build, package, and run an Operator in development, testing, and production phases Learn how to distribute your Operator for installation on Kubernetes clusters

The way developers design, build, and run software has changed significantly with the evolution of microservices and containers. These modern architectures use new primitives that require a different set of practices than most developers, tech leads, and architects are accustomed to. With this focused guide, Bilgin Ibryam and Roland Huß from Red Hat provide common reusable elements, patterns, principles, and practices for designing and implementing cloud-native applications on Kubernetes. Each pattern includes a description of the problem and a proposed solution with Kubernetes specifics. Many patterns are also backed by concrete code examples. This book is ideal for developers already familiar with basic Kubernetes concepts who want to learn common cloud native patterns. You'll learn about the following pattern categories: Foundational patterns cover the core principles and practices for building container-based cloud-native applications. Behavioral patterns explore finer-grained concepts for managing various types of container and platform interactions. Structural patterns help you organize containers within a pod, the atom of the Kubernetes platform. Configuration patterns provide insight into how application configurations can be handled in Kubernetes. Advanced patterns covers more advanced topics such as extending the platform with operators.

The Practical Guide to Running Docker on Linux Systems or Cloud Environments Whether on your laptop or a remote cloud, Docker can transform how you create, test, deploy, and manage your most critical applications. In Docker Containers , Christopher Negus helps you master Docker containerization from the ground up. You'll start out running a few Docker container images in Ubuntu, Fedora, RHEL, CoreOS, or Project Atomic. By the time you've finished, you'll be deploying enterprise-quality, multi-container Kubernetes setups in modern Linux and cloud environments. Writing for system administrators, software developers, and technology enthusiasts, Negus touches on every aspect of working with Docker: setting up containerized applications, working with both individual and multiple containers, running containers in cloud environments, and developing containers. Teaching through realistic examples of desktop applications, system services, and games, Negus guides you through building and deploying your own Dockerized applications. As you build your expertise, you'll also learn indispensable Docker best practices for building and integrating containers, managing Docker on a day-to-day basis, and much more:

- Understanding what Docker is and what you can do with it
- Installing Docker on standard Linux or specialized container operating systems such as Atomic Host and CoreOS
- Setting up a container runtime environment and private Docker Registry
- Creating, running, and investigating Docker images and containers
- Finding, pulling, saving, loading, and tagging container images
- Pulling and pushing containers between local systems and Docker Registries
- Integrating Docker containers with host networking and storage
- Building containers with the docker build command and Dockerfile files
- Minimizing space consumption and erasing unneeded containers
- Accessing special host privileges from within a container
- Orchestrating multiple containers into complex

applications with Kubernetes • Using super privileged containers in cloud environments • Managing containers in the cloud with Cockpit • Getting started with Docker container development • Learning container build techniques from shared Dockerfiles This book is part of the Pearson Content Update Program. As the technology changes, sections of this book will be updated or new sections will be added. The updates will be delivered to you via a free Web Edition of this book, which can be accessed with any Internet connection.

Securing, observing, and troubleshooting containerized workloads on Kubernetes can be daunting. It requires a range of considerations, from infrastructure choices and cluster configuration to deployment controls and runtime and network security. With this practical book, you'll learn how to adopt a holistic security and observability strategy for building and securing cloud native applications running on Kubernetes. Whether you're already working on cloud native applications or are in the process of migrating to its architecture, this guide introduces key security and observability concepts and best practices to help you unleash the power of cloud native applications. Authors Brendan Creane and Amit Gupta from Tigera take you through the full breadth of new cloud native approaches for establishing security and observability for applications running on Kubernetes. Learn why you need a security and observability strategy for cloud native applications and determine your scope of coverage Understand key concepts behind the book's security and observability approach Explore the technology choices available to support this strategy Discover how to share security responsibilities across multiple teams or roles Learn how to architect Kubernetes security and observability for multicloud and hybrid environments

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

separate services by building an application and then packaging it into Docker containers. Next, you will create an image containing Java Enterprise Application and later run it using Docker. Moving on, the book will focus on Kubernetes and its features and you will learn to deploy a Java application to Kubernetes using Maven and monitor a Java application in production. By the end of the book, you will get hands-on with some more advanced topics to further extend your knowledge about Docker and Kubernetes. Style and approach An easy-to-follow, practical guide that will help Java developers develop, deploy, and manage Java applications efficiently.

With the help of top-notch examples and activities, this workshop helps you to get practical with Docker containers. You'll learn its usage, advantages, and best practices to make the software deployment process smoother.

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 practices 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

Strengthen your applications by adopting Test-Driven Development (TDD), the OpenAPI Specification, Continuous Integration (CI), and container orchestration. Key Features Create production-grade JavaScript applications from scratch Build microservices and deploy them to a Docker container for scaling applications Test and deploy your code with confidence using Travis CI Book Description With the over-abundance of tools in the JavaScript ecosystem, it's easy to feel lost. Build tools, package managers, loaders, bundlers, linters, compilers, transpilers, typecheckers - how do you make sense of it all? In this book, we will build a simple API and React application from scratch. We begin by setting up our development environment using Git, yarn, Babel, and ESLint. Then, we will use Express, Elasticsearch and JSON Web Tokens (JWTs) to build a stateless API service. For the front-end, we will use React, Redux, and Webpack. A central theme in the book is maintaining code quality. As such, we will enforce a Test-Driven Development (TDD) process using Selenium, Cucumber, Mocha, Sinon,

and Istanbul. As we progress through the book, the focus will shift towards automation and infrastructure. You will learn to work with Continuous Integration (CI) servers like Jenkins, deploying services inside Docker containers, and run them on Kubernetes. By following this book, you would gain the skills needed to build robust, production-ready applications. What you will learn Practice Test-Driven Development (TDD) throughout the entire book Use Cucumber, Mocha and Selenium to write E2E, integration, unit and UI tests Build stateless APIs using Express and Elasticsearch Document your API using OpenAPI and Swagger Build and bundle front-end applications using React, Redux and Webpack Containerize services using Docker Deploying scalable microservices using Kubernetes Who this book is for If you're a JavaScript developer looking to expand your skillset and become a senior JavaScript developer by building production-ready web applications, then this book is for you.

Kubernetes is one of the most popular, sophisticated, and fast-evolving container orchestrators. In this book, you'll learn the essentials and find out about the advanced administration and orchestration techniques in Kubernetes. Readers will also learn to manage containers using the latest version of Kubernetes with a recipe-based approach.

It is not only a comprehensive course, you are will not find a course similar to this. The course gradually builds upon core concepts and then practical application by means of hand-on tutorials. In this course, you'll learn and practice: 1. DevOps Best Practices 2. Creating Kubernetes Cluster 3. Creating Kubernetes Instance 4. Work in the Google Cloud platform 5. Install GitLab in Ubuntu Linux within the Google Cloud - See Best Practice in action! 6. Work with Best Practices in installing Runner in Gitlab 7. Best practice with CI/CD Pipelines, and learn hands-on Pipeline fro Kubernetes 8. GitLab Enterprise Installation Best Practice on Kubernetes engine 9. GitLab SSH Keys, AutoDevOps, complete DevOps automation, including agile, waterfall approaches much more.... You'll put your new GitLab DevOps automation skills to the test by solving real-world problems faced by enterprise organizations. You will also get complete resources/commands list with this course! What you'll learn - You will learn Best Practice applied within the entire DevOps life cycle - Learn Gitlab Enterprise Edition and Deploy on Linux Ubuntu Instance on a Kubernetes Cluster - Create Kubernetes Cluster, VM Instances and work with SSH - Gitlab CI/CD Pipeline - Install and Configure Auto DevOps in Gitlab along with Runners for Jobs - Be able to understand complete DevOps life cycle in terms of enterprise software development Course Prerequisite - Google cloud platform credentials are required. You can register for free. - Basic knowledge of Software Development Life cycle (SDLC) is desirable, although not required - Fast Internet Connection - Tech Savvy - CI/CD Workflow is not covered in this course, rather focus on Best practice and Auto DevOps is covered. Per GitLab Auto DevOps is currently in Beta and not recommended for production use. Target Audience - DevOps Engineers - Web Developers - Enterprise Architects and Solution Design

Specialists - Anyone who wants to learn Best Practices within the DevOps Life cycle - Anyone who wants to learn more about Kubernetes - Hands-on - Anyone who wants to learn about GitLab - The only single product for the complete DevOps lifecycle!

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.

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