

Virtualization Essentials

This revised and updated Second Edition presents a practical introduction to operating systems and illustrates these principles through a hands-on approach using accompanying simulation models developed in Java and C++. This text is appropriate for upper-level undergraduate courses in computer science. Case studies throughout the text feature the implementation of Java and C++ simulation models, giving students a thorough look at both the theoretical and the practical concepts discussed in modern OS courses. This pedagogical approach is designed to present a clearer, more practical look at OS concepts, techniques, and methods without sacrificing the theoretical rigor that is necessary at this level. It is an ideal choice for those interested in gaining comprehensive, hands-on experience using the modern techniques and methods necessary for working with these complex systems. Every new printed copy is accompanied with a CD-ROM containing simulations (eBook version does not include CD-ROM). New material added to the Second Edition: - Chapter 11 (Security) has been revised to include the most up-to-date information - Chapter 12 (Firewalls and Network Security) has been updated to include material on middleware that allows applications on separate machines to communicate (e.g. RMI, COM+, and Object Broker) - Includes a new chapter dedicated to Virtual Machines - Provides introductions to various types of scams - Updated to include information on Windows 7 and Mac OS X throughout the text - Contains new material on basic hardware architecture that operating systems depend on - Includes new material on handling multi-core CPUs Instructor Resources: -Answers to the end of chapter questions -PowerPoint Lecture Outlines This book is written in practical tutorial style and it offers learning through vivid examples and. Each chapter contains step-by-step instructions about everything necessary to execute a particular task. The book is designed so that you can read it from start to end for beginners or just open up any chapter and start following the recipes as a reference for advanced users, This book will be useful to developers, System admins and consultants who want to install and manage a virtualized app environment using VMware ThinApp 4.7.

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. Big Data: Concepts, Methodologies, Tools, and Applications is a multi-volume compendium of research-based perspectives and solutions within the realm of large-scale and complex data sets. Taking a multidisciplinary approach, this publication presents exhaustive coverage of crucial topics in the field of big data including diverse applications, storage solutions, analysis techniques, and methods

for searching and transferring large data sets, in addition to security issues. Emphasizing essential research in the field of data science, this publication is an ideal reference source for data analysts, IT professionals, researchers, and academics.

Cloud computing-accessing computing resources over the Internet-is rapidly changing the landscape of information technology. Its primary benefits compared to on-premise computing models are reduced costs and increased agility and scalability. Hence, cloud computing is receiving considerable interest among several stakeholders-businesses, the IT industry, and academia. *Microsoft Virtualization: Master Microsoft Server, Desktop, Application, and Presentation Virtualization* serves as a thorough reference for those considering a migration into the virtualized world. It provides the tools and explanations needed to create a fresh virtualization environment. Readers walk through step-by-step instructions on everything from building a Windows 2008 server to installing and configuring Hyper-V and App-V. The book begins with the basics of virtualization, including the role of virtualization in the changing landscape of the traditional data center and its benefits, and the strategies of virtualization. It presents the step-by-step process used to build a Windows 2008 server and the process of configuring and managing a Hyper-V infrastructure. Microsoft's approach to high availability and the combination of Microsoft tools to provide a very reliable and highly available virtualization infrastructure are discussed. The chapters also cover the migration of physical servers to virtual servers; the Dynamic Data Center concept; creating and publishing a virtual application within App-V; and desktop virtualization. This book was intended for seasoned system administrators and engineers who grew up in and still manage primarily a hardware-based server environment containing a large assortment of both newer and legacy applications. Covers Microsoft virtualization products completely, including Hyper-V. Includes a special section on securing virtual infrastructure. Gives hands-on instructions to help understand and implement Microsoft solutions.

Learn virtualization skills by building your own virtual machine. *Virtualization Essentials, Second Edition* provides new and aspiring IT professionals with immersive training in working with virtualization environments. Clear, straightforward discussion simplifies complex concepts, and the hands-on tutorial approach helps you quickly get up to speed on the fundamentals. You'll begin by learning what virtualization is and how it works within the computing environment, then you'll dive right into building your own virtual machine. You'll learn how to set up the CPU, memory, storage, networking, and more as you master the skills that put you in-demand on the job market. Each chapter focuses on a specific goal, and concludes with review questions that test your understanding as well as suggested exercises that help you reinforce what you've learned. As more and more companies are leveraging virtualization, it's imperative that IT professionals have the skills and knowledge to interface with virtualization-centric infrastructures. This book takes a learning-by-doing

approach to give you hands-on training and a core understanding of virtualization. Understand how virtualization works
Create a virtual machine by scratch and migration
Configure and manage basic components and supporting devices
Develop the necessary skill set to work in today's virtual world
Virtualization was initially used to build test labs, but its use has expanded to become best practice for a tremendous variety of IT solutions including high availability, business continuity, dynamic IT, and more. Cloud computing and DevOps rely on virtualization technologies, and the exponential spread of these and similar applications make virtualization proficiency a major value-add for any IT professional. Virtualization Essentials, Second Edition provides accessible, user-friendly, informative virtualization training for the forward-looking pro.

This book focuses on the core question of the necessary architectural support provided by hardware to efficiently run virtual machines, and of the corresponding design of the hypervisors that run them. Virtualization is still possible when the instruction set architecture lacks such support, but the hypervisor remains more complex and must rely on additional techniques. Despite the focus on architectural support in current architectures, some historical perspective is necessary to appropriately frame the problem. The first half of the book provides the historical perspective of the theoretical framework developed four decades ago by Popek and Goldberg. It also describes earlier systems that enabled virtualization despite the lack of architectural support in hardware. As is often the case, theory defines a necessary—but not sufficient—set of features, and modern architectures are the result of the combination of the theoretical framework with insights derived from practical systems. The second half of the book describes state-of-the-art support for virtualization in both x86-64 and ARM processors. This book includes an in-depth description of the CPU, memory, and I/O virtualization of these two processor architectures, as well as case studies on the Linux/KVM, VMware, and Xen hypervisors. It concludes with a performance comparison of virtualization on current-generation x86- and ARM-based systems across multiple hypervisors.

As a developer new to Web Services, how do you make sense of this emerging framework so you can start writing your own services today? This concise book gives programmers both a concrete introduction and a handy reference to XML web services, first by explaining the foundations of this new breed of distributed services, and then by demonstrating quick ways to create services with open-source Java tools. Web Services make it possible for diverse applications to discover each other and exchange data seamlessly via the Internet. For instance, programs written in Java and running on Solaris can find and call code written in C# that run on Windows XP, or programs written in Perl that run on Linux, without any concern about the details of how that service is implemented. A common set of Web Services is at the core of Microsoft's new .NET strategy, Sun Microsystems's Sun One Platform, and the W3C's XML Protocol Activity Group. In

this book, author Ethan Cerami explores four key emerging technologies: XML Remote Procedure Calls (XML-RPC) SOAP - The foundation for most commercial Web Services development Universal Discovery, Description and Integration (UDDI) Web Services Description Language (WSDL) For each of these topics, Web Services Essentials provides a quick overview, Java tutorials with sample code, samples of the XML documents underlying the service, and explanations of freely-available Java APIs. Cerami also includes a guide to the current state of Web Services, pointers to open-source tools and a comprehensive glossary of terms. If you want to break through the Web Services hype and find useful information on these evolving technologies, look no further than Web Services Essentials.

Simplify and automate server administration tasks with PowerCLI About This Book Automate VMware's vSphere environment by learning the essentials of PowerCLI Impress your peers by developing scripts to perform administration tasks Discover the intricate workings of PowerCLI through simple and real-life examples Who This Book Is For PowerCLI Essentials is focused toward virtualization professionals and system administrators who want to discover and learn about the automation techniques associated with PowerCLI for complex virtual environments. What You Will Learn Download and install PowerCLI and its basics as well as the basics of PowerShell Enhance your scripting experience Build longer scripts and simpler reports Relate a task in VMware administration to a PowerCLI script Discover methods to acquire and change information remotely Set up orchestrator to manage your workflow In Detail Have you ever wished you could automatically get a report with all the relevant information about your VMware environments in exactly the format you want? Or that you could automate a crucial task that needs to be performed on a regular basis? Powerful Command Line Interface (PowerCLI) scripts do all these things and much more for VMware environments. PowerCLI is a command-line interface tool used to automate VMware vSphere environments. It is used to handle complicated administration tasks through use of various cmdlets and scripts, which are designed to handle certain aspects of vSphere servers and to help you manage them. This book will show you the intricacies of PowerCLI through real-life examples so that you can discover the art of PowerCLI scripting. At the start, you will be taught to download and install PowerCLI and will learn about the different versions of it. Moving further, you will be introduced to the GUI of PowerCLI and will find out how to develop single line scripts to duplicate running tasks, produce simple reports, and simplify administration. Next, you will learn about the methods available to get information remotely. Towards the end, you will be taught to set up orchestrator and build workflows in PowerShell with update manager and SRM scripts. Style and approach Each and every topic in this book is explained in a very easy-to-follow fashion with real-life, simple examples so you'll get an idea not only about working with PowerCLI, but will also get an idea about scripting.

Contains a variety of cloud computing technologies and explores how the cloud can enhance business operations Cloud Technologies offers an accessible guide to cloud-based systems and clearly explains how these technologies have changed the way organizations approach and implement their computing infrastructure. The author—a noted expert on the topic—includes an overview of cloud computing and addresses business-related considerations such as service level agreements, elasticity, security, audits, and practical implementation issues. In addition, the book covers important topics such as automation, infrastructure as code, DevOps, orchestration, and edge computing. Cloud computing fundamentally changes the way organizations think about and implement IT infrastructure. Any manager without a firm grasp of basic cloud concepts is at a huge disadvantage in the modern world. Written for all levels of managers working in IT and other areas, the book explores

cost savings and enhanced capabilities, as well as identifies different models for implementing cloud technologies and tackling cloud business concerns. This important book: Demonstrates a variety of cloud computing technologies and ways the cloud can enhance business operations Addresses data security concerns in cloud computing relevant to corporate data owners Shows ways the cloud can save money for a business Offers a companion website hosting PowerPoint slides Written for managers in the fields of business, IT and cloud computing, Cloud Technologies describes cloud computing concepts and related strategies and operations in accessible language.

Virtualization has become a “megatrend”—and for good reason. Implementing virtualization allows for more efficient utilization of network server capacity, simpler storage administration, reduced energy costs, and better use of corporate capital. In other words: virtualization helps you save money, energy, and space. Not bad, huh? If you’re thinking about “going virtual” but have the feeling everyone else in the world understands exactly what that means while you’re still virtually in the dark, take heart. Virtualization for Dummies gives you a thorough introduction to this hot topic and helps you evaluate if making the switch to a virtual environment is right for you. This fun and friendly guide starts with a detailed overview of exactly what virtualization is and exactly how it works, and then takes you on a tour of the benefits of a virtualized environment, such as added space in overcrowded data centers, lower operations costs through more efficient infrastructure administration, and reduced energy costs through server consolidation. Next, you’ll get step-by-step guidance on how to: Perform a server virtualization cost versus benefit analysis Weigh server virtualization options Choose hardware for your server virtualization project Create a virtualized software environment Migrate to—and manage—your new virtualized environment Whether you’re an IT manager looking to sell the idea to your boss, or just want to learn more about how to create, migrate to, and successfully manage a virtualized environment, Virtualization for Dummies is your go-to guide for virtually everything you need to know.

A plain-English guide to the market-leading virtualization and cloud computing technology With virtualization, a single server can host dozens or hundreds of virtual machines running a variety of operating systems, and even hook them together in a virtual network or cloud infrastructure. This practical guide shows you how to create a virtual system using the VMware vSphere environment. You'll find all the information you need to understand, design, and deploy one—without getting overwhelmed with technical detail. And once you’re up and running, this book is the perfect reference for maintenance and troubleshooting issues. Introduces you to virtualization and VMware’s virtualization/cloud computing technology, the most recent version is VMware vSphere Shows you how to design a vSphere environment Covers installation, deployment, management, maintenance, and troubleshooting Provides what IT managers and system administrators need to roll out their first virtualized or cloud infrastructure, or to get up to speed on VMware’s technology Get up and running on the cloud with VMware vSphere For Dummies!

We are living in the era of "Big Data" and the computing power required to deal with "Big Data" both in terms of its energy consumption and technical complexity is one of the key areas of research and development. The U.S. Environmental Protection Agency estimates that centralized computing infrastructures (data centres) currently use 7 giga watts of electricity during peak loads. This translates into about 61 billion kilowatt hours of electricity used. By the EPA’s estimates, power-hungry data centres consume the annual output of 15 average-sized power plants. One of the top constraints to increasing computing power, besides the ability to cool, is simply delivering enough power to a given physical space. Green Information Technology: A Sustainable Approach offers in a single volume a broad collection of practical techniques and methodologies for designing, building and implementing a green technology strategy in any large enterprise environment, which up until now has been scattered in difficult-to-find scholarly resources. Included here is the latest information on emerging technologies

and their environmental impact, how to effectively measure sustainability, discussions on sustainable hardware and software design, as well as how to use big data and cloud computing to drive efficiencies and establish a framework for sustainability in the information technology infrastructure. Written by recognized experts in both academia and industry, Green Information Technology: A Sustainable Approach is a must-have guide for researchers, computer architects, computer engineers and IT professionals with an interest in greater efficiency with less environmental impact. Introduces the concept of using green procurement and supply chain programs in the IT infrastructure. Discusses how to use big data to drive efficiencies and establish a framework for sustainability in the information technology infrastructure. Explains how cloud computing can be used to consolidate corporate IT environments using large-scale shared infrastructure reducing the overall environmental impact and unlocking new efficiencies. Provides specific use cases for Green IT such as data center energy efficiency and cloud computing sustainability and risk.

Securing virtual environments for VMware, Citrix, and Microsoft hypervisors Virtualization changes the playing field when it comes to security. There are new attack vectors, new operational patterns and complexity, and changes in IT architecture and deployment life cycles. What's more, the technologies, best practices, and strategies used for securing physical environments do not provide sufficient protection for virtual environments. This book includes step-by-step configurations for the security controls that come with the three leading hypervisor--VMware vSphere and ESXi, Microsoft Hyper-V on Windows Server 2008, and Citrix XenServer. Includes strategy for securely implementing network policies and integrating virtual networks into the existing physical infrastructure Discusses vSphere and Hyper-V native virtual switches as well as the Cisco Nexus 1000v and Open vSwitch switches Offers effective practices for securing virtual machines without creating additional operational overhead for administrators Contains methods for integrating virtualization into existing workflows and creating new policies and processes for change and configuration management so that virtualization can help make these critical operations processes more effective This must-have resource offers tips and tricks for improving disaster recovery and business continuity, security-specific scripts, and examples of how Virtual Desktop Infrastructure benefits security.

Learn how to virtualize your network and discover the full potential of a Software Defined Data Center. A smarter way to use network resources begins here About This Book Experience the dynamism and flexibility of a virtualized software defined data center with NSX Find out how to design your network infrastructure based on what your organization needs From security to automation, discover how NSX's impressive range of features can unlock a more effective and intelligent approach to system administration Who This Book Is For If you're a network administrator and want a simple but powerful solution to your network virtualization headaches, look no further than this fast-paced, practical guide. What You Will Learn Deep dive into NSX-v Manager, Controller deployment, and design decisions Get to know the strategies needed to make decisions on each mode of VXLAN that is based on physical network design Deploy Edge Gateway and leverage all the gateway features and design decisions Get to grips with NSX-v Security features and automate security Leverage Cross VC, identify the benefits, and work through a few deployment scenarios Troubleshoot an NSX-v to isolate problems and identify solutions through a step-by-step process In Detail VMware NSX is at the forefront of the software-defined networking revolution. It makes it even easier for organizations to unlock the full benefits of a software-defined data center – scalability, flexibility – while adding in vital security and automation features to keep any sysadmin happy. Software alone won't power your business – with NSX you can use it more effectively than ever before, optimizing your resources and reducing costs. Getting started should be easy – this guide makes sure it is. It takes you through the core components of NSX, demonstrating how to set it up, customize it within your current network architecture. You'll learn the principles of effective design, as

well as some things you may need to take into consideration when you're creating your virtual networks. We'll also show you how to construct and maintain virtual networks, and how to deal with any tricky situations and failures. By the end, you'll be confident you can deliver, scale and secure an exemplary virtualized network with NSX. Style and approach This book provides you with an introduction to software-defined networking with VMware NSX. Focusing on the most essential elements, so you can put your knowledge into practice quickly, it's a guide dedicated to anyone who understands that sometimes real-world problems require virtualized solutions.

Flexible and efficient, VMware ESX is the tool of choice for enterprise data centers looking to make the most of the latest virtualization methods. However, to date, no single manual provides users with a systematic way to understand and take full advantage of all its features and options. Novel Solutions for Every Level of the IT Chain VMware ESX Essentials in the Virtual Data Center answers that need. Written by pioneers and established experts in the field of virtualization with years of hands-on experience, it details the product and outlines innovative ways to use virtualization within the organization. With novel solutions for every level of the IT chain, this text is a complete guide to the design, operation, and management of the ESX product. Featuring technical information, best practices, and technology breakdowns needed to answer real business challenges, this succinct volume – Shows how to install ESX, either manually or using an automated method, detailing the various key performance optimizations that can make installation more efficient Describes ways to further automate and enhance the ESX environment, and make it more extensible with APIs, SDKs, programming extensions, and VirtualCenter plug-ins Explains the latest ESX features fully Details the architecture and background of ESX through the use of diagrams Uses Real-World Experience to Slash Costs and Increase Efficiency This text covers VMware VI3, the most widely distributed server virtualization product on the market, from 3.0 to 3.5, and the most recently announced embedded version of ESXi. It will enable IT organizations to save hardware costs and make server deployments, provisioning, and management more efficient. Able to make use of the full benefits of virtualization, they will gain the flexibility to create solutions and the freedom that comes with not being locked into a single vendor's hardware solution.

From cloud computing to data analytics, society stores vast supplies of information through wireless networks and mobile computing. As organizations are becoming increasingly more wireless, ensuring the security and seamless function of electronic gadgets while creating a strong network is imperative. Advanced Methodologies and Technologies in Network Architecture, Mobile Computing, and Data Analytics highlights the challenges associated with creating a strong network architecture in a perpetually online society. Readers will learn various methods in building a seamless mobile computing option and the most effective means of analyzing big data. This book is an important resource for information technology professionals, software developers, data analysts, graduate-level students, researchers, computer engineers, and IT specialists seeking modern information on emerging methods in data mining, information technology, and wireless networks.

This IBM® Redbooks® publication provides an introduction to PowerVM™ virtualization technologies on Power System servers. PowerVM is a combination of hardware, firmware, and software that provides CPU, network, and disk virtualization. These are the main virtualization technologies: POWER7, POWER6, and POWER5 hardware POWER Hypervisor Virtual I/O Server Though the PowerVM brand includes partitioning, management software, and other offerings, this publication focuses on the virtualization technologies that are part of the PowerVM Standard and Enterprise Editions. This publication is also designed to be an introduction guide for system administrators, providing instructions for these tasks: Configuration and creation of partitions and resources on the HMC Installation and configuration of the Virtual I/O Server Creation and installation of virtualized partitions Examples using AIX, IBM i, and Linux This edition has been updated with the latest

updates available and an improved content organization.

Virtualization and related technologies like hypervisors, which create virtual machines on a single hardware machine, and containers (also known as zones), which create virtual operating systems running on a single operating system, are a totally new area for many system administrators. Oracle® Solaris™ 10 System Virtualization Essentials provides an accessible introduction to computer virtualization, specifically the system virtualization technologies that use the Oracle Solaris or OpenSolaris operating systems. This accessible guide covers the key concepts system administrators need to understand and explains how to Use Dynamic Domains to maximize workload isolation on Sun SPARC systems Use Oracle VM Server for SPARC to deploy different Oracle Solaris 10 and OpenSolaris environments on SPARC CMT (chip multithreading) systems Use Oracle VM Server for x86 or xVM hypervisor to deploy a server with heterogeneous operating systems Use Oracle VM VirtualBox to develop and test software in heterogeneous environments Use Oracle Solaris Containers to maximize efficiency and scalability of workloads Use Oracle Solaris Containers to migrate Solaris 8 and Solaris 9 workloads to new hardware systems Mix virtualization technologies to maximize workload density Starting with a discussion of system virtualization in general terms—the needs of consolidation, the benefits of virtualization, and a description of the most common types of computer virtualization—this book also covers many of the concepts, features, and methods shared by many implementations of system virtualization. Oracle's computer virtualization technologies that are directly related to the Oracle Solaris OS are described in detail along with a discussion of the factors that should be considered when choosing a virtualization technology. Finally, several examples of these technologies and an overview of virtualization management software are provided, as well as a history of virtualization.

Learn Linux, and take your career to the next level! Linux Essentials, 2nd Edition provides a solid foundation of knowledge for anyone considering a career in information technology, for anyone new to the Linux operating system, and for anyone who is preparing to sit for the Linux Essentials Exam. Through this engaging resource, you can access key information in a learning-by-doing style. Hands-on tutorials and end-of-chapter exercises and review questions lead you in both learning and applying new information—information that will help you achieve your goals! With the experience provided in this compelling reference, you can sit down for the Linux Essentials Exam with confidence. An open source operating system, Linux is a UNIX-based platform that is freely updated by developers. The nature of its development means that Linux is a low-cost and secure alternative to other operating systems, and is used in many different IT environments. Passing the Linux Essentials Exam prepares you to apply your knowledge regarding this operating system within the workforce. Access lessons that are organized by task, allowing you to quickly identify the topics you are looking for and navigate the comprehensive information presented by the book Discover the basics of the Linux operating system, including distributions, types of open source applications, freeware, licensing, operations, navigation, and more Explore command functions, including navigating the command line, turning commands into scripts, and more Identify and create user types, users, and groups Linux Essentials, 2nd Edition is a critical resource for anyone starting a career in IT or anyone new to the Linux operating system.

Everything you need to start your career in computer networking Looking to land that computer networking position? Look no further! Getting a Networking Job For Dummies offers all the tools and step-by-step guidance you need to stand out from the crowd, get your foot in the door, and secure a job in this fast-growing sector. In no time, you'll get a handle on networking roles, necessary education, training, and certifications, ways to brand yourself for your dream career, and so much more. These days, computer networking can be a complicated industry, and knowing what you need to do to make yourself an attractive candidate for a coveted networking position can make all the

difference. Luckily, *Getting a Networking Job For Dummies* arms you with everything you need to be one step ahead of the game. Humorous, practical, and packed with authoritative information, this down-to-earth guide is your go-to handbook for scoring that sought-after computer networking position! Find the right organization for you Write a winning resume that gets attention Answer difficult interview questions with confidence Identify required certifications to get the job you want If you're a prospective computer networking employee looking to present yourself as a strong, competitive candidate in the computer networking market, this hands-on guide sets you up for success.

Dive in to the cutting edge techniques of Linux KVM virtualization, and build the virtualization solutions your datacentre demands About This Book Become an expert in Linux virtualization Migrate your virtualized datacenter to the cloud Find out how to build a large scale virtualization solution that will transform your organization Who This Book Is For Linux administrators – if you want to build incredible, yet manageable virtualization solutions with KVM this is the book to get you there. It will help you apply what you already know to some tricky virtualization tasks. What You Will Learn Explore the ecosystem of tools that support Linux virtualization Find out why KVM offers you a smarter way to unlock the potential of virtualization Implement KVM virtualization using oVirt Explore the KVM architecture – so you can manage, scale and optimize it with ease Migrate your virtualized datacenter to the cloud for truly resource-efficient computing Find out how to integrate OpenStack with KVM to take full control of the cloud In Detail A robust datacenter is essential for any organization – but you don't want to waste resources. With KVM you can virtualize your datacenter, transforming a Linux operating system into a powerful hypervisor that allows you to manage multiple OS with minimal fuss. This book doesn't just show you how to virtualize with KVM – it shows you how to do it well. Written to make you an expert on KVM, you'll learn to manage the three essential pillars of scalability, performance and security – as well as some useful integrations with cloud services such as OpenStack. From the fundamentals of setting up a standalone KVM virtualization platform, and the best tools to harness it effectively, including virt-manager, and kimchi-project, everything you do is built around making KVM work for you in the real-world, helping you to interact and customize it as you need it. With further guidance on performance optimization for Microsoft Windows and RHEL virtual machines, as well as proven strategies for backup and disaster recovery, you'll can be confident that your virtualized data center is working for your organization – not hampering it. Finally, the book will empower you to unlock the full potential of cloud through KVM. Migrating your physical machines to the cloud can be challenging, but once you've mastered KVM, it's a little easier. Style and approach Combining advanced insights with practical solutions, *Mastering KVM Virtualization* is a vital resource for anyone that believes in the power of virtualization to help a business use resources more effectively.

Microsoft Azure Essentials from Microsoft Press is a series of free ebooks designed to help you advance your technical skills with Microsoft Azure. The first ebook in the series, *Microsoft Azure Essentials: Fundamentals of Azure*, introduces developers and IT professionals to the wide range of capabilities in Azure. The authors - both Microsoft MVPs in Azure - present both conceptual and how-to content for key areas, including: Azure Websites and Azure Cloud Services Azure Virtual Machines Azure Storage Azure Virtual Networks Databases Azure Active Directory Management tools Business scenarios Watch Microsoft Press's blog and Twitter (@MicrosoftPress) to learn about other free ebooks in the "Microsoft Azure Essentials" series.

This three-volume set of books highlights major advances in the development of concepts and techniques in the area of new technologies and architectures of contemporary information systems. Further, it helps readers solve specific research and analytical problems and glean useful knowledge and business value from the data. Each chapter provides an analysis of a specific technical problem, followed by a numerical analysis, simulation and implementation of the solution to the real-life problem. Managing an organisation, especially in today's

rapidly changing circumstances, is a very complex process. Increased competition in the marketplace, especially as a result of the massive and successful entry of foreign businesses into domestic markets, changes in consumer behaviour, and broader access to new technologies and information, calls for organisational restructuring and the introduction and modification of management methods using the latest advances in science. This situation has prompted many decision-making bodies to introduce computer modelling of organisation management systems. The three books present the peer-reviewed proceedings of the 39th International Conference “Information Systems Architecture and Technology” (ISAT), held on September 16–18, 2018 in Nysa, Poland. The conference was organised by the Computer Science and Management Systems Departments, Faculty of Computer Science and Management, Wroclaw University of Technology and Sciences and University of Applied Sciences in Nysa, Poland. The papers have been grouped into three major parts: Part I—discusses topics including but not limited to Artificial Intelligence Methods, Knowledge Discovery and Data Mining, Big Data, Knowledge Based Management, Internet of Things, Cloud Computing and High Performance Computing, Distributed Computer Systems, Content Delivery Networks, and Service Oriented Computing. Part II—addresses topics including but not limited to System Modelling for Control, Recognition and Decision Support, Mathematical Modelling in Computer System Design, Service Oriented Systems and Cloud Computing, and Complex Process Modelling. Part III—focuses on topics including but not limited to Knowledge Based Management, Modelling of Financial and Investment Decisions, Modelling of Managerial Decisions, Production Systems Management and Maintenance, Risk Management, Small Business Management, and Theories and Models of Innovation.

A Concise, Up-to-Date Guide to Oracle Virtualization Technologies, Including Oracle Solaris Zones, Oracle VM Server for SPARC, Physical Domains, and Oracle VM Virtual Box Oracle® Solaris 11 System Virtualization Essentials, Second Edition, has been fully updated for Oracle 11 and is a complete, practical, and up-to-date guide to selecting, implementing, and applying today’s Oracle virtualization technologies to real-world business problems. Four Oracle experts thoroughly cover current Oracle Solaris virtualization options. They help you understand key use cases, including consolidation, asynchronous workloads, software development, testing/staging, workload mobility, legacy OS support, provisioning, scalability, fine-grained OS changes, and security. They also compare and address each leading approach to virtualization: OS virtualization, hypervisor-based virtual machines, and hardware partitioning. The authors illuminate the use of virtualization with many Oracle software applications and engineered systems, including SuperCluster, Secure Enterprise Cloud Infrastructure, Exalytics, Oracle Database, and security hardening scenarios. Bringing together case study examples and in-the-trenches experience, this guide explains how to Leverage Oracle Solaris Zones to improve security, deployment, resource usage, and management Use Logical Domains to deploy different versions of Oracle Solaris on SPARC systems Maximize workload isolation on SPARC systems with Physical Domains Use Oracle Solaris Zones to optimize workload efficiency and scalability Improve data center flexibility with live migration Develop and test software in heterogeneous environments with Oracle VM Virtual Box Mix virtualization technologies to maximize workload density Migrate Solaris 10 workloads to new hardware via Solaris Zones Register your product at informit.com/register for convenient access to downloads, updates, and corrections as they become available.

This book is designed for use as a primary textbook for a course in cloud computing or as a resource for professionals in industry seeking to explore cloud services. The book highlights the recent developments in distributed computing and details the architecture, virtualization concepts, and security concerns of cloud computing. It also provides a detailed understanding of the benefits of cloud computing that can encourage enterprises to switch to the cloud. Features: - Provides a basic understanding of the computing paradigm of cloud computing -

Gives a brief introduction to cloud computing, its architecture, and the Hadoop distributed file system - Deals with cloud management concepts like scalable, fault tolerance, resiliency, provisioning, asset management, cloud governance, high availability, disaster recovery, and multi-tenancy - Includes case studies on MS Azure, Google, Amazon Web Services, Aneka, etc.

If you need to get started with OpenStack or want to learn more, then this book is your perfect companion. If you're comfortable with the Linux command line, you'll gain confidence in using OpenStack.

I love virtual machines (VMs) and I have done for a long time. If that makes me "sad" or an "anorak", so be it. I love them because they are so much fun, as well as being so useful. They have an element of original sin (writing assembly programs and being in control of an entire machine), while still being able to claim that one is being a respectable member of the community (being structured, modular, high-level, object-oriented, and so on). They also allow one to design machines of one's own, unencumbered by the restrictions of a starts optimising it for some physical particular processor (at least, until one processor or other). I have been building virtual machines, on and off, since 1980 or thereabouts. It has always been something of a hobby for me; it has also turned out to be a technique of great power and applicability. I hope to continue working on them, perhaps on some of the ideas outlined in the last chapter (I certainly want to do some more work with register-based VMs and concurrency). I originally wanted to write the book from a purely semantic viewpoint.

To help readers understand virtualization and cloud computing, this book is designed to cover the theories and concepts enough to understand the cutting-edge technology. Meanwhile, in this book, the reader can gain hands-on skills on VMware Cloud Suite to create a private cloud. With the academic support from VMware, readers can use the VMware supported software to create various virtualized IT infrastructures sophisticated enough for various sized enterprises. Then, the virtualized IT infrastructure can be made available to an enterprise through the private cloud services.

A Concise, Up-to-Date Guide to Oracle Virtualization Technologies, Including Oracle Solaris Zones, Oracle VM Server for SPARC, Physical Domains, and Oracle VM Virtual Box Oracle Solaris 11 System Virtualization Essentials, Second Edition, has been fully updated for Oracle 11 and is a complete, practical, and up-to-date guide to selecting, implementing, and applying today's Oracle virtualization technologies to real-world business problems. Four Oracle experts thoroughly cover current Oracle Solaris virtualization options. They help you understand key use cases, including consolidation, asynchronous workloads, software development, testing/staging, workload mobility, legacy OS support, provisioning, scalability, fine-grained OS changes, and security. They also compare and address each leading approach to virtualization: OS virtualization, hypervisor-based virtual machines, and hardware partitioning. The authors illuminate the use of virtualization with many Oracle software applications and engineered systems, including SuperCluster, Secure Enterprise Cloud Infrastructure, Exalytics, Oracle Database, and security hardening scenarios. Bringing together case study examples and in-the-trenches experience, this guide explains how to Leverage Oracle Solaris Zones to improve security, deployment, resource usage, and management Use Logical Domains to deploy different versions of Oracle Solaris on SPARC systems Maximize workload isolation on SPARC systems with Physical Domains Use Oracle Solaris Zones to optimize workload efficiency and scalability Improve data center flexibility with live migration Develop and test software in heterogeneous environments with Oracle VM Virtual Box Mix virtualization technologies to maximize workload density Migrate Solaris 10 workloads to new hardware via Solaris Zones Register your product at informit.com/register for convenient access to downloads, updates, and corrections as they become available.

Cloud computing is changing the way businesses and users interact with computers and mobile devices. Gone are the days of expensive

data centers, racks of disk drives, and large IT support teams. In their place are software applications delivered to users on demand from the cloud, high-capacity, auto-replicated, secure cloud-based disk-storage and databases, virtualized-server and desktop environments, and cloud-based collaboration tools which support on-premise-, remote-, and hybrid-team success. Within the pages of Cloud Computing, readers will find a hands-on introduction to the cloud, which will have them using cloud-based data storage to store personal documents and to share photos and other digital media with other users and their own various devices, performing cloud-based automated backups, and using other cloud-based applications by the end of Chapter 1! Readers will learn specifics about software as a service (SaaS), platform as a service (PaaS), infrastructure as a service (IaaS), server and desktop virtualization, and much more. Each chapter of the book presents a cloud topic, examines the underlying business case, and then takes the reader on a test drive. The chapters are filled with real-world case studies. The book's content is ideal for users wanting to migrate to the cloud, IT professionals seeking knowledge on cloud fundamentals, developers who will build the cloud solutions of the future, and CIOs wanting insights on the most recent cloud solutions.

Solaris™ 10 System Administration Essentials is the first book to concisely yet comprehensively cover all of the breakthrough features of the Solaris 10 operating system. The Solaris OS has a long history of innovation, and the Solaris 10 OS is a watershed release that includes features such as Zones, which provide application isolation and facilitate server consolidation ZFS™, the file system that provides a new approach to managing your data with an easy administration interface The Fault Management Architecture, which automates fault detection and resolution The Service Management Facility, a unified model for services and service management on every Solaris system Dynamic Tracing (DTrace), for troubleshooting OS and application problems on production systems in real time In addition, the Solaris 10 OS fully supports 32-bit and 64-bit x86 platforms, as well as the SPARC® architecture. The book's key topics include Installing, booting, and shutting down a system Managing packages and patches (software updates) Controlling system processes Managing disks and devices Managing users Configuring networks Using printing services Solaris™ 10 System Administration Essentials is part of a new series on Solaris system administration. It is a practical guide to deploying and managing the Solaris 10 operating system in a business or academic environment. The book is easy to read and rich with examples—a perfect companion for system administrators who are deploying the Solaris OS for the first time.

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research findings. With critical perspectives on the impact of

information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library.

Virtualization and related technologies like hypervisors, which create virtual machines on a single hardware machine, and containers (also known as zones), which create virtual operating systems running on a single operating system, are a totally new area for many system administrators. Oracle® Solaris™ 10 System Virtualization Essentials provides an accessible introduction to computer virtualization, specifically the system virtualization technologies that use the Oracle Solaris or OpenSolaris operating systems. This accessible guide covers the key concepts system administrators need to un.

A full-color beginner's guide to the core concepts and skills of virtualization Virtualization is the IT world's hottest trend in recent years, and many colleges do not yet have curricula in place to prepare students for this important area. This guide fills the need, with a learn-by-doing approach to mastering the core elements of virtualization. Each chapter clearly outlines what is covered, thoroughly discusses the concepts, and engages readers with hands-on tutorials. The book covers how virtualization software operates; hypervisor products; how to manage CPU, memory, storage, and networking; and much more. Fills the gap left by the many colleges and universities that are unprepared to educate IT students on virtualization, a megatrend in the IT world Covers the fundamental concepts and skills, including how virtualization software operates within a computing environment Explains the difference between Type 1 and Type 2 hypervisors and tells how to create a virtual machine from scratch or by migrating from physical to virtual Tells how to manage the basics and how to configure supporting devices for a virtual machine Virtualization Essentials gets IT students and practitioners up to speed on one of the most important aspects of today's IT environment.

If you are a system administrator or Linux professional who wants to learn to set up, install, and manage OpenVZ containers on a server to implement OS-level virtualization, then this book is for you. Along with elementary knowledge of Linux programming, you need to have a conceptual understanding of system components and functions.

Deploy, manage, and scale virtual instances using Kernel-based Virtual Machines About This Book Build, manage and scale virtual machines with practical step-by-step examples Leverage the libvirt user-space tools and libraries to manage the life-cycle of KVM instances Deploy and scale applications inside KVM virtual machines with OpenStack Who This Book Is For If you are a system administrator working KVM virtualization, this book will help you grow on your expertise of working with the infrastructure to manage things in a better way. You should have a knowledge of working with Linux

based systems. What You Will Learn Deploy different workloads in isolation with KVM virtualization and better utilize the available compute resources Explore the benefits of running applications with KVM and learn to prevent the “bad-neighbor” effect Leveraging various networking technologies in the context of virtualization with Open vSwitch and the Linux bridge. Create KVM instances using Python and inspect running KVM instances Understand Kernel Tuning for enhanced KVM performance and better memory utilization In Detail Virtualization technologies such as KVM allow for better control over the available server resources, by deploying multiple virtual instances on the same physical host, or clusters of compute resources. With KVM it is possible to run various workloads in isolation with the hypervisor layer providing better tenant isolation and higher degree of security. This book will provide a deep dive into deploying KVM virtual machines using qemu and libvirt and will demonstrate practical examples on how to run, scale, monitor, migrate and backup such instances. You will also discover real production ready recipes on deploying KVM instances with OpenStack and how to programatically manage the life cycle of KVM virtual machines using Python. You will learn numerous tips and techniques which will help you deploy & plan the KVM infrastructure. Next, you will be introduced to the working of libvirt libraries and the iPython development environment. Finally, you will be able to tune your Linux kernel for high throughput and better performance. By the end of this book, you will gain all the knowledge needed to be an expert in working with the KVM virtualization infrastructure. Style and approach This book takes a complete practical approach with many step-by-step example recipes on how to use KVM in production. The book assumes certain level of expertise with Linux systems and virtualization in general. Some knowledge of Python programming is encouraged, to fully take advantage of the code recipes.

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