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IBM z14 Model ZR1 Technical Introduction - Octavian Lascu 2018-10-02
This IBM® Redbooks® publication introduces the latest member of the IBM Z platform, the IBM z14 Model ZR1 (Machine Type 3907). It includes information about the Z environment and how it helps integrate data and transactions more securely, and provides insight for faster and more accurate business decisions. The z14 ZR1 is a state-of-the-art data and transaction system that delivers advanced capabilities, which are vital to any digital transformation. The z14 ZR1 is designed for enhanced modularity, which is in an industry standard footprint. This system excels at the following tasks: Securing data with pervasive encryption
Transforming a transactional platform into a data powerhouse
Getting more out of the platform with IT Operational Analytics
Providing resilience towards zero downtime
Accelerating digital transformation with agile service delivery
Revolutionizing business processes
Mixing open source and Z technologies
This book explains how this system uses new innovations and traditional Z strengths to satisfy growing demand for cloud, analytics, and open source technologies. With the z14 ZR1 as the base, applications can run in a trusted, reliable, and secure environment that improves operations and lessens business risk.

Handbook of High-Order Optical Modulations - Stefano Bottacchi
2021-02-04

This book highlights many fundamental aspects of optical fiber

transmission engineering while also focusing on current state of the art applications and working examples of digital coherent optical communications. Major engineering themes are reviewed and analyzed in this book, including spectral and time-domain characteristics of multi-level pseudo-random PAM signals, optical QAM and SSB complex modulations and impulse response engineering of linear amplifiers used in next-generation Gbaud transmission systems. This book is balanced between theoretical and numerical simulation approaches, showing numerous working examples developed in Matlab. Presents an in-depth analysis of pseudo-random multi-level signals and high-order complex modulations to support coherent terabit transmission systems; Provides a unified approach to challenging engineering issues encountered in the design of Giga-baud coherent optical transmission systems using high-order complex modulation formats; Reviews engineering themes and provides in-depth analysis, modeling and quantitative examples and solutions of state of the art and future applications.

At the Network's Edge - Hendrich Hernandez 2017-07

At the Network's Edge will help you understand the evolution of the network interface card and obtain a broader view of the server networking subsystem. This book will instill in you a deeper appreciation for the rich and diverse capabilities offered by the data communications protocol stack manifested by the NIC at the edge of the network. You will

get an in-depth insight into the components of the host networking ecosystem that includes the operating system networking stack, the PCI Express host interface, and the local area network.

Implementation Guide for IBM Elastic Storage System 5000 - Brian Herr 2020-12-08

This IBM® Redbooks® publication introduces and describes the IBM Elastic Storage® Server 5000 (ESS 5000) as a scalable, high-performance data and file management solution. The solution is built on proven IBM Spectrum® Scale technology, formerly IBM General Parallel File System (IBM GPFS). ESS is a modern implementation of software-defined storage, making it easier for you to deploy fast, highly scalable storage for AI and big data. With the lightning-fast NVMe storage technology and industry-leading file management capabilities of IBM Spectrum Scale, the ESS 3000 and ESS 5000 nodes can grow to over YB scalability and can be integrated into a federated global storage system. By consolidating storage requirements from the edge to the core data center — including kubernetes and Red Hat OpenShift — IBM ESS can reduce inefficiency, lower acquisition costs, simplify storage management, eliminate data silos, support multiple demanding workloads, and deliver high performance throughout your organization. This book provides a technical overview of the ESS 5000 solution and helps you to plan the installation of the environment. We also explain the use cases where we believe it fits best. Our goal is to position this book as the starting point document for customers that would use the ESS 5000 as part of their IBM Spectrum Scale setups. This book is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) who are responsible for delivering cost-effective storage solutions with ESS 5000.

IBM Power System E980: Technical Overview and Introduction - Scott Vetter 2020-01-10

This IBM® Redpaper™ publication provides a broad understanding of a new architecture of the IBM Power System E980 (9080-M9S) server that supports IBM AIX®, IBM i, and Linux operating systems (OSes). The objective of this paper is to introduce the major innovative Power E980

offerings and relevant functions: The IBM POWER9™ processor, which is available at frequencies of 3.55 - 4.0 GHz. Significantly strengthened cores and larger caches. Supports up to 64 TB memory. Integrated I/O subsystem and hot-pluggable Peripheral Component Interconnect Express (PCIe) Gen4 slots, double the bandwidth of Gen3 I/O slots. Supports EXP12SX and ESP24SX external disk drawers, which have 12 Gb SAS interfaces and double the existing EXP24S drawer bandwidth. New IBM EnergyScale™ technology offers new variable processor frequency modes that provide a significant performance boost beyond the static nominal frequency. This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E980 server. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

Elements of Programming Interviews - Adnan Aziz 2012-10-11

The core of EPI is a collection of over 300 problems with detailed solutions, including 100 figures, 250 tested programs, and 150 variants. The problems are representative of questions asked at the leading software companies. The book begins with a summary of the nontechnical aspects of interviewing, such as common mistakes, strategies for a great interview, perspectives from the other side of the table, tips on negotiating the best offer, and a guide to the best ways to use EPI. The technical core of EPI is a sequence of chapters on basic and advanced data structures, searching, sorting, broad algorithmic principles, concurrency, and system design. Each chapter consists of a brief review, followed by a broad and thought-provoking series of problems. We include a summary of data structure, algorithm, and problem solving patterns.

IBM z15 (8561) Technical Guide - Octavian Lascu 2022-04-20

This IBM® Redbooks® publication describes the features and functions the latest member of the IBM Z® platform, the IBM z15™ (machine type 8561). It includes information about the IBM z15 processor design, I/O innovations, security features, and supported operating systems. The z15 is a state-of-the-art data and transaction system that delivers advanced capabilities, which are vital to any digital transformation. The z15 is designed for enhanced modularity, which is in an industry standard footprint. This system excels at the following tasks: Making use of multicloud integration services Securing data with pervasive encryption Accelerating digital transformation with agile service delivery Transforming a transactional platform into a data powerhouse Getting more out of the platform with IT Operational Analytics Accelerating digital transformation with agile service delivery Revolutionizing business processes Blending open source and Z technologies This book explains how this system uses new innovations and traditional Z strengths to satisfy growing demand for cloud, analytics, and open source technologies. With the z15 as the base, applications can run in a trusted, reliable, and secure environment that improves operations and lessens business risk.

Implementing the IBM General Parallel File System (GPFS) in a Cross Platform Environment - Dino Quintero 2011-06-30

This IBM® Redbooks® publication provides a documented deployment model for IBM GPFS™ in a cross-platform environment with IBM Power Systems™, Linux, and Windows servers. With IBM GPFS, customers can have a planned foundation for file systems management for cross-platform access solutions. This book examines the functional, integration, simplification, and usability changes with GPFS v3.4. It can help the technical teams provide file system management solutions and technical support with GPFS, based on Power Systems virtualized environments for cross-platform file systems management. The book provides answers to your complex file systems management requirements, helps you maximize file system availability, and provides expert-level documentation to transfer the how-to skills to the worldwide support

teams. The audience for this book is the technical professional (IT consultants, technical support staff, IT architects, and IT specialists) who is responsible for providing file system management solutions and support for cross-platform environments that are based primarily on Power Systems.

IBM FlashSystem 5200 Product Guide - Aldo Araujo Fonseca 2022-07-22

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.

IBM Power System AC922 Introduction and Technical Overview - Scott Vetter 2018-03-26

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power System AC922 server (8335-GTG and 8335-GTW models). The Power AC922 server is the next generation of the IBM Power processor-based systems, which are designed for deep learning and artificial intelligence (AI), high-performance analytics, and high-performance computing (HPC). This paper introduces the major innovative Power AC922 server features and their relevant functions: Powerful IBM POWER9™ processors that offer 16 cores at 2.6 GHz with 3.09 GHz turbo performance or 20 cores at 2.0 GHz with 2.87 GHz turbo for the 8335-GTG Eighteen cores at 2.98 GHz with 3.26 GHz turbo performance or 22 at 2.78 GHz cores with 3.07 GHz turbo for the 8335-GTW IBM Coherent Accelerator Processor Interface (CAPI) 2.0, IBM OpenCAPITM, and second-generation NVIDIA NVLink technology for exceptional processor-to-accelerator intercommunication Up to six dedicated NVIDIA Tesla V100 GPUs This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products and is intended for the following audiences: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power AC922 server. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

Datacenter Connectivity Technologies - Frank Chang 2022-09-01

In recent years, investments by cloud companies in mega data centers and associated network infrastructure has created a very active and

dynamic segment in the optical components and modules market. Optical interconnect technologies at high speed play a critical role for the growth of mega data centers, which flood the networks with unprecedented amount of data traffic. Datacenter Connectivity Technologies: Principles and Practice provides a comprehensive and in-depth look at the development of various optical connectivity technologies which are making an impact on the building of data centers. The technologies span from short range connectivity, as low as 100 meters with multi-mode fiber (MMF) links inside data centers, to long distances of hundreds of kilometers with single-mode fiber (SMF) links between data centers. This book is the first of its kind to address various advanced technologies connecting data centers. It represents a collection of achievements and the latest developments from well-known industry experts and academic researchers active in this field.

Ethernet - Charles E. Spurgeon 2014

Get up to speed on the latest Ethernet capabilities for building and maintaining networks for everything from homes and offices to data centers and server machine rooms. This thoroughly revised, comprehensive guide covers a wide range of Ethernet technologies, from basic operation to network management, based on the authors' many years of field experience. When should you upgrade to higher speed Ethernet? How do you use switches to build larger networks? How do you troubleshoot the system? This book provides the answers. If you're looking to build a scalable network with Ethernet to satisfy greater bandwidth and market requirements, this book is indeed the definitive guide. Examine the most widely used media systems, as well as advanced 40 and 100 gigabit Ethernet Learn about Ethernet's four basic elements and the IEEE standards Explore full-duplex Ethernet, Power over Ethernet, and Energy Efficient Ethernet Understand structured cabling systems and the components you need to build your Ethernet system Use Ethernet switches to expand and improve network design Delve into Ethernet performance, from specific channels to the entire network Get troubleshooting techniques for problems common to twisted-pair and fiber optic systems

Storage and Network Convergence Using FCoE and iSCSI - Sangam Racherla 2014-07-18

Along with servers and networking infrastructure, networked storage is one of the fundamental components of a modern data center. Because storage networking has evolved over the past two decades, the industry has settled on the basic storage networking technologies. These technologies are Fibre Channel (FC) storage area networks (SANs), Internet Small Computer System Interface (iSCSI)-based Ethernet attachment, and Ethernet-based network-attached storage (NAS). Today, lossless, low-latency, high-speed FC SANs are viewed as the high-performance option for networked storage. iSCSI and NAS are viewed as lower cost, lower performance technologies. The advent of the 100 Gbps Ethernet and Data Center Bridging (DCB) standards for lossless Ethernet give Ethernet technology many of the desirable characteristics that make FC the preferred storage networking technology. These characteristics include comparable speed, low latency, and lossless behavior. Coupled with an ongoing industry drive toward better asset utilization and lower total cost of ownership, these advances open the door for organizations to consider consolidating and converging their networked storage infrastructures with their Ethernet data networks. Fibre Channel over Ethernet (FCoE) is one approach to this convergence, but 10-Gbps-enabled iSCSI also offers compelling options for many organizations with the hope that their performance can now rival that of FC. This IBM® Redbooks® publication is written for experienced systems, storage, and network administrators who want to integrate the IBM System Networking and Storage technology successfully into new and existing networks. This book provides an overview of today's options for storage networking convergence. It reviews the technology background for each of these options and then examines detailed scenarios for them by using IBM and IBM Business Partner convergence products.

UNIX Filesystems - Steve D. Pate 2003-02-17

Covers all versions of UNIX, as well as Linux, operating systems that are used by the majority of Fortune 1000 companies for their mission-critical data. Offers more detail than other books on the file input/output aspects

of UNIX programming. Describes implementation of UNIX filesystems over a thirty year period. Demonstrates VERITAS and other filesystem examples.

Elastic Optical Networks - Víctor López 2016-06-13

This book presents advances in the field of optical networks - specifically on research and applications in elastic optical networks (EON). The material reflects the authors' extensive research and industrial activities and includes contributions from preeminent researchers and practitioners in optical networking. The authors discuss the new research and applications that address the issue of increased bandwidth demand due to disruptive, high bandwidth applications, e.g., video and cloud applications. The book also discusses issues with traffic not only increasing but becoming much more dynamic, both in time and direction, and posits immediate, medium, and long-term solutions throughout the text. The book is intended to provide a reference for network architecture and planning, communication systems, and control and management approaches that are expected to steer the evolution of EONs.

Design of Integrated Circuits for Optical Communications - Behzad Razavi 2012-08-21

The only book on integrated circuits for optical communications that fully covers High-Speed IOs, PLLs, CDRs, and transceiver design including optical communication. The increasing demand for high-speed transport of data has revitalized optical communications, leading to extensive work on high-speed device and circuit design. With the proliferation of the Internet and the rise in the speed of microprocessors and memories, the transport of data continues to be the bottleneck, motivating work on faster communication channels. *Design of Integrated Circuits for Optical Communications, Second Edition* deals with the design of high-speed integrated circuits for optical communication transceivers. Building upon a detailed understanding of optical devices, the book describes the analysis and design of critical building blocks, such as transimpedance and limiting amplifiers, laser drivers, phase-locked loops, oscillators, clock and data recovery circuits, and multiplexers. The Second Edition of

this bestselling textbook has been fully updated with: A tutorial treatment of broadband circuits for both students and engineers New and unique information dealing with clock and data recovery circuits and multiplexers A chapter dedicated to burst-mode optical communications A detailed study of new circuit developments for optical transceivers An examination of recent implementations in CMOS technology This text is ideal for senior graduate students and engineers involved in high-speed circuit design for optical communications, as well as the more general field of wireline communications.

Data Center Handbook - Hwaiyu Geng 2014-12-01

Provides the fundamentals, technologies, and best practices in designing, constructing and managing mission critical, energy efficient data centers Organizations in need of high-speed connectivity and nonstop systems operations depend upon data centers for a range of deployment solutions. A data center is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes multiple power sources, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and security devices. With contributions from an international list of experts, The Data Center Handbook instructs readers to: Prepare strategic plan that includes location plan, site selection, roadmap and capacity planning Design and build "green" data centers, with mission critical and energy-efficient infrastructure Apply best practices to reduce energy consumption and carbon emissions Apply IT technologies such as cloud and virtualization Manage data centers in order to sustain operations with minimum costs Prepare and practice disaster recovery and business continuity plan The book imparts essential knowledge needed to implement data center design and construction, apply IT technologies, and continually improve data center operations.

Innovative Design, Analysis and Development Practices in Aerospace and Automotive Engineering (I-DAD 2018) - U. Chandrasekhar 2018-12-14

The book includes the best articles presented by researchers, academicians and industrial experts at the International Conference on "Innovative Design and Development Practices in Aerospace and

Automotive Engineering (I-DAD 2018)". The book discusses new concept in designs, and analysis and manufacturing technologies for improved performance through specific and/or multi-functional design aspects to optimise the system size, weight-to-strength ratio, fuel efficiency and operational capability. Other aspects of the conference address the ways and means of numerical analysis, simulation and additive manufacturing to accelerate the product development cycles. Describing innovative methods, the book provides valuable reference material for educational and research organizations, as well as industry, wanting to undertake challenging projects of design engineering and product development. Research in Intelligent and Computing in Engineering - Raghvendra Kumar 2021

This book comprises select peer-reviewed proceedings of the international conference on Research in Intelligent and Computing in Engineering (RICE 2020) held at Thu Dau Mot University, Vietnam. The volume primarily focuses on latest research and advances in various computing models such as centralized, distributed, cluster, grid, and cloud computing. Practical examples and real-life applications of wireless sensor networks, mobile ad hoc networks, and internet of things, data mining and machine learning are also covered in the book. The contents aim to enable researchers and professionals to tackle the rapidly growing needs of network applications and the various complexities associated with them.

Silicon Photonics III - Lorenzo Pavesi 2016-01-08

This book is volume III of a series of books on silicon photonics. It reports on the development of fully integrated systems where many different photonics component are integrated together to build complex circuits. This is the demonstration of the fully potentiality of silicon photonics. It contains a number of chapters written by engineers and scientists of the main companies, research centers and universities active in the field. It can be of use for all those persons interested to know the potentialities and the recent applications of silicon photonics both in microelectronics, telecommunication and consumer electronics market.

IBM PowerVM Virtualization Introduction and Configuration - Scott

Vetter 2015-11-24

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

The Art of Electronics - Paul Horowitz 2021

Reliability, Safety and Hazard Assessment for Risk-Based Technologies - Prabhakar V. Varde 2020-08-31

This volume presents selected papers from the International Conference on Reliability, Safety, and Hazard. It presents the latest developments in reliability engineering and probabilistic safety assessment, and brings together contributions from a diverse international community and covers all aspects of safety, reliability, and hazard assessment across a host of interdisciplinary applications. This book will be of interest to researchers in both academia and the industry.

Expert Oracle Exadata - Martin Bach 2015-08-29

Expert Oracle Exadata, 2nd Edition opens up the internals of Oracle's Exadata platform so that you can fully benefit from the most performant and scalable database hardware appliance capable of running Oracle Database. This edition is fully-updated to cover Exadata 5-2 and Oracle Database 12c. If you're new to Exadata, you'll soon learn that it embodies a change in how you think about and manage relational databases. A key

part of that change lies in the concept of offloading SQL processing to the storage layer. In addition there is Oracle's engineering effort in creating a powerful platform for both consolidation and transaction processing. The resulting value proposition in the form of Exadata has truly been a game-changer. Expert Oracle Exadata, 2nd Edition provides a look at the internals and how the combination of hardware and software that comprise Exadata actually work. Authors include Martin Bach, Andy Colvin, and Frits Hoogland, with contributions from Karl Arao, and built on the foundation laid by Kerry Osborne, Randy Johnson, and Tanel Poder in the first edition. They share their real-world experience gained through a great many Exadata implementations, possibly more than any other group of experts today. Always their goal is toward helping you advance your career through success with Exadata in your own environment. This book is intended for readers who want to understand what makes the platform tick and for whom—"how" it does what it is does is as important as what it does. By being exposed to the features that are unique to Exadata, you will gain an understanding of the mechanics that will allow you to fully benefit from the advantages that the platform provides. This book changes how you think about managing SQL performance and processing. It provides a roadmap to successful Exadata implementation. And it removes the "black box" mystique. You'll learn how Exadata actually works and be better able to manage your Exadata engineered systems in support of your business. This book: Changes the way you think about managing SQL performance and processing Provides a roadmap to successful Exadata implementation Removes the "black box" mystique, showing how Exadata actually works

Coherent Optical Fiber Communications - T. Okoshi 1988-07-31

Fedora Linux - Chris Tyler 2006-10-17

"Neither a "Starting Linux" book nor a dry reference manual, this book has a lot to offer to those coming to Fedora from other operating systems or distros." -- Behdad Esfahbod, Fedora developer This book will get you up to speed quickly on Fedora Linux, a securely-designed Linux

distribution that includes a massive selection of free software packages. Fedora is hardened out-of-the-box, it's easy to install, and extensively customizable - and this book shows you how to make Fedora work for you. *Fedora Linux: A Complete Guide to Red Hat's Community Distribution* will take you deep into essential Fedora tasks and activities by presenting them in easy-to-learn modules. From installation and configuration through advanced topics such as administration, security, and virtualization, this book captures the important details of how Fedora Core works--without the fluff that bogs down other books and help/how-to web sites. Instead, you can learn from a concise task-based approach to using Fedora as both a desktop and server operating system. In this book, you'll learn how to: Install Fedora and perform basic administrative tasks Configure the KDE and GNOME desktops Get power management working on your notebook computer and hop on a wired or wireless network Find, install, and update any of the thousands of packages available for Fedora Perform backups, increase reliability with RAID, and manage your disks with logical volumes Set up a server with file sharing, DNS, DHCP, email, a Web server, and more Work with Fedora's security features including SELinux, PAM, and Access Control Lists (ACLs) Whether you are running the stable version of Fedora Core or bleeding-edge Rawhide releases, this book has something for every level of user. The modular, lab-based approach not only shows you how things work-but also explains why--and provides you with the answers you need to get up and running with Fedora Linux. Chris Tyler is a computer consultant and a professor of computer studies at Seneca College in Toronto, Canada where he teaches courses on Linux and X Window System Administration. He has worked on systems ranging from embedded data converters to Multics mainframes.

[Deploying ACI](#) - Frank Dagenhardt 2018-02-28

Use ACI fabrics to drive unprecedented value from your data center environment With the Cisco Application Centric Infrastructure (ACI) software-defined networking platform, you can achieve dramatic improvements in data center performance, redundancy, security, visibility, efficiency, and agility. In *Deploying ACI*, three leading Cisco

experts introduce this breakthrough platform, and walk network professionals through all facets of design, deployment, and operation. The authors demonstrate how ACI changes data center networking, security, and management; and offer multiple field-proven configurations. *Deploying ACI* is organized to follow the key decision points associated with implementing data center network fabrics. After a practical introduction to ACI concepts and design, the authors show how to bring your fabric online, integrate virtualization and external connections, and efficiently manage your ACI network. You'll master new techniques for improving visibility, control, and availability; managing multitenancy; and seamlessly inserting service devices into application data flows. The authors conclude with expert advice for troubleshooting and automation, helping you deliver data center services with unprecedented efficiency. Understand the problems ACI solves, and how it solves them Design your ACI fabric, build it, and interface with devices to bring it to life Integrate virtualization technologies with your ACI fabric Perform networking within an ACI fabric (and understand how ACI changes data center networking) Connect external networks and devices at Layer 2/Layer 3 levels Coherently manage unified ACI networks with tenants and application policies Migrate to granular policies based on applications and their functions Establish multitenancy, and evolve networking, security, and services to support it Integrate L4-7 services: device types, design scenarios, and implementation Use multisite designs to meet rigorous requirements for redundancy and business continuity Troubleshoot and monitor ACI fabrics Improve operational efficiency through automation and programmability

IBM z13 Technical Guide - Octavian Lascu 2016-11-11

Digital business has been driving the transformation of underlying IT infrastructure to be more efficient, secure, adaptive, and integrated. Information Technology (IT) must be able to handle the explosive growth of mobile clients and employees. IT also must be able to use enormous amounts of data to provide deep and real-time insights to help achieve the greatest business impact. This IBM® Redbooks® publication addresses the IBM Mainframe, the IBM z13™. The IBM z13 is the

trusted enterprise platform for integrating data, transactions, and insight. A data-centric infrastructure must always be available with a 99.999% or better availability, have flawless data integrity, and be secured from misuse. It needs to be an integrated infrastructure that can support new applications. It needs to have integrated capabilities that can provide new mobile capabilities with real-time analytics delivered by a secure cloud infrastructure. IBM z13 is designed with improved scalability, performance, security, resiliency, availability, and virtualization. The superscalar design allows the z13 to deliver a record level of capacity over the prior IBM z Systems™. In its maximum configuration, z13 is powered by up to 141 client characterizable microprocessors (cores) running at 5 GHz. This configuration can run more than 110,000 millions of instructions per second (MIPS) and up to 10 TB of client memory. The IBM z13 Model NE1 is estimated to provide up to 40% more total system capacity than the IBM zEnterprise® EC12 (zEC1) Model HA1. This book provides information about the IBM z13 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 IBM z Systems 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 z Systems technology and terminology.

Enterprise Networking - Vasilis Theoharakis 2002

Enterprise Networking: Multilayer Switching and Applications offers up to date information relevant for the design of modern corporate networks and for the evaluation of new networking equipment. The book describes the architectures, standards high-availability and network policies that are requirements of modern switched networks.

Optical Fiber Telecommunications VII - Alan Willner 2019-10-16

With optical fiber telecommunications firmly entrenched in the global information infrastructure, a key question for the future is how deeply will optical communications penetrate and complement other forms of communication (e.g., wireless access, on-premises networks,

interconnects, and satellites). Optical Fiber Telecommunications, the seventh edition of the classic series that has chronicled the progress in the research and development of lightwave communications since 1979, examines present and future opportunities by presenting the latest advances on key topics such as: Fiber and 5G-wireless access networks Inter- and intra-data center communications Free-space and quantum communication links Another key issue is the use of advanced photonics manufacturing and electronic signal processing to lower the cost of services and increase the system performance. To address this, the book covers: Foundry and software capabilities for widespread user access to photonic integrated circuits Nano- and microphotonic components Advanced and nonconventional data modulation formats The traditional emphasis of achieving higher data rates and longer transmission distances are also addressed through chapters on space-division-multiplexing, undersea cable systems, and efficient reconfigurable networking. This book is intended as an ideal reference suitable for university and industry researchers, graduate students, optical systems implementers, network operators, managers, and investors. Quotes: "This book series, which owes much of its distinguished history to the late Drs. Kaminow and Li, describes hot and growing applied topics, which include long-distance and wideband systems, data centers, 5G, wireless networks, foundry production of photonic integrated circuits, quantum communications, and AI/deep-learning. These subjects will be highly beneficial for industrial R&D engineers, university teachers and students, and funding agents in the business sector." Prof. Kenichi Iga President (Retired), Tokyo Institute of Technology "With the passing of two luminaries, Ivan Kaminow and Tingye Li, I feared the loss of one of the premier reference books in the field. Happily, this new version comes to chronicle the current state-of-the-art and is written by the next generation of leaders. This is a must-have reference book for anyone working in or trying to understand the field of optical fiber communications technology." Dr. Donald B. Keck Vice President, Corning, Inc. (Retired) "This book is the seventh edition in the definitive series that was previously marshaled by the extraordinary Ivan Kaminow

and Tingye Li, both sadly no longer with us. The series has charted the remarkable progress made in the field, and over a billion kilometers of optical fiber currently snake across the globe carrying ever-increasing Internet traffic. Anyone wondering about how we will cope with this incredible growth must read this book." Prof. Sir David Payne Director, Optoelectronics Research Centre, University of Southampton Updated edition presents the latest advances in optical fiber components, systems, subsystems and networks Written by leading authorities from academia and industry Gives a self-contained overview of specific technologies, covering both the state-of-the-art and future research challenges

Software Defined Data Center with Red Hat Cloud and Open Source IT Operations Management - Dino Quintero 2020-11-04

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.

Springer Handbook of Optical Networks - Biswanath Mukherjee 2020-10-15

This handbook is an authoritative, comprehensive reference on optical networks, the backbone of today's communication and information society. The book reviews the many underlying technologies that enable the global optical communications infrastructure, but also explains current research trends targeted towards continued capacity scaling and enhanced networking flexibility in support of an unabated traffic growth fueled by ever-emerging new applications. The book is divided into four parts: Optical Subsystems for Transmission and Switching, Core Networks, Datacenter and Super-Computer Networking, and Optical Access and Wireless Networks. Each chapter is written by world-renown experts that represent academia, industry, and international government and regulatory agencies. Every chapter provides a complete picture of its field, from entry-level information to a snapshot of the respective state-of-the-art technologies to emerging research trends, providing something useful for the novice who wants to get familiar with the field to the

expert who wants to get a concise view of future trends.

IBM Business Process Manager V8.5 Performance Tuning and Best Practices - Mike Collins 2015-02-24

This IBM® Redbooks® publication provides performance tuning tips and best practices for IBM Business Process Manager (IBM BPM) V8.5.5 (all editions) and IBM Business Monitor V8.5.5. These products represent an integrated development and runtime environment based on a key set of service-oriented architecture (SOA) and business process management (BPM) technologies. Such technologies include Service Component Architecture (SCA), Service Data Object (SDO), Business Process Execution Language (BPEL) for web services, and Business Processing Modeling Notation (BPMN). Both IBM Business Process Manager and Business Monitor build on the core capabilities of the IBM WebSphere® Application Server infrastructure. As a result, Business Process Manager solutions benefit from tuning, configuration, and best practices information for WebSphere Application Server and the corresponding platform Java virtual machines (JVMs). This book targets a wide variety of groups, both within IBM (development, services, technical sales, and others) and customers. For customers who are either considering or are in the early stages of implementing a solution incorporating Business Process Manager and Business Monitor, this document proves a useful reference. The book is useful both in terms of best practices during application development and deployment and as a reference for setup, tuning, and configuration information. This book talks about many issues that can influence performance of each product and can serve as a guide for making rational first choices in terms of configuration and performance settings. Similarly, customers who already implemented a solution with these products can use the information presented here to gain insight into how their overall integrated solution performance can be improved.

IBM z13s Technical Guide - Octavian Lascu 2016-11-10

Digital business has been driving the transformation of underlying information technology (IT) infrastructure to be more efficient, secure, adaptive, and integrated. IT must be able to handle the explosive growth

of mobile clients and employees. It also must be able to process enormous amounts of data to provide deep and real-time insights to help achieve the greatest business impact. This IBM® Redbooks® publication addresses the new IBM z Systems™ single frame, the IBM z13s server. IBM z Systems servers are the trusted enterprise platform for integrating data, transactions, and insight. A data-centric infrastructure must always be available with a 99.999% or better availability, have flawless data integrity, and be secured from misuse. It needs to be an integrated infrastructure that can support new applications. It also needs to have integrated capabilities that can provide new mobile capabilities with real-time analytics delivered by a secure cloud infrastructure. IBM z13s servers are designed with improved scalability, performance, security, resiliency, availability, and virtualization. The superscalar design allows z13s servers to deliver a record level of capacity over the prior single frame z Systems server. In its maximum configuration, the z13s server is powered by up to 20 client characterizable microprocessors (cores) running at 4.3 GHz. This configuration can run more than 18,000 millions of instructions per second (MIPS) and up to 4 TB of client memory. The IBM z13s Model N20 is estimated to provide up to 100% more total system capacity than the IBM zEnterprise® BC12 Model H13. This book provides information about the IBM z13s server 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 IBM z Systems™ 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 z Systems technology and terminology.

In Living Color - Rochelle A. Diamond 2012-12-06

A contribution towards making this increasingly valuable technology accessible to researchers, including the students, post-doctoral scholars, and technicians gathering the knowledge inherent in this integration between analysis and physical isolation/purification methodologies. A step-by-step approach to the methodology for measuring various

attributes demonstrated in the particular cells of interest is provided, as is a myriad of resources to fuel the curiosity and answer questions of both new and adept users. This book stems from the editors' experiences managing flow cytometry/cell sorting core facilities for the emerging researchers, in particular in developmental, cellular, and molecular biology.

Foundations of CentOS Linux - Chivas Sicam 2010-01-08

You need to maintain clients, servers and networks, while acquiring new skills. Foundations of CentOS Linux: Enterprise Linux On the Cheap covers a free, unencumbered Linux operating system within the Red Hat lineage, but it does not assume you have a Red Hat Enterprise Linux license. Now you can learn CentOS Linux, the most powerful and popular of all Red Hat clones, keep maintaining your network at work, and become an Red Hat Certified Engineer, all just for the cost of this book. Introduces CentOS Linux and Fedora clients as equals to Red Hat Enterprise Linux Sets up CentOS as a secure, high-performance web services back end Prepares you for the RHCE examination, but does not assume an RHEL installation

IBM PowerKVM: Configuration and Use - Scott Vetter 2016-05-31

This IBM® Redpaper Redbooks® publication presents the IBM PowerKVM virtualization for scale-out Linux systems, including the new LC IBM Power Systems™. PowerKVM is open source server virtualization that is based on the IBM POWER8® processor technology. It includes the Linux open source technology of KVM virtualization, and it complements the performance, scalability, and security qualities of Linux. This book describes the concepts of PowerKVM and how you can deploy your virtual machines with the software stack included in the product. It helps you install and configure PowerKVM on your Power Systems server and provides guidance for managing the supported virtualization features by using the web interface and command-line interface (CLI). This information is for professionals who want to acquire a better understanding of PowerKVM virtualization technology to optimize Linux workload consolidation and use the POWER8 processor features. The intended audience also includes people in these roles:

Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors Open source community IBM OpenPower partners It does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, along with existing sources, can be used to increase your knowledge of IBM virtualization solutions. Before you start reading, you must be familiar with the general concepts of kernel-based virtual machine (KVM), Linux, and IBM Power architecture. *IBM Power Systems LC921 and LC922: Technical Overview and Introduction* - Scott Vetter 2019-12-10

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power Systems™ LC921 and LC922 (9006-12P and 9006-22P) servers that use the current IBM POWER9™ processor-based technology and supports Linux operating systems (OSes). The objective of this paper is to introduce the offerings and their capacities and available features. These new Linux scale-out systems provide differentiated performance, scalability, and low acquisition cost, and include the following features: Superior throughput and performance for high-value Linux workloads. Low acquisition cost through system optimization (industry-standard memory and industry-standard three-year warranty). Rich I/O options in the system unit. There are 12 large form factor (LFF)/small form factor (SFF) bays for 12 SAS/SATA hard disk drives (HDDs) or solid-state drives (SSDs), and four bays that are available for Non-Volatile Memory Express (NVMe) Gen3 adapters. Includes Trusted Platform Module (TPM) 2.0 Nuvoton NPCT650ABAWX through I2C (for secure boot and trusted boot). Integrated MicroSemi PM8069 SAS/SATA 16-port Internal Storage Controller Peripheral Component Interconnect Express (PCIe) 3.0 x8 with RAID 0, 1, 5, and 10 support (no write cache). Integrated Intel XL710 Quad Port 10 GBase-T PCIe 3.0 x8 UIO built-in local area network (LAN) (one shared management port). Dedicated 1 Gb Intelligent Platform Management Interface (IPMI) port. This publication is for professionals who want to acquire a better understanding of IBM Power Systems products. The intended audience includes: Clients Sales and marketing professionals

Technical support professionals IBM Business Partners Independent software vendors (ISVs)

IBM z14 (3906) Technical Guide - Octavian Lascu 2018-12-17

This IBM® Redbooks® publication describes the new member of the IBM Z® family, IBM z14™. IBM z14 is the trusted enterprise platform for pervasive encryption, integrating data, transactions, and insights into the data. A data-centric infrastructure must always be available with a 99.999% or better availability, have flawless data integrity, and be secured from misuse. It also must be an integrated infrastructure that can support new applications. Finally, it must have integrated capabilities that can provide new mobile capabilities with real-time analytics that are delivered by a secure cloud infrastructure. IBM z14 servers are designed with improved scalability, performance, security, resiliency, availability, and virtualization. The superscalar design allows z14 servers to deliver a record level of capacity over the prior IBM Z platforms. In its maximum configuration, z14 is powered by up to 170 client characterizable microprocessors (cores) running at 5.2 GHz. This configuration can run more than 146,000 million instructions per second (MIPS) and up to 32 TB of client memory. The IBM z14 Model M05 is estimated to provide up to 35% more total system capacity than the IBM z13® Model NE1. This Redbooks publication provides information about IBM z14 and its functions, features, and associated software support. More information is offered in areas that are relevant to technical planning. It is intended for systems engineers, consultants, planners, and anyone who wants to understand the IBM Z servers functions and plan for their usage. It is intended as an introduction to mainframes. Readers are expected to be generally familiar with existing IBM Z technology and terminology.

Python Network Programming - Abhishek Ratan 2019-01-31

Power up your network applications with Python programming Key Features Master Python skills to develop powerful network applications Grasp the fundamentals and functionalities of SDN Design

multi-threaded, event-driven architectures for echo and chat servers
Book Description This Learning Path highlights major aspects of Python network programming such as writing simple networking clients, creating and deploying SDN and NFV systems, and extending your network with Mininet. You'll also learn how to automate legacy and the latest network devices. As you progress through the chapters, you'll use Python for DevOps and open source tools to test, secure, and analyze your network. Toward the end, you'll develop client-side applications, such as web API clients, email clients, SSH, and FTP, using socket programming. By the end of this Learning Path, you will have learned how to analyze a network's security vulnerabilities using advanced network packet capture and analysis techniques. This Learning Path includes content from the following Packt products: Practical Network Automation by Abhishek Ratan Mastering Python Networking by Eric Chou Python Network Programming Cookbook, Second Edition by Pradeeban Kathiravelu, Dr. M. O. Faruque Sarker What you will learn Create socket-based networks with asynchronous models Develop client apps for web APIs, including S3 Amazon and Twitter Talk to email and remote network servers with different protocols Integrate Python with Cisco, Juniper, and Arista eAPI for automation Use Telnet and SSH connections for remote system monitoring Interact with websites via XML-RPC, SOAP, and REST APIs Build networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Configure virtual networks in different deployment environments Who this book is for If you are a Python developer or a system administrator who wants to start network programming, this Learning Path gets you a step closer to your goal. IT professionals and DevOps engineers who are new to managing network devices or those with minimal experience looking to expand their knowledge and skills in Python will also find this Learning Path useful. Although prior knowledge of networking is not required, some experience in Python programming will be helpful for a better understanding of the concepts in the Learning Path.