Deploying And Managing A Cloud Infrastructure Real World Skills For The Comptia Cloud Certification And Beyond Exam Cv0 001

Start deploying, managing, and scaling containerized applications into AWS container infrastructure using Docker on Amazon EC2, Amazon Elastic Container Service (ECS), and AWS Elastic Kubernetes Service (EKS). This step by step practical book will cover all the available container services on AWS and review the usage of each one based on your required scale and cost. Further, you will see how to set up each environment and finally deploy, manage, and scale containerized applications on each one. In the chapter about Elastic Kubernetes Service (EKS), you will learn the process of building and managing Kubernetes clusters on AWS and see how to provision hosts in a matter of minutes, while deploying containers in seconds and making them available globally. Deploy Containers on AWS shows you how to get started with AWS container offerings and manage production or test environments of containerized applications using a hands-on approach with step-by-step instructions. What You Will Learn Deploy and manage containers with Docker on Amazon EC2 Store and retrieve container images using the Amazon EC2 container registry Orchestrate containers with Amazon Elastic Container Service (ECS) Run Kubernetes-managed infrastructure on AWS (EKS) Monitor, manage, back up, and restore containers on AWS Who This Book Is ForDevelopers, cloud and systems administrators, and architects
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
Many companies move workloads to the cloud only to encounter issues with legacy processes and organizational structures. How do you design new operating models for this environment? This practical book shows IT managers, CIOs, and CTOs how to address the hardest part of any cloud transformation: the people and the processes. Author Mike Kavis (Architecting the Cloud) explores lessons learned from enterprises in the midst of cloud transformations. Youâ??ll learn how to rethink your approach from a technology, process, and organizational standpoint to realize the promise of cost optimization, agility, and innovation that public cloud platforms provide. Learn the difference between working in a data center and operating in the cloud Explore patterns and anti-patterns for organizing cloud operating models Get best practices for making the organizational change required for a move to the cloud Understand why site reliability engineering is essential for cloud operations Improve organizational performance through value stream mapping
A practical guide to solving inner development loop problems in cloud-native applications by automating build, push, and deploy boilerplate using SkaffoldKey Features* Learn how to build and deploy cloud-native applications quickly with Kubernetes* Create a production-ready continuous integration and continuous delivery (CI/CD) pipeline for cloud-native apps* Discover ways to create a GitOps-style CD workflow for cloud-native applicationsBook DescriptionKubernetes has become the de facto standard for container orchestration, drastically improving how we deploy and manage cloud-native apps. Although it has simplified the lives of support professionals, we cannot say the same for developers who need to be equipped with better tools to increase productivity. An automated workflow that solves a wide variety of problems that every developer faces can make all the difference!Enter Skaffold - a command-line tool that automates the build, push, and deploy steps for Kubernetes applications.This book is divided into three parts, starting with common challenges encountered by developers in building apps with Kubernetes. The second part covers Skaffold features, its architecture, supported container image builders, and more. In the last part, you'll focus on practical implementation, learning how to deploy Spring Boot apps to cloud platforms such as Google Cloud Platform (GCP) using Skaffold. You'll also create CI/CD pipelines for your cloud-native apps with Skaffold. Although the examples covered in this book are written in Java and Spring Boot, the techniques can be applied to apps built using other technologies too.By the end of this Skaffold book, you'll develop skills that will help accelerate your inner development loop and be able to build and deploy your apps to the Kubernetes cluster with Skaffold.What you will learn* Overcome challenges faced while working in an inner development loop using Skaffold* Accelerate your development workflow using Skaffold* Understand Skaffold's architecture, internal working, and supported CLI commands* Build and deploy containers to Kubernetes using the Skaffold CLI and Cloud Code* Deploy Spring Boot applications to fully managed Kubernetes services such as Google Kubernetes Engine using Skaffold* Explore best practices for developing an app with Skaffold* Avoid common pitfalls when developing cloud-native apps with Skaffold in KubernetesWho this book is forCloud-native application developers, software engineers working with Kubernetes, and DevOps professionals who are looking for a solution to simplify and improve their software development life cycle will find this book useful. Beginner-level knowledge of Docker, Kubernetes, and the container ecosystem is required to get started with this book.
Learn the foundation of cloud computing and how to build your own Microsoft private cloud Written by a team of expert authors who are MVPs and leaders in their respective fields, this one-of-a-kind book is an essential resource for IT administrators who are responsible for implementing and managing a cloud infrastructure. You’ll quickly learn how cloud computing offers significant cost savings while also providing new levels of speed and agility. Serving as a how-to guide, Microsoft Private Cloud Computing walks you through building a secure, internal cloud and delivering it as a service to your company using Microsoft Windows Server Hyper-V and Microsoft System Center Virtual Machine Manager 2012. Walks you through the entire process: understanding cloud computing, understanding the Microsoft concept of a private cloud, deploying a private cloud fabric, deploying services, and building a private cloud, as well as integrating it with Microsoft’s public cloud to create a cross-premises or public cloud Discusses fabric management with System Center Virtual Machine Manager (VMM) 2012 Examines how to provide network and storage with VMM 2012 Looks at the VMM library configuration Discusses private cloud and cloud service management with Microsoft App Controller Microsoft Private Cloud Computing is a must-have comprehensive resource that covers all aspects of implementing a private cloud.
Build cloud native applications in Python About This Book This is the only reliable resource that showcases the tools and techniques you need build robust and resilient cloud native applications in Python Learn how to architect your application on both, the AWS and Azure clouds for high availability Assess, monitor, and troubleshoot your applications in the cloud Who This Book Is For This book is ideal for developers with a basic knowledge of Python who want to learn to build, test, and scale their Python-based applications. No prior experience of writing microservices in Python is required. What You Will Learn Get to know “the way of the cloud”, including why developing good cloud software is fundamentally about mindset and discipline Know what microservices are and how to design them Create reactive applications in the cloud with third-party messaging providers Build massive-scale, user-friendly GUIs with React and Flux Secure cloud-based web applications: the do's, don'ts, and options Plan cloud apps that support continuous delivery and deployment In Detail Businesses today are evolving so rapidly that having their own infrastructure to support their expansion is not feasible. As a result, they have been

resorting to the elasticity of the cloud to provide a platform to build and deploy their highly scalable applications. This book will be the one stop for you to learn all about building cloud-native architectures in Python. It will begin by introducing you to cloud-native architecture and will help break it down for you. Then you'll learn how to build microservices in Python using REST APIs in an event driven approach and you will build the web layer. Next, you'll learn about Interacting data services and building Web views with React, after which we will take a detailed look at application security and performance. Then, you'll also learn how to Dockerize your services. And finally, you'll learn how to deploy the application on the AWS and Azure platforms. We will end the book by discussing some concepts and techniques around troubleshooting problems that might occur with your applications after you've deployed them. This book will teach you how to craft applications that are built as small standard units, using all the proven best practices and avoiding the usual traps. It's a practical book: we're going to build everything using Python 3 and its amazing tooling ecosystem. The book will take you on a journey, the destination of which, is the creation of a complete Python application based on microservices over the cloud platform Style and approach Filled with examples, this book takes a step-by-step approach to teach you each and every configuration you need to make your application highly available and fault tolerant.

For cloud users and providers alike, security is an everyday concern, yet there are very few books covering cloud security as a main subject. This book will help address this information gap from an Information Technology solution and usage-centric view of cloud infrastructure security. The book highlights the fundamental technology components necessary to build and enable trusted clouds. Here also is an explanation of the security and compliance challenges organizations face as they migrate mission-critical applications to the cloud, and how trusted clouds, that have their integrity rooted in hardware, can address these challenges. This book provides: Use cases and solution reference architectures to enable infrastructure integrity and the creation of trusted pools leveraging Intel Trusted Execution Technology (TXT). Trusted geo-location management in the cloud, enabling workload and data location compliance and boundary control usages in the cloud. OpenStack-based reference architecture of tenant-controlled virtual machine and workload protection in the cloud. A reference design to enable secure hybrid clouds for a cloud bursting use case, providing infrastructure visibility and control to organizations. "A valuable guide to the next generation of cloud security and hardware based root of trust. More than an explanation of the what and how, is the explanation of why. And why you can’t afford to ignore it!" —Vince Lubsey, Vice President, Product Development, Virtustream Inc. " Raghu provides a valuable reference for the new 'inside out' approach, where trust in hardware, software, and privileged users is never assumed—but instead measured, attested, and limited according to least privilege principles." —John Skinner, Vice President, HyTrust Inc. "Traditional parameter based defenses are in sufficient in the cloud. Raghu's book addresses this problem head-on by highlighting unique usage models to enable trusted infrastructure in this open environment. A must read if you are exposed in cloud." —Nikhil Sharma, Sr. Director of Cloud Solutions, Office of CTO, EMC Corporation

Learn to implement container orchestration on AWS with ease Key Features Leverage the power of Kubernetes on AWS to deploy highly scalable applications Provision Kubernetes clusters on Amazon EC2 environments Implement best practices to improve efficiency and security of Kubernetes on the cloud Book Description Docker containers promise to radicalize the way developers and operations build, deploy, and manage applications running on the cloud. Kubernetes provides the orchestration tools you need to realize that promise in production. Kubernetes on AWS guides you in deploying a production-ready Kubernetes cluster on the AWS platform. You will then discover how to utilize the power of Kubernetes, which is one of the fastest growing platforms for production-based container orchestration, to manage and update your applications. Kubernetes is becoming the go-to choice for production-grade deployments of cloud-native applications. This book covers Kubernetes from first principles. You will start by learning about Kubernetes' powerful abstractions - Pods and Services - that make managing container deployments easy. This will be followed by a guided tour through setting up a production-ready Kubernetes cluster on AWS, while learning the techniques you need to successfully deploy and manage your own applications. By the end of the book, you will have gained plenty of hands-on experience with Kubernetes on Amazon Web Services. You will also have picked up some tips on deploying and managing applications, keeping your cluster and applications secure, and ensuring that your whole system is reliable and resilient to failure. What you will learn Learn how to provision a production-ready Kubernetes cluster on AWS Deploy your own applications to Kubernetes with Helm Discover strategies for troubleshooting your cluster and know where to find help with issues Explore the best ways to monitor your cluster and the applications running on it Supercharge your cluster by integrating it with the tools provided by the AWS platform Architect your cluster for high availability Who this book is for If you're a cloud engineer, cloud solution provider, sysadmin, site reliability engineer, or developer with an interest in DevOps and are looking for an extensive guide to running Kubernetes in the AWS environment, this book is for you. Though any previous knowledge of Kubernetes is not expected, some experience with Linux and Docker containers would be a bonus.

Deploying and Managing a Cloud InfrastructureReal-World Skills for the CompTIA Cloud+ Certification and Beyond: Exam CV0-001John Wiley & Sons

Written for IT and business professionals, this book provides the technical and business insight needed to plan, deploy and manage the services provided by the Microsoft Azure cloud. Find out how to integrate the infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS) models with your existing business infrastructure while maximizing availability, ensuring continuity and safety of your data, and keeping costs to a minimum. The book starts with an introduction to Microsoft Azure and how it differs from Office 365—Microsoft’s ‘other’ cloud. You'll also get a useful overview of the services available. Part II then takes you through setting up your Azure account, and gets you up-and-running on some of the core Azure services, including creating web sites and virtual machines, and choosing between fully cloud-based and hybrid storage solutions, depending on your needs. Part III now takes an in-depth look at how to integrate Azure with your existing infrastructure. The authors, Anthony Puca, Mike Manning, Brent Rush, Marshall Copeland and Julian Soh, bring their depth of experience in cloud technology and customer support to guide you through the whole process, through each layer of your infrastructure from networking to operations. High availability and disaster recovery are the topics on everyone’s minds when considering a move to the cloud, and this book provides key insights and step-by-step guidance to help you set up and manage your resources correctly to optimize for these scenarios. You’ll also get expert advice on migrating your existing VMs to Azure using InMage, mail-in and the best 3rd party tools available, helping you ensure continuity of service with minimum disruption to the business. In the book’s final chapters, you’ll find cutting edge examples of cloud technology in action, from machine learning to business intelligence, for a taste of some exciting ways your business could benefit from your new Microsoft Azure deployment.

Your complete guide to designing, deploying, and managing OpenStack-based clouds in mid-to-large IT infrastructuresAbout This Book* Design and deploy an OpenStack-based cloud in your mid-to-large IT infrastructure using automation tools and best practices* Keep yourself up-to-date with valuable insights into OpenStack components and new

services in the latest OpenStack release* Discover how the new features in the latest OpenStack release can help your enterprise and infrastructureWho This Book Is ForThis book is for system administrators, cloud engineers, and system architects who would like to deploy an OpenStack-based cloud in a mid-to-large IT infrastructure. This book requires a moderate level of system administration and familiarity with cloud concepts.What You Will Learn* Explore the main architecture design of OpenStack components and core-by-core services, and how they work together* Design different high availability scenarios and plan for a no-single-point-of-failure environment* Set up a multinode environment in production using orchestration tools* Boost OpenStack's performance with advanced configuration* Delve into various hypervisors and container technology supported by OpenStack* Get familiar with deployment methods and discover use cases in a real production environment* Adopt the DevOps style of automation while deploying and operating in an OpenStack environment* Monitor the cloud infrastructure and make decisions on maintenance and performance improvementIn DetailIn this second edition, you will get to grips with the latest features of OpenStack. Starting with an overview of the OpenStack architecture, you'll see how to adopt the DevOps style of automation while deploying and operating in an OpenStack environment. We'll show you how to create your own OpenStack private cloud. Then you'll learn about various hypervisors and container technology supported by OpenStack. You'll get an understanding about the segregation of compute nodes based on reliability and availability needs. We'll cover various storage types in OpenStack and advanced networking aspects such as SDN and NFV.Next, you'll understand the OpenStack infrastructure from a cloud user point of view. Moving on, you'll develop troubleshooting skills, and get a comprehensive understanding of services such as high availability and failover in OpenStack. Finally, you will gain experience of running a centralized logging server and monitoring OpenStack services.The book will show you how to carry out performance tuning based on OpenStack service logs. You will be able to master OpenStack benchmarking and performance tuning. By the end of the book, you'll be ready to take steps to deploy and manage an OpenStack cloud with the latest open source technologies.

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

Harness Kubernetes' extensibility to deploy modern patterns and learn to effectively handle production issues Key Features Build and run efficient cloud-native applications on Kubernetes using industry best practices Operate Kubernetes in a production environment, troubleshoot clusters, and address security concerns Deploy cutting-edge Kubernetes patterns such as service mesh and serverless to your cluster Book Description Kubernetes is a modern cloud native container orchestration tool and one of the most popular open source projects worldwide. In addition to the technology being powerful and highly flexible, Kubernetes engineers are in high demand across the industry. This book is a comprehensive guide to deploying, securing, and operating modern cloud native applications on Kubernetes. From the fundamentals to Kubernetes best practices, the book covers essential aspects of configuring applications. You'll even explore real-world techniques for running clusters in production, tips for setting up observability for cluster resources, and valuable troubleshooting techniques. Finally, you'll learn how to extend and customize Kubernetes, as well as gaining tips for deploying service meshes, serverless tooling, and more on your cluster. By the end of this Kubernetes book, you'll be equipped with the tools you need to confidently run and extend modern applications on Kubernetes. What you will learn Set up Kubernetes and configure its authentication Deploy your applications to Kubernetes Configure and provide storage to Kubernetes applications Expose Kubernetes applications outside the cluster Control where and how applications are run on Kubernetes Set up observability for Kubernetes Build a continuous integration and continuous deployment (CI/CD) pipeline for Kubernetes Extend Kubernetes with service meshes, serverless, and more Who this book is for This book is for developers, architects, DevOps engineers, or anyone interested in developing and managing cloud-native applications. Those already running cloud applications and looking for a better way to manage their platform or others interested in a career change given the recent popularity of Kubernetes will also find this book helpful. Some familiarity with cloud computing, containers and DevOps is required, but no prior knowledge of building production applications using Kubernetes is needed to get started with this book.

Part of a series of specialized guides on System Center - this book provides focused drilldown on managing servers. Led by series editor Mitch Tulloch, a team of System Center experts step you through key technical scenarios and management tasks.

Cloud computing presents a promising approach for implementing scalable information and communications technology systems for private and public, individual, community, and business use. Achieving Federated and Self-Manageable Cloud Infrastructures: Theory and Practice overviews current developments in cloud computing concepts, architectures, infrastructures and methods, focusing on the needs of small to medium enterprises. The topic of cloud computing is addressed on two levels: the fundamentals of cloud computing and its impact on the IT world; and an analysis of the main issues regarding the cloud federation, autonomic resource management, and efficient market mechanisms, while supplying an overview of the existing solutions able to solve them. This publication is aimed at both enterprise business managers and research and

academic audiences alike.

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

Cloud computing, using shared resources in public spaces instead of in-house IT organizations, is the latest thing in IT. Lines of business even bypass their own IT shops to take advantage of external providers of cloud offerings. However, many of the users that employ public cloud services have not considered issues involving security, compliance, and availability. Cloud represents a new business model that requires a process discipline as well as the use of a corresponding set of technologies. The new model requires an understanding of the hardware configuration, software images, a virtualized storage infrastructure, and network management. For many organizations that have mainframe resources, the IT professionals already manage these different disciplines and aspects of resources as part of their overall management of the platform. The mainframe's proven capability to efficiently and securely provide virtualization, combined with the existing skills in the IT organization, suggest that in-house mainframe resources provide an ideal environment in which to pilot cloud computing. This IBM® RedpaperTM document describes the steps we took to create an environment that can efficiently deploy and manage a cloud in a Linux®-based Infrastructure as a Service (IaaS).

Part of a series of specialized guides on System Center - this book focuses on using AppController to manage virtual machines and services across private and public clouds. Series editor Mitch Tulloch and a team of System Center experts provide concise technical guidance as they step you through key configuration and management tasks.

Despite the buzz surrounding the cloud computing, only a small percentage of organizations have actually deployed this new style of IT—so far. If you're planning your long-term cloud strategy, this practical book provides insider knowledge and actionable real-world lessons regarding planning, design, operations, security, and application transformation. This book teaches business and technology managers how to transition their organization's traditional IT to cloud computing. Rather than yet another book trying to sell or convince readers on the benefits of clouds, this book provides guidance, lessons learned, and best practices on how to design, deploy, operate, and secure an enterprise cloud based on real-world experience. Author James Bond provides useful guidance and best-practice checklists based on his field experience with real customers and cloud providers. You'll view cloud services from the perspective of a consumer and as an owner/operator of an enterprise private or hybrid cloud, and learn valuable lessons from successful and less-than-successful organization use-case scenarios. This is the information every CIO needs in order to make the business and technical decisions to finally execute on their journey to cloud computing. Get updated trends and definitions in cloud computing, deployment models, and for building or buying cloud services Discover challenges in cloud operations and management not foreseen by early adopters Use real-world lessons to plan and build an enterprise private or hybrid cloud Learn how to assess, port, and migrate legacy applications to the cloud Identify security threats and vulnerabilities unique to the cloud Employ a cloud management system for your enterprise (private or multi-provider hybrid) cloud ecosystem Understand the challenges for becoming an IT service broker leveraging the power of the cloud

This IBM® RedpaperTM is the second in a series that addresses the performance and capacity considerations of the evolving cloud computing model. The first Redpaper publication (Performance Implications of Cloud Computing, REDP-4875) introduced cloud computing with its various deployment models, support roles, and offerings along with IT performance and capacity implications associated with these deployment models and offerings. In this redpaper, we discuss lessons learned in the two years since the first paper was written. We offer practical guidance about how to select workloads that work best with cloud computing, and about how to address areas, such as performance testing, monitoring, service level agreements, and capacity planning considerations for both single and multi-tenancy environments. We also provide an example of a recent project where cloud computing solved current business needs (such as cost reduction, optimization of infrastructure utilization, and more efficient systems management and reporting capabilities) and how the solution addressed performance and capacity challenges. We conclude with a summary of the lessons learned and a perspective about how cloud computing can affect performance and capacity in the future.

Learn in-demand cloud computing skills from industry experts Deploying and Managing a Cloud Infrastructure is an excellent resource for IT professionals seeking to tap into the demand for cloud administrators. This book helps prepare candidates for the CompTIA Cloud+ Certification (CV0-001) cloud computing certification exam. Designed for IT professionals with 2-3 years of networking experience, this certification provides validation of your cloud infrastructure knowledge. With over 30 years of combined experience in cloud computing, the author team provides the latest expert perspectives on enterprise-level mobile computing, and covers the most essential topics for building and maintaining cloud-based systems, including: Understanding basic cloud-related computing concepts, terminology, and characteristics Identifying cloud delivery solutions and deploying new

infrastructure Managing cloud technologies, services, and networks Monitoring hardware and software performance Featuring real-world examples and interactive exercises, Deploying and Managing Cloud Infrastructure delivers practical knowledge you can apply immediately. And, in addition, you also get access to a full set of electronic study tools including: Interactive Test Environment Electronic Flashcards Glossary of Key Terms Now is the time to learn the cloud computing skills you need to take that next step in your IT career.

Cloud native infrastructure is more than servers, network, and storage in the cloud—it is as much about operational hygiene as it is about elasticity and scalability. In this book, you'll learn practices, patterns, and requirements for creating infrastructure that meets your needs, capable of managing the full life cycle of cloud native applications. Justin Garrison and Kris Nova reveal hard-earned lessons on architecting infrastructure from companies such as Google, Amazon, and Netflix. They draw inspiration from projects adopted by the Cloud Native Computing Foundation (CNCF), and provide examples of patterns seen in existing tools such as Kubernetes. With this book, you will: Understand why cloud native infrastructure is necessary to effectively run cloud native applications Use guidelines to decide when—and if—your business should adopt cloud native practices Learn patterns for deploying and managing infrastructure and applications Design tests to prove that your infrastructure works as intended, even in a variety of edge cases Learn how to secure infrastructure with policy as code

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

Gain the technical and business insight needed to plan, deploy, and manage the services provided by the Microsoft Azure cloud. This book focuses on improving operational decision tipping points for the professionals leading DevOps and security teams. --

Welcome to CompTIA Cloud+ CV0-001: Deploying and Managing a Cloud Infrastructure uCertify Course and Labs CompTIA Cloud+ CV0-001: Deploying and Managing a Cloud Infrastructure uCertify Course and Lab is an easy-to-use online course that allows you to assess your readiness and teaches you what you need to know to pass the Cloud+ CV0-001 exam. Master all of the Cloud+ CV0-001 exam objectives in the framework of CompTIA Cloud+ CV0-001: Deploying and Managing a Cloud Infrastructureinteractive eBook. The interactive eBook includes informative text, tables, step-by-step lists, images, interactive exercises, glossary flash cards, and review activities. The course comes complete with extensive pre- and post-assessment tests. In total there are over 200 practice questions. The award-winning uCertify Labs help bridge the gap between conceptual knowledge and real-world application by providing competency-based, interactive, online, 24x7 training. uCertify Labs simulate real-world hardware, software applications and operating systems, and command-line interfaces. The 49 labs are supplemented with videos demonstrating lab solutions. Students can feel safe working in this virtual environment resolving real-world operating system and hardware problems. All of the content--the complete eBook, the practice questions, the videos, the exercises, and the labs--is focused around the official Microsoft exam objectives.

Gain the technical and business insight needed to plan, deploy, and manage the services provided by the Microsoft Azure cloud. This second edition focuses on improving operational decision tipping points for the professionals leading DevOps and security teams. This will allow you to make an informed decision concerning the workloads appropriate for your growing business in the Azure public cloud. Microsoft Azure starts with an introduction to Azure along with an overview of its architecture services such as IaaS and PaaS. You'll also take a look into Azure's data, artificial intelligence, and machine learning services. Moving on, you will cover the planning for and adoption of Azure where you will go through budgeting, cloud economics, and designing a hybrid data center. Along the way, you will work with web apps, network PaaS, virtual machines, and much more. The final section of the book starts with Azure data services and big data with an in-depth discussion of Azure SQL Database, CosmosDB, Azure Data Lakes, and MySQL. You will further see how to migrate on-premises databases to Azure and use data engineering. Next, you will discover the various Azure services for application developers, including Azure DevOps and ASP.NET web apps. Finally, you will go through the machine learning and AI tools in Azure, including Azure Cognitive Services. What You Will Learn Apply design guidance and best practices using Microsoft Azure to achieve business growth Create and manage virtual machines Work with AI frameworks to process and analyze data to support business decisions and increase revenue

Deploy, publish, and monitor a web app Who This Book Is For Azure architects and business professionals looking for Azure deployment and implementation advice.

From small start-ups to major corporations, companies of all sizes have embraced cloud computing for the scalability, reliability, and cost benefits it can provide. It has even been said that cloud computing may have a greater effect on our lives than the PC and dot-com revolutions combined.Filled with comparative charts and decision trees, Impleme

If you create, manage, operate, or configure systems running in the cloud, you're a cloud engineer--even if you work as a system administrator, software developer, data scientist, or site reliability engineer. With this book, professionals from around the world provide valuable insight into today's cloud engineering role. These concise articles explore the entire cloud computing experience, including fundamentals, architecture, and migration. You'll delve into security and compliance, operations and reliability, and software development. And examine networking, organizational culture, and more. You're sure to find 1, 2, or 97 things that inspire you to dig deeper and expand your own career. "Three Keys to Making the Right Multicloud Decisions," Brendan O'Leary "Serverless Bad Practices," Manases Jesus Galindo Bello "Failing a Cloud Migration," Lee Atchison "Treat Your Cloud Environment as If It Were On Premises," Iyana Garry "What Is Toil, and Why Are SREs Obsessed with It?", Zachary Nickens "Lean QA: The QA Evolving in the DevOps World," Theresa Neate "How Economies of Scale Work in the Cloud," Jon Moore "The Cloud Is Not About the Cloud," Ken Corless "Data Gravity: The Importance of Data Management in the Cloud," Geoff Hughes "Even in the Cloud, the Network Is the Foundation," David Murray "Cloud Engineering Is About Culture, Not Containers," Holly Cummins

Accelerating Business and Mission Success with Cloud Computing. Key Features A step-by-step guide that will practically guide you through implementing Cloud computing services effectively and efficiently. Learn to choose the most ideal Cloud service model, and adopt appropriate Cloud design considerations for your organization. Leverage Cloud computing methodologies to successfully develop a cost-effective Cloud environment successfully. Book Description Cloud adoption is a core component of digital transformation. Scaling the IT environment, making it resilient, and reducing costs are what organizations want. Architecting Cloud Computing Solutions presents and explains critical Cloud solution design considerations and technology decisions required to choose and deploy the right Cloud service and deployment models, based on your business and technology service requirements. This book starts with the fundamentals of cloud computing and its architectural concepts. It then walks you through Cloud service models (IaaS, PaaS, and SaaS), deployment models (public, private, community, and hybrid) and implementation options (Enterprise, MSP, and CSP) to explain and describe the key considerations and challenges organizations face during cloud migration. Later, this book delves into how to leverage DevOps, Cloud-Native, and Serverless architectures in your Cloud environment and presents industry best practices for scaling your Cloud environment. Finally, this book addresses (in depth) managing essential cloud technology service components such as data storage, security controls, and disaster recovery. By the end of this book, you will have mastered all the design considerations and operational trades required to adopt Cloud services, no matter which cloud service provider you choose. What you will learn Manage changes in the digital transformation and cloud transition process Design and build architectures that support specific business cases Design, modify, and aggregate baseline cloud architectures Familiarize yourself with cloud application security and cloud computing security threats Design and architect small, medium, and large cloud computing solutions Who this book is for If you are an IT Administrator, Cloud Architect, or a Solution Architect keen to benefit from cloud adoption for your organization, then this book is for you. Small business owners, managers, or consultants will also find this book useful. No prior knowledge of Cloud computing is needed.

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

With their rapidly changing architecture and API-driven automation, cloud platforms come with unique security challenges and opportunities. This hands-on book guides you through security best practices for multivendor cloud environments, whether your company plans to move legacy on-premises projects to the cloud or build a new infrastructure from the ground up. Developers, IT architects, and security professionals will learn cloud-specific techniques for securing popular cloud platforms such as Amazon Web Services, Microsoft Azure, and IBM Cloud. Chris Dotson—an IBM senior technical staff member—shows you how to establish data asset management, identity and access management, vulnerability management, network security, and incident response in your cloud environment.

The Only Official Google Cloud Study Guide The Official Google Cloud Certified Associate Cloud Engineer Study Guide, provides everything you need to prepare for this important exam and master the skills necessary to land that coveted Google Cloud Engineering certification. Beginning with a pre-book assessment quiz to evaluate what you know before you begin, each chapter features exam objectives and review questions, plus the online learning environment includes additional complete practice tests. Written by Dan Sullivan, a popular and experienced online course author for machine learning, big data, and Cloud topics, Official Google Cloud Certified Associate Cloud Engineer Study Guide is your ace in the hole for deploying and managing Google Cloud Services. • Select the right Google service from the various choices based on the application to be built • Compute with Cloud VMs and managing VMs • Plan and deploying storage • Network and configure access and security Google Cloud Platform is a leading public cloud that provides its users to many of the same software, hardware, and networking infrastructure used to power Google services. Businesses, organizations, and individuals can launch servers in minutes, store petabytes of data, and implement global virtual clouds with the Google Cloud Platform. Certified Associate Cloud Engineers have demonstrated the knowledge and skills needed to deploy and operate infrastructure, services, and networks in the Google Cloud. This exam guide is designed to help you understand the Google Cloud Platform in depth so that you can meet the needs of those operating resources in the Google Cloud.

Learn how to leverage VMware Cloud on AWS to migrate vSphere-based environments to the cloud and access the full range of AWS services.

Accelerate hybrid cloud innovation using Azure Arc with the help of real-world scenarios and examples Key Features Get to grips with setting up and working with Azure Arc Harness the power of Azure Arc and its integration with cutting-edge technologies such as Kubernetes and PaaS data services Manage, govern, and monitor your on-premises servers and applications with Azure Book Description With all the options available for deploying infrastructure on multi-cloud platforms and on-premises comes the complexity of managing it, which is adeptly handled by Azure Arc. This book will show you how you can manage environments across platforms without having to migrate workloads from on-premises or multi-cloud to Azure every time. Implementing Hybrid Cloud with Azure Arc starts with an introduction to Azure Arc and hybrid cloud computing, covering use cases and various supported topologies. You'll learn to set up Windows and Linux servers as Arc-enabled machines and get to grips with deploying

applications on Kubernetes clusters with Azure Arc and GitOps. The book then demonstrates how to onboard an on-premises SQL Server infrastructure as an Arc-enabled SQL Server and deploy and manage a hyperscale PostgreSQL infrastructure on-premises through Azure Arc. Along with deployment, the book also covers security, backup, migration, and data distribution aspects. Finally, it shows you how to deploy and manage Azure's data services on your own private cloud and explore multi-cloud solutions with Azure Arc. By the end of this book, you'll have a firm understanding of Azure Arc and how it interacts with various cutting-edge technologies such as Kubernetes and PaaS data services. What you will learn Set up a fully functioning Azure Arc-managed environment Explore products and services from Azure that will help you to leverage Azure Arc Understand the new vision of working with on-premises infrastructure Deploy Azure's PaaS data services on-premises or on other cloud platforms Discover and learn about the technologies required to design a hybrid and multi-cloud strategy Implement best practices to govern your IT infrastructure in a scalable model Who this book is for This book is for Cloud IT professionals (Azure and/or AWS), system administrators, database administrators (DBAs), and architects looking to gain clarity about how Azure Arc works and how it can help them achieve business value. Anyone with basic Azure knowledge will benefit from this book.

This latest textbook from bestselling author, Douglas E. Comer, is a class-tested book providing a comprehensive introduction to cloud computing. Focusing on concepts and principles, rather than commercial offerings by cloud providers and vendors, The Cloud Computing Book: The Future of Computing Explained gives readers a complete picture of the advantages and growth of cloud computing, cloud infrastructure, virtualization, automation and orchestration, and cloud-native software design. The book explains real and virtual data center facilities, including computation (e.g., servers, hypervisors, Virtual Machines, and containers), networks (e.g., leaf-spine architecture, VLANs, and VxLAN), and storage mechanisms (e.g., SAN, NAS, and object storage). Chapters on automation and orchestration cover the conceptual organization of systems that automate software deployment and scaling. Chapters on cloud-native software cover parallelism, microservices, MapReduce, controller-based designs, and serverless computing. Although it focuses on concepts and principles, the book uses popular technologies in examples, including Docker containers and Kubernetes. Final chapters explain security in a cloud environment and the use of models to help control the complexity involved in designing software for the cloud. The text is suitable for a one-semester course for software engineers who want to understand cloud, and for IT managers moving an organization’s computing to the cloud.

Build cost-effective and robust cloud solutions with Google Cloud Platform (GCP) using these simple and practical recipes Key Features Explore the various service offerings of the GCP Host a Python application on Google Compute Engine Securely maintain application states with Cloud Storage, Datastore, and Bigtable Book Description GCP is a cloud computing platform with a wide range of products and services that enable you to build and deploy cloud-hosted applications. This Learning Path will guide you in using GCP and designing, deploying, and managing applications on Google Cloud. You will get started by learning how to use App Engine to access Google's scalable hosting and build software that runs on this framework. With the help of Google Compute Engine, you'll be able to host your workload on virtual machine instances. The later chapters will help you to explore ways to implement authentication and security, Cloud APIs, and command-line and deployment management. As you hone your skills, you'll understand how to integrate your new applications with various data solutions on GCP, including Cloud SQL, Bigtable, and Cloud Storage. Following this, the book will teach you how to streamline your workflow with tools, including Source Repositories, Container Builder, and Stackdriver. You'll also understand how to deploy and debug services with IntelliJ, implement continuous delivery pipelines, and configure robust monitoring and alerts for your production systems. By the end of this Learning Path, you'll be well versed with GCP's development tools and be able to develop, deploy, and manage highly scalable and reliable applications. This Learning Path includes content from the following Packt products: Google Cloud Platform for Developers Ted Hunter and Steven Porter Google Cloud Platform Cookbook by Legorie Rajan PS What you will learn Host an application using Google Cloud Functions Migrate a MySQL database to Cloud Spanner Configure a network for a highly available application on GCP Learn simple image processing using Storage and Cloud Functions Automate security checks using Policy Scanner Deploy and run services on App Engine and Container Engine Minimize downtime and mitigate issues with Stackdriver Monitoring and Debugger Integrate with big data solutions, including BigQuery, Dataflow, and Pub/Sub Who this book is for This Learning Path is for IT professionals, engineers, and developers who want to implement Google Cloud in their organizations. Administrators and architects planning to make their organization more efficient with Google Cloud will also find this Learning Path useful. Basic understanding of GCP and its services is a must.

Summary OpenStack in Action offers the real world use cases and step-by-step instructions you can take to develop your own cloud platform from from inception to deployment. This book guides you through the design of both the physical hardware cluster and the infrastructure services you'll need to create a custom cloud platform. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology OpenStack is an open source framework that lets you create a private or public cloud platform on your own physical servers. You build custom infrastructure, platform, and software services without the expense and vendor lock-in associated with proprietary cloud platforms like Amazon Web Services and Microsoft Azure. With an OpenStack private cloud, you can get increased security, more control, improved reliability, and lower costs. About the Book OpenStack in Action offers real-world use cases and step-by-step instructions on how to develop your own cloud platform. This book guides you through the design of both the physical hardware cluster and the infrastructure services you'll need. You'll learn how to select and set up virtual and physical servers, how to implement software-defined networking, and technical details of designing, deploying, and operating an OpenStack cloud in your enterprise. You'll also discover how to best tailor your OpenStack deployment for your environment. Finally, you'll learn how your cloud can offer user-facing software and infrastructure services. What's Inside Develop and deploy an enterprise private cloud Private cloud technologies from an IT perspective Organizational impact of self-service cloud computing About the Reader No prior knowledge of OpenStack or cloud development is assumed. About the Author Cody Bumgardner is the Chief Technology Architect at a large university where he is responsible for the architecture, deployment, and long-term strategy of OpenStack private clouds and other cloud computing initiatives. Table of Contents PART 1 GETTING STARTED Introducing OpenStack Taking an OpenStack test-drive Learning basic OpenStack operations Understanding private cloud building blocks PART 2 WALKING THROUGH A MANUAL DEPLOYMENT Walking through a Controller deployment Walking through a Networking deployment Walking through a Block Storage deployment Walking through a Compute deployment PART 3 BUILDING A PRODUCTION ENVIRONMENT Architecting your OpenStack Deploying Ceph Automated HA OpenStack deployment with Fuel Cloud orchestration using OpenStack