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Kubernetes: Up and Running-Brendan Burns 2019-10-03 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

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Kubernetes: Up and Running-Kelsey Hightower 2017 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

Managing Kubernetes-Brendan Burns 2018-11-12 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

The Kubernetes Book-Nigel Poulton 2019-06-26 Understand the Kubernetes ecosystem and learn techniques to run fault-tolerant, scalable applicationsKey Features* Gain insight into the inner workings of Kubernetes* Learn how to deploy and manage applications on Kubernetes* Explore ways to build and secure Kubernetes clustersBook DescriptionKubernetes is the leading orchestrator of cloud-native apps. With knowledge of how to work with Kubernetes, you can easily deploy and manage applications on the cloud or in your on-premises data center. The book begins by introducing you to Kubernetes and showing you how to install it. You'll learn how to use Kubernetes Services and bring stable and reliable networking to apps that are deployed on Kubernetes. You'll delve deep into the powerful storage subsystem of Kubernetes and learn how to leverage the variety of external storage backends in your applications. As the book progresses, it shows you how to use features such as DaemonSets, Helm, and RBAC to enhance your Kubernetes applications. You'll explore the six categories of identifying vulnerabilities and look at a few ways to prevent and mitigate them. You'll also look at ways to secure the software delivery pipeline by discussing some image-related best practices. The book ends by sharing with you some resources that'll help take your Kubernetes knowledge to the next level.By the end of the book, you'll have the confidence and skills to leverage all the features of Kubernetes to develop scalable applications.What you will learn* Explore cluster-level and node-level isolation and runtime isolation options* Use Kubernetes Deployments for self-healing, scaling, and updating apps* Manage Kubernetes clusters with kubectl* Write a Container Storage Interface (CSI) plugin to work across multiple orchestrators* Use Kubernetes features such as Jons and CronJobs in your apps* Identify vulnerabilities and learn measures to prevent and mitigate themWho this book is forIf you want to be more comfortable using Kubernetes to orchestrate your containerized applications, this is the ideal book for you. To easily grasp the concepts explained in this book, you must be familiar with Docker and containers.

Kubernetes: Up and Running-Kelsey Hightower 2017-09-07 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 organizatons—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

Kubernetes Best Practices-Brendan Burns 2019-11-14 In this practical guide, four Kubernetes professionals with deep experience in distributed systems, enterprise application development, and open source will guide you through the process of building applications with this container orchestration system. Based on the experiences of companies that are running Kubernetes in production successfully, many of the methods are also backed by concrete code examples. This book is ideal for those already familiar with basic Kubernetes concepts who want to learn common best practices. You'll learn exactly what you need to know to build your best app with Kubernetes the first time. Set up and develop applications in Kubernetes Learn patterns for monitoring, securing your systems, and managing upgrades, rollouts, and rollbacks Understand Kubernetes networking policies and where service mesh fits in Integrate services and legacy applications and develop higher-level platforms on top of Kubernetes Run machine learning workloads in Kubernetes

Istio: Up and Running-Lee Calcote 2019-09-27 You did it. You successfully transformed your application into a microservices architecture. But now that you're running services across different environments—public to public, private to public, virtual machine to container—your cloud native software is beginning to encounter reliability issues. How do you stay on top of this ever-increasing complexity? With the Istio service mesh, you'll be able to manage traffic, control access, monitor, report, get telemetry data, manage quota, trace, and more with resilience across your microservice. In this book, Lee Calcote and Zack Butcher explain why your services need a service mesh and demonstrate step-by-step how Istio fits into the life cycle of a distributed application. You'll learn about the tools and APIs for enabling and managing many of the features found in Istio. Explore the observability challenges Istio addresses Use request routing, traffic shifting, fault injection, and other features essential to running a solid service mesh Generate and collect telemetry information Try different deployment patterns, including A/B, blue/green, and canary Get examples of how to develop and deploy real-world applications with Istio support

Docker: Up & Running-Sean P. Kane 2018-09-07 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

Kubernetes Patterns-Bilgin Ibryam 2019-04-09 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.

gRPC: Up and Running-Kasun Indrasiri 2020-01-23 Get a comprehensive understanding of gRPC fundamentals through real-world examples. With this practical guide, you'll learn how this high-performance interprocess communication protocol is capable of connecting polyglot services in microservices architecture, while providing a rich framework for defining service contracts and data types. Complete with hands-on examples written in Go, Java, Node, and Python, this book also covers the essential techniques and best practices to use gRPC in production systems. Authors Kasun Indrasiri and Danesh Kuruppu discuss the importance of gRPC in the context of microservices development.

Kubernetes Operators-Jason Dobies 2020-02-21 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

Terraform: Up & Running-Yevgeniy Brikman 2019-09-06 Terraform has become a key player in the DevOps world for defining, launching, and managing infrastructure as code (IaC) across a variety of cloud and virtualization platforms, including AWS, Google Cloud, Azure, and more. This hands-on second edition, expanded and thoroughly updated for Terraform version 0.12 and beyond, shows you the fastest way to get up and running. Gruntwork cofounder Yevgeniy (Jim) Brikman walks you through code examples that demonstrate Terraform's simple, declarative programming language for deploying and managing infrastructure with a few commands. Veteran sysadmins, DevOps engineers, and novice developers will quickly go from Terraform basics to running a full stack that can support a massive amount of traffic and a large team of developers. Explore changes from Terraform 0.9 through 0.12, including backends, workspaces, and first-class expressions Learn how to write production-grade Terraform modules Dive into manual and automated testing for Terraform code Compare Terraform to Chef, Puppet, Ansible, CloudFormation, and Salt Stack Deploy server clusters, load balancers, and databases Use Terraform to manage the state of your infrastructure Create reusable infrastructure with Terraform modules Use advanced Terraform syntax to achieve zero-downtime deployment

Programming Kubernetes-Michael Hausenblas 2019-07-18 If you're looking to develop native applications in Kubernetes, this is your guide. Developers and AppOps administrators will learn how to build Kubernetes-native applications that interact directly with the API server to query or update the state of resources. AWS developer advocate Michael Hausenblas and Red Hat principal software engineer Stefan Schimanski explain the characteristics of these apps and show you how to program Kubernetes to build them. You'll explore the basic building blocks of Kubernetes, including the client-go API library and custom resources. All you need to get started is a rudimentary understanding of development and system administration tools and practices, such as package management, the Go programming

language, and Git. Walk through Kubernetes API basics and dive into the server's inner structure Explore Kubernetes's programming interface in Go, including Kubernetes API objects Learn about custom resources—the central extension tools used in the Kubernetes ecosystem Use tags to control Kubernetes code generators for custom resources Write custom controllers and operators and make them production ready Extend the Kubernetes API surface by implementing a custom API server

The Docker Book-James Turnbull 2014-07-14 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.

Introducing Azure Kubernetes Service-Steve Buchanan 2019-12-09 Go from zero to sixty deploying and running a Kubernetes cluster on Microsoft Azure! This hands-on practical guide to Microsoft's Azure Kubernetes Service (AKS), a managed container orchestration platform, arms you with the tools and knowledge you need to easily deploy and operate on this complex platform. Take a journey inside Docker containers, container registries, Kubernetes architecture, Kubernetes components, and core Kubectl commands. Drawing on hard-earned experience in the field, the authors provide just enough theory to help you grasp important concepts, teaching the practical straightforward knowledge you need to start running your own AKS cluster. You will dive into topics related to the deployment and operation of AKS, including Rancher for management, security, networking, storage, monitoring, backup, scaling, identity, package management with HELM, and AKS in CI/CD. What You Will Learn Develop core knowledge of Docker containers, registries, and Kubernetes Gain AKS skills for Microsoft's fastest growing services in the cloud Understand the pros and cons of deploying and operating AKS Deploy and manage applications on the AKS platform Use AKS within a DevOps CI/CD process Who This Book Is For IT professionals who work with DevOps, the cloud, Docker, networking, storage, Linux, or Windows. Experience with cloud, DevOps, Docker, or application development is helpful.

Container Security-Liz Rice 2020-04-06 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

Kubernetes in Action-Marko Luksa 2018-01-20 Summary Kubernetes in Action is a comprehensive guide to effectively developing and running applications in a Kubernetes environment. Before diving into Kubernetes, the book gives an overview of container technologies like Docker, including how to build containers, so that even readers who haven't used these technologies before can get up and running. Purchase of the print book

includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Kubernetes is Greek for "helmsman," your guide through unknown waters. The Kubernetes container orchestration system safely manages the structure and flow of a distributed application, organizing containers and services for maximum efficiency. Kubernetes serves as an operating system for your clusters, eliminating the need to factor the underlying network and server infrastructure into your designs. About the Book Kubernetes in Action teaches you to use Kubernetes to deploy container-based distributed applications. You'll start with an overview of Docker and Kubernetes before building your first Kubernetes cluster. You'll gradually expand your initial application, adding features and deepening your knowledge of Kubernetes architecture and operation. As you navigate this comprehensive guide, you'll explore high-value topics like monitoring, tuning, and scaling. What's Inside Kubernetes' internals Deploying containers across a cluster Securing clusters Updating applications with zero downtime About the Reader Written for intermediate software developers with little or no familiarity with Docker or container orchestration systems. About the Author Marko Luksa is an engineer at Red Hat working on Kubernetes and OpenShift. Table of Contents PART 1 - OVERVIEW Introducing Kubernetes First steps with Docker and Kubernetes PART 2 - CORE CONCEPTS Pods: running containers in Kubernetes Replication and other controllers: deploying managed pods Services: enabling clients to discover and talk to pods Volumes: attaching disk storage to containers ConfigMaps and Secrets: configuring applications Accessing pod metadata and other resources from applications Deployments: updating applications declaratively StatefulSets: deploying replicated stateful applications PART 3 - BEYOND THE BASICS Understanding Kubernetes internals Securing the Kubernetes API server Securing cluster nodes and the network Managing pods' computational resources Automatic scaling of pods and cluster nodes Advanced scheduling Best practices for developing apps Extending Kubernetes

Kubernetes - A Complete DevOps Cookbook-Murat Karslioglu 2020-03-13 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.

Concurrency in Go-Katherine Cox-Buday 2017-07-19 Concurrency can be notoriously difficult to get right, but fortunately, the Go open source programming language makes working with concurrency tractable and even easy. If you're a developer familiar with Go, this practical book demonstrates best practices and patterns to help you incorporate concurrency into your systems. Author Katherine Cox-Buday takes you step-by-step through the process. You'll understand how Go chooses to model concurrency, what issues arise from this model, and how you can compose primitives within this model to solve problems. Learn the skills and tooling you need to confidently write and implement concurrent systems of any size. Understand how Go addresses fundamental problems that make concurrency difficult to do correctly Learn the key differences between concurrency and parallelism Dig into the syntax of Go's memory synchronization primitives Form patterns with these primitives to write maintainable concurrent code Compose patterns into a series of practices that enable you to write large, distributed systems that scale Learn the sophistication behind goroutines and how Go's runtime stitches everything together

Docker Deep Dive-Nigel Poulton 2017-07-12 Feb 2018.This is the ultimate book for learning Docker, brought to you by Docker Captain and leading educator in the container ecosystem Nigel Poulton.

Kubernetes-Craig Berg 2020-06-11 Have you been looking for the most efficient way to develop and deploy applications fast with Kubernetes and make your software development process (and test process) simpler but don't know how to get started? If you've answered YES, keep reading... You Are 1-Click Away From Discovering How To Leverage The Power Of Kubernetes To Streamline And Fasten The Process Of Developing, Deploying And Testing Applications! Truth is, deploying containers is simple, and many software companies don't have a problem with it -at that level. However, when it comes to doing the actual running of containers in production, it becomes a huge problem because then you can end up with countless (sometimes even millions) containers -if you're using micro-services- over time. There is need to deploy, manage and connect them to the outside world- which includes scheduling and distribution, and I bet you wouldn't dare think of going about this process manually because of the size of dev or ops army you'd require to achieve that. Which is where Kubernetes, the best container orchestration system comes in. But you

already know that, don't you? Perhaps you're here because you've been wondering: What is Kubernetes, and how does it work? How is Kubernetes different from other container management systems? What can Kubernetes do? How would it help me? How do I get Kubernetes on my computer system and get started? If you've been asking yourself these or similar questions, this book is about to become the best thing that has happened to your life and business recently (or ever). From the basics of this platform, its main features and pros, to how you can benefit from it and get started with it like a professional, this book offers to you everything you've been looking for! Here's a snapshot of what you'll learn from it: What Kubernetes is and how it works What containers are, and why they're important Why Google Kubernetes is stands out from many of other similar platforms out there The basic features of Kubernetes Details about the Kubernetes master, Node Components and Network How to set up Kubernetes in simple steps on Mac, Windows, Linux, Google Cloud, Microsoft Azure and AWS How to run containers on Kubernetes What you need to learn in advanced Kubernetes concepts including Kubectl, pods, ReplicaSet and Deployments How to work with services, load balancing and networks ...And much more! Are you ready to simplify your daily container workflow to make the (promised) potential of container technology a reality through automation? Are you ready to be able to handle storage, networking, alerting, logs and other tasks for all your containers automatically and join the countless enterprises that are enjoying increased efficiency and high returns following their adoption of this amazing technology? If you are, Scroll up and click Buy Now With 1-Click or Buy Now to get started!

Kafka: The Definitive Guide-Neha Narkhede 2017-08-31 Learn how to take full advantage of Apache Kafka, the distributed, publish-subscribe queue for handling real-time data feeds. With this comprehensive book, you will understand how Kafka works and how it is designed. Authors Neha Narkhede, Gwen Shapira, and Todd Palino show you how to deploy production Kafka clusters; secure, tune, and monitor them; write rock-solid applications that use Kafka; and build scalable stream-processing applications. Learn how Kafka compares to other queues, and where it fits in the big data ecosystem. Dive into Kafka's internal designPick up best practices for developing applications that use Kafka. Understand the best way to deploy Kafka in production monitoring, tuning, and maintenance tasks. Learn how to secure a Kafka cluster.

Programming PyTorch for Deep Learning-Ian Pointer 2019-09-20 Deep learning is changing everything. This machine-learning method has already surpassed traditional computer vision techniques, and the same is happening with NLP. If you're looking to bring deep learning into your domain, this practical book will bring you up to speed on key concepts using Facebook's PyTorch framework. Once author Ian Pointer helps you set up PyTorch on a cloud-based environment, you'll learn how use the framework to create neural architectures for performing operations on images, sound, text, and other types of data. By the end of the book, you'll be able to create neural networks and train them on multiple types of data. Learn how to deploy deep learning models to production Explore PyTorch use cases in companies other than Facebook Learn how to apply transfer learning to images Apply cutting-edge NLP techniques using a model trained on Wikipedia

Sound Systems: Design and Optimization-Bob McCarthy 2016-02-26 Sound Systems: Design and Optimization provides an accessible and unique perspective on the behavior of sound systems in the practical world. The third edition reflects current trends in the audio field thereby providing readers with the newest methodologies and techniques. In this greatly expanded new edition, you'll find clearer explanations, a more streamlined organization, increased coverage of current technologies and comprehensive case studies of the author's award-winning work in the field. As the only book devoted exclusively to modern tools and techniques in this emerging field, Sound Systems: Design and Optimization provides the specialized guidance needed to perfect your design skills. This book helps you: Improve your design and optimization decisions by understanding how audiences perceive reinforced sound Use modern analyzers and prediction programs to select speaker placement, equalization, delay and level settings based on how loudspeakers interact in the space Define speaker array configurations and design strategies that maximize the potential for spatial uniformity Gain a comprehensive understanding of the tools and techniques required to generate a design that will create a successful transmission/reception model

The High-Velocity Edge: How Market Leaders Leverage Operational Excellence to Beat the Competition-Steven Spear 2010-05-07 Generate Better, Faster Results— Using Less Capital and Fewer Resources! "[The High-Velocity Edge] contains ideas that form the basis for structured

continuous learning and improvement in every aspect of our lives. While this book is tailored to business leaders, it should be read by high school seniors, college students, and those already in the workforce. With the broad societal application of these ideas, we can achieve levels of accomplishment not even imagined by most people." The Honorable Paul H. O'Neill, former CEO and Chairman, Alcoa, and Former Secretary of the Treasury "Some firms outperform competitors in many ways at once—cost, speed, innovation, service. How? Steve Spear opened my eyes to the secret of systemizing innovation: taking it from the occasional, unpredictable 'stroke of genius' to something you and your people do month-in, month-out to outdistance rivals." Scott D. Cook, founder and Chairman of the Executive Committee, Intuit, Inc. "Steven Spear connects a deep study of systems with practical management insights and does it better than any organizational scholar I know. [This] is a profoundly important book that will challenge and inspire executives in all industries to think more clearly about the technical and social foundations of organizational excellence." Donald M. Berwick, M.D., M.P.P., President and CEO, Institute for Healthcare Improvement About the Book How can some companies perform so well that their industry counterparts are competitors in name only? Although they operate in the same industry, serve the same market, and even use the same suppliers, these extraordinary, high-velocity organizations consistently outperform all the competition—and, more importantly, continually widen their leads. In The High-Velocity Edge, the reissued edition of five-time Shingo Prize winner Steven J. Spear's critically acclaimed book Chasing the Rabbit, Spear describes what sets market-dominating companies apart and provides a detailed framework you can leverage to surge to the lead in your own industry. Spear examines the internal operations of dominant organizations across a wide spectrum of industries, from technology to design and from manufacturing to health care. While he investigates several great operational triumphs, like top-tier teaching hospitals' fantastic improvements in quality of care, Pratt & Whitney's competitive gains in jet engine design, and the U.S. Navy's breakthroughs in inventing and applying nuclear propulsion, The High-Velocity Edge is not just about the adoration of success. It also takes a critical look at some of the operational missteps that have humbled even the most reputable and respected of companies and organizations. The decades-long prominence of Toyota, for example, is contrasted with the many factors leading to the automaker's sweeping 2010 product recalls. Taken together, these multiple perspectives and in-depth case studies show how to: Build a system of "dynamic discovery" designed to reveal operational problems and weaknesses as they arise Attack and solve problems when and where they occur, converting weaknesses into strengths Disseminate knowledge gained from solving local problems throughout the company as a whole Create managers invested in developing everyone's capacity to continually innovate and improve Whatever kind of company you operate— from technology to fi nance to healthcare— mastery of these four key capabilities will put you on the fast track to operational excellence, where you will generate faster, better results—using less capital and fewer resources. Apply the lessons of Steven J. Spear and gain a high-velocity edge over every competitor in your industry.

Docker Cookbook-Sébastien Goasguen 2015-11-04 Whether you're deploying applications on-premise or in the cloud, this cookbook is for developers, operators, and IT professionals who need practical solutions for using Docker. The recipes in this book will help developers go from zero knowledge to distributed applications packaged and deployed within a couple of chapters. IT professionals will be able to use this cookbook to solve everyday problems, as well as create, run, share, and deploy Docker images quickly. Operators will learn and understand what developers are excited about and start to adopt the tools that will change the way they work.--

Learn Helm-Andrew Block 2020-06-10 A comprehensive introduction to automated application deployment on Kubernetes for beginners Key Features Effectively manage applications deployed in Kubernetes using Helm Learn to install, upgrade, share, and manage applications deployed in Kubernetes Get up and running with a package manager for Kubernetes Book Description Containerization is currently known to be one of the best ways to implement DevOps. While Docker introduced containers and changed the DevOps era, Google developed an extensive container orchestration system, Kubernetes, which is now considered the frontrunner in container orchestration. With the help of this book, you'll explore the efficiency of managing applications running on Kubernetes using Helm. Starting with a short introduction to Helm and how it can benefit the entire container environment, you'll then delve into the architectural aspects, in addition to learning about Helm charts and its use cases. You'll understand how to write Helm charts in order to automate application deployment on Kubernetes. Focused on providing enterprise-ready patterns relating to Helm and automation, the book covers best practices for application development, delivery, and lifecycle management with Helm. By the end of

this Kubernetes book, you will have learned how to leverage Helm to develop an enterprise pattern for application delivery. What you will learn Develop an enterprise automation strategy on Kubernetes using Helm Create easily consumable and configurable Helm charts Use Helm in orchestration tooling and Kubernetes operators Explore best practices for application delivery and life cycle management Leverage Helm in a secure and stable manner that is fit for your enterprise Discover the ins and outs of automation with Helm Who this book is for This book is for Kubernetes developers or administrators who are interested in learning Helm to provide automation for application development on Kubernetes. Although no prior knowledge of Helm is required, basic knowledge of Kubernetes application development will be useful.

Knative Cookbook-Burr Sutter 2020-04-09 Enterprise developers face several challenges when it comes to building serverless applications, such as integrating applications and building container images from source. With more than 60 practical recipes, this cookbook helps you solve these issues with Knative—the first serverless platform natively designed for Kubernetes. Each recipe contains detailed examples and exercises, along with a discussion of how and why it works. If you have a good understanding of serverless computing and Kubernetes core resources such as deployment, services, routes, and replicas, the recipes in this cookbook show you how to apply Knative in real enterprise application development. Authors Kamesh Sampath and Burr Sutter include chapters on autoscaling, build and eventing, observability, Knative on OpenShift, and more. With this cookbook, you'll learn how to: Efficiently build, deploy, and manage modern serverless workloads Apply Knative in real enterprise scenarios, including advanced eventing Monitor your Knative serverless applications effectively Integrate Knative with CI/CD principles, such as using pipelines for faster, more successful production deployments Deploy a rich ecosystem of enterprise integration patterns and connectors in Apache Camel K as Kubernetes and Knative components

Kubernetes Microservices with Docker-Deepak Vohra 2016-04-16 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.

Cloud Native Transformation-Pini Reznik 2019-12-05 In the past few years, going cloud native has been a big advantage for many companies. But it's a tough technique to get right, especially for enterprises with critical legacy systems. This practical hands-on guide examines effective architecture, design, and cultural patterns to help you transform your organization into a cloud native enterprise—whether you're moving from older architectures or creating new systems from scratch. By following Wealth Grid, a fictional company, you'll understand the challenges, dilemmas, and considerations that accompany a move to the cloud. Technical managers and architects will learn best practices for taking on a successful company-wide transformation. Cloud migration consultants Pini Reznik, Jamie Dobson, and Michelle Gienow draw patterns from the growing community of expert practitioners and enterprises that have successfully built cloud native systems. You'll learn what works and what doesn't when adopting cloud native—including how this transition affects not just your technology but also your organizational structure and processes. You'll learn: What cloud native means and why enterprises are so interested in it Common barriers and pitfalls that have affected other companies (and how to avoid them) Context-specific patterns for a successful cloud native transformation How to implement a safe, evolutionary cloud native approach How companies addressed root causes and misunderstandings that hindered their progress Case studies from real-world companies that have succeeded with cloud native transformations

Learn Docker in a Month of Lunches-Elton Stoneman 2020-08-04

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

Bootstrapping Microservices with Docker, Kubernetes, and Terraform-Ashley Davis 2021-03-09 Summary The best way to learn microservices development is to build something! Bootstrapping Microservices with Docker, Kubernetes, and Terraform guides you from zero through to a complete microservices project, including fast prototyping, development, and deployment. You'll get your feet wet using industry-standard tools as you learn and practice the practical skills you'll use for every microservices application. Following a true bootstrapping approach, you'll begin with a simple, familiar application and build up your knowledge and skills as you create and deploy a real microservices project. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Taking microservices from proof of concept to production is a complex, multi-step operation relying on tools like Docker, Terraform, and Kubernetes for packaging and deployment. The best way to learn the process is to build a project from the ground up, and that's exactly what you'll do with this book! About the book In Bootstrapping Microservices with Docker, Kubernetes, and Terraform, author Ashley Davis lays out a comprehensive approach to building microservices. You'll start with a simple design and work layer-by-layer until you've created your own video streaming application. As you go, you'll learn to configure cloud infrastructure with Terraform, package microservices using Docker, and deploy your finished project to a Kubernetes cluster. What's inside Developing and testing microservices applications Working with cloud providers Applying automated testing Implementing infrastructure as code and setting up a continuous delivery pipeline Monitoring, managing, and troubleshooting About the reader Examples are in JavaScript. No experience with microservices, Kubernetes, Terraform, or Docker required. About the author Ashley Davis is a software developer, entrepreneur, stock trader, and the author of Manning's Data Wrangling with JavaScript. Table of Contents 1 Why microservices? 2 Creating your first microservice 3 Publishing your first microservice 4 Data management for microservices 5 Communication between microservices 6 Creating your production environment 7 Getting to continuous delivery 8 Automated testing for microservices 9 Exploring FlixTube 10 Healthy

microservices 11 Pathways to scalability

Docker: Up and Running-Karl Matthias 2015-06-25 Quickly learn how to use Docker and containers in general to create packaged images for easy management, testing, and deployment of software. This practical guide lets you hit the ground running by demonstrating how Docker allows developers to package their application with all of its dependencies and to test and then ship the exact same bundle to production. You'll also learn how Docker enables operations engineers to help the development team quickly iterate on their software. Learn Docker's philosophy, design, and intent Use your own custom software to build Docker images Launch Docker images as running containers Explore advanced Docker concepts and topics Get valuable references to related tools in the Docker ecosystem

Microservices and Containers-Parminder Singh Kocher 2018-04-11 Transition to Microservices and DevOps to Transform Your Software Development Effectiveness Thanks to the tech sector's latest game-changing innovations--the Internet of Things (IoT), software-enabled networking, and software as a service (SaaS), to name a few--there is now a seemingly insatiable demand for platforms and architectures that can improve the process of application development and deployment. In Microservices and Containers, longtime systems architect and engineering team leader Parminder Kocher analyzes two of the hottest new technology trends: microservices and containers. Together, as Kocher demonstrates, microservices and Docker containers can bring unprecedented agility and scalability to application development and deployment, especially in large, complex projects where speed is crucial but small errors can be disastrous. Learn how to leverage microservices and Docker to drive modular architectural design, on-demand scalability, application performance and reliability, time-to-market, code reuse, and exponential improvements in DevOps effectiveness. Kocher offers detailed guidance and a complete roadmap for transitioning from monolithic architectures, as well as an in-depth case study that walks the reader through the migration of an enterprise-class SOA system. Understand how microservices enable you to organize applications into standalone components that are easier to manage, update, and scale Decide whether microservices and containers are worth your investment, and manage the organizational learning curve associated with them Apply best practices for interprocess communication among microservices Migrate monolithic systems in an orderly fashion Understand Docker containers, installation, and interfaces Network, orchestrate, and manage Docker containers effectively Use Docker to maximize scalability in microservices-based applications Apply your learning with an in-depth, hands-on case study Whether you are a software architect/developer or systems professional looking to move on from older approaches or a manager trying to maximize the business value of these technologies, Microservices and Containers will be an invaluable addition to your library. Register your product at informit.com/register for convenient access to downloads, updates, and/or corrections as they become available.

Mastering Bitcoin-Andreas M. Antonopoulos 2017-06-12 Join the technological revolution that's taking the financial world by storm. Mastering Bitcoin is your guide through the seemingly complex world of bitcoin, providing the knowledge you need to participate in the internet of money. Whether you're building the next killer app, investing in a startup, or simply curious about the technology, this revised and expanded second edition provides essential detail to get you started. Bitcoin, the first successful decentralized digital currency, is still in its early stages and yet it's already spawned a multi-billion-dollar global economy open to anyone with the knowledge and passion to participate. Mastering Bitcoin provides the knowledge. You simply supply the passion. The second edition includes:

A broad introduction of bitcoin and its underlying blockchain—ideal for non-technical users, investors, and business executives An explanation of the technical foundations of bitcoin and cryptographic currencies for developers, engineers, and software and systems architects Details of the bitcoin decentralized network, peer-to-peer architecture, transaction lifecycle, and security principles New developments such as Segregated Witness, Payment Channels, and Lightning Network A deep dive into blockchain applications, including how to combine the building blocks offered by this platform into higher-level applications User stories, analogies, examples, and code snippets illustrating key technical concepts

Kubernetes Cookbook-Sébastien Goasguen 2018-02-14 Kubernetes is becoming the de-facto standard for container orchestration and distributed applications management across a microservices framework. With this practical cookbook, you'll learn hands-on recipes for automating the deployment, scaling, and operations of application containers across clusters of hosts. The book's easy-lookup problem-solution-discussion format helps you find the detailed answers you need—quickly. Kubernetes lets you deploy your applications quickly and predictably, so you can efficiently respond to customer demand. This cookbook, ideal for developers and system administers alike, provides the essential knowledge you need to get there. You'll find recipes for: Kubernetes installation Kubernetes API, API groups Application primitives Monitoring Troubleshooting

Building Microservices-Sam Newman 2015-02-02 Annotation Over the past 10 years, distributed systems have become more fine-grained. From the large multi-million line long monolithic applications, we are now seeing the benefits of smaller self-contained services. Rather than heavy-weight, hard to change Service Oriented Architectures, we are now seeing systems consisting of collaborating microservices. Easier to change, deploy, and if required retire, organizations which are in the right position to take advantage of them are yielding significant benefits. This book takes an holistic view of the things you need to be cognizant of in order to pull this off. It covers just enough understanding of technology, architecture, operations and organization to show you how to move towards finer-grained systems.

Heroku: Up and Running-Neil Middleton 2013-11-07 Take full advantage of Heroku's cloud-based hosting services. This guide takes you through the inner workings of this PaaS platform and delivers practical advice for architecting your application to work as efficiently as possible. You'll learn best practices for improving speed and throughput, solving latency issues, locating and fixing problems if your application goes down, and ensuring your deployments go smoothly. By covering everything from basic concepts and primary components to add-on services and advanced topics such as buildpacks, this book helps you effectively deploy and manage your application with Heroku. Learn your way around Heroku with the command line interface Discover several methods for scaling your application to increase throughput Speed up response time through performance optimizations Solve latency issues by deploying your Heroku instance in new regions Choose the right plan for using Heroku's PostgreSQL database-as-a-service Get a checklist of items to consider when deploying your application Find and fix problems during deployment, at runtime, and when your application goes down Understand how Heroku buildpacks work, and learn how customize your own