Cloud Computing A Hands On Approach

Cloud computing is the most significant technology transformation since the introduction of the Internet in the early 1990s. As more and more companies and educational institutions plan to adopt a cloud-based IT infrastructure, today's job market requires IT professionals who understand cloud computing and have hands-on experience developing cloud-based networks. Cloud Computing Networking: Theory, Practice, and Development covers the key networking and system administration concepts as well as the vital hands-on skills you need to master cloud technology. This book is designed to help you quickly get started in deploying cloud services for a real-world business. It provides detailed step-by-step instructions for creating a fully functioning cloud-based IT infrastructure using the Microsoft Azure cloud platform. In this environment, you can develop cloud services collaboratively or individually. The book enhances your hands-on skills through numerous lab activities. In these lab activities, you will learn to Implement the following services in a cloud environment: Active Directory, DHCP, DNS, and Certificate Services Configure Windows Server so it can route IP traffic Implement IP Security Policy and Windows Firewall with Advanced Security tools Create a point-to-site connection between Microsoft Azure and a local computer Create a site-to-site connection between Microsoft Azure and an on-premises network Develop a hybrid cloud that integrates Microsoft Azure with a private cloud created on a local network Cloud Computing Networking: Theory, Practice, and Development includes numerous examples, figures, and screen shots to help you understand the information. Each chapter concludes with a summary of the major topics and a set of review questions. With this book, you will soon have the critical knowledge and skills to develop and manage cloud-based networks.

Cloud Computing: Theory and Practice provides students and IT professionals with an in-depth analysis of the cloud from the ground up. Beginning with a discussion of parallel computing and architectures and distributed systems, the book turns to contemporary cloud infrastructures, how they are being deployed at leading companies such as Amazon, Google and Apple, and how they can be applied in fields such as healthcare, banking and science. The volume also examines how to successfully deploy a cloud application across the enterprise using virtualization, resource management and the right amount of networking support, including content delivery networks and storage area networks. Developers will find a complete introduction to application development provided on a variety of platforms. Learn about recent trends in cloud computing in critical areas such as: resource management, security, energy consumption, ethics, and complex systems Get a detailed hands-on set of practical recipes that help simplify the deployment of a cloud based system for practical use of computing clouds along with an in-depth discussion of several projects Understand the evolution of cloud computing and why the cloud computing paradigm has a better chance to succeed than previous efforts in large-scale distributed computing

Recent industry surveys expect the cloud computing services market to be in excess of $20 billion and cloud computing jobs to be in excess of 10 million worldwide in 2014 alone. In addition, since a majority of existing information technology (IT) jobs is focused on maintaining legacy in-house systems, the demand for these kinds of jobs is likely to drop rapidly if cloud computing continues to take hold of the industry. However, there are very few educational options available in the area of cloud computing beyond vendor-specific training by cloud providers themselves. Cloud computing courses have not found their way (yet) into mainstream college curricula. This book is written as a textbook on cloud computing for educational programs at colleges. It can also be used by cloud service providers who may be interested in offering a broader perspective of cloud computing to accompany their own customer and employee training programs. The typical reader is expected to have completed a couple of courses in programming using traditional high-level languages at the college-level, and is either a senior or a beginning graduate student in one of the science, technology, engineering or mathematics (STEM) fields. We have tried to write a comprehensive book that transfers knowledge through an immersive "hands-on approach," where the reader is provided the necessary guidance and knowledge to develop working code for real-world cloud applications. Additional support is available at the book's website: www.cloudcomputingbook.info Organization The book is organized into three main parts. Part I covers technologies that form the foundations of cloud computing. These include topics such as virtualization, load balancing, scalability & elasticity, deployment, and replication. Part II introduces the reader to the design & programming aspects of cloud computing. Case studies on design and implementation of several cloud applications in the areas such as image processing, live streaming and social networks analytics are provided. Part III introduces the reader to specialized aspects of cloud computing including cloud application benchmarking, cloud security, multimedia applications and big data analytics. Case studies in areas such as IT, healthcare, transportation, networking and education are provided.

In Designing Cloud Data Platforms, Danil Zburivsky and Lynda Partner reveal a six-layer approach that increases flexibility and reduces costs. Discover patterns for ingesting data from a variety of sources, then learn to harness pre-built services provided by cloud vendors. Summary Centralized data warehouses, the long-time defacto standard for housing data for analytics, are rapidly giving way to multi-faceted cloud data platforms. Companies that embrace modern cloud data platforms benefit from an integrated view of their business using all of their data and can take advantage of advanced analytic practices to drive predictions and as yet unimagined data services. Designing Cloud Data Platforms is a hands-on guide to envisioning and designing a modern scalable data platform that takes full advantage of the flexibility of the cloud. As you read, you'll learn the core components of a cloud data platform design, along with the role of key technologies like Spark and Kafka Streams. You'll also explore setting up processes to manage cloud-based data, keep it secure, and using advanced analytic and BI tools to analyze it. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Well-designed pipelines, storage systems, and APIs eliminate the complicated scaling and maintenance required with on-prem data centers. Once you learn the patterns for designing cloud data platforms, you'll maximize performance no matter which cloud vendor you use. About the book In Designing Cloud Data Platforms, Danil Zburivsky and Lynda Partner reveal a six-layer approach that increases flexibility and reduces costs. Discover patterns for ingesting data from a variety of sources, then learn to harness pre-built services provided by cloud vendors. What's inside Best practices for structured and unstructured data sets Cloud-ready machine learning tools Metadata and real-time analytics Defensive architecture, access, and security About the reader For data professionals familiar with the basics of cloud computing, and Hadoop or Spark. About the author Danil Zburivsky has over 10 years of experience designing and supporting large-scale data infrastructure for enterprises across the globe. Lynda Partner is the VP of Analytics-as-a-Service at Pythian, and has been on the business side of data for over 20 years. Table of Contents 1 Introducing the data platform 2 Why a data platform and not just a data warehouse 3 Getting bigger and leveraging the Big 3: Amazon, Microsoft Azure, and Google 4 Getting data into the platform 5 Organizing and processing data 6 Real-time data processing and analytics 7 Metadata layer architecture 8 Schema management 9 Data access and security 10 Fueling business value with data platforms

Architecting Cloud Computing Solutions

A Strategy Guide for Business and Technology Leaders-- and the Rest of Us

Amazon Web Services in Action

Cloud Computing and Linux

A Hands-On Approach

Theory and Practice

A guide to cloud computing for students, scientists, and engineers, with advice and many hands-on examples. The emergence of powerful, always-on cloud utilities has transformed how consumers interact with information technology, enabling video streaming, intelligent personal assistants, and the sharing of content. Businesses, too, have benefited from the cloud, outsourcing much of their information technology to cloud services. Science, however, has not fully exploited the advantages of the cloud. Could scientific discovery be accelerated if mundane chores were automated and outsourced to the cloud? Leading computer scientists Ian Foster and Dennis Gannon argue that it can, and in this book offer a guide to cloud computing for students, scientists, and engineers, with advice and many hands-on examples. The book surveys the technology that underpins the cloud, new approaches to technical problems enabled by the cloud, and the concepts required to integrate cloud services into scientific work. It covers managing data in the cloud, and how to program these services; computing in the cloud, from deploying single virtual machines or containers to supporting basic interactive science experiments to gathering clusters of machines to do data analytics; using the cloud as a platform for automating analysis procedures, machine learning, and analyzing streaming data; building your own cloud with open source software; and cloud security. The book is accompanied by a website, Cloud4SciEng.org, that provides a variety of supplementary material, including exercises, lecture slides, and other resources helpful to readers and instructors.

The first textbook to teach students how to build data analytic solutions on large data sets using cloud-based technologies. This is the first textbook to teach students how to build data analytic solutions on large data sets (specifically in Internet of Things applications) using cloud-based technologies for data storage, transmission and mashup, and AI techniques to analyze this data. This textbook is designed to train college students to master modern cloud computing systems in operating principles, architecture design, machine learning algorithms, programming models and software tools for big data mining, analytics, and cognitive applications. The book will be suitable for use in one-semester computer science or electrical engineering courses on cloud computing, machine learning, cloud programming, cognitive computing, or big data science. The book will also be very useful as a reference for professionals who want to work in cloud computing and data science. Cloud and Cognitive Computing begins with two introductory chapters on fundamentals of cloud computing, data science, and adaptive computing that lay the foundation for the rest of the book. Subsequent chapters cover topics including cloud architecture, mashup services, virtual machines, Docker containers, mobile clouds, IoT and AI, inter-cloud mashups, and cloud performance and benchmarks, with a focus on Google's Brain Project, DeepMind, and X-Lab programs, IBKai HwangM SyNapse, Bluemix programs, cognitive initiatives, and neurocomputers. The book then covers machine learning algorithms and cloud programming software tools and application development, applying the tools in machine learning, social media, deep learning, and cognitive applications. All cloud systems are illustrated with big data and cognitive application examples.

Distributed and Cloud Computing: From Parallel Processing to the Internet of Things offers complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking, and cloud computing. It is the first modern, up-to-date distributed systems textbook; it explains how to create high-performance, scalable, reliable systems, exposing the design principles, architecture, and innovative applications of parallel, distributed, and cloud computing systems. Topics covered by this book include: facilitating management, debugging, migration, and disaster recovery through virtualization; clustered systems for research or ecommerce applications; designing systems as web services; and social networking systems using peer-to-peer computing. The principles of cloud computing are discussed using examples from open-source and commercial applications, along with case studies from the leading distributed computing vendors such as Amazon, Microsoft, and Google. Each chapter includes exercises and further reading, with lecture slides and more available online. This book will be ideal for students taking a distributed systems or distributed computing class, as well as for professional system designers and engineers looking for a reference to the latest distributed technologies including cloud, P2P and grid computing. Complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking, and cloud computing Includes case studies from the leading distributed computing vendors: Amazon, Microsoft, Google, and more Explains how to use virtualization to facilitate management, debugging, migration, and disaster recovery Designed for undergraduate or graduate students taking a distributed systems course—each chapter includes exercises and further reading, with lecture slides and more available online

In response to requests for instructional and training material from instructors, we prepared this laboratory training guide as a companion book to the Cloud Computing: A Hands-On Approach ("Cloud Book"). This book is designed to serve two purposes. First, it provides a tutorial for the laboratory training that can accompany traditional or online instruction using the Cloud Book. Second, it provides access to the complete source code used in the examples provided in the Cloud Book. The authors hope that this laboratory training guide will continue to prove useful to instructors and students using the Cloud Book.

Build cloud strategies that align technology and economics while effectively managing risk

Hands-On Serverless Computing

Architecting, developing, and deploying the Azure way

Laboratory Training Guide

Discover how converging IoT and blockchain can help you build effective solutions

Designing Cloud Data Platforms

Microsoft Private Cloud Computing

About the Book Recent industry surveys expect the cloud computing services market to be in excess of $20 billion and cloud computing jobs to be in excess of 10 million worldwide in 2014 alone. In addition, since a majority of existing information technology (IT) jobs is focused on maintaining legacy in-house systems, the demand for these kinds of jobs is likely to drop rapidly if cloud computing continues to take hold of the industry. However, there are very few educational options available in the area of cloud computing beyond vendor-specific training by cloud providers themselves. Cloud computing courses have not found their way (yet) into mainstream college curricula. This book is written as a textbook on cloud computing for educational programs at colleges. It can also be used by cloud service providers who may be interested in offering a broader perspective of cloud computing to accompany their own customer and employee training programs. The typical reader is expected to have completed a couple of courses in programming using traditional high-level languages at the college-level, and is either a senior or a beginning graduate student in one of the science, technology, engineering or mathematics (STEM) fields. We have tried to write a comprehensive book that transfers knowledge through an immersive "hands-on approach", where the reader is provided the necessary guidance and knowledge to develop working code for real-world cloud applications. Additional support is available at the book's website: www.cloudcomputingbook.info Organization The book is organized into three main parts. Part I covers technologies that form the foundations of cloud computing. These include topics such as virtualization, load balancing, scalability & elasticity, deployment, and replication. Part II introduces the reader to the design & programming aspects of cloud computing. Case studies on design and implementation of several cloud applications in the areas such as image processing, live streaming and social networks analytics are provided. Part III introduces the reader to specialized aspects of cloud computing including cloud application benchmarking, cloud security, multimedia applications and big data analytics. Case studies in areas such as IT, healthcare, transportation, networking and education are provided.

The Practical, Foundational Technical Introduction to the World's #1 Cloud Platform Includes access to several hours of online training video: Mark Wilkins' expert training video library guides you through setting up core services and prepares you to deploy your own apps and resources. Learning Amazon Web Services (AWS) is the perfect foundational resource for all administrators, developers, project managers, and other IT professionals who want to plan and deploy AWS services and/or earn AWS certification. Top cloud trainer and evangelist Mark Wilkins teaches best practices that align with Amazon's Well-Architected Framework, introduces key concepts in the context of a running case study, carefully explains how core AWS services operate and integrate, and offers extensively tested tips for maximizing flexibility, security, and value. Companion online videos guide you step-by-step through setting AWS compute, storage, networking, scale, security, automation, and more. Balance cost, compliance, and latency in your service designs Choose the right networking options for your virtual private cloud (VPC) Build, host, launch, manage, and budget for EC2 compute services Plan for scale and resiliency, and make informed decisions about AWS storage Enforce strict security, and automate to improve operational efficiency This book with companion training videos is a valuable learning tool for anyone seeking to demonstrate expertise through formal certification. WEB EDITION: All buyers of the book or ebook can register your book for access to a free online Web Edition of this title, which included videos embedded within the text, plus updates as they become available. Explains what cloud computing is and how this new technology is being used to make lives easier.

Explore Azure services such as networking, virtual machines, web apps, databases, cloud migration, and security Key FeaturesUnderstand Azure services to build, deploy, and manage workloads on cloudLearn in-depth core Azure services and work through real-world scenarios and case studiesA concise and practical guide for learning cloud administration on AzureBook Description Azure continues to dominate the public cloud market and grow rapidly thanks to a number of recent innovations. Azure's wide range of services and support has led to a large number of customers switching to Azure cloud. Hands-On Cloud Administration in Azure starts with the basics of Azure cloud fundamentals and key concepts of the cloud computing ecosystem and services. Then, you will gradually get acquainted with core services provided by Azure, including Azure VNet, types and assignments of IP addresses, and network security groups. You will also work on creating and administering Azure Virtual Machines, types of virtual machines (VMs), and design VM solutions based on computing workloads. As you make your way through the chapters, you will explore Azure App Service, discover how to host your web apps in Azure, and monitor and troubleshoot them. In the concluding chapters, you will learn more complex and abstract services, such as Azure Storage, Azure Backup, and Azure Site Recovery. You will also get to grips with Azure SQL Databases and the SQL on Azure VM concept. By the end of this book, you will have obtained practical experience of working with Azure services and Azure administration, along with maintaining, monitoring, and securing your Azure resources. What you will learnUnderstand the concepts of IaaS and PaaSLearn design patterns for Azure solutionsDesign data solutions in AzureExplore concepts of hybrid clouds with AzureImplement Azure Security in cloudCreate and manage Azure resources with script-based toolsWho this book is for Hands-On Cloud Administration in Azure is for system administrators, cloud admins, cloud engineers, and DevOps engineers who are interested in understanding administration-related services in Azure. Prior experience of working with Azure is an added advantage.

Cloud Computing

Rise of the Data Cloud

A Hands-on Approach to Virtualization and Implementation of a Private Cloud Using Real-time Use-cases (English Edition)

Mastering Cloud Computing

Concepts, Technology & Architecture

Build, deploy, and containerize apps using Cloud Functions, Cloud Run, and cloud-native technologies

Cloud Computing for Machine Learning and Cognitive Applications

Integrate an end-to-end logistic chain using IBM Blockchain and IoT platforms Key Features Explore practical implementation of ledger technology in the IoT architecture Study security best practices for your smart devices Understand Blockchain implementation for end-to-end IoT solutions Book Description Blockchain has been the hot topic of late thanks to cryptocurrencies. To make matters more interesting, the financial market is looking for ways to reduce operational costs and generate new business models, and this is where blockchain solutions come into the picture. In addition to this, with Internet of Things (IoT) trending and Arduino, Raspberry Pi, and other devices flooding the market, you can now create cheap devices even at home. Hands-On IoT Solutions with Blockchain starts with an overview of IoT concepts in the current business scenario. It then helps you develop your own device on the IBM Watson IoT platform and create your fi rst IoT solution using Watson and Intel Edison.Once you are familiar with IoT, you will learn about Blockchain technology and its use cases. You will also work with the Hyperledger framework and develop your own Blockchain network. As you progress through the chapters, you'll work with problem statements and learn how to design your solution architecture so that you can create your own integrated Blockchain and IoT solution. The next set of chapters will explain how to implement end-to-end Blockchain solutions with IoT using the IBM Cloud platform. By the end of this book, you will have mastered the convergence of IoT and Blockchain technology and exploited the best practices and drivers to develop a bulletproof integrated solution. What you will learn Understand the key roles of IoT in the current market Study the different aspects of IBM Watson IoT platform Create devices, gateways, and applications connected to the platform Explore the fundamentals of Blockchain Define good use cases for Blockchain Discover the Hyperledger Fabric and Composer frameworks Develop an IBM Watson IoT application using a Intel Edison Integrate IoT with the Blockchain platform Who this book is for Hands-On IoT Solutions with Blockchain is for you if you are an Internet of Things (IoT) analyst, architect, engineer, or any stakeholder responsible for security mechanisms on an IoT infrastructure. This book is also for IT professionals who want to start developing solutions using Blockchain and IoT on the IBM Cloud platform. Basic understanding of IoT will assist you in understanding key concepts covered in the book.

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

Deploy functions efficiently using different cloud-based serverless offerings Key Features Understand the concept of Function-as-a-Service Implement Serverless solutions using AWS Lambda, Azure Functions and Google Cloud Functions Practical approach towards choosing the best tool for your serverless environment Book Description Serverless applications and architectures are gaining momentum and are increasingly being used by companies of all sizes. Serverless software takes care of many problems that developers face when running systems and servers, such as fault tolerance, centralized logging, horizontal scalability, and deployments. You will learn how to harness serverless technology to rapidly reduce production time and minimize your costs, while still having the freedom to customize your code, without hindering functionality. Upon finishing the book, you will have the knowledge and resources to build your own serverless application hosted in AWS, Microsoft Azure, or Google Cloud Platform, and will have experienced the benefits of event-driven technology for yourself. This hands-on guide dives into the basis of serverless architectures and how to build them using Node.js as a programming language, Visual Studio Code for code editing, and Postman for quickly and securely developing applications without the hassle of configuring and maintaining infrastructure on three public cloud platforms. What you will learn Understand the benefits of serverless computing and know when to use it Develop serverless applications on AWS, Azure, and Google Cloud Get to grips with Function as a Service (FaaS) Apply triggers to serverless functions Build event-driven apps using serverless frameworks Use the Node.js programming language to build serverless apps Use code editors, such as Visual Studio Code, as development environments Master the best development practices for creating scalable and practical solutions Who this book is for This book is targeted towards developers, system administrators or any stakeholder working in the Serverless environment and want to understand how functions work. Basic idea of serverless architecture can be an added advantage

Did you know that cloud computing is being used by just about every person or company on the internet today in some shape or form? Most people use the cloud and never even think about it. I've been writing, teaching and speaking about cloud computing since the time it was simply called "the cloud". In this book, you're going to learn how the cloud works, how it can help you, your team or organization, and the different types of cloud computing. In chapters 4 and 5, you're going to get a hands-on experience from my examples and learn real-world applications of cloud computing. In chapter 5 I'll show you: How to create and use a Microsoft Azure subscription to get $200 credit and 12 months of 25 free services. How to create a Windows virtual machine (VM). How to create a Linux virtual machine. When you read my book, you will understand different phrases and acronyms, such as: Software as a service Infrastructure as a service Platform as a service Virtualization Multitenancy and so much more! We'll also talk about: Public clouds Private clouds Hybrid clouds Multi-clouds Finally, we will look at the risks of cloud computing, cover the current marketplace and see a lot of the different companies offering cloud services. You will discover how to recognize and understand what it is these companies actually provide.

Build, run and orchestrate serverless applications using AWS Lambda, Microsoft Azure Functions, and Google Cloud Functions

Learning Amazon Web Services (AWS)

CLOUD COMPUTING SOLUTIONS ARCHITECT

Consolidation, Virtualization, and Service-Oriented Infrastructure

Assessing the risks

The Future of Computing Explained

A Hands-On Guide to Architecture, Design, and Technical Implementation

This book describes the landscape of cloud computing from first principles, leading the reader step-by-step through the process of building and configuring a cloud environment. The book not only considers the technologies for designing and creating cloud computing platforms, but also the business models and frameworks in real-world implementation of cloud platforms. Emphasis is placed on "learning by doing," and readers are encouraged to experiment with a range of different tools and approaches. Topics and features: includes review questions, hands-on exercises, study activities and discussion topics throughout the text; demonstrates the approaches used to build cloud computing infrastructures; reviews the social, economic, and political aspects of the on-going growth in cloud computing use; discusses legal and security concerns in cloud computing; examines techniques for the appraisal of financial investment into cloud computing; identifies areas for further research within this rapidly-moving field.

Internet of Things (IoT) refers to physical and virtual objects that have unique identities and are connected to the internet to facilitate intelligent applications that make energy, logistics, industrial control, retail, agriculture and many other domains "smarter". Internet of Things is a new revolution of the Internet that is rapidly gathering momentum driven by the advancements in sensor networks, mobile devices, wireless communications, networking and cloud technologies. Experts forecast that by the year 2020 there will be a total of 50 billion devices/things connected to the internet. This book is written as a textbook on Internet of Things for educational programs at colleges and universities, and also for IoT vendors and service providers who may be interested in offering a broader perspective of Internet of Things to accompany their own customer and developer training programs. The typical reader is expected to have completed a couple of courses in programming using traditional high-level languages at the college-level, and is either a senior or a beginning graduate student in one of the science, technology, engineering or mathematics (STEM) fields. Like our companion book on Cloud Computing, we have tried to write a comprehensive book that transfers knowledge through an immersive "hands on" approach, where the reader is provided the necessary guidance and knowledge to develop working code for real-world IoT applications. Additional support is available at the book's website: www.internet-of-things-book.com Organization The book is organized into 3 main parts, comprising of a total of 11 chapters. Part I covers the building blocks of Internet of Things (IoTs) and their characteristics. A taxonomy of IoT systems is proposed comprising of various IoT levels with increasing levels of complexity. Domain specific Internet of Things and their real-world applications are described. A generic design methodology for IoT is proposed. An IoT system management approach using NETCONF-YANG is described. Part II introduces the reader to the programming aspects of Internet of Things with a view towards rapid prototyping of complex IoT applications. We chose Python as the primary programming language for this book, and an introduction to Python is also included within the text to bring readers to a common level of expertise. We describe packages, frameworks and cloud services including the WAMP-AutoBahn, Xively cloud and Amazon Web Services which can be used for developing IoT systems. We chose the Raspberry Pi device for the examples in this book. Reference architectures for different levels of IoT applications are examined in detail. Case studies with complete source code for various IoT domains including home automation, smart environment, smart cities, logistics, retail, smart energy, smart agriculture, industrial control and smart health, are described. Part III introduces the reader to advanced topics on IoT including IoT data analytics and Tools for IoT. Case studies on collecting and analyzing data generated by Internet of Things in the cloud are described.

Cloud computing has become a significant technology trend. Experts believe cloud computing is currently reshaping information technology and the IT marketplace. The advantages of using cloud computing include cost savings, speed to market, access to greater computing resources, high availability, and scalability. Handbook of Cloud Computing includes contributions from world experts in the field of cloud computing from academia, research laboratories and private industry. This book presents the systems, tools, and services of the leading providers of cloud computing; including Google, Yahoo, Amazon, IBM, and Microsoft. The basic concepts of cloud computing and cloud computing applications are also introduced. Current and future technologies applied in cloud computing are also discussed. Case studies, examples, and exercises are provided throughout. Handbook of Cloud Computing is intended for advanced-level students and researchers in computer science and electrical engineering as a reference book. This handbook is also beneficial to computer and system infrastructure designers, developers, business managers, entrepreneurs and investors within the cloud computing related industry.

The rise of the Data Cloud is ushering in a new era of computing. The world's digital data is mass migrating to the cloud, where it can be more effectively integrated, managed, and mobilized. The data cloud eliminates data siloes and enables data sharing with business partners, capitalizing on data network effects. It democratizes data analytics, making the most sophisticated data science tools accessible to organizations of all sizes. Data exchanges enable businesses to discover, explore, and easily purchase or sell data—opening up new revenue streams. Business leaders have long dreamed of data driving their organizations. Now, thanks to the Data Cloud, nothing stands in their way.

Cloud Computing Networking

Cloud Computing Fundamentals

Learn the Latest Cloud Technology and Architecture with Real-World Examples and Applications

Enterprise Cloud Computing

The Cloud Computing Book

A Hands-On Approach: A Competency-based Textbook for Universities and a Guide for AWS Cloud Certification and Beyond

Theory, Practice, and Development

Mastering Cloud Computing is designed for undergraduate students learning to develop cloud computing applications. Tomorrow's applications won't live on a single computer but will be deployed from and reside on a virtual server, accessible anywhere, any time. Tomorrow's application developers need to understand the requirements of building apps for these virtual systems, including concurrent programming, high-performance computing, and data-intensive systems. The book introduces the principles of distributed and parallel computing underlying cloud architectures and specifically focuses on virtualization, thread programming, task programming, and map-reduce programming. There are examples demonstrating all of these and more, with exercises and labs throughout. Explains how to make design choices and tradeoffs to consider when building applications to run in a virtual cloud environment Real-world case studies include scientific, business, and energy-efficiency considerations

Cloud ComputingA Hands-On Approach

Reader equip themselves for today's dramatically changing IT world with the insights and timely instruction in HANDS-ON VIRTUAL COMPUTING, 2E. Whether a novice or experienced IT professional, this unique book combines current theory and developing concepts with practical hands-on activities and projects to help readers master virtualization and learn to apply those skills in real world scenarios. Readers gain experience working with the latest virtualization technology and learn the differences between the two major leaders in virtualization products -- VMware and Microsoft. Specific chapters address Oracle VirtualBox, VMware Workstation, Microsoft Hyper-V, VMware vSphere, and virtualization in software-defined data centers. Readers develop the solid understanding of virtualization concepts and products needed to advance today's IT career. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

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.

Hands-On IoT Solutions with Blockchain

97 Things Every Cloud Engineer Should Know

Cloud Computing: A Hands-On Approach

Building Cloud and Virtualization Infrastructure

Hands on Virtual Computing

Hands-On Serverless Computing with Google Cloud

Distributed and Cloud Computing

Design effective Azure architecture and transform your IT business solutions Key FeaturesDevelop a resilient and robust cloud environmentDeploy and manage cost-effective and highly available solutions on your public cloudDesign and implement enterprise-level cloud solutionsBook Description Azure provides cloud-based solutions to support your business demands. Building and running solutions on Azure will help your business maximize the return on investment and minimize the total cost of ownership. Hands-On Cloud Solutions with Azure focuses on addressing the architectural decisions that usually arise when you design or migrate a solution to Microsoft Azure. You will start by designing the building blocks of infrastructure solution on Azure, such as Azure compute, storage, and networking, followed by exploring the database options it offers. You will get to grips with designing scalable web and mobile solutions and understand where to host your Active Directory and Identity Solution. Moving on, you'll learn how to extend DevOps to Azure. You will also beneft from some exciting services that enable extremely smooth operations and streamlined DevOps between on-premises and cloud. The book will help you to design a secure environment for your solution, on both the Cloud and hybrid. Toward the end, you'll see how to manage and monitor cloud and hybrid solutions. By the end of this book, you will be armed with all the tools and knowledge you need to properly plan and design your solutions on Azure, whether it's for a brand new project or migration project. What you will learnGet started with Azure by understanding tenants, subs, and resource groupsDecide whether to "lift and shift" or migrate appsPlan and architect solutions in AzureBuild ARM templates for Azure resourcesDevelop and deploy solutions in AzureUnderstand how to monitor and support your application with AzureMake your life easier with Azure best practices and tipsWho this book is for If you're an IT consultant, developer, or solutions architect looking to design effective solutions for your organization, this book is for you. Some knowledge of cloud computing will assist with understanding the key concepts covered in 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.

This book provides an overview of Cloud Computing in an enterprise environment, describes the benefits and challenges, and then leads the reader through the process of assessing the suitability of a cloud-based approach for a given situation, calculating and justifying the investment that is required to transform the process or application, and then developing a solid design that considers the implementation as well as the ongoing operations and governance required to maintain the solution in a partially outsourced delivery model.

Transform the way you deliver IT resources digitally to connect to people and businesses. KEY FEATURES ? Extensive demonstration of service and deployment models with related use-cases. ? Includes wide and deep practical scenarios to explore the real cloud platform. ? Broad perspective to manage resources and disaster recovery. ? Infers various security standards and IAM with numerous examples. DESCRIPTION The book 'Building Cloud and Virtualization Infrastructure' covers the designing of a private cloud using various components and tools on various platforms such as AWS and OpenNebula. This book includes network virtualization and integrated technologies such as the Internet of Things and how to create web servers/instances on Amazon Web Services and OpenNebula. The readers will gain a better understanding of the concept of resource management, which offers benefits such as cost savings and improved manageability after reading this book. They will also learn disaster recovery, techniques, and tools to support virtualization, as well as the security challenges inherent in cloud platforms, the various IAM roles and their associated security, and various security standards. WHAT YOU WILL LEARN ? Understand the fundamentals of cloud concepts. ? Explore the knowledge of virtualization through different virtualization tools. ? Understand economic considerations to launch businesses online. ? Create your private cloud as per business needs. ? Learn to choose the right services to grow rapidly in the market. WHO THIS BOOK IS FOR This book is intended for students, researchers, and anyone interested in learning about designing, configuring, and deploying cloud-based applications. The readers should have a basic understanding of networking concepts, but not necessarily of the cloud. TABLE OF CONTENTS 1. Introduction to Cloud 2. Cloud Service Models 3. Cloud Deployment Models 4. Introduction to Hypervisor 5. Introduction to Virtualization 6. Virtualization on IT Assets 7. Experimental Part: Installation and Configuration 8. Practical Approach and Experiments 9. Resource Management in Cloud 10. Security in Cloud

A Hands-On Guide to the Fundamentals of AWS Cloud

Hands-On Cloud Administration in Azure

Guide to Cloud Computing

A Hands-on Approach

Build Hands-on Skills and Get Cloud Certification with the Top-Paying IT Certifications: AWS Cloud Practitioner, AWS Solutions Architect-Associate, Google Professional Cloud Architect and Google Professional Data Engineer

Handbook of Cloud Computing

Cloud Computing Certifications

This is a beginner book. However, it is recommended that you have a basic knowledge of how computers work and are able to install software on your computer. It was written with college students in mind. This book introduces you to cloud computing and Linux. It covers fundamentals of cloud computing and Linux at the

beginner level. There are many good books and websites on cloud computing and Linux. But not many books cover both. This book is unique for two reasons: 1) It focuses on basic concepts that can apply to most public clouds and Linux distros instead of explaining a particular one in details. This way readers can have a good understanding of overall picture of cloud computing and Linux. When they need more details of certain topic, they can search the Internet to find it. 2) It includes many review questions and practice projects so that readers not only read, but they can also type, get frustrated, and enjoy the success when their cloud computing finally works. This book cannot be completed in one hour, or one day because of the hands-on requirement. The recommended duration for completing this book is about 10 hours a week for two months. This book is not an in-depth cover of any particular topic because we want you to finish the book by the end of the semester.

Explores cloud computing, breaking down the concepts, models, mechanisms, and architectures of this technology while allowing for the financial assessment of resources and how they compare to traditional storage systems.

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.

Effectively deploy fully managed workloads using Google Cloud's serverless services Key FeaturesUse real-world use cases to understand the core functionalities of Functions as a ServiceExplore the potential of Cloud Run, Knative, Cloud Build, Google Kubernetes Engine, and Cloud StorageGet to grips with architectural decisions, seamless deployments, containerization, and serverless solutionsBook Description Google Cloud's serverless platform allows organizations to scale fully managed solutions without worrying about the underlying infrastructure. With this book, you will learn how to design, develop, and deploy full stack serverless apps on Google Cloud. The book starts with a quick overview of the Google Cloud console, its features, user interface (UI), and capabilities. After getting to grips with the Google Cloud interface and its features, you will explore the core aspects of serverless products such as Cloud Run, Cloud Functions and App Engine. You will also learn essential features such as version control, containerization, and identity and access management with the help of real-world use cases. Later, you will understand how to incorporate continuous integration and continuous deployment (CI/CD) techniques for serverless applications. Toward the concluding chapters, you will get to grips with how key technologies such as Knative enable Cloud Run to be hosted on multiple platforms including Kubernetes and VMware. By the end of this book, you will have become proficient in confidently developing, managing, and deploying containerized applications on Google Cloud. What you will learnExplore the various options for deploying serverless workloads on Google CloudDetermine the appropriate serverless product for your application use caseIntegrate multiple lightweight functions to build scalable and resilient servicesIncrease productivity through build process automationUnderstand how to secure serverless workloads using service accountsBuild a scalable architecture with Google Cloud Functions and Cloud RunWho this book is for If you are a cloud administrator, architect, or developer who wants to build scalable systems and deploy serverless workloads on Google Cloud, then this book is for you. To get the most out of this book, a basic understanding of the serverless ecosystem and cloud computing will be beneficial.

A Comprehensive Guide to Secure Cloud Computing

Cloud Computing Solutions Architect

Cloud Computing for Science and Engineering

Hands-On Cloud Solutions with Azure

Principles and Practice

Foundations and Applications Programming

Private Cloud Computing

"Provides strategic insights, describes the breakout business models, and offers the planning and implementation guidance business and technology leaders need to chart their course ahead." - cover.

This book is your systematic cloud migration guide. Experiences shared by the author are drawn from real-life migration projects and contain practical advice, as well as step-by-step architecture, design, and technical implementation instructions using sample application code on GitLab. Following the guidance in this book will provide much needed support to your teams, and help you successfully complete the application cloud migration journey. Systematic Cloud Migration consists of four major parts. Part one starts with a fundamental introduction of cloud computing to establish the context for migration, including paradigm changes in five important areas: software application, DevSecOps, operations, infrastructure, and security. And these are the areas that the book follows throughout. Next, it introduces a real-life migration process that your team can follow. Part two presents the migration process for the application code, including architecture diagrams and presented by demo application code and supporting infrastructure in AWS cloud. Part three dives into DevSecOps and automation. In addition to concepts, a real-life migration diagram and sample pipeline code implemented with GitLab are include. Part four deals with efficient cloud operations. Each chapter has a practical structure: objectives, roles, inputs, process/activities, outputs/deliverables, best practices, and summary. There is a wealth of cloud production-grade template style artifacts that can be used as is. What You Will Learn Design applications in the cloud, including determining the design criteria (e.g., solution cost is a design criterion, same as security, and is not an afterthought) Understand the major migration areas: software development (application code, data, integration, and configuration), software delivery (pipeline and automation), and software operations (observability) Migrate each application element: client and business components code, data, integration and services, logging, monitoring, alerting, as well as configurations Understand cloud-critical static application security testing (SAST), dynamic application security testing (DAST), containers compliance and security scanning, and open source dependency testing Know the directions and implementation details on cost-efficient, automated, cloud-native software operations Who This Book Is For Primarily designed with software developers, team leads, development managers, DevOps engineers, and software architects in mind. Their day-to-day activities include architecting, designing, developing, delivering, and operating software in the cloud environment. In addition, this book will benefit infrastructure, network, security, and operations engineers, who in turn, can provide better support for the software development product teams.

This book will enable you to: understand the different types of Cloud and know which is the right one for your business have realistic expectations of what a Cloud service can give you, and enable you to manage it in the way that suits your business minimise potential disruption by successfully managing the risks and threats make appropriate changes to your business in order to seize opportunities offered by Cloud set up an effective governance system and benefit from the consequential cost savings and reductions in expenditure understand the legal implications of international data protection and privacy laws, and protect your business against falling foul of such laws know how Cloud can benefit your business continuity and disaster recovery planning.

Summary Amazon Web Services in Action, Second Edition is a comprehensive introduction to computing, storing, and networking in the AWS cloud. You'll find clear, relevant coverage of all the essential AWS services you to know, emphasizing best practices for security, high availability and scalability. Foreword by Ben Whaley, AWS community hero and author. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The largest and most mature of the cloud platforms, AWS offers over 100 prebuilt services, practically limitless compute resources, bottomless secure storage, as well as top-notch automation capabilities. This book shows you how to develop, host, and manage applications on AWS. About the Book Amazon Web Services in Action, Second Edition is a comprehensive introduction to deploying web applications in the AWS cloud. You'll find clear, relevant coverage of all essential AWS services, with a focus on automation, security, high availability, and scalability. This thoroughly revised edition covers the latest additions to AWS, including serverless infrastructure with AWS Lambda, sharing data with EFS, and in-memory storage with ElastiCache. What's inside Completely revised bestseller Secure and scale distributed applications Deploy applications on AWS Design for failure to achieve high availability Automate your infrastructure About the Reader Written for mid-level developers and DevOps engineers. About the Author Andreas Wittig and Michael Wittig are software engineers and DevOps consultants focused on AWS. Together, they migrated the first bank in Germany to AWS in 2013. Table of Contents PART 1 - GETTING STARTED What is Amazon Web Services? A simple example: WordPress in five minutes PART 2 - BUILDING VIRTUAL INFRASTRUCTURE CONSISTING OF COMPUTERS AND NETWORKING Using virtual machines: EC2 Programming your infrastructure: The command-line, SDKs, and CloudFormation Automating deployment: CloudFormation, Elastic Beanstalk, and OpsWorks Securing your system: IAM, security groups, and VPC Automating operational tasks with Lambda PART 3 - STORING DATA IN THE CLOUD Storing your objects: S3 and Glacier Storing data on hard drives: EBS and instance store Sharing data volumes between machines: EFS Using a relational database service: RDS Caching data in memory: Amazon ElastiCache Programming for the NoSQL database service: DynamoDB PART 4 - ARCHITECTING ON AWS Achieving high availability: availability zones, auto-scaling, and CloudWatch Decoupling your infrastructure: Elastic Load Balancing and Simple Queue Service Designing for fault tolerance Scaling up and down: auto-scaling and CloudWatch

Cloud Security

Implement, monitor, and manage important Azure services and components including IaaS and PaaS

Cloud Computing Architected

Internet of Things: A Hands-On Approach

From Parallel Processing to the Internet of Things

Systematic Cloud Migration

Chapter 1 -- Next-Generation IT Trends -- Layers of Function: The Service-Oriented Infrastructure Framework -- Blocks of Function: The Cloud Modules -- Cloud Computing Characteristics -- Computing Taxonomy -- Chapter 2 -- Next-Generation Data Center Architectures and Technologies -- The Data Center Consolidation and Virtualization Modus Operandi -- Server Consolidation Drivers -- Server Virtualization -- Storage Virtualization -- Layer 2 Evolutions -- Unified Data Center Fabric -- Chapter 3 -- Next-Generation WAN and Service Integration -- Service Integration in the Data Center -- Infrastructure Segmentation -- The Next-Generation Enterprise WAN -- Chapter 4 -- Branch Consolidation and WAN Optimization -- What is the WAN performance challenge? -- WAN Optimization Benefits -- Requirements for WAN Optimization Deployment -- Remote Office Virtualization Designs -- Chapter 5 -- Session Interception Design and Deployment -- Selecting an Interception Mechanism -- The WCCP Dive -- In-path Dep ...

Well-known security experts decipher the most challenging aspect of cloud computing-security Cloud computing allows for both large and small organizations to have the opportunity to use Internet-based services so that they can reduce start-up costs, lower capital expenditures, use services on a pay-as-you-use basis, access applications only as needed, and quickly reduce or increase capacities. However, these benefits are accompanied by a myriad of security issues, and this valuable book tackles the most common security challenges that cloud computing faces. The authors offer you years of unparalleled expertise and knowledge as they discuss the extremely challenging topics of data ownership, privacy protections, data mobility, quality of service and service levels, bandwidth costs, data protection, and support. As the most current and complete guide to helping you find your way through a maze of security minefields, this book is mandatory reading if you are involved in any aspect of cloud computing. Coverage Includes: Cloud Computing Fundamentals Cloud Computing Architecture Cloud Computing Software Security Fundamentals Cloud Computing Risks Issues Cloud Computing Security Challenges Cloud Computing Security Architecture Cloud Computing Life Cycle Issues Useful Next Steps and Approaches