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**KEY=COMPUTING - MARSHALL BUCK**

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## Handbook of Research on End-to-End Cloud Computing Architecture Design

*IGI Global* Cloud computing has become integrated into all sectors, from business to quotidian life. Since it has revolutionized modern computing, there is a need for updated research related to the architecture and frameworks necessary to maintain its efficiency. The Handbook of Research on End-to-End Cloud Computing Architecture Design provides architectural design and implementation studies on cloud computing from an end-to-end approach, including the latest industrial works and extensive research studies of cloud computing. This handbook enumerates deep dive and systemic studies of cloud computing from architecture to implementation. This book is a comprehensive publication ideal for programmers, IT professionals, students, researchers, and engineers.

## Research Anthology on Recent Trends, Tools, and Implications of Computer Programming

*IGI Global* Programming has become a significant part of connecting theoretical development and scientific application computation. Computer programs and processes that take into account the goals and needs of the user meet with the greatest success, so it behooves software engineers to consider the human element inherent in every line of code they write. Research Anthology on Recent Trends, Tools, and Implications of Computer Programming is a vital reference source that examines the latest scholarly material on trends, techniques, and uses of various programming applications and examines the benefits and challenges of these computational developments. Highlighting a range of topics such as coding standards, software engineering, and computer systems development, this multi-volume book is ideally designed for programmers, computer scientists, software developers, analysts, security experts, IoT software programmers, computer and software engineers, students, professionals, and researchers.

## Openstack Cloud Computing Architecture Guide

OpenStack Cloud Computing is not a tutorial on using OpenStack. It is an introduction to building a cloud based on OpenStack technologies. OpenStack includes a large set of modular and extensible components with broad industry support. Enterprises and service providers alike can use these programs and services to improve the efficiency, agility, security, quality and usability of their data center operations. These benefits are not free. Someone will have the responsibility to evaluate, design and implement the technology. They will need to select the services they require, choose from the myriad configuration options and incorporate the necessary plugins. The architects must ensure that they not only cover the basic functions, such as compute, storage and networking, but also integrate them into the existing infrastructure and address key topics like administration, billing, confidentiality, availability and scalability. This book introduces the reader to some of the primary challenges and suggests how to address them in an environment based on OpenStack.

## OpenStack Operations Guide

## Set Up and Manage Your OpenStack Cloud

"O'Reilly Media, Inc." Design, deploy, and maintain your own private or public Infrastructure as a Service (IaaS), using the open source OpenStack platform. In this practical guide, experienced developers and OpenStack contributors show you how to build clouds based on reference architectures, as well as how to perform daily administration tasks. Designed for horizontal scalability, OpenStack lets you build a cloud by integrating several technologies. This approach provides flexibility, but knowing which options to use can be bewildering. Once you complete this book, you'll know the right questions to ask while you organize compute, storage, and networking resources. If you already know how to manage multiple Ubuntu machines and maintain MySQL, you're ready to: Set up automated deployment and configuration Design a single-node cloud controller Use metrics to improve scalability Explore compute nodes, network design, and storage Install OpenStack packages Use an example architecture to help simplify decision-making Build a working environment to explore an IaaS cloud Manage users, projects, and quotas Tackle maintenance, debugging, and network troubleshooting Monitor, log, backup, and restore

## IBM Private, Public, and Hybrid Cloud Storage Solutions

*IBM Redbooks* This IBM® Redpaper™ publication takes you on a journey that surveys cloud computing to answer several fundamental questions about storage cloud technology. What are storage clouds? How can a storage cloud help solve your current and future data storage business requirements? What can IBM do to help you implement a storage cloud solution that addresses these needs? This paper shows how IBM storage clouds use the extensive cloud computing experience, services, proven technologies, and products of IBM to support a smart storage cloud solution designed for your storage optimization efforts. Clients face many common storage challenges and some have variations that make them unique. It describes various successful client storage cloud implementations and the options that are available to meet your current needs and position you to avoid storage issues in the future. IBM Cloud™ Services (IBM Cloud Managed Services® and IBM SoftLayer®) are highlighted as well as the contributions of IBM to OpenStack cloud storage. This paper is intended for anyone who wants to learn about storage clouds and how IBM addresses data storage challenges with smart storage cloud solutions. It is suitable for IBM clients, storage solution integrators, and IBM specialist sales representatives.

## OpenStack: the Path to Cloud

This book is written to help enterprise architects implement an OpenStack(r) cloud. With architects with one foot in information technology and the other in business operations in mind, we want to offer insights and best practices to help you achieve multiple (and sometimes competing) goals. If you're looking for vendor-neutral answers about planning your path to an OpenStack cloud, you're in the right place. Members of the OpenStack community--technologists, business leaders and product managers--collaborated on this book to explain how to get started with an OpenStack cloud. We've included pros and cons to help you make better choices when setting up your cloud, along with anticipated investments of both time and money. In this book, we'll discuss the considerations involved and how to make OpenStack cloud decisions about models, forming your team, organization and process changes, choosing workloads, and implementation from proof-of-concept through ongoing maintenance. Topics include: \* Your technology options and their pros and cons \* What to expect in support, level of investment, and customization from each type of cloud and consumption model \* Operational models for a cloud, including staffing, plus how to manage consumption of cloud services in your business \* How to assess the cloud's value to your business. After reading this book, you'll understand the process of building an OpenStack cloud, various cloud models, and operational and application approaches. You'll understand what decisions to make before building your cloud, and their effects on cost, resources and capabilities.

## 97 Things Every Cloud Engineer Should Know

*O'Reilly Media* 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

## OpenStack for Architects

*Packt Publishing Ltd* **Design and implement successful private clouds with OpenStack** About This Book Explore the various design choices available for cloud architects within an OpenStack deployment Craft an OpenStack architecture and deployment pipeline to meet the unique needs of your organization Create a product roadmap for Infrastructure as a Service in your organization using this hands-on guide Who This Book Is For This book is written especially for those who will design OpenStack clouds and lead their implementation. These people are typically cloud architects, but may also be in product management, systems engineering, or enterprise architecture. What You Will Learn Familiarize yourself with the components of OpenStack Build an increasingly complex OpenStack lab deployment Write compelling documentation for the architecture teams within your organization Apply Agile configuration management techniques to deploy OpenStack Integrate OpenStack with your organization's identity management, provisioning, and billing systems Configure a robust virtual environment for users to interact with Use enterprise security guidelines for your OpenStack deployment Create a product roadmap that delivers functionality quickly to the users of your platform In Detail Over the last five years, hundreds of organizations have successfully implemented Infrastructure as a Service (IaaS) platforms based on OpenStack. The huge amount of investment from these organizations, industry giants such as IBM and HP, as well as open source leaders such as Red Hat have led analysts to label OpenStack as the most important open source technology since the Linux operating system. Because of its ambitious scope, OpenStack is a complex and fast-evolving open source project that requires a diverse skill-set to design and implement it. This guide leads you through each of the major decision points that you'll face while architecting an OpenStack private cloud for your organization. At each point, we offer you advice based on the experience we've gained from designing and leading successful OpenStack projects in a wide range of industries. Each chapter also includes lab material that gives you a chance to install and configure the technologies used to build production-quality OpenStack clouds. Most importantly, we focus on ensuring that your OpenStack project meets the needs of your organization, which will guarantee a successful rollout. Style and approach This is practical, hands-on guide to implementing OpenStack clouds, where each topic is illustrated with real-world examples and then the technical points are proven in the lab.

## Cloud Computing Patterns

### Fundamentals to Design, Build, and Manage Cloud Applications

*Springer Science & Business Media* **The current work provides CIOs, software architects, project managers, developers, and cloud strategy initiatives with a set of architectural patterns that offer nuggets of advice on how to achieve common cloud computing-related goals.** The cloud computing patterns capture knowledge and experience in an abstract format that is independent of concrete vendor products. Readers are provided with a toolbox to structure cloud computing strategies and design cloud application architectures. By using this book cloud-native applications can be implemented and best suited cloud vendors and tooling for individual usage scenarios can be selected. The cloud computing patterns offer a unique blend of academic knowledge and practical experience due to the mix of authors. Academic knowledge is brought in by Christoph Fehling and Professor Dr. Frank Leymann who work on cloud research at the University of Stuttgart. Practical experience in building cloud applications, selecting cloud vendors, and designing enterprise architecture as a cloud customer is brought in by Dr. Ralph Retter who works as an IT architect at T-Systems, Walter Schupeck, who works as a Technology Manager in the field of Enterprise Architecture at Daimler AG, and Peter Arbitter, the former head of T Systems' cloud architecture and IT portfolio team and now working for Microsoft. **Voices on Cloud Computing Patterns** Cloud computing is especially beneficial for large companies such as Daimler AG. Prerequisite is a thorough analysis of its impact on the existing applications and the IT architectures. During our collaborative research with the University of Stuttgart, we identified a vendor-neutral and structured approach to describe properties of cloud offerings and requirements on cloud environments. The resulting Cloud Computing Patterns have profoundly impacted our corporate IT strategy regarding the adoption of cloud computing. They help our architects, project managers and developers in the refinement of architectural guidelines and communicate requirements to our integration partners and software suppliers. Dr. Michael Gorriz - CIO Daimler AG Ever since 2005 T-Systems has provided a flexible and reliable cloud platform with its "Dynamic Services". Today these cloud services cover a huge variety of corporate applications, especially enterprise resource planning, business intelligence, video, voice communication, collaboration, messaging and mobility services. The book was written by senior cloud pioneers sharing their technology foresight combining essential information and practical experiences. This valuable compilation helps both practitioners and clients to really understand which new types of services are readily available, how they really work and importantly how to benefit from the cloud. Dr. Marcus Hacke - Senior Vice President, T-Systems International GmbH This book provides a conceptual framework and very timely guidance for people and organizations building applications for the cloud. Patterns are a proven approach to building robust and sustainable applications and systems. The authors adapt and extend it to cloud computing, drawing on their own experience and deep contributions to the field. Each pattern includes an extensive discussion of the state of the art, with implementation considerations and practical examples that the reader can apply to their own projects. By capturing our collective knowledge about building good cloud applications and by providing a format to integrate new insights, this book provides an important tool not just for individual practitioners and teams, but for the cloud computing community at large. Kristof Kloeckner - General Manager, Rational Software, IBM Software Group

## Cloud Computing

### Theory and Practice

*Newnes* **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

## OpenStack Cloud Computing Cookbook

*Packt Pub Limited* **A Cookbook full of practical and applicable recipes that will enable you to use the full capabilities of OpenStack like never before.** This book is aimed at system administrators and technical architects moving from a virtualized environment to cloud environments with familiarity of cloud computing platforms. Knowledge of virtualization and managing linux environments is expected.

## IBM Software-Defined Storage Guide

*IBM Redbooks* **Today, new business models in the marketplace coexist with traditional ones and their well-established IT architectures. They generate new business needs and new IT requirements that can only be satisfied by new service models and new technological approaches.** These changes are reshaping traditional IT concepts. Cloud in its three main variants (Public, Hybrid, and Private) represents the major and most viable answer to those IT requirements, and software-defined infrastructure (SDI) is its major technological enabler. IBM® technology, with its rich and complete set of storage hardware and software products, supports SDI both in an open standard framework and in other vendors' environments. IBM services are able to deliver solutions to the customers with their extensive knowledge of the topic and the experiences gained in partnership with clients. This IBM Redpaper™ publication focuses on software-defined storage (SDS) and IBM Storage Systems product offerings for software-defined environments (SDEs). It also provides use case examples across various industries that cover different client needs, proposed solutions, and results. This paper can help you to understand current organizational capabilities and challenges, and to identify specific business objectives to be achieved by implementing an SDS solution in your enterprise.

## Mastering Cloud Computing

### Foundations and Applications Programming

*Newnes* **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

## Openstack in Action

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

## Certified OpenStack Administrator Study Guide

*Apress* Teaches you how and what to study in order to be best prepared for the Certified OpenStack Administrator exam. This fast-growing technology is creating a market that needs more qualified IT specialists with proven skills. This book covers 100% of the exam requirements for both The OpenStack Foundation and the Mirantis OpenStack Certification Exam. Each theme is taught using practical exercises and instructions for the command line and for the graphical client (Horizon). Each chapter is followed by review questions, complete with answers. Even after you have taken and passed your OpenStack exam, this book will remain a useful reference. What You Will Learn Understand the components that make up the cloud. Install and make an OpenStack distribution from Mirantis, Red Hat or another community version. Work with OpenStack Identity Management, Dashboard, CLI, Object Storage, Block Storage, Networking, Telemetry, Orchestration, and Image Services. Learn how to troubleshoot all the main OpenStack services. Understand where to find information for future work with OpenStack. Who This Book Is For Certified OpenStack Administrator Study Guide is for Cloud and Linux engineers looking for a better understanding of how to work with the modern OpenStack IaaS Cloud, and wants to prove their knowledge by passing a Certified OpenStack Administrator Exam.

## Cloud Based 5G Wireless Networks

*Springer* This SpringerBrief introduces key techniques for 5G wireless networks. The authors cover the development of wireless networks that led to 5G, and how 5G mobile communication technology (5G) can no longer be defined by a single business model or a typical technical characteristic. The discussed networks functions and services include Network Foundation Virtualization (N-FV), Cloud Radio Access Networks (Cloud-RAN), and Mobile Cloud Networking (MCN). The benefits of cloud platforms are examined, as are definable networking and green wireless networking. Other related and representative projects on 5G are mobile and wireless communications enablers for the Twenty-Twenty Information Society, Multi-hop Cellular Networks, Network Function as-a-Service over Virtualized Infrastructures, iJOIN, and Nuage Virtualized Services Platform. Major applications of 5G range from RAN sharing and Multi-Operator Core Networks to mobile convergence. Enhancing the user experience by providing smart and customized services, 5G will support the explosive growth of big data, mobile internet, digital media, and system efficiency. This SpringerBrief is designed for professionals, researchers, and academics working in networks or system applications. Advanced-level students of computer science or computer engineering will also find the content valuable.

## Nist Cloud Computing Reference Architecture

### Recommendations of the National Institute of Standards and Technology (Special Publication 500-292)

*CreateSpace* The National Institute of Standards and Technology, Special Publication 500-292 discusses how the adoption of cloud computing into the Federal Government and its implementation depend upon a variety of technical and non-technical factors. A fundamental reference point, based on the NIST definition of Cloud Computing, is needed to describe an overall framework that can be used government-wide. This document presents the NIST Cloud Computing Reference Architecture (RA) and Taxonomy (Tax) that will accurately communicate the components and offerings of cloud computing.~

## Handbook of Cloud Computing

### Basic to Advance research on the concepts and design of Cloud Computing

*BPB Publications* Great POSSIBILITIES and high future prospects to become ten times folds in the near FUTURE DESCRIPTION The book "Handbook of Cloud Computing" provides the latest and in-depth information of this relatively new and another platform for scientific computing which has great possibilities and high future prospects to become ten folds in near future. The book covers in comprehensive manner all aspects and terminologies associated with cloud computing like SaaS, PaaS and IaaS and also elaborates almost every cloud computing service model. The book highlights several other aspects of cloud computing like Security, Resource allocation, Simulation Platforms and futuristic trend i.e. Mobile cloud computing. The book will benefit all the readers with all in-depth technical information which is required to understand current and futuristic concepts of cloud computing. No prior knowledge of cloud computing or any of its related technology is required in reading this book. KEY FEATURES Comprehensively gives clear picture of current state-of-the-art aspect of cloud computing by elaborating terminologies, models and other related terms. Enlightens all major players in Cloud Computing industry providing services in terms of SaaS, PaaS and IaaS. Highlights Cloud Computing Simulators, Security Aspect and Resource Allocation. In-depth presentation with well-illustrated diagrams and simple to understand technical concepts of cloud. WHAT WILL YOU LEARN Cloud Computing, Virtualisation Software as a Service, Platform as a Service, Infrastructure as a Service Data in Cloud and its Security Cloud Computing - Simulation, Mobile Cloud Computing Specific Cloud Service Models Resource Allocation in Cloud Computing WHO THIS BOOK IS FOR Students of Polytechnic Diploma Classes- Computer Science/ Information Technology Graduate Students- Computer Science/ CSE / IT/ Computer Applications Master Class Students—Msc (CS/IT)/ MCA/ M.Phil, M.Tech, M.S. Researcher's—Ph.D Research Scholars doing work in Virtualization, Cloud Computing and Cloud Security Industry Professionals- Preparing for Certifications, Implementing Cloud Computing and even working on Cloud Security Table of Contents 1. Introduction to Cloud Computing 2. Virtualisation 3. Software as a Service 4. Platform as a Service 5. Infrastructure as a Service 6. Data in Cloud 7. Cloud Security 8. Cloud Computing - Simulation 9. Specific Cloud Service Models 10. Resource Allocation in Cloud Computing 11. Mobile Cloud Computing

## Cloud Computing

### Automating the Virtualized Data Center

*Cisco Press* The complete guide to provisioning and managing cloud-based Infrastructure as a Service (IaaS) data center solutions Cloud computing will revolutionize the way IT resources are deployed, configured, and managed for years to come. Service providers and customers each stand to realize tremendous value from this paradigm shift-if they can take advantage of it. Cloud Computing brings together the realistic, start-to-finish guidance they need to plan, implement, and manage cloud solution architectures for tomorrow's virtualized data centers. It introduces cloud 'newcomers' to essential concepts, and offers experienced operations professionals detailed guidance on delivering Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). This book's replicable solutions and fully-tested best practices will help enterprises, services providers, consultants, and Cisco partners meet the challenge of provisioning end-to-end cloud infrastructures. Drawing on extensive experience working with leading cloud vendors and integrators, the authors present detailed operations workflow examples, proven techniques for operating cloud-based network, compute, and storage infrastructure; a comprehensive management reference architecture; and a complete case study demonstrating rapid, lower-cost solutions design. Cloud Computing will be an indispensable resource for all network/IT professionals and managers involved with planning, implementing, or managing the next generation of cloud computing services. • Review the key concepts needed to successfully deploy and cloud-based services • Transition common enterprise design patterns and use cases to the cloud • Master architectural principles and infrastructure design for 'real-time' managed IT services • Understand the Cisco approach to cloud-related technologies, systems, and services • Develop a cloud management architecture using ITIL, TMF, and ITU-TMN standards • Implement best practices for cloud service provisioning, activation, and management • Automate cloud infrastructure to simplify service delivery, monitoring and assurance • Choose and implement the right billing/chargeback approaches for your business • Design and build IaaS services, from start to

finish •Manage the unique capacity challenges associated with sporadic, real-time demand •Provide a consistent and optimal cloud user experience This book is part of the Networking Technology Series from Cisco Press, which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers.

## Building Big Data and Analytics Solutions in the Cloud

*IBM Redbooks* Big data is currently one of the most critical emerging technologies. Organizations around the world are looking to exploit the explosive growth of data to unlock previously hidden insights in the hope of creating new revenue streams, gaining operational efficiencies, and obtaining greater understanding of customer needs. It is important to think of big data and analytics together. Big data is the term used to describe the recent explosion of different types of data from disparate sources. Analytics is about examining data to derive interesting and relevant trends and patterns, which can be used to inform decisions, optimize processes, and even drive new business models. With today's deluge of data comes the problems of processing that data, obtaining the correct skills to manage and analyze that data, and establishing rules to govern the data's use and distribution. The big data technology stack is ever growing and sometimes confusing, even more so when we add the complexities of setting up big data environments with large up-front investments. Cloud computing seems to be a perfect vehicle for hosting big data workloads. However, working on big data in the cloud brings its own challenge of reconciling two contradictory design principles. Cloud computing is based on the concepts of consolidation and resource pooling, but big data systems (such as Hadoop) are built on the shared nothing principle, where each node is independent and self-sufficient. A solution architecture that can allow these mutually exclusive principles to coexist is required to truly exploit the elasticity and ease-of-use of cloud computing for big data environments. This IBM® Redpaper™ publication is aimed at chief architects, line-of-business executives, and CIOs to provide an understanding of the cloud-related challenges they face and give prescriptive guidance for how to realize the benefits of big data solutions quickly and cost-effectively.

## IBM FlashSystem 5200 Product Guide

*IBM Redbooks* This IBM® Redbooks® Product Guide publication describes the IBM FlashSystem® 5200 solution, which is a next-generation IBM FlashSystem control enclosure. It is an NVMe end-to-end platform that is targeted at the entry and midrange market and delivers the full capabilities of IBM FlashCore® technology. It also provides a rich set of software-defined storage (SDS) features that are delivered by IBM Spectrum® Virtualize, including the following features: Data reduction and deduplication Dynamic tiering Thin provisioning Snapshots Cloning Replication Data copy services Transparent Cloud Tiering IBM HyperSwap® including 3-site replication for high availability (HA) Scale-out and scale-up configurations further enhance capacity and throughput for better availability. The IBM FlashSystem 5200 is a high-performance storage solution that is based on a revolutionary 1U form factor. It consists of 12 NVMe Flash Devices in a 1U storage enclosure drawer with full redundant canister components and no single point of failure. It is designed for businesses of all sizes, including small, remote, branch offices and regional clients. It is a smarter, self-optimizing solution that requires less management, which enables organizations to overcome their storage challenges. Flash has come of age and price point reductions mean that lower parts of the storage market are seeing the value of moving over to flash and NVMe--based solutions. The IBM FlashSystem 5200 advances this transition by providing incredibly dense tiers of flash in a more affordable package. With the benefit of IBM FlashCore Module compression and new QLC flash-based technology becoming available, a compelling argument exists to move away from Nearline SAS storage and on to NVMe. With the release of IBM FlashSystem 5200 Software V8.4, extra functions and features are available, including support for new Distributed RAID1 (DRAID1) features, GUI enhancements, Redirect-on-write for Data Reduction Pool (DRP) snapshots, and 3-site replication capabilities. This book is aimed at pre-sales and post-sales technical support and marketing and storage administrators.

## Cloud Security Guidelines for IBM Power Systems

*IBM Redbooks* This IBM® Redbooks® publication is a comprehensive guide that covers cloud security considerations for IBM Power Systems™. The first objectives of this book are to examine how Power Systems can fit into the current and developing cloud computing landscape and to outline the proven Cloud Computing Reference Architecture (CCRA) that IBM employs in building private and hybrid cloud environments. The book then looks more closely at the underlying technology and hones in on the security aspects for the following subsystems: IBM Hardware Management Console IBM PowerVM IBM PowerKVM IBM PowerVC IBM Cloud Manager with OpenStack IBM Bluemix This publication is for professionals who are involved in security design with regard to planning and deploying cloud infrastructures using IBM Power Systems.

## Implementing and Developing Cloud Computing Applications

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

## Developing Interoperable and Federated Cloud Architecture

*IGI Global* As cloud technology continues to advance and be utilized, many service providers have begun to employ multiple networks, or cloud federations; however, as the popularity of these federations increases, so does potential utilization challenges. Developing Interoperable and Federated Cloud Architecture provides valuable insight into current and emergent research occurring within the field of cloud infrastructures. Featuring barriers, recent developments, and practical applications on the interoperability issues of federated cloud architectures, this book is a focused reference for administrators, developers, and cloud users interested in energy awareness, scheduling, and federation policies and usage.

## Cloud Computing Bible

*John Wiley & Sons* The complete reference guide to the hot technology of cloud computing Its potential for lowering IT costs makes cloud computing a major force for both IT vendors and users; it is expected to gain momentum rapidly with the launch of Office Web Apps later this year. Because cloud computing involves various technologies, protocols, platforms, and infrastructure elements, this comprehensive reference is just what you need if you'll be using or implementing cloud computing. Cloud computing offers significant cost savings by eliminating upfront expenses for hardware and software; its growing popularity is expected to skyrocket when Microsoft introduces Office Web Apps This comprehensive guide helps define what cloud computing is and thoroughly explores the technologies, protocols, platforms and infrastructure that make it so desirable Covers mobile cloud computing, a significant area due to ever-increasing cell phone and smartphone use Focuses on the platforms and technologies essential to cloud computing Anyone involved with planning, implementing, using, or maintaining a cloud computing project will rely on the information in Cloud Computing Bible.

## Cloud Architecture Patterns

"O'Reilly Media, Inc." Do you need to learn about cloud computing architecture with Microsoft's Azure quickly? Read this book! It gives you just enough info on the big picture and is filled with key terminology so that you can join the discussion on cloud architecture.

## Cloud Computing

## Technologies and Strategies of the Ubiquitous Data Center

*CRC Press* Modern computing is no longer about devices but is all about providing services, a natural progression that both consumers and enterprises are eager to embrace. As it can deliver those services, efficiently and with quality, at compelling price levels, cloud computing is with us to stay. Ubiquitously and quite definitively, cloud computing is answering the demand for sophisticated, flexible services Cloud Computing: Technologies and Strategies of the Ubiquitous Data Center looks at cloud computing from an IT manager's perspective. It answers basic as well as strategic questions from both a business and a technical perspective so that you can confidently engage both IT and financial assets in making your organization techno- savvy, efficient, and competitive. Any answers about the future of computing are definitely in the cloud The first section of the book offers up a history of the computing roots that have evolved into cloud computing. It looks at how IT has been traditionally serving needs and how cloud computing improves and expands on these services, so you can strategize about how a cloud might provide solutions to specific IT questions or answer business needs. Next, the book shows how to begin the process of determining which organizational needs would best be served and improved by cloud computing. Presenting specific cases as examples, the book walks you through issues that your organization might likely encounter. Written clearly and succinctly, it -- Introduces you to the concepts behind different types of clouds, including those used for storage, those that improve processor and application delivery, and those that mix any and all of these services Covers typical concerns you will hear with regard to such issues as security, application integration, and structural limitations Looks at the future of the cloud, from developments on the horizon to those still in the planning stage By the book's conclusion, you will have a solid basis on which to initiate strategic discussions about deploying clouds in your organization. You will understand how cloud computing can affordably solve real problems. You will know which strategies to use and you will learn of the pitfalls to avoid when taking your data center to the clouds. Throughout this book are the answers you need to the many questions from the most basic to the more advanced surrounding cloud computing and its place in your enterprise. What exactly is cloud computing? How are clouds different than virtualization? Should my organization use a cloud (or multiple clouds)? Can clouds and virtualization play significant roles in my organization at the same time? Covering the basics of virtualization and clusters and the more advanced strategic considerations of security and return on investment, this book will be your guide to IT's present and future in the cloud, a resource that you will continually turn to. Coming soon! For more information, Professional Cloud Computing, at [www.professionalcloudcomputing.com](http://www.professionalcloudcomputing.com), will help you find information to delve more deeply into the discussion in any of a number of directions.

## Distributed and Cloud Computing From Parallel Processing to the Internet of Things

*Morgan Kaufmann* **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

## Mastering OpenStack - Second Edition

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

## OpenStack Networking Essentials

*Packt Publishing Ltd* **Build and manage networks in OpenStack using Neutron** About This Book Deploy an all-in-one cloud based on OpenStack Liberty (2015.2) using RDO Learn the fundamentals of the Neutron API including networks, subnets, and ports, and how to manage these resources in the cloud Build simple virtual network infrastructures in the cloud Who This Book Is For The book is for those who are new to OpenStack and Neutron who want to learn the cloud networking fundamentals and get started with OpenStack networking. Prior networking experience along with a virtual or physical server is recommended to follow along with the concepts demonstrated in the book. What You Will Learn Install the latest Liberty (2015.2) release of OpenStack using RDO in VirtualBox Discover the basics of the Neutron API, including networks, subnets, and ports Interact with Neutron using the CLI and Horizon dashboard Create networks and subnets that provide connectivity to instances Implement software routers that connect networks and provide network address translation Secure instances using Neutron's security group functionality In Detail The OpenStack Networking API offers users the ability to create and manage both basic and complex network architectures that blend the virtual and physical network infrastructure. This book kicks off by describing various components of OpenStack Neutron and installing Ubuntu OpenStack based on Canonical's process. Further on, you will use various methods to interface with Neutron to create and manage network resources. You will also get to grips with the relationship between ports, networks, and subnets through diagrams and explanations, and see how the logical components are implemented via plugins and agents. Moving forward, you will learn how virtual switches are implemented and how to build Neutron routers. You will also configure networks, subnets, and routers to provide connectivity to instances using simple examples. At the end, you will configure and manage security groups, and will observe how these rules translate to iptables rules on the host machines. By the end of the book, you will be able to build basic network architectures using Neutron networks and routers in no time. Style and approach An easy-to-follow guide that covers the networking features of OpenStack and the core Neutron API components providing a solid foundation to deploy networks and instances.

## Software Defined Data Center with Red Hat Cloud and Open Source IT Operations Management

*IBM Redbooks* This IBM® Redbooks® publication delivers a Site Reliability Engineering (SRE) solution for cloud workloads that uses Red Hat OpenStack for Infrastructure as a Service (IaaS), Red Hat OpenShift for Platform as a Service (PaaS), and IT operations management that uses open source tools. Today, customers are no longer living in a world of licensed software. Curiosity increased the demand for investigating the Open Source world for Community Open Source and Enterprise grade applications. IBM as one of the contributors to the Open Source community is interested in helping the software be maintained and supported. Having companies, such as IBM, support the evolution of Open Source software helps to keep the Open Source community striving for enterprise grade open source solutions. Lately, companies are working on deciphering how to take advantage of Enterprise and Community Open Source to implement in their enterprises. The business case for open source software is no longer a mystery and no surprise that most of the new positions in IT enterprises are related to open source projects. The ability of a large enterprise to manage this sort of implementations is to engage in a hypertrophied cooperation, where the ability to not only cooperate with teams and people outside your organization, but also to find new ways of working together and devise new ways to improve the software and its code. A goal for this publication is to help the client's journey into the open source space and implement a private Cloud Container-based architecture with the ability to manage the entire IT Service Management processes from the open source framework. This publication describes the architecture and implementation details of the solution. Although not every piece of this solution is documented here, this book does provide instructions for what was achieved incorporating open source technologies. Moreover, with this publication, the team shares their collaboration experiences working in a team of technologists, open source developers, Red Hat, and the open source community. This publication is for designers, developers, managers, and anyone who is considering starting a Cloud open source project, or users who started that journey. This book also can be a manual to guide the implementation of a technical viable architecture and help those enterprises participate in an open source project but have not done so before. The reader must be familiar with principles in programming and basic software engineering concepts, such as source code, compilers, and patches.

## A Practical Approach to Cloud IaaS with IBM SoftLayer: Presentations Guide

*IBM Redbooks* This IBM® Redbooks® publication is based on the Presentations Guide of the course A Practical Approach to Cloud IaaS with IBM SoftLayer, which was developed by the IBM Redbooks team in partnership with IBM Middle East and Africa University Program. This course is designed to teach university students how to build a simple infrastructure as a service (IaaS) cloud environment based on IBM SoftLayer®. It provides students with the fundamental skills to design, implement, and manage an IaaS cloud environment using the IBM SoftLayer platform as an example. The primary target audience for this course is university students in undergraduate computer science and computer engineer programs with no previous experience working in cloud environments. However, anyone new to cloud computing can benefit from this course. The workshop materials were created in July 2015. Thus, all IBM SoftLayer features discussed in this Presentations Guide are current as of July 2015.

## Briggs

## Enterprise Cloud epUB \_1

*Microsoft Press* How do you start? How should you build a plan for cloud migration for your entire portfolio? How will your organization be affected by these changes? This book, based on real-world cloud experiences by enterprise IT teams, seeks to provide the answers to these questions. Here, you'll see what makes the cloud so compelling to enterprises; with which applications you should start your cloud journey; how your organization will change, and how skill sets will evolve; how to measure progress; how to think about security, compliance, and business buy-in; and how to exploit the ever-growing feature set that the cloud offers to gain strategic and competitive advantage.

## Designing Networks and Services for the Cloud

### Delivering business-grade cloud applications and services

*Cisco Press* **Designing Networks and Services for the Cloud** Delivering business-grade cloud applications and services A rapid, easy-to-understand approach to delivering a secure, resilient, easy-to-manage, SLA-driven cloud experience Designing Networks and Services for the Cloud helps you understand the design and architecture of networks and network services that enable the delivery of business-grade cloud services. Drawing on more than 40 years of experience in network and cloud design, validation, and deployment, the authors demonstrate how networks spanning from the Enterprise branch/HQ and the service provider Next-Generation Networks (NGN) to the data center fabric play a key role in addressing the primary inhibitors to cloud adoption—security, performance, and management complexity. The authors first review how virtualized infrastructure lays the foundation for the delivery of cloud services before delving into a primer on clouds, including the management of cloud services. Next, they explore key factors that inhibit enterprises from moving their core workloads to the cloud, and how advanced networks and network services can help businesses migrate to the cloud with confidence. You'll find an in-depth look at data center networks, including virtualization-aware networks, virtual network services, and service overlays. The elements of security in this virtual, fluid environment are discussed, along with techniques for optimizing and accelerating the service delivery. The book dives deeply into cloud-aware service provider NGNs and their role in flexibly connecting distributed cloud resources, ensuring the security of provider and tenant resources, and enabling the optimal placement of cloud services. The role of Enterprise networks as a critical control point for securely and cost-effectively connecting to high-performance cloud services is explored in detail before various parts of the network finally come together in the definition and delivery of end-to-end cloud SLAs. At the end of the journey, you preview the exciting future of clouds and network services, along with the major upcoming trends. If you are a technical professional or manager who must design, implement, or operate cloud or NGN solutions in enterprise or service-provider environments, this guide will be an indispensable resource. \* Understand how virtualized data-center infrastructure lays the groundwork for cloud-based services \* Move from distributed virtualization to "IT-as-a-service" via automated self-service portals \* Classify cloud services and deployment models, and understand the actors in the cloud ecosystem \* Review the elements, requirements, challenges, and opportunities associated with network services in the cloud \* Optimize data centers via network segmentation, virtualization-aware networks, virtual network services, and service overlays \* Systematically secure cloud services \* Optimize service and application performance \* Plan and implement NGN infrastructure to support and accelerate cloud services \* Successfully connect enterprises to the cloud \* Define and deliver on end-to-end cloud SLAs \* Preview the future of cloud and network services

### Software-Defined Networking (SDN) with OpenStack

*Packt Publishing Ltd* **Leverage the best SDN technologies for your OpenStack-based cloud infrastructure** About This Book Learn how to leverage critical SDN technologies for OpenStack Networking APIs via plugins and drivers Champion the skills of achieving complete SDN with OpenStack with specific use cases and capabilities only covered in this title Discover exactly how you could implement cost-effective OpenStack SDN integration for your organization Who This Book Is For Administrators, and cloud operators who would like to implement Software Defined Networking on OpenStack clouds. Some prior experience of network infrastructure and networking concepts is assumed. What You Will Learn Understand how OVS is used for Overlay networks Get familiar with SDN Controllers with Architectural details and functionalities Create core ODL services and understand how OpenDaylight integrates with OpenStack to provide SDN capabilities Understand OpenContrail architecture and how it supports key SDN functionality such as Service Function Chaining (SFC) along with OpenStack Explore Open Network Operating System (ONOS) - a carrier grade SDN platform embraced by the biggest telecom service providers Learn about upcoming SDN technologies in OpenStack such as Dragonflow and OVN In Detail Networking is one the pillars of OpenStack and OpenStack Networking are designed to support programmability and Software-Defined Networks. OpenStack Networking has been evolving from simple APIs and functionality in Quantum to more complex capabilities in Neutron. Armed with the basic knowledge, this book will help the readers to explore popular SDN technologies, namely, OpenDaylight (ODL), OpenContrail, Open Network Operating System (ONOS) and Open Virtual Network (OVN). The first couple of chapters will provide an overview of OpenStack Networking and SDN in general. Thereafter a set of chapters are devoted to OpenDaylight (ODL), OpenContrail and their integration with OpenStack Networking. The book then introduces you to Open Network Operating System (ONOS) which is fast becoming a carrier grade SDN platform. We will conclude the book with overview of upcoming SDN projects within OpenStack namely OVN and Dragonflow. By the end of the book, the readers will be familiar with SDN technologies and know how they can be leveraged in an OpenStack based cloud. Style and approach A hands-on practical tutorial through use cases and examples for Software Defined Networking with OpenStack.

### EXIN CLOUD Computing Foundation - Workbook

*Van Haren* Het boek met de titel 'Exin cloud computing foundation', deeltitel 'Workbook' is geschreven door Bent Van den Johannes W., geschreven door Steeg Van der Martine en geredigeerd door Kunas Michael. Exin cloud computing foundation is in 20150907 uitgegeven door EXIN Holding B.V. als Diversen. Deze uitgave is druk 2 en onderdeel van reeks 'Workbook'. De nummers behorend bij dit boek zijn 9789082038880 (ISBN13) en 9082038889 (ISBN-10).

### IBM Cloud Object Storage System Product Guide

*IBM Redbooks* **Object storage is the primary storage solution that is used in the cloud and on-premises solutions as a central storage platform for unstructured data. IBM® Cloud Object Storage (COS) is a software-defined storage platform that breaks down barriers for storing massive amounts of data by optimizing the placement of data on commodity x86 servers across the enterprise. This IBM Redbooks® publication describes the major features, use case scenarios, deployment options, configuration details, initial customization, performance, and scalability considerations of IBM Cloud® Object Storage on-premises offering. For more information about the IBM Cloud Object Storage architecture and technology that is behind the product, see IBM Cloud Object Storage Concepts and Architecture: System Edition, REDP-5537-02. The target audience for this publication is IBM Cloud Object Storage IT specialists and storage administrators.**

## Cloud Computing

### Business Trends and Technologies

*John Wiley & Sons* **Cloud Computing: Business Trends and Technologies** provides a broad introduction to Cloud computing technologies and their applications to IT and telecommunications businesses (i.e., the network function virtualization, NFV). To this end, the book is expected to serve as a textbook in a graduate course on Cloud computing. The book examines the business cases and then concentrates on the technologies necessary for supporting them. In the process, the book addresses the principles of - as well as the known problems with - the underlying technologies, such as virtualization, data communications, network and operations management, security and identity management. It introduces, through open-source case studies (based on OpenStack), an extensive illustration of lifecycle management. The book also looks at the existing and emerging standards, demonstrating their respective relation to each topic. Overall, this is an authoritative textbook on this emerging and still-developing discipline, which •Guides the reader through basic concepts, to current practices, to state-of-the-art applications. •Considers technical standards bodies involved in Cloud computing standardization. •Is written by innovation experts in operating systems and data communications, each with over 20 years' experience in business, research, and teaching.

### Introduction to Storage Area Networks

*IBM Redbooks* **The superabundance of data that is created by today's businesses is making storage a strategic investment priority for companies of all sizes. As storage takes precedence, the following major initiatives emerge: Flatten and converge your network: IBM® takes an open, standards-based approach to implement the latest advances in the flat, converged data center network designs of today. IBM Storage solutions enable clients to deploy a high-speed, low-latency Unified Fabric Architecture. Optimize and automate virtualization: Advanced virtualization awareness reduces the cost and complexity of deploying physical and virtual data center infrastructure. Simplify management: IBM data center networks are easy to deploy, maintain, scale, and virtualize, delivering the foundation of consolidated operations for dynamic infrastructure management. Storage is no longer an afterthought. Too much is at stake. Companies are searching for more ways to efficiently manage expanding volumes of data, and to make that data accessible throughout the enterprise. This demand is propelling the move of storage into the network. Also, the increasing complexity of managing large numbers of storage devices and vast amounts of data is driving greater business value into software and services. With current estimates of the amount of data to be managed and made available increasing at 60% each year, this outlook is where a storage area network (SAN) enters the arena. SANs are the leading storage infrastructure for the global economy of today. SANs offer simplified storage management, scalability, flexibility, and availability; and improved data access, movement, and backup. Welcome to the cognitive era. The smarter data center with the improved economics of IT can be achieved by connecting servers and storage with a high-speed and intelligent network fabric. A smarter data center that hosts IBM Storage solutions can provide an environment that is smarter, faster, greener, open, and easy to manage. This IBM® Redbooks® publication provides an introduction to SAN and Ethernet networking, and how these networks help to achieve a smarter data center. This book is intended for people who are not very familiar with IT, or who are just starting out in the IT world.**

### IBM PowerVC Version 2.0 Introduction and Configuration

*IBM Redbooks* **IBM® Power Virtualization Center (IBM® PowerVCTM) is an advanced enterprise virtualization management offering for IBM Power Systems. This IBM Redbooks® publication introduces IBM PowerVC and helps you understand its functions, planning, installation, and setup. It also shows how IBM PowerVC can integrate with systems management tools such as Ansible or Terraform and that it also integrates well into a OpenShift container environment. IBM PowerVC Version 2.0.0 supports both large and small**

deployments, either by managing IBM PowerVM® that is controlled by the Hardware Management Console (HMC), or by IBM PowerVM NovaLink. With this capability, IBM PowerVC can manage IBM AIX®, IBM i, and Linux workloads that run on IBM POWER® hardware. IBM PowerVC is available as a Standard Edition, or as a Private Cloud Edition. IBM PowerVC includes the following features and benefits: Virtual image capture, import, export, deployment, and management Policy-based virtual machine (VM) placement to improve server usage Snapshots and cloning of VMs or volumes for backup or testing purposes Support of advanced storage capabilities such as IBM SVC vdisk mirroring of IBM Global Mirror Management of real-time optimization and VM resilience to increase productivity VM Mobility with placement policies to reduce the burden on IT staff in a simple-to-install and easy-to-use graphical user interface (GUI) Automated Simplified Remote Restart for improved availability of VMs ifor when a host is down Role-based security policies to ensure a secure environment for common tasks The ability to enable an administrator to enable Dynamic Resource Optimization on a schedule IBM PowerVC Private Cloud Edition includes all of the IBM PowerVC Standard Edition features and enhancements: A self-service portal that allows the provisioning of new VMs without direct system administrator intervention. There is an option for policy approvals for the requests that are received from the self-service portal. Pre-built deploy templates that are set up by the cloud administrator that simplify the deployment of VMs by the cloud user. Cloud management policies that simplify management of cloud deployments. Metering data that can be used for chargeback. This publication is for experienced users of IBM PowerVM and other virtualization solutions who want to understand and implement the next generation of enterprise virtualization management for Power Systems. Unless stated otherwise, the content of this publication refers to IBM PowerVC Version 2.0.0.