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## **Cloud and Virtual Data Storage Networking**

When you hear IBM® Tivoli® Storage Manager, the first thing that you typically think of is data backup. Tivoli Storage Manager is the premier storage management solution for mixed platform environments. Businesses face a tidal wave of information and data that seems to increase daily. The ability to successfully and efficiently manage information and data has become imperative. The Tivoli Storage Manager family of products helps businesses successfully gain better control and efficiently manage the information tidal wave through significant enhancements in multiple facets of data protection. Tivoli Storage Manager is a highly scalable and available data protection solution. It takes data protection scalability to the next level with a relational database, which is based on IBM DB2® technology. Greater availability is delivered through enhancements such as online, automated database reorganization. This IBM Redbooks® publication describes the evolving set of data-protection challenges and how capabilities in Tivoli Storage Manager can best be used to address those challenges. This book is more than merely a

description of new and changed functions in Tivoli Storage Manager; it is a guide to use for your overall data protection solution.

### **Cloud Security Guidelines for IBM Power Systems**

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. IBM PowerVC Version 1.3.2 supports both large and small deployments, either by managing IBM PowerVM® that is controlled by the Hardware Management Console (HMC) by IBM PowerVM NovaLink, or by managing PowerKVM directly. 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 Cloud PowerVC Manager edition. IBM PowerVC includes the following features and benefits: Virtual image capture, deployment, and management Policy-based virtual machine (VM) placement to improve use 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) 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 Cloud PowerVC

Manager includes all of the IBM PowerVC Standard Edition features and adds: 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 1.3.2.

### **PowerVM and SAN Copy Services**

Continuing its commitment to developing and delivering industry-leading storage technologies, IBM® introduces Data Reduction Pools (DRP) and Deduplication powered by IBM Spectrum™ Virtualize, which are innovative storage features that deliver essential storage efficiency technologies and exceptional ease of use and performance, all integrated into a proven design. This book discusses Data Reduction Pools (DRP) and Deduplication and is intended for experienced storage administrators who are fully familiar with IBM Spectrum Virtualize, SAN Volume Controller, and the Storwize family of products.

## **Automate the Boring Stuff with Python**

Practical, concise and complete reference for the basics of modern antenna design Antennas: from Theory to Practice discusses the basics of modern antenna design and theory. Developed specifically for engineers and designers who work with radio communications, radar and RF engineering, this book offers practical and hands-on treatment of antenna theory and techniques, and provides its readers the skills to analyse, design and measure various antennas. Key features: Provides thorough coverage on the basics of transmission lines, radio waves and propagation, and antenna analysis and design Discusses industrial standard design software tools, and antenna measurement equipment, facilities and techniques Covers electrically small antennas, mobile antennas, UWB antennas and new materials for antennas Also discusses reconfigurable antennas, RFID antennas, Wide-band and multi-band antennas, radar antennas, and MIMO antennas Design examples of various antennas are provided Written in a practical and concise manner by authors who are experts in antenna design, with experience from both academia and industry This book will be an invaluable resource for engineers and designers working in RF engineering, radar and radio communications, seeking a comprehensive and practical introduction to the basics of antenna design. The book can also be used as a textbook for advanced students entering a profession in this field.

## **Computational Electronics**

IBM® FlashSystem 9100 combines the performance of flash and Non-Volatile Memory Express (NVMe) with the reliability and innovation of IBM FlashCore® technology and the rich features of IBM Spectrum™ Virtualize — all in a powerful 2U storage system. Providing intensive data driven multi-cloud storage capacity, FlashSystem 9100 is deeply integrated with the software-defined capabilities of IBM Spectrum Storage™, which allows you to easily add the multi-cloud solutions that best support your business. In this IBM Redbooks® publication, we discuss the product's features and planning steps, architecture, installation, configuration, and hints and tips.

### **IBM FlashSystem 7200 Product Guide**

This IBM® Redpapers™ publication is a guide to Copy Services as managed by AIX® in a IBM PowerVM™ virtualized environment. The goal of this paper is to provide step-by-step procedures about how storage subsystem-based Copy Services are accomplished in a virtualized environment and the approach for which they should be adopted. This paper focuses on Copy Services technology from EMC, Hitachi, and IBM within the following storage subsystem models: - EMC DMX-4 - Hitachi USP V - IBM DS8300 - IBM SVC The storage software products that will be used for the different Copy Services are as follows: - EMC TimeFinder - Hitachi ShadowImage - IBM FlashCopy® While there are numerous storage subsystem vendors in the marketplace and industry, this paper has been limited to the vendors and the technologies described above.

## **IBM PowerHA SystemMirror for i: Preparation (Volume 1 of 4)**

Enterprise Network Testing Testing Throughout the Network Lifecycle to Maximize Availability and Performance Andy Sholomon, CCIE® No. 15179 Tom Kunath, CCIE No. 1679 The complete guide to using testing to reduce risk and downtime in advanced enterprise networks Testing has become crucial to meeting enterprise expectations of near-zero network downtime. Enterprise Network Testing is the first comprehensive guide to all facets of enterprise network testing. Cisco enterprise consultants Andy Sholomon and Tom Kunath offer a complete blueprint and best-practice methodologies for testing any new network system, product, solution, or advanced technology. Sholomon and Kunath begin by explaining why it is important to test and how network professionals can leverage structured system testing to meet specific business goals. Then, drawing on their extensive experience with enterprise clients, they present several detailed case studies. Through real-world examples, you learn how to test architectural “proofs of concept,” specific network features, network readiness for use, migration processes, security, and more. Enterprise Network Testing contains easy-to-adapt reference test plans for branches, WANs/MANs, data centers, and campuses. The authors also offer specific guidance on testing many key network technologies, including MPLS/VPN, QoS, VoIP, video, IPsec VPNs, advanced routing (OSPF, EIGRP, BGP), and Data Center Fabrics. § Understand why, when, and how you should test

your network § Use testing to discover critical network design flaws § Incorporate structured systems testing into enterprise architecture strategy § Utilize testing to improve decision-making throughout the network lifecycle § Develop an effective testing organization and lab facility § Choose and use test services providers § Scope, plan, and manage network test assignments § nLeverage the best commercial, free, and IOS test tools § Successfully execute test plans, including crucial low-level details § Minimize the equipment required to test large-scale networks § Identify gaps in network readiness § Validate and refine device configurations § Certify new hardware, operating systems, and software features § Test data center performance and scalability § Leverage test labs for hands-on technology training 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.

### **Introduction and Implementation of Data Reduction Pools and Deduplication**

This book provides comprehensive coverage of the new wide-bandgap semiconductor gallium oxide (Ga2O3). Ga2O3 has been attracting much attention due to its excellent materials properties. It features an extremely large bandgap of greater than 4.5 eV and availability of large-size, high-quality native substrates produced from melt-grown bulk single crystals. Ga2O3 is thus a rising star among ultra-wide-

bandgap semiconductors and represents a key emerging research field for the worldwide semiconductor community. Expert chapters cover physical properties, synthesis, and state-of-the-art applications, including materials properties, growth techniques of melt-grown bulk single crystals and epitaxial thin films, and many types of devices. The book is an essential resource for academic and industry readers who have an interest in, or plan to start, a new R&D project related to Ga<sub>2</sub>O<sub>3</sub>.

### **Inside Solid State Drives (SSDs)**

This IBM® Redbook captures some of the best practices based on field experience and details the performance gains that can be achieved by implementing the IBM System Storage™ SAN Volume Controller. This book is intended for very experienced storage, SAN, and SVC administrators and technicians. Readers are expected to have an advanced knowledge of the SVC and SAN environment, and we recommend these books as background reading: IBM System Storage SAN Volume Controller, SG24-6423 Introduction to Storage Area Networks, SG24-5470 Using the SVC for Business Continuity, SG24-7371.

### **IBM FlashSystem 9100 Architecture, Performance, and Implementation**

Provides a comprehensive treatment of high voltage engineering fundamentals at the introductory and intermediate levels. It covers: techniques used for

generation and measurement of high direct, alternating and surge voltages for general application in industrial testing and selected special examples found in basic research; analytical and numerical calculation of electrostatic fields in simple practical insulation system; basic ionisation and decay processes in gases and breakdown mechanisms of gaseous, liquid and solid dielectrics; partial discharges and modern discharge detectors; and overvoltages and insulation coordination.

### **High Voltage Engineering**

This is the third revised edition of the established and trusted RFID Handbook; the most comprehensive introduction to radio frequency identification (RFID) available. This essential new edition contains information on electronic product code (EPC) and the EPC global network, and explains near-field communication (NFC) in depth. It includes revisions on chapters devoted to the physical principles of RFID systems and microprocessors, and supplies up-to-date details on relevant standards and regulations. Taking into account critical modern concerns, this handbook provides the latest information on: the use of RFID in ticketing and electronic passports; the security of RFID systems, explaining attacks on RFID systems and other security matters, such as transponder emulation and cloning, defence using cryptographic methods, and electronic article surveillance; frequency ranges and radio licensing regulations. The text explores schematic circuits of simple transponders and readers, and includes new

material on active and passive transponders, ISO/IEC 18000 family, ISO/IEC 15691 and 15692. It also describes the technical limits of RFID systems. A unique resource offering a complete overview of the large and varied world of RFID, Klaus Finkenzeller's volume is useful for end-users of the technology as well as practitioners in auto ID and IT designers of RFID products. Computer and electronics engineers in security system development, microchip designers, and materials handling specialists benefit from this book, as do automation, industrial and transport engineers. Clear and thorough explanations also make this an excellent introduction to the topic for graduate level students in electronics and industrial engineering design. Klaus Finkenzeller was awarded the Fraunhofer-Smart Card Prize 2008 for the second edition of this publication, which was celebrated for being an outstanding contribution to the smart card field.

### **Introduction to RF Power Amplifier Design and Simulation**

Monitoring of your Scale Out Network Attached Storage (SONAS) cluster resources is key to ensuring that all components are functioning at their optimum level. There are a variety of tools available to help collect valuable resource configuration, utilization, and performance information as well as capturing growth trends over time. This IBM® Redbooks® publication provides an introduction to several monitoring tools and how to use them. Scenarios for monitoring the SONAS environment using these tools

are provided. The tools documented in this publication are SONAS built-in monitoring, IBM Tivoli® Storage Productivity Center, Arxview Data Center Analytics Engine, and the Galileo Suite Storage Monitoring product. This book is written for anyone who needs to learn how to monitor their Scale Out Network Attached Storage (SONAS) resources. It is suitable for IT architects, business partners, IBM clients, storage solution integrators, and IBM sales representatives.

### **Storage Implementation in vSphere 5.0**

THE ONLY AUTHORITATIVE, COMPREHENSIVE GUIDE TO VSPHERE STORAGE IMPLEMENTATION AND MANAGEMENT Effective VMware virtualization storage planning and management has become crucial—but it can be extremely complex. Now, the leading VMware expert on storage completely demystifies the "black box" of vSphere storage and provides illustrated, step-by-step procedures for performing every key task associated with it. You'll gain the deep understanding you need to make better storage decisions, solve problems, and keep problems from occurring in the first place. Mostafa Khalil presents techniques based on years of personal experience helping customers troubleshoot storage in their vSphere production environments. With more experience than anyone else in the field, he combines expert guidelines, insights for better architectural design, best practices for both planning and management, common configuration details, and deep dives into both vSphere and third-party storage. Storage

Implementation in vSphere® 5.0 fully explains each storage connectivity choice and protocol supported by VMware, introduces Pluggable Storage Architecture (PSA), and shows how to build on PSA with multipathing, failover, and ALUA. It thoroughly introduces Storage Virtualization Devices (SVDs) and VMDirectPath I/O, and shows how to drive powerful improvements in performance, flexibility, and manageability with VMFS 5 and VAAI. COVERAGE INCLUDES Understanding how FC, FCoE, and iSCSI interact with VMware vSphere 5 Implementing specific VMware capabilities on storage hardware from each leading vendor Avoiding, recognizing, and fixing misconfigurations and other problems Using third-party MPIO plug-ins certified with vSphere 5 and PSA Maximizing availability through multipathing and failover Implementing fixed and round-robin multipathing on arrays with ALUA support Monitoring and optimizing virtual storage performance Managing vSphere-compatible file systems: VMFS and NFS Taking full advantage of VMDirectPath I/O Implementing heterogeneous storage configurations Presenting abstracted storage through virtual disks and Raw Device Mappings (RDMs) Using VMFS 5 to simplify management and improve scalability in large-scale environments Sharing storage and migrating more easily across multiple VMware vSphere instances Optimizing storage performance with VAAI-compliant devices

Mostafa Khalil, Senior Staff Engineer with VMware Global Support Services, specializes in storage integration for virtual environments. He has worked for VMware for 13 years and supported all VMware virtualization products since Workstation for Linux 1.0 beta. Khalil has

worked on most enterprise storage vendors' solutions and received engineering-level training for many of them. He has presented at every VMworld, and at VMware Partner Exchange, VMware User Group, and USENIX. ISBN-13: 978-0-321-79993-7 ISBN-10: 0-321-79993-3

### **Electrical Drives**

IBM® PowerHA® SystemMirror® for i is the IBM high-availability (HA), disk-based clustering solution for the IBM i operating system. When PowerHA for i is combined with IBM i clustering technology, it delivers a complete HA and disaster-recovery (DR) solution for business applications that are running in an IBM i environment. You can use PowerHA for i to support HA capabilities with either native disk storage, IBM DS8000® storage servers, or IBM Storwize® storage servers. This IBM Redbooks® publication gives a broad understanding of PowerHA for i and provides a general introduction to clustering technology, independent auxiliary storage pools (IASPs), PowerHA SystemMirror products, and the PowerHA architecture. This book is part of a four-book volume set that gives you a complete understanding of PowerHA for i and its use of native disk storage, IBM DS8000 storage servers, or IBM Storwize storage servers. The following IBM Redbooks publications are part of this PowerHA for i volume set: IBM PowerHA SystemMirror for i: Using DS8000, SG24-8403 IBM PowerHA SystemMirror for i: Using IBM Storwize, SG24-8402. IBM PowerHA SystemMirror for i: Using Geographic Mirroring, SG24-8401 Important: The

information that is presented in this volume set is for technical consultants, technical support staff, IT architects, and IT specialists who are responsible for providing HA and support for IBM i solutions. If you are new to HA, first review the information that is presented in this book to get a general understanding of clustering technology, IASPs, and the PowerHA architecture. You can then select the appropriate follow-on book based on the storage solutions that you are planning to use.

### **Reliability and Statistics in Transportation and Communication**

This book contains research contributions from leading global scholars in nature-inspired computing. It includes comprehensive coverage of each respective topic, while also highlighting recent and future trends. The contributions provides readers with a snapshot of the state of the art in the field of nature-inspired computing and its application. This book has focus on the current researches while highlighting the empirical results along with theoretical concepts to provide a comprehensive reference for students, researchers, scholars, professionals and practitioners in the field of Advanced Artificial Intelligence, Nature-Inspired Algorithms and Soft Computing.

### **RFID Handbook**

This two-volume book presents an unusually diverse selection of research papers, covering all major topics in the fields of information and communication

technologies and related sciences. It provides a wide-angle snapshot of current themes in information and power engineering, pursuing a cross-disciplinary approach to do so. The book gathers revised contributions that were presented at the 2018 International Conference: Sciences of Electronics, Technologies of Information and Telecommunication (SETIT'18), held on 20–22 December 2018 in Hammamet, Tunisia. This eighth installment of the event attracted a wealth of submissions, and the papers presented here were selected by a committee of experts and underwent additional, painstaking revision. Topics covered include:

- Information Processing
- Human-Machine Interaction
- Computer Science
- Telecommunications and Networks
- Signal Processing
- Electronics
- Image and Video

This broad-scoped approach is becoming increasingly popular in scientific publishing. Its aim is to encourage scholars and professionals to overcome disciplinary barriers, as demanded by current trends in the industry and in the consumer market, which are rapidly leading toward a convergence of data-driven applications, computation, telecommunication, and energy awareness. Given its coverage, the book will benefit graduate students, researchers and practitioners who need to keep up with the latest technological advances.

### **Antennas**

This book reports on cutting-edge theories and methods for analyzing complex systems, such as transportation and communication networks and

discusses multi-disciplinary approaches to dependability problems encountered when dealing with complex systems in practice. The book presents the most noteworthy methods and results discussed at the International Conference on Reliability and Statistics in Transportation and Communication (RelStat), which took place in Riga, Latvia on October 17 – 20, 2018. It spans a broad spectrum of topics, from mathematical models and design methodologies, to software engineering, data security and financial issues, as well as practical problems in technical systems, such as transportation and telecommunications, and in engineering education.

### **Exploiting IBM PowerHA SystemMirror V6.1 for AIX Enterprise Edition**

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.

## **IBM zEnterprise EC12 Technical Guide**

Businesses of all sizes are faced with the challenge of managing huge volumes of data that are becoming increasingly valuable. But storing this data can be costly, and extracting value from the data is becoming more and more difficult. IT organizations have limited resources and cannot afford to make investment mistakes. The IBM® Storwize® V3500 system provides a smarter solution that is affordable, simple, and efficient, which enables businesses to overcome their storage challenges. IBM Storwize V3500 is the most recent addition to the IBM Storwize family of disk systems. It delivers easy-to-use, entry-level configurations that are specifically designed to meet the modest budgets of small and medium-sized businesses. IBM Storwize V3500 features the following highlights: - Consolidate and share data with low cost iSCSI storage networking. - Deploy storage in minutes and perform storage management tasks quickly and easily through a breakthrough graphical user interface. - Experience peace of mind with proven IBM Storwize family high-availability data protection with snapshot technology and IBM warranty support. - Optimize efficiency by allocating only the amount of disk space needed at the time it is required with high performance, thin-provisioning capabilities.

### **Gallium Oxide**

This IBM® Redbooks® publication provides a technical overview of the features, functions, and enhancements that are available in IBM i 7.2,

including all the available Technology Refresh (TR) levels, from TR1 to TR3. This publication provides a summary and brief explanation of the many capabilities and functions in the operating system. It also describes many of the licensed programs and application development tools that are associated with IBM i. The information that is provided in this book is useful for clients, IBM Business Partners, and IBM service professionals that are involved with planning, supporting, upgrading, and implementing IBM i 7.2 solutions.

### **Scale Out Network Attached Storage Monitoring**

A practical book written for engineers who design and use antennas. The author has many years of hands-on experience designing antennas that were used in such applications as the Venus and Mars missions of NASA. The book covers all important topics of modern antenna design for communications. Numerical methods will be included but only as much as are needed for practical applications.

### **Modern Antenna Design**

The popularity of the Internet and the affordability of IT hardware and software have resulted in an explosion of applications, architectures, and platforms. Workloads have changed. Many applications, including mission-critical ones, are deployed on various platforms, and the IBM® System z® design has adapted to this change. It takes into

account a wide range of factors, including compatibility and investment protection, to match the IT requirements of an enterprise. This IBM Redbooks® publication addresses the new IBM zEnterprise® System. This system consists of the IBM zEnterprise EC12 (zEC12), an updated IBM zEnterprise Unified Resource Manager, and the IBM zEnterprise BladeCenter® Extension (zBX) Model 003. The zEC12 is designed with improved scalability, performance, security, resiliency, availability, and virtualization. The superscalar design allows the zEC12 to deliver a record level of capacity over the prior System z servers. It is powered by 120 of the world's most powerful microprocessors. These microprocessors run at 5.5 GHz and are capable of running more than 75,000 millions of instructions per second (MIPS). The zEC12 Model HA1 is estimated to provide up to 50% more total system capacity than the IBM zEnterprise 196 (z196) Model M80. The zBX Model 003 infrastructure works with the zEC12 to enhance System z virtualization and management. It does so through an integrated hardware platform that spans mainframe, IBM POWER7®, and IBM System x® technologies. Through the Unified Resource Manager, the zEnterprise System is managed as a single pool of resources, integrating system and workload management across the environment. This book provides information about the zEnterprise System and its functions, features, and associated software support. Greater detail is offered in areas relevant to technical planning. It is intended for systems engineers, consultants, planners, and anyone who wants to understand the zEnterprise System functions and plan for their usage. It is not intended as an

introduction to mainframes. Readers are expected to be generally familiar with existing IBM System z® technology and terminology.

### **Proceedings of the 8th International Conference on Sciences of Electronics, Technologies of Information and Telecommunications (SETIT'18)**

If you've ever spent hours renaming files or updating hundreds of spreadsheet cells, you know how tedious tasks like these can be. But what if you could have your computer do them for you? In *Automate the Boring Stuff with Python*, you'll learn how to use Python to write programs that do in minutes what would take you hours to do by hand—no prior programming experience required. Once you've mastered the basics of programming, you'll create Python programs that effortlessly perform useful and impressive feats of automation to:

- Search for text in a file or across multiple files
- Create, update, move, and rename files and folders
- Search the Web and download online content
- Update and format data in Excel spreadsheets of any size
- Split, merge, watermark, and encrypt PDFs
- Send reminder emails and text notifications
- Fill out online forms

Step-by-step instructions walk you through each program, and practice projects at the end of each chapter challenge you to improve those programs and use your newfound skills to automate similar tasks. Don't spend your time doing work a well-trained monkey could do. Even if you've never written a line of code, you can make your computer do the grunt work.

Learn how in Automate the Boring Stuff with Python.  
Note: The programs in this book are written to run on Python 3.

### **Enterprise Network Testing**

The IBM® DB2® pureScale® feature offers clustering technology that helps deliver high availability and exceptional scalability transparent to applications. The DB2 pureScale feature helps you to meet your business needs around availability and scalability, and is also easy to configure and administer. This IBM Redbooks® publication addresses the DB2 pureScale feature that is available in IBM DB2 10.1 for Linux, UNIX, and Windows operating systems. It can help you build skills and deploy the DB2 pureScale feature. This book bundles all the information necessary for an in-depth analysis into the functions of the DB2 pureScale feature, including the actual hardware requirements. It includes validated step-by-step hardware and software installation instructions. In addition, this book provides detailed examples about how to work effectively with a DB2 pureScale cluster and how to plan and run an upgrade for all DB2 related components to DB2 10.1. This book is intended for database administrators (DBAs) who use IBM DB2 10.1 for Linux, UNIX, and Windows operating systems who want to explore and get started with the DB2 pureScale feature.

### **Advances in Nature-Inspired Computing and Applications**

From the point of view of a user this book covers all aspects of modern electrical drives. It is aimed at both users, who wish to understand, design, use, and maintain electrical drives, as well as specialists, technicians, engineers, and students, who wish to gain a comprehensive overview of electrical drives. Jens Weidauer and Richard Messer describe the principles of electrical drives, their design, and application, through to complex automation solutions. In the process, they introduce the entire spectrum of drive solutions available and their main applications. A special aspect is the combination of multiple drives to form a drive system, as well as the integration of drives into automation solutions. In simple and clear language, and supported with many diagrams, complex relationships are described and presented in an easy-to-understand way. The authors deliberately avoid a comprehensive mathematical treatment of their subject and instead focus on a coherent description of the active principles and relationships. As a result, the reader will be in a position to understand electrical drives as a whole and to solve drive-related problems in everyday professional life.

### **The Green and Virtual Data Center**

The Green and Virtual Data Center sets aside the political aspects of what is or is not considered green to instead focus on the opportunities for organizations that want to sustain environmentally-friendly economical growth. If you are willing to believe that IT infrastructure resources deployed in a highly virtualized manner can be combined with other

technologies to achieve simplified and cost-effective delivery of services in a green, profitable manner, this book is for you. Savvy industry veteran Greg Schulz provides real-world insight, addressing best practices, server, software, storage, networking, and facilities issues concerning any current or next-generation virtual data center that relies on underlying physical infrastructures. Coverage includes: Energy and data footprint reduction Cloud-based storage and computing Intelligent and adaptive power management Server, storage, and networking virtualization Tiered servers and storage, network, and data centers Energy avoidance and energy efficiency Many current and emerging technologies can enable a green and efficient virtual data center to support and sustain business growth with a reasonable return on investment. This book presents virtually all critical IT technologies and techniques to discuss the interdependencies that need to be supported to enable a dynamic, energy-efficient, economical, and environmentally-friendly green IT data center. This is a path that every organization must ultimately follow. Take a tour of the Green and Virtual Data Center website. CRC Press is pleased to announce that The Green and Virtual Data Center has been added to Intel Corporation's Recommended Reading List. Intel's Recommended Reading program provides technical professionals a simple and handy reference list of what to read to stay abreast of new technologies. Dozens of industry technologists, corporate fellows, and engineers have helped by suggesting books and reviewing the list. This is the most comprehensive reading list available for professional computer developers.

## **Delivering Continuity and Extreme Capacity with the IBM DB2 pureScale Feature**

Starting with the simplest semiclassical approaches and ending with the description of complex fully quantum-mechanical methods for quantum transport analysis of state-of-the-art devices, Computational Electronics: Semiclassical and Quantum Device Modeling and Simulation provides a comprehensive overview of the essential techniques and methods for effectively analyzing transport in semiconductor devices. With the transistor reaching its limits and new device designs and paradigms of operation being explored, this timely resource delivers the simulation methods needed to properly model state-of-the-art nanoscale devices. The first part examines semiclassical transport methods, including drift-diffusion, hydrodynamic, and Monte Carlo methods for solving the Boltzmann transport equation. Details regarding numerical implementation and sample codes are provided as templates for sophisticated simulation software. The second part introduces the density gradient method, quantum hydrodynamics, and the concept of effective potentials used to account for quantum-mechanical space quantization effects in particle-based simulators. Highlighting the need for quantum transport approaches, it describes various quantum effects that appear in current and future devices being mass-produced or fabricated as a proof of concept. In this context, it introduces the concept of effective potential used to approximately include quantum-mechanical space-quantization

effects within the semiclassical particle-based device simulation scheme. Addressing the practical aspects of computational electronics, this authoritative resource concludes by addressing some of the open questions related to quantum transport not covered in most books. Complete with self-study problems and numerous examples throughout, this book supplies readers with the practical understanding required to create their own simulators.

### **IBM PowerVC Version 1.3.2 Introduction and Configuration**

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.

## **Database Cloud Storage**

"A complete solutions guide to Oracle Automatic Storage Management (ASM) and overall cloud storage management. Oracle Cloud Storage Management contains the latest information on the inner-workings of Oracle ASM and Oracle's overall cloud storage management strategy. This Oracle Press guide explains how to build and manage a scalable cloud storage infrastructure with Oracle ASM. You'll learn how to configure cloud storage solutions, build disk groups, use data striping and mirroring, and optimize performance. Details on ensuring consistency across server and storage platforms, maximizing data redundancy, and administering Oracle ASM are also included. Fully covers Oracle Exadata integration Offers a comprehensive understanding of why cloud storage management is critical to modern storage, and how to harness and integrate Oracle ASM Covers practical day-to-day usage, general operations, best practices, and tips & techniques Written by members of the team who developed and managed Oracle ASM/cloud storage management "--

## **Virtualizing Oracle Databases on VSphere**

Solid State Drives (SSDs) are gaining momentum in enterprise and client applications, replacing Hard Disk Drives (HDDs) by offering higher performance and lower power. In the enterprise, developers of data center server and storage systems have seen CPU performance growing exponentially for the past two

decades, while HDD performance has improved linearly for the same period. Additionally, multi-core CPU designs and virtualization have increased randomness of storage I/Os. These trends have shifted performance bottlenecks to enterprise storage systems. Business critical applications such as online transaction processing, financial data processing and database mining are increasingly limited by storage performance. In client applications, small mobile platforms are leaving little room for batteries while demanding long life out of them. Therefore, reducing both idle and active power consumption has become critical. Additionally, client storage systems are in need of significant performance improvement as well as supporting small robust form factors. Ultimately, client systems are optimizing for best performance/power ratio as well as performance/cost ratio. SSDs promise to address both enterprise and client storage requirements by drastically improving performance while at the same time reducing power. Inside Solid State Drives walks the reader through all the main topics related to SSDs: from NAND Flash to memory controller (hardware and software), from I/O interfaces (PCIe/SAS/SATA) to reliability, from error correction codes (BCH and LDPC) to encryption, from Flash signal processing to hybrid storage. We hope you enjoy this tour inside Solid State Drives.

### **IBM i 7.2 Technical Overview with Technology Refresh Updates**

### **IBM Tivoli Storage Manager as a Data**

## **Protection Solution**

This IBM® Redbooks publication is a comprehensive guide that covers the IBM AIX® operating system (OS) layout capabilities, distinct features, system installation, and maintenance, which includes AIX security, trusted environment, and compliance integration, with the benefits of IBM Power Virtualization Management (PowerVM®) and IBM Power Virtualization Center (IBM PowerVC), which includes cloud capabilities and automation types. The objective of this book is to introduce IBM AIX modernization features and integration with different environments: General AIX enhancements AIX Live Kernel Update individually or using Network Installation Manager (NIM) AIX security features and integration AIX networking enhancements PowerVC integration and features for cloud environments AIX deployment using IBM Terraform and IBM Cloud Automation Manager AIX automation that uses configuration management tools PowerVM enhancements and features Latest disaster recovery (DR) solutions AIX Logical Volume Manager (LVM) and Enhanced Journaled File System (JFS2) AIX installation and maintenance techniques

## **Mastering Microsoft Virtualization**

The amount of data being generated, processed, and stored has reached unprecedented levels. Even during the recent economic crisis, there has been no slow down or information recession. Instead, the need to process, move, and store data has only increased.

Consequently, IT organizations are looking to do more with what they have while supporting gr

### **A Systems Biology Approach to Study Metabolic Syndrome**

The new edition of a bestseller, now revised and update throughout! This new edition of the unparalleled bestseller serves as a full training course all in one and as the world's largest data storage company, EMC is the ideal author for such a critical resource. They cover the components of a storage system and the different storage system models while also offering essential new material that explores the advances in existing technologies and the emergence of the "Cloud" as well as updates and vital information on new technologies. Features a separate section on emerging area of cloud computing Covers new technologies such as: data de-duplication, unified storage, continuous data protection technology, virtual provisioning, FCoE, flash drives, storage tiering, big data, and more Details storage models such as Network Attached Storage (NAS), Storage Area Network (SAN), Object Based Storage along with virtualization at various infrastructure components Explores Business Continuity and Security in physical and virtualized environment Includes an enhanced Appendix for additional information This authoritative guide is essential for getting up to speed on the newest advances in information storage and management.

### **SAN Volume Controller**

Having trouble keeping up with the latest standards for external power supplies such as the California Energy Commission's (CEC) requirements for efficiency and no-load power consumption; or the implications of the 3rd Edition 60601 on Medical Safety? Ever wondered why seemingly similar power supplies have significantly different performance and reliability characteristics? The answers to these and many more questions can be found in this Essential Guide to Power Supplies. Whether you're new to designing-in a power supply or DC-DC converter or an 'old hand', this book offers an invaluable resource and all the information you'll need in one easy reference guide.

### **The Essential Guide to Power Supplies**

Annotation Thousands of organizations are virtualizing large-scale Oracle database systems. But, until now, reliable best practices have been hard to find, and database and virtualization professionals have often brought differing and incompatible perspectives to the challenge. Now, there's a comprehensive best practice guide reflecting deep understanding of both Oracle and vSphere, and supported by extensive in-the-field experience with the full spectrum of applications and environments.

### **Information Storage and Management**

Introduction to RF Power Amplifier Design and Simulation fills a gap in the existing literature by providing step-by-step guidance for the design of

radio frequency (RF) power amplifiers, from analytical formulation to simulation, implementation, and measurement. Featuring numerous illustrations and examples of real-world engineering applications, this book: Gives an overview of intermodulation and elaborates on the difference between linear and nonlinear amplifiers Describes the high-frequency model and transient characteristics of metal-oxide-semiconductor field-effect transistors Details active device modeling techniques for transistors and parasitic extraction methods for active devices Explores network and scattering parameters, resonators, matching networks, and tools such as the Smith chart Covers power-sensing devices including four-port directional couplers and new types of reflectometers Presents RF filter designs for power amplifiers as well as application examples of special filter types Demonstrates the use of computer-aided design (CAD) tools, implementing systematic design techniques Blending theory with practice, Introduction to RF Power Amplifier Design and Simulation supplies engineers, researchers, and RF/microwave engineering students with a valuable resource for the creation of efficient, better-performing, low-profile, high-power RF amplifiers.

## **IBM AIX Enhancements and Modernization**

This IBM® Redbooks® Product Guide publication describes the IBM FlashSystem® 7200 solution, which is a comprehensive, all-flash, and NVMe-enabled enterprise storage solution that delivers the full

capabilities of IBM FlashCore® technology. In addition, it provides a rich set of software-defined storage (SDS) features, including data reduction and de-duplication, dynamic tiering, thin-provisioning, snapshots, cloning, replication, data copy services, and IBM HyperSwap® for high availability (HA). Scale-out and scale-up configurations further enhance capacity and throughput for better availability

### **VMware NSX Network Essentials**

This IBM® Redbooks® publication positions the IBM PowerHA® SystemMirror® V6.1 for AIX® Enterprise Edition as the cluster management solution for high availability. This solution enables near-continuous application service and minimizes the impact of planned and unplanned outages. The primary goal of this high-availability solution is to recover operations at a remote location after a system or data center failure, establish or strengthen a business recovery plan, and provide separate recovery location. The IBM PowerHA SystemMirror Enterprise Edition is targeted at multisite high-availability disaster recovery. The objective of this book is to help new and existing PowerHA customers to understand how to plan to accomplish a successful installation and configuration of the PowerHA SystemMirror for AIX Enterprise Edition. This book emphasizes the IBM Power Systems™ strategy to deliver more advanced functional capabilities for business resiliency and to enhance product usability and robustness through deep integration with AIX, affiliated software stack, and storage technologies. PowerHA SystemMirror is

designed, developed, integrated, tested, and supported by IBM from top to bottom.

### **Implementing the IBM Storwize V3500**

The aim of this book is to provide the target audience, specifically students of Medicine, Biology, Systems Biology and Bioinformatics, as well as experienced researchers in research fields relevant to metabolic syndrome (MetS) with an overview of the challenges and opportunities in systems biology and how it can be used to tackle MetS. In particular, the aims are: (1) to provide an introduction to the key biological processes involved in the pathophysiology of MetS; (2) through the use of specific examples, provide an introduction to the latest technologies that use a systems biology approach to study MetS; and (3) to give an overview of the mathematical modeling approaches for studying MetS. The clearly written chapters by leading experts in the field provides detailed descriptions crucial for the unique position of this book and its focus on the application of systems biology to tackle specific pathophysiologically relevant aspects of MetS and provides a valuable practical guide to this research community.

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