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KEY=IBM - SIMS ALYSON

Implementing the IBM Storwize

IBM Redbooks Organizations of all sizes are faced with the challenge of managing massive volumes of increasingly valuable data. However, storing this data can be costly, and extracting value from the data is becoming more and more difficult. IT organizations have limited resources, but must stay responsive to dynamic environments and act quickly to consolidate, simplify, and optimize their IT infrastructures. The IBM® Storwize® V3700 system provides a solution that is affordable, easy to use, and self-optimizing, which enables organizations to overcome these storage challenges. Storwize V3700 delivers efficient, entry-level configurations that are specifically designed to meet the needs of small and midsize businesses. Designed to provide organizations with the ability to consolidate and share data at an affordable price, Storwize V3700 offers advanced software capabilities that are usually found in more expensive systems. Built on innovative IBM technology, Storwize V3700 addresses the block storage requirements of small and midsize organizations, Storwize V3700 is designed to accommodate the most common storage network technologies. This design enables easy implementation and management. Storwize V3700 includes the following features: Web-based GUI provides point-and-click management capabilities. Internal disk storage virtualization enables rapid, flexible provisioning and simple configuration changes. Thin provisioning enables applications to grow dynamically, but only use space they actually need. Enables simple data migration from external storage to Storwize V3700 storage (one-way from another storage device). Remote Mirror creates copies of data at remote locations for disaster recovery. IBM FlashCopy® creates instant application copies for backup or application testing. This IBM Redbooks® publication is intended for pre-sales and post-sales technical support professionals and storage administrators. The concepts in this book also relate to the IBM Storwize V3500. This book was written at a software level of version 7 release 4.

IBM Reference Configuration for VMware on System x with SmartCloud Entry

IBM Redbooks IBM® SmartCloud™ Entry provides a fully integrated software stack for transforming a virtualized environment to a cloud environment. The intuitive self-service portal allows users to get up and running quickly. Built-in workload metering and additional tools enable tight controls and planning. The IBM Reference Configuration for VMware on IBM System x® with SmartCloud Entry provides an affordable, easy to deploy, private cloud architecture with configurations based on leading-edge technology from IBM, VMware, and Juniper Networks. The reference configuration is for midsized companies that need simpler and affordable IT solutions, without compromising on functionality. IBM and VMware, world leaders in enterprise-class IT solutions, are now bringing IT solutions tailored to the midmarket. This IBM Redpaper™ publication provides setup, configuration, and deployment details for the reference configuration and is intended for IT professionals who are familiar with software and hardware setup and configuration.

IBM Power Systems SR-IOV: Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication describes the adapter-based virtualization capabilities that are being deployed in high-end IBM POWER7+™ processor-based servers. Peripheral Component Interconnect Express (PCIe) single root I/O virtualization (SR-IOV) is a virtualization technology on IBM Power Systems servers. SR-IOV allows multiple logical partitions (LPARs) to share a PCIe adapter with little or no run time involvement of a hypervisor or other virtualization intermediary. SR-IOV does not replace the existing virtualization capabilities that are offered as part of the IBM PowerVM® offerings. Rather, SR-IOV compliments them with additional capabilities. This paper describes many aspects of the SR-IOV technology, including: A comparison of SR-IOV with standard virtualization technology Overall benefits of SR-IOV Architectural overview of SR-IOV Planning requirements SR-IOV deployment models that use standard I/O virtualization Configuring the adapter for dedicated or shared modes Tips for maintaining and troubleshooting your system Scenarios for configuring your system This paper is directed to clients, IBM Business Partners, and system administrators who are involved with planning, deploying, configuring, and maintaining key virtualization technologies.

eScience on Distributed Computing Infrastructure

Achievements of PLGrid Plus Domain-Specific Services and Tools

Springer To help researchers from different areas of science understand and unlock the potential of the Polish Grid Infrastructure and to define their requirements and expectations, the following 13 pilot communities have been organized and involved in the PLGrid Plus project: Acoustics, AstroGrid-PL, Bioinformatics, Ecology, Energy Sector, Health Sciences, HEPGrid, Life Science, Materials, Metallurgy, Nanotechnologies, Quantum Chemistry and Molecular Physics, and SynchroGrid. The book describes the experience and scientific results achieved by the project partners. Chapters 1 to 8 provide a general overview of research and development activities in the framework of the project with emphasis on services for different scientific areas and an update on the status of the PL-Grid infrastructure, describing new developments in security and middleware. Chapters 9 to 13 discuss new environments and services which may be applied by all scientific communities. Chapters 14 to 36 present how the PLGrid Plus environments, tools and services are used in advanced domain specific computer simulations; these chapters present computational models, new algorithms, and ways in which they are implemented. The book also provides a glossary of terms and concepts. This book may serve as a resource for researchers, developers and system administrators working on efficient exploitation of available e-infrastructures, promoting collaboration and exchange of ideas in the process of constructing a common European e-infrastructure.

IBM SAN Volume Controller 2145-DH8 Introduction and Implementation

IBM Redbooks Data is the new currency of business, the most critical asset of the modern organization. In fact, enterprises that can gain business insights from their data are twice as likely to outperform their competitors; yet, 72 percent of them have not started or are only planning big data activities. In addition, organizations often spend too much money and time managing where their data is stored. The average firm purchases 24% more storage every year, but uses less than half of the capacity it already has. A member of the IBM® Storwize® family, IBM SAN Volume Controller (SVC) Data Platform is a storage virtualization system that enables a single point of control for storage resources to help support improved business

application availability and greater resource utilization. The objective is to manage storage resources in your IT infrastructure and to make sure they are used to the advantage of your business, and do it quickly, efficiently, and in real time, while avoiding increases in administrative costs. Virtualizing storage with SVC Data Platform helps make new and existing storage more effective. SVC Data Platform includes many functions traditionally deployed separately in disk systems. By including these in a virtualization system, SVC Data Platform standardizes functions across virtualized storage for greater flexibility and potentially lower costs. SVC Data Platform functions benefit all virtualized storage. For example, IBM Easy Tier® optimizes use of flash storage. And IBM Real-time Compression™ enhances efficiency even further by enabling the storage of up to five times as much active primary data in the same physical disk space. Finally, high-performance thin provisioning helps automate provisioning. These benefits can help extend the useful life of existing storage assets, reducing costs. Integrating these functions into SVC Data Platform also means that they are designed to operate smoothly together, reducing management effort. In this IBM Redbooks® publication, we discuss the latest features and functions of the SVC 2145-DH8 and software version 7.3, implementation, architectural improvements, and Easy Tier.

IBM Power 710 and 730 Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 710 (8231-E1D) and Power 730 (8231-E2D) servers that support IBM AIX®, IBM i, and Linux operating systems. This paper also describes the IBM PowerLinux™ 7R1 (8246-L1D and 8246-L1T) and the PowerLinux 7R2 (8246-L2D and 8246-L2T) servers that support the Linux operating system. The goal of this paper is to introduce the innovative Power 710, Power 730, PowerLinux 7R1, and PowerLinux offerings and their major functions: IBM POWER7+™ processor is available at frequencies of 3.6 GHz, 4.2 GHz, and 4.3 GHz. Larger IBM POWER7+ Level 3 cache provides greater bandwidth, capacity, and reliability. Integrated SAS/SATA controller for HDD, SSD, tape, and DVD supports built-in hardware RAID 0, 1, and 10. New IBM PowerVM® V2.2.2 features, such as 20 LPARs per core. Improved IBM Active Memory™ Expansion technology provides more usable memory than is physically installed in the system. Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper. 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 710 and Power 730 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

IBM ZPDT Guide and Reference

IBM Redbooks This IBM® Redbooks® publication provides both introductory information and technical details about the IBM System z® Personal Development Tool (IBM zPDT®), which produces a small System z environment suitable for application development. zPDT is a PC Linux application. When zPDT is installed (on Linux), normal System z operating systems (such as IBM z/OS®) can be run on it. zPDT provides the basic System z architecture and emulated IBM 3390 disk drives, 3270 interfaces, OSA interfaces, and so on. The systems that are discussed in this document are complex. They have elements of Linux (for the underlying PC machine), IBM z/Architecture® (for the core zPDT elements), System z I/O functions (for emulated I/O devices), z/OS (the most common System z operating system), and various applications and subsystems under z/OS. The reader is assumed to be familiar with general concepts and terminology of System z hardware and software elements, and with basic PC Linux characteristics. This book provides the primary documentation for zPDT.

IBM Power 750 and 760 Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 750 and Power 760 servers supporting IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the major innovative Power 750 and Power 760 offerings and their prominent functions: The IBM POWER7+™ processor is available at frequencies of 3.1 GHz, 3.4 GHz, 3.5 GHz, and 4.0 GHz. The larger IBM POWER7+ Level 3 cache provides greater bandwidth, capacity, and reliability. The newly introduced POWER7+ dual chip module (DCM). New 10GBase-T options for the Integrated Multifunction Card that provides two USB ports, one serial port, and four Ethernet connectors for a processor enclosure and does not require a PCI slot. New IBM PowerVM® V2.2.2 features, such as 20 LPARs per core. The improved IBM Active Memory™ Expansion technology provides more usable memory than is physically installed in the system. Professionals who want to acquire a better understanding of IBM Power Systems™ products should read this paper. This Redpaper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the 750 and 760 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, may be used to enhance your knowledge of IBM server solutions. For additional reading: A Technote is available that explains the performance architecture of this server. It is of interest to those migrating workloads from existing Power 750 servers. It can be found at: Architecture of the IBM POWER7+ Technology-Based IBM Power 750 and IBM Power 760 Technote

IBM Power System S822 Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power System S822 (8284-22A) server that supports the IBM AIX® and Linux operating systems (OSes) running on bare metal, and the IBM i OS running under the VIOS. The objective of this paper is to introduce the major innovative Power S822 offerings and their relevant functions: The new IBM POWER8™ processor, which is available at frequencies of 3.42 GHz, and 3.89 GHz Significantly strengthened cores and larger caches Two integrated memory controllers with improved latency and bandwidth Integrated I/O subsystem and hot-pluggable PCIe Gen3 I/O slots Improved reliability, serviceability, and availability (RAS) functions IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. 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 S822 system. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

IBM Power 720 and 740 Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 720 and Power 740 servers that support IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the innovative Power 720 and Power 740 offerings and their major functions: The IBM POWER7+™ processor is available at frequencies of 3.6 GHz, and 4.2 GHz. The larger IBM POWER7+ Level 3 cache provides greater bandwidth, capacity, and reliability. The 4-port 10/100/1000 Base-TX Ethernet PCI Express adapter is included in base configuration and installed in a PCIe Gen2 x4 slot. The integrated SAS/SATA controller for HDD, SSD, tape, and DVD supports built-in hardware RAID 0, 1, and 10. New IBM PowerVM® V2.2.2 features, such as 20 LPARs per core. The improved IBM Active Memory™ Expansion technology provides more usable memory than is physically installed in the system. High-performance SSD drawer. Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper. 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 720 and Power 740 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your

knowledge of IBM server solutions.

xREF: System x Reference

IBM Redbooks [Lenovo System x® and BladeCenter® servers and Lenovo Flex System™ compute nodes help to deliver a dynamic infrastructure that provides leadership quality and service that you can trust.](#) This document (simply known as xREF) is a quick reference guide to the specifications of the currently available models of each System x and BladeCenter server. Each page can be used in a stand-alone format and provides a dense and comprehensive summary of the features of that particular server model. Links to the related Product Guide are also provided for more information. An easy-to-remember link you can use to share this guide: <http://lenovopress.com/xref> Also available is xREF for Products Withdrawn Prior to 2012, a document that contains xREF sheets of System x, BladeCenter, and xSeries servers, and IntelliStation workstations that were withdrawn from marketing prior to 2012. Changes in the May 18 update: Added the Flex System Carrier-Grade Chassis See the Summary of changes in the document for a complete change history.

Storage and Network Convergence Using FCoE and iSCSI

IBM Redbooks [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.

IBM FlashSystem A9000R Product Guide (Version 12.3.1)

IBM Redbooks This IBM® Redbooks® Product Guide is an overview of the main characteristics, features, and technology that are used in IBM FlashSystem® A9000R Model 415 and Model 425, with IBM FlashSystem A9000R Software V12.3.1. IBM FlashSystem A9000R is a grid-scale, all-flash storage platform designed for industry leaders with rapidly growing cloud storage and mixed workload environments to help drive your business into the cognitive era. FlashSystem A9000R provides consistent, extreme performance for dynamic data at scale, integrating the microsecond latency and high availability of IBM FlashCore® technology. The rack-based offering comes integrated with the world class software features that are built with IBM Spectrum™ Accelerate. For example, comprehensive data reduction, including inline pattern removal, data deduplication, and compression, helps lower total cost of ownership (TCO) while the grid architecture and IBM Hyper-Scale framework simplify and automate storage administration. The A9000R features always on data reduction and now offers intelligent capacity management for deduplication. Ready for the cloud and well-suited for large deployments, FlashSystem A9000R delivers predictable high performance and ultra-low latency, even under heavy workloads with full data reduction enabled. As a result, the grid-scale architecture maintains this performance by automatically self-optimizing workloads across all storage resources without manual intervention.

POWER7 and POWER7+ Optimization and Tuning Guide

IBM Redbooks This IBM® Redbooks® publication provides advice and technical information about optimizing and tuning application code to run on systems that are based on the IBM POWER7® and POWER7+™ processors. This advice is drawn from application optimization efforts across many different types of code that runs under the IBM AIX® and Linux operating systems, focusing on the more pervasive performance opportunities that are identified, and how to capitalize on them. The technical information was developed by a set of domain experts at IBM. The focus of this book is to gather the right technical information, and lay out simple guidance for optimizing code performance on the IBM POWER7 and POWER7+ systems that run the AIX or Linux operating systems. This book contains a large amount of straightforward performance optimization that can be performed with minimal effort and without previous experience or in-depth knowledge. This optimization work can: Improve the performance of the application that is being optimized for the POWER7 system Carry over improvements to systems that are based on related processor chips Improve performance on other platforms The audience of this book is those

personnel who are responsible for performing migration and implementation activities on IBM POWER7-based servers, which includes system administrators, system architects, network administrators, information architects, and database administrators (DBAs).

IBM z13 Configuration Setup

IBM Redbooks This IBM® Redbooks® publication helps you install, configure, and maintain the IBM z13™. The z13 offers new functions that require a comprehensive understanding of the available configuration options. This book presents configuration setup scenarios, and describes implementation examples in detail. This publication is intended for systems engineers, hardware planners, and anyone who needs to understand IBM z Systems™ configuration and implementation. Readers should be generally familiar with current IBM z Systems technology and terminology. For details about the functions of the z13, see IBM z13 Technical Introduction, SG24-8250 and IBM z13 Technical Guide, SG24-8251.

IBM Technical Computing Clouds

IBM Redbooks This IBM® Redbooks® publication highlights IBM Technical Computing as a flexible infrastructure for clients looking to reduce capital and operational expenditures, optimize energy usage, or re-use the infrastructure. This book strengthens IBM SmartCloud® solutions, in particular IBM Technical Computing clouds, with a well-defined and documented deployment model within an IBM System x® or an IBM Flex System™. This provides clients with a cost-effective, highly scalable, robust solution with a planned foundation for scaling, capacity, resilience, optimization, automation, and monitoring. This book is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) responsible for providing cloud-computing solutions and support.

IBM Power System E850 Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power System E850 (8408-E8E) server that supports IBM AIX®, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E850 offerings and their relevant functions: The new IBM POWER8™ processor, available at frequencies of 3.02 GHz, 3.35 GHz, and 3.72 GHz Significantly strengthened cores and larger caches Two integrated memory controllers with improved latency and bandwidth Integrated I/O subsystem and hot-pluggable PCIe Gen3 I/O slots I/O drawer expansion options offer greater flexibility Improved reliability, serviceability, and availability (RAS) functions IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement 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
 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 E850 system. This paper does not replace the latest marketing materials and
 configuration tools. It is intended as an additional source of information that,
 together with existing sources, can be used to enhance your knowledge of IBM
 server solutions.

IBM FlashSystem A9000 Product Guide (Version 12.3.1)

IBM Redbooks This IBM® Redbooks® Product Guide is an overview of the main
 characteristics, features, and technology that are used in IBM FlashSystem®
 A9000 Model 425, with IBM FlashSystem A9000 Software V12.3.1. IBM FlashSystem
 A9000 storage system uses the IBM FlashCore® technology to help realize higher
 capacity and improved response times over disk-based systems and other
 competing flash and solid-state drive (SSD)-based storage. The extreme
 performance of IBM FlashCore technology with a grid architecture and
 comprehensive data reduction creates one powerful solution. Whether you are a
 service provider who requires highly efficient management or an enterprise that is
 implementing cloud on a budget, FlashSystem A9000 provides consistent and
 predictable microsecond response times and the simplicity that you need. The A9000
 features always on data reduction and now offers intelligent capacity management
 for deduplication. As a cloud optimized solution, FlashSystem A9000 suits the
 requirements of public and private cloud providers who require features, such as
 inline data deduplication, multi-tenancy, and quality of service. It also uses powerful
 software-defined storage capabilities from IBM Spectrum™ Accelerate, such as
 Hyper-Scale technology, VMware, and storage container integration.

Implementing IBM InfoSphere BigInsights on IBM System x

IBM Redbooks As world activities become more integrated, the rate of data growth
 has been increasing exponentially. And as a result of this data explosion, current
 data management methods can become inadequate. People are using the term big
 data (sometimes referred to as Big Data) to describe this latest industry trend. IBM®
 is preparing the next generation of technology to meet these data management
 challenges. To provide the capability of incorporating big data sources and analytics
 of these sources, IBM developed a stream-computing product that is based on the
 open source computing framework Apache Hadoop. Each product in the framework
 provides unique capabilities to the data management environment, and further
 enhances the value of your data warehouse investment. In this IBM Redbooks®

publication, we describe the need for big data in an organization. We then introduce IBM InfoSphere® BigInsights™ and explain how it differs from standard Hadoop. BigInsights provides a packaged Hadoop distribution, a greatly simplified installation of Hadoop and corresponding open source tools for application development, data movement, and cluster management. BigInsights also brings more options for data security, and as a component of the IBM big data platform, it provides potential integration points with the other components of the platform. A new chapter has been added to this edition. Chapter 11 describes IBM Platform Symphony®, which is a new scheduling product that works with IBM Insights, bringing low-latency scheduling and multi-tenancy to IBM InfoSphere BigInsights. The book is designed for clients, consultants, and other technical professionals.

IBM Software Defined Environment

IBM Redbooks This IBM® Redbooks® publication introduces the IBM Software Defined Environment (SDE) solution, which helps to optimize the entire computing infrastructure--compute, storage, and network resources--so that it can adapt to the type of work required. In today's environment, resources are assigned manually to workloads, but that happens automatically in a SDE. In an SDE, workloads are dynamically assigned to IT resources based on application characteristics, best-available resources, and service level policies so that they deliver continuous, dynamic optimization and reconfiguration to address infrastructure issues. Underlying all of this are policy-based compliance checks and updates in a centrally managed environment. Readers get a broad introduction to the new architecture. Think integration, automation, and optimization. Those are enablers of cloud delivery and analytics. SDE can accelerate business success by matching workloads and resources so that you have a responsive, adaptive environment. With the IBM Software Defined Environment, infrastructure is fully programmable to rapidly deploy workloads on optimal resources and to instantly respond to changing business demands. This information is intended for IBM sales representatives, IBM software architects, IBM Systems Technology Group brand specialists, distributors, resellers, and anyone who is developing or implementing SDE.

IBM SAN Volume Controller Best Practices and Performance Guidelines

IBM Redbooks This IBM® Redbooks® publication describes several of the preferred practices and describes the performance gains that can be achieved by implementing the IBM SAN Volume Controller powered by IBM Spectrum® Virtualize V8.4. These practices are based on field experience. This book highlights configuration guidelines and preferred practices for the storage area network (SAN) topology, clustered system, back-end storage, storage pools, and managed disks,

volumes, Remote Copy services, and hosts. Then, it provides performance guidelines for IBM SAN Volume Controller, back-end storage, and applications. It explains how you can optimize disk performance with the IBM System Storage Easy Tier® function. It also provides preferred practices for monitoring, maintaining, and troubleshooting IBM SAN Volume Controller. This book is intended for experienced storage, SAN, and IBM SAN Volume Controller administrators and technicians. Understanding this book requires advanced knowledge of the IBM SAN Volume Controller, IBM FlashSystem, and SAN environments.

IBM High Performance Computing Cluster Health Check

IBM Redbooks This IBM® Redbooks® publication provides information about aspects of performing infrastructure health checks, such as checking the configuration and verifying the functionality of the common subsystems (nodes or servers, switch fabric, parallel file system, job management, problem areas, and so on). This IBM Redbooks publication documents how to monitor the overall health check of the cluster infrastructure, to deliver technical computing clients cost-effective, highly scalable, and robust solutions. This IBM Redbooks publication is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) responsible for delivering cost-effective Technical Computing and IBM High Performance Computing (HPC) solutions to optimize business results, product development, and scientific discoveries. This book provides a broad understanding of a new architecture.

IBM System Storage DS3500 Introduction and Implementation Guide

Proceedings of the Fourth International Conference in Ocean Engineering (ICOE2018)

Volume 1

Springer This book comprises selected proceedings of the Fourth International Conference in Ocean Engineering (ICOE2018), focusing on emerging opportunities and challenges in the field of ocean engineering and offshore structures. It includes

state-of-the-art content from leading international experts, making it a valuable resource for researchers and practicing engineers alike.

The Palgrave Handbook of Sustainability

Case Studies and Practical Solutions

Springer This book provides a comprehensive overview of the practice of sustainability through a diverse range of case studies spanning across varied fields and areas of expertise. It provides a clear indication as to the contemporary state of sustainability in a time faced by issues such as global climate change, challenges of environmental justice, economic globalization and environmental contamination. The Palgrave Handbook of Sustainability explores three broad themes: Environmental Sustainability, Social Sustainability and Economic Sustainability. The authors critically explore these themes and provide insight into their linkages with one another to demonstrate the substantial efforts currently underway to address the sustainability of our planet. This handbook is an important contribution to the best practises on sustainability, drawn from many different examples across the fields of engineering, geology, anthropology, sociology, biology, chemistry and religion.

Implementing the IBM System Storage SAN Volume Controller with IBM Spectrum Virtualize V8.2.1

IBM Redbooks This IBM® Redbooks® publication is a detailed technical guide to the IBM System Storage® SAN Volume Controller (SVC), which is powered by IBM Spectrum™ Virtualize V8.2.1. IBM SAN Volume Controller is a virtualization appliance solution that maps virtualized volumes that are visible to hosts and applications to physical volumes on storage devices. Each server within the storage area network (SAN) has its own set of virtual storage addresses that are mapped to physical addresses. If the physical addresses change, the server continues running by using the same virtual addresses that it had before. Therefore, volumes or storage can be added or moved while the server is still running. The IBM virtualization technology improves the management of information at the block level in a network, which enables applications and servers to share storage devices on a network.

IBM Power System S824L Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power System S824L (8247-42L) server that supports the Linux operating systems. The objective of this paper is to introduce the major innovative Power S824L offerings and their relevant functions: The new IBM POWER8™ processor, which is available at frequencies of 3.02 GHz and 3.42 GHz A processor that is designed to accommodate high-wattage adapters, such as NVIDIA graphics processing units (GPUs), that provide acceleration for scientific, engineering, Java, big data analytics, and other technical computing workloads Based on OpenPOWER technologies Two integrated memory controllers with improved latency and bandwidth Improved reliability, serviceability, and availability (RAS) functions IBM EnergyScale™ technology that provides features, such as power trending, power-saving, power capping, and thermal measurement This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. 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 S824L server. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

IBM Systems Director Management Console: Introduction and Overview

IBM Redbooks This IBM® Redbooks® publication positions the IBM Systems Director Management Console (SDMC) against the IBM Hardware Management Console (HMC). The IBM Systems Director Management Console provides system administrators the ability to manage IBM Power System® servers as well as IBM Power Blade servers. It is based on IBM Systems Director. This publication is designed for system administrators to use as a deskside reference when managing Virtual Servers (formerly partitions) using the SDMC. The major functions that the SDMC provides are server hardware management and virtualization management.

Installing Linux for z Systems on zPDT: A Short Cookbook

IBM Redbooks This IBM® Redbooks® publication describes the basic installation processes of Linux for z Systems™ on an IBM zPDT® base. It is intended for readers who are not familiar with IBM z Systems or with the zPDT product. This book assume

the reader is familiar with Linux on Intel-compatible platforms. This book provides basic introductions to necessary z Systems and zPDT topics, and proceeds in a cookbook manner. This book is not intended for readers who are already familiar with these topics.

Introduction and Implementation of Data Reduction Pools and Deduplication

IBM Redbooks 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.

IBM PowerVM Virtualization Introduction and Configuration

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

Implementing the IBM System Storage SAN Volume Controller with

IBM Spectrum Virtualize Version 8.4

IBM Redbooks Continuing its commitment to developing and delivering industry-leading storage technologies, IBM® introduces the IBM FlashSystem® solution that is powered by IBM Spectrum® Virtualize V8.4. This innovative storage offering delivers essential storage efficiency technologies and exceptional ease of use and performance, all integrated into a compact, modular design that is offered at a competitive, midrange price. The solution incorporates some of the top IBM technologies that are typically found only in enterprise-class storage systems, which raises the standard for storage efficiency in midrange disk systems. This cutting-edge storage system extends the comprehensive storage portfolio from IBM and can help change the way organizations address the ongoing information explosion. This IBM Redbooks® publication introduces the features and functions of an IBM Spectrum Virtualize V8.4 system through several examples. This book is aimed at pre-sales and post-sales technical support and marketing and storage administrators. It helps you understand the architecture, how to implement it, and how to take advantage of its industry-leading functions and features.

IBM Real-time Compression in IBM SAN Volume Controller and IBM Storwize

IBM Redbooks IBM® Real-time Compression™ software that is embedded in IBM SAN Volume Controller (SVC) and IBM Storwize® V7000 solution addresses all the requirements of primary storage data reduction, including performance, by using a purpose-built technology called . This IBM Redpaper™ publication addresses the key requirements for primary storage data reduction and gives real world examples of savings that can be made by using compression. SVC and Storwize V7000 is designed to improve storage efficiency by compressing data by as much as 80% through supported real-time compression for block storage. This process enables up to five times as much data to be stored in the same physical disk space. Unlike other approaches to compression, IBM Real-time Compression is used with active primary data, such as production databases and email systems. This configuration dramatically expands the range of candidate data that can benefit from compression. As its name implies, IBM Real-time Compression operates as data is written to disk, avoiding the need to store data that is awaiting compression.

Echinoderms

Academic Press Echinoderms, Volume 151, the latest release in the Methods in Cell Biology series, highlights advances in the field, with this update presenting chapters on Echinoderm Genome Databases, analysis of gene regulatory networks, using ATAC-seq and RNA-seq to increase resolution in GRN connectivity, multiplex cis-

regulatory analysis, experimental approaches GRN/signal pathways, BACs, analysis of chromatin accessibility using ATAC-seq, analysis of sea urchin proteins /Click IT, CRISPR/Cas9-mediated genome editing in sea urchins, super-resolution and in toto imaging of echinoderm embryos, and methods for analysis of intracellular ion signals in sperm, eggs and embryos. Presents clear, concise protocols provided by experts who have established the echinoderms as a model systems Highlights new advances in the field, with this update presenting interesting chapters on echinoderms

IBM FlashSystem A9000 and A9000R Business Continuity Solutions

IBM Redbooks This edition applies to FlashSystem A9000 and A9000R, Model 415 and 425, with system software Version 12.3 IBM® FlashSystem A9000 and IBM FlashSystem® A9000R provide copy functions suited for various data protection scenarios that enable you to enhance your business continuance, disaster recovery, data migration, and backup solutions. These functions allow point-in-time copies, known as snapshots, and also include remote copy capabilities in either synchronous or asynchronous mode. Furthermore, support for IBM Hyper-Scale Mobility enables a seamless migration of IBM FlashSystem A9000 or A9000R volumes to another with no interference to the host. Starting with software level V12.1, the IBM HyperSwap® feature delivers always-on, high availability (HA) storage service for storage volumes in a production environment. Starting with version 12.2, asynchronous replication between the IBM XIV® Gen3 and FlashSystem A9000 or A9000R is supported. Starting with Version 12.2.1, Hyper-Scale Mobility is enabled between XIV Gen3 and FlashSystem A9000 or A9000R. Version 12.3 offers Multi-site replication solution that entails both High Availability (HA) and Disaster Recovery (DR)function by combining HyperSwap and Asynchronous replication to a third site. This IBM Redpaper™ publication is intended for anyone who needs a detailed and practical understanding of the IBM FlashSystem A9000 and IBM FlashSystem A9000R replication and business continuity functions.

IBM zEnterprise EC12 Configuration Setup

IBM Redbooks This IBM® Redbooks® publication helps you install, configure, and maintain the IBM zEnterprise EC12 server. The zEC12 offers new functions that require a comprehensive understanding of the available configuration options. This book presents configuration setup scenarios, and describes implementation examples in detail. This book is intended for systems engineers, hardware planners, and anyone who needs to understand IBM System z® configuration and implementation. Readers should be generally familiar with current IBM System z

technology and terminology. For details about the zEC12 server, see [IBM zEnterprise EC12 Technical Introduction, SG24-8050](#), and [IBM zEnterprise EC12 Technical Guide, SG24-8049](#).

IBM Power 770 and 780 Technical Overview and Introduction

IBM Redbooks This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 770 (9117-MMD) and Power 780 (9179-MHD) servers that support IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the major innovative Power 770 and 780 offerings and their prominent functions: The IBM POWER7+™ processor, available at frequencies of 3.8 GHz and 4.2 GHz for the Power 770 and 3.7 GHz and 4.4 GHz for the Power 780 The specialized IBM POWER7+ Level 3 cache that provides greater bandwidth, capacity, and reliability The 1 Gb or 10 Gb Integrated Multifunction Card that provides two USB ports, one serial port, and four Ethernet connectors for a processor enclosure and does not require a PCI slot The Active Memory™ Mirroring (AMM) for Hypervisor feature that mirrors the main memory used by the firmware IBM PowerVM® virtualization, including PowerVM Live Partition Mobility and PowerVM Active Memory Sharing Active Memory Expansion that provides more usable memory than what is physically installed on the system IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement Enterprise-ready reliability, serviceability, and availability Dynamic Platform Optimizer High-performance SSD drawer Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper.

The Docker Book Containerization Is the New Virtualization

James Turnbull Updated for Docker Community Edition v18.09! Docker book designed for SysAdmins, SREs, Operations staff, Developers and DevOps who are interested in deploying the open source container service Docker. In this book, we'll walk you through installing, deploying, managing, and extending Docker. We're going to do that by first introducing you to the basics of Docker and its components. Then we'll start to use Docker to build containers and services to perform a variety of tasks. We're going to take you through the development lifecycle, from testing to production, and see where Docker fits in and how it can make your life easier. We'll make use of Docker to build test environments for new projects, demonstrate how to integrate Docker with continuous integration workflow, and then how to build application services and platforms. Finally, we'll show you how to use Docker's API

and how to extend Docker yourself. We'll teach you how to: * Install Docker. * Take your first steps with a Docker container. * Build Docker images. * Manage and share Docker images. * Run and manage more complex Docker containers. * Deploy Docker containers as part of your testing pipeline. * Build multi-container applications and environments. * Learn about orchestration using Compose and Swarm for the orchestration of Docker containers and Consul for service discovery. * Explore the Docker API. * Getting Help and Extending Docker.

zPDT Sysplex Extensions - 2020

IBM Redbooks This IBM® Redbooks® publication describes the IBM System z® Personal Development Tool (IBM zPDT®) Sysplex Extensions 2020, which is a package that consists of sample files and supporting documentation to help you get a functioning, data sharing sysplex up and running with minimal time and effort. This book is a significant revision of zPDT 2017 Sysplex Extensions, SG24-8386. This package is designed and tested to be installed on top of a standard Application Developer Controlled Distribution (ADCD) environment. It provides the extra files that you need to create a two-way data sharing IBM z/OS® 2.4 sysplex that runs under IBM z/VM® in a zPDT environment. This package differs from the zPDT sysplex package delivered in IBM zPDT Guide and Reference System z Personal Development Tool, SG24-8205, in that it provides working examples of more sysplex exploiters. It also is designed to adhere to IBM's sysplex best practice recommendations, in as far as is possible in a zPDT environment. Although the package was not tested with IBM Z® Development and Test Environment (previously known as RD&T), it may be used to reduce the effort to create a fully functional sysplex under zD&T. Conceptually, the package might also be restored and used as a template to create a sysplex environment that is running on a real IBM Z CPC. The target audience for this document is system programmers who are responsible for designing, creating, and maintaining IBM Parallel Sysplex® environments. It can also be beneficial to developers who currently maintain their own ADCD environments and want to extend them to add sysplex functions.

IBM z13 Technical Guide

IBM Redbooks 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.