

Ibm Systems Director 63 User Guide

This IBM® Redbooks® publication represents a compilation of best practices for deploying and configuring the IBM System Storage® DS5000 Series family of products. This book is intended for IBM technical professionals, Business Partners, and customers responsible for the planning, deployment, and maintenance of the IBM System Storage DS5000 Series family of products. We realize that setting up DS5000 Storage Servers can be a complex task. There is no single configuration that will be satisfactory for every application or situation. First, we provide a conceptual framework for understanding the hardware in a Storage Area Network. Then, we offer our guidelines, hints, and tips for the physical installation, cabling, and zoning, using the Storage Manager setup tasks. Next, we provide a quick guide to help you install and configure the DS5000 using best practices. After that, we turn our attention to the performance and tuning of various components and features, including numerous guidelines. We look at performance implications for various application products such as IBM DB2®, Oracle, IBM Tivoli® Storage Manager, Microsoft SQL server, and in particular, Microsoft Exchange server. Then we review the various tools available to simulate workloads and to measure, collect, and analyze performance data. We also consider the IBM AIX® environment, including IBM High Availability Cluster Multiprocessing (HACMP™) and IBM General Parallel File System (GPFS™). This edition of the book also includes

guidelines for managing and using the DS5000 with the IBM System Storage SAN Volume Controller (SVC) and IBM Storwize® V7000.

For more than 40 years, Computerworld has been the leading source of technology news and information for IT influencers worldwide. Computerworld's award-winning Web site (Computerworld.com), twice-monthly publication, focused conference series and custom research form the hub of the world's largest global IT media network.

IBM®, as a result of its recent product introduction of the IBM System Storage™ N series, has become more tightly integrated with network-attached storage (NAS), exploiting the backup and recovery features of the N series and Network Appliance™ storage systems. This IBM Redbooks® publication provides detailed descriptions and setup instructions, practical examples, and best practices for backing up the IBM System Storage N series using the IBM Tivoli® Storage Manager. This book includes descriptions and instructions for using the latest enhancements made to IBM Tivoli Storage Manager, specifically for the IBM System Storage N series and Network Appliance storage systems. You will learn how to configure and set up the IBM System Storage N series and IBM Tivoli Storage Manager Version 5.3 and 6.1 using NDMP backup and restore functions. We address the following topics: -- Configuring the N series for Network Data Management Protocol (NDMP) usage -- Using the IBM Tivoli Storage Manager software -- Backing up qtrees -- Single folder backup -- Single file/folder restore -- Restoring using

NDMP via GUI and command-line interface -- Restoring from NDMP backup to an alternative site/location on N series systems -- Integrating with Snapshot technology and SnapVault -- Using SnapShot differencing -- Using SnapMirror® to Tape

The rapid spread and adoption of production storage area networks (SANs) has fueled the need for multiprotocol routers. The routers provide improved scalability, security, and manageability by enabling devices in separate SAN fabrics to communicate without merging fabrics into a single, large SAN fabric. This capability enables clients to initially deploy separate SAN solutions at the departmental and data center levels. Then, clients can consolidate these separate solutions into large enterprise SAN solutions as their experience and requirements grow and change. Alternatively, multiprotocol routers can help to connect existing enterprise SANs for a variety of reasons. For instance, the introduction of Small Computer System Interface over IP (iSCSI) provides for the connection of low-end, low-cost hosts to enterprise SANs. The use of an Internet Protocol (IP) in the Fibre Channel (FC) environment provides for resource consolidation and disaster recovery planning over long distances. And the use of FC-FC routing services provides connectivity between two or more fabrics without having to merge them into a single SAN. This IBM® Redbooks® publication targets storage network administrators, system designers, architects, and IT professionals who sell, design, or administer SANs. It introduces you to products, concepts, and technology in the IBM System

Storage™ SAN Routing portfolio, which is based on Brocade products and technology. This book shows the features of these products and examples of how you can deploy and use them.

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.

Logical Partitioning (LPAR) provides the significant capability to run multiple operating systems, each a partition on the same physical processor, memory, and I/O attachment configuration. LPAR is often discussed along with the concept of server consolidation. LPAR enables management across a single set of hardware and, when configured and managed correctly, can maximize efficient use of hardware resources all in a single place, often using resources in one partition when not needed by another partition. By its nature, LPAR is powerful, but, as the number and complexity of applications being run in each partition increases, can become complex to configure and to achieve anticipated performance expectations. This IBM Redbooks publication describes and provides examples of using

the 2007 enhancements to the system planning and deployment tools and processes for planning, ordering, and deploying a partitioned environment on IBM System i and IBM System p configurations. The objective is to help you order and IBM deliver a hardware configuration and get that configuration up and running your planned partition configurations with good performance in as short a time as possible. This book and the tools and processes involved represent the next step in expediting this entire process, while still requiring sound knowledge of IBM System i and System p hardware processor and I/O capabilities for success.

IBM® invented the virtualization technology starting in the 1960s on the mainframe, and the functionalities evolved and were ported to other platforms and improved the reliability, availability, and serviceability (RAS) features. With virtualization, you achieve better asset utilization, reduced operating costs, and faster responsiveness to changing business demands. Every technology vendor in the SAP ecosystem understands virtualization as slightly different capabilities on different levels (storage and server hardware, processor, memory, I/O resources or the application, and so on). It is important to understand exactly what functionality is offered and how it supports the client's business requirements. In this IBM Redbooks® publication we focus on server virtualization technologies in the IBM Power Systems™ hardware, AIX®, IBM i, and Linux space and what they mean specifically for SAP applications running on this platform. SAP clients can leverage the technology that the IBM Power Systems

platform offers. In this book, we describe the technologies and functions, what they mean, and how they apply to the SAP system landscape.

IBM® PowerHATM for i (formerly known as HASM) is the IBM high availability disk-based clustering solution for the IBM i 6.1 operating system. PowerHA for i when combined with IBM i clustering technology delivers a complete high availability and disaster recovery solution for your business applications running in the IBM System i® environment. PowerHA for i enables you to support high-availability capabilities with either native disk storage or IBM DS8000™ or DS6000™ storage servers. This IBM Redbooks® publication gives a broad understanding of PowerHA for i. This book is divided in four major parts: Part 1, "Introduction and Background" on page 1, provides a general introduction to clustering technology and some background. Part 2, "PowerHA for i setup and user interfaces" on page 69, describes and explains the different interfaces that PowerHA for i has. It also describes the migration process to this product and some sizing guidelines. Part 3, "Implementation examples using PowerHA for i" on page 319, explains how to use PowerHA for i with three major ERP solutions, such as SAP®, Lawson M3, and Oracle® JD Edwards®. Part 4, "Other IBM i 6.1 high availability enhancements" on page 349, explains additional IBM i 6.1 announced enhancements in high availability. This IBM® Redbooks® publication discusses the concepts and implementation of PowerVMTM and the WebSphere® CloudBurst™ appliance. This book is aimed at administrators and developers who have little

knowledge of PowerVM, but in-depth knowledge of WebSphere software. Cloud computing is the pooling of computing resources to provide a single source of computing power to multiple users. A cloud manager provides a self-service portal that maintains permissions and information about cloud objects such as virtual images, patterns, and resources. The WebSphere CloudBurst Appliance represents a cloud manager. It is a secure hardware appliance that optimizes the configuration, deployment, and management of WebSphere Application Server environments in a cloud. It can also be used by service providers providing hosted public clouds and software-as-a-service environments to simplify and standardize repeated deployments of their software. This book includes an introduction to cloud computing and how the WebSphere CloudBurst appliance fits into business today. It presents the features and benefits of using the WebSphere CloudBurst Appliance and the advantages of using PowerVM. It provides the steps required to implement WebSphere CloudBurst appliance with PowerVM. This IBM® Redbooks® publication presents a general introduction to the latest (current) IBM tape and tape library technologies. Featured tape technologies include the IBM LTO Ultrium and Enterprise 3592 tape drives, and their implementation in IBM tape libraries. This 17th edition includes information about the latest TS4300 Ultrium tape library, TS1155 Enterprise tape drive, and the IBM Linear Tape-Open (LTO) Ultrium 8 tape drive, along with technical information about each IBM tape product for open systems. It includes generalized

sections about Small Computer System Interface (SCSI) and Fibre Channel connections, and multipath architecture configurations. This book also covers tools and techniques for library management. It is intended for anyone who wants to understand more about IBM tape products and their implementation. It is suitable for IBM clients, IBM Business Partners, IBM specialist sales representatives, and technical specialists. If you do not have a background in computer tape storage products, you might need to read other sources of information. In the interest of being concise, topics that are generally understood are not covered in detail.

In this IBM® Redbooks® publication we discuss IBM Systems Director Navigator for i, which is a Web console interface for IBM i administration where you can work with the Web-enabled tasks of System i® Navigator. IBM Systems Director Navigator for i includes a number of welcome pages that allow you to quickly find the task that you want to perform. The IBM Systems Director Navigator for i interface is not just a set of URL addressable tasks, but is a robust Web console from which you can manage your IBM i system. However, the System i Navigator Tasks on the Web, which are a set of URL-addressable tasks, can be accessed by using the URL or from within the IBM Systems Director Navigator for i interface. The information in this book is intended to help you start using the Web-based console, IBM Systems Director Navigator for i, by providing you with a look at the new interface as well as tips for working with various parts of the new console.

Managing IT systems is difficult. Virtualization brings

numerous benefits to the datacenter and system administrators. However, it also creates a new set of choices. More choice implies more decisions, and thus an increased management responsibility. Furthermore, the move toward cloud computing, with a service-based acquisition and delivery model, requires that datacenter managers take a holistic view of the resources that they manage and the actors that access the data center. IBM® Service Delivery Manager addresses this problem domain. Delivered as a set of appliances, it automates provisioning, deprovisioning, metering, and management of an IT platform, and the services it provides. It addresses the needs of both IT management and service users. This IBM Redbooks® publication is intended for technical professionals who want to understand and deploy IBM ISDM Cloud on a Power platform. This IBM® Redbooks® publication explains how to configure and manage independent disk pool (IASP) functionality of IBM i 6.1. It is designed to help IBM technical professionals, business partners, and customers understand and implement independent disk pools in the IBM i 6.1. In addition, this publication provides the background information that is necessary to plan, implement, and customize this functionality to your particular environment. It provides guidance on running user applications with either application data or most application objects residing in an independent disk pool. Considering that you can also use independent disk pools in a cluster environment, this publication shows you the basic steps to make your independent disk pool switchable between two Power Systems™ servers or a

single server with multiple LPARs. Independent auxiliary storage pools have many business and technical advantages for Power Systems using IBM i. Not only are independent auxiliary storage pools (IASPs) easy to create and maintain, most applications can use them by simple work management changes. IASPs can provide immediate benefits to your enterprise.

This IBM Redpaper publication is a comprehensive guide covering the IBM Power 520 server, machine type model 8203-E4A. The goal of this paper is to introduce this innovative server that includes IBM System i and IBM System p and new hardware technologies. The major hardware offerings include:

- The POWER6 processor, available at frequencies of 4.2 GHz and 4.7 GHz.
- Specialized POWER6 DDR2 memory that provides greater bandwidth, capacity, and reliability.
- The 1 Gb or 10 Gb Integrated Virtual Ethernet adapter that brings native hardware virtualization to this server.
- EnergyScale technology that provides features such as power trending, power-saving, capping of power, and thermal measurement.
- PowerVM virtualization technology.
- Mainframe continuous availability brought to the entry server environment.

This Redpaper expands the current set of IBM Power System documentation by providing a desktop reference that offers a detailed technical description of the Power 520 system. This Redpaper does not replace the latest marketing materials and 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.

As we move towards becoming a smarter planet and the world becomes more instrumented, interconnected, and intelligent, the demands for data center resources are increasing rapidly. Smaller and more densely packed servers providing greater amounts of computing power can substantially increase power and cooling needs, while growing data volumes necessitate larger storage and network bandwidth capacities. Environmental and regulatory requirements can introduce additional limits on carbon emissions and water consumption. To satisfy these demands while keeping costs in check, our data centers need to be smarter as well. Comprehensive views of data center inventories, operational and environmental conditions, and consumption across multiple capacity types that span both facilities and IT are required. You can achieve greater efficiency using hardware, software, services, and design both in facilities and IT, but you need a comprehensive data center strategy to tie them together and thus obtain a complete picture of your data center environments. This IBM® Redpaper™ publication discusses important considerations when creating and implementing your smarter data center strategy. Notable techniques, best practices, and technological advances that can become critical components of success are included, along with methods for bringing them together to gain in-depth knowledge of data center operations. With such insight comes increased resiliency, rapid responsiveness, profitable access to detailed analytics, and reliable planning for the future. Although not all-inclusive, this document provides a guide to getting started, points you

to additional sources of information, and suggests ways IBM can partner with you in your pursuit of a smarter data center.

To meet today's complex and ever-changing business demands, you need a solid foundation of compute, storage, networking, and software resources that is simple to deploy and can quickly and automatically adapt to changing conditions. You also need to make full use of broad expertise and proven preferred practices in systems management, applications, hardware maintenance, and more. The IBM® Flex System p270 Compute Node is an IBM Power Systems™ server that is based on the new dual-chip module POWER7+™ processor and is optimized for virtualization, performance, and efficiency. The server supports IBM AIX®, IBM i, or Linux operating environments, and is designed to run various workloads in IBM PureFlex™ System. The p270 Compute Node is a follow-on to the IBM Flex System™ p260 Compute Node. This IBM Redbooks® publication is a comprehensive guide to the p270 Compute Node. We introduce the related Flex System offerings and describe the compute node in detail. We then describe planning and implementation steps including converged networking, management, virtualization, and operating system installation. This book is for customers, IBM Business Partners, and IBM technical specialists who want to understand the new offerings and plan and implement an IBM Flex System installation that involves the Power Systems compute nodes.

As businesses are continuously developing new services,

procedures, and standards, electronic business has emerged into an important aspect of the science field by providing various applications through efficiently and rapidly processing information among business partners. Research and Development in E-Business through Service-Oriented Solutions highlights the main concepts of e-business as well as the advanced methods, technologies, and aspects that focus on technical support. This book is an essential reference source of professors, students, researchers, developers, and other industry experts in order to provide a vast amount of specialized knowledge sources for promoting e-business.

In a traditional deployment model, software is installed on a physical server, and it is configured for the particular data center environment. The cloud deployment model requires that the dependency on a specific hardware configuration is severed. This IBM® Redbooks® publication guides you through the transition from the traditional application deployment model to the cloud-friendly deployment model. It explains how to achieve these goals by packaging the software stacks into industry standard virtual appliances. A key part of this transition involves using the IBM Image Construction and Composition Tool. This tool is the IBM tool for creating virtualized workloads that target several private cloud deployment platforms, including platforms from IBM and not from IBM. In fact, this tool is unique in its ability to support such a wide range of cloud offerings. It is also the only tool in the marketplace that can create virtual appliances for both x86 and IBM Power hardware architectures. This book provides an in-depth look at the capabilities and internal workings of Image Construction and Composition Tool. It focuses on the capabilities of this tool, which target the virtualization and cloud offerings of IBM Systems and Technology Group. These offerings include IBM Systems

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Director VMControl™, IBM SmartCloud® Entry, and IBM PureFlex™ System with IBM Flex System Manager™ appliance. The Image Construction and Composition Tool also has a much richer set of capabilities. Specifically, it supports IBM Workload Deployer, IBM PureApplication™ Systems, and IBM SmartCloud Provisioning. This publication targets software architects, cloud solutions architects, and cloud administrators. Its goal is to provide you with the expert-level skills required to package the existing and newly created applications into self-configurable, smart virtual appliances. Related publication: Smart Virtual Appliances Made Easy with IBM Image Construction and Composition Tool, TIPS1037 This IBM® Redbooks® publication describes how to create Linux® virtual servers in IBM z/VM® on IBM System z® hardware. This book adopts a cookbook format that provides a concise, repeatable set of procedures for installing and configuring z/VM in a logical partition (LPAR) and then installing and customizing Linux. You need an IBM System z LPAR with the associated resources, z/VM V6.1 media, and a Linux distribution. This book assumes that you have a general familiarity with System z technology and terminology. It does not assume an in-depth understanding of z/VM and Linux. It is written for those clients who want to get a quick start with z/VM and Linux on the mainframe.

InfoWorld is targeted to Senior IT professionals. Content is segmented into Channels and Topic Centers. InfoWorld also celebrates people, companies, and projects.

IBM® PowerVM® virtualization technology is a combination of hardware and software that supports and manages the virtual environments on POWER5-, POWER5+, IBM POWER6®, and IBM POWER7®-based systems. PowerVM is available on IBM Power Systems™, and IBM BladeCenter® servers as optional Editions, and is supported by the IBM AIX®, IBM i, and Linux operating systems. You

can use this set of comprehensive systems technologies and services to aggregate and manage resources by using a consolidated, logical view. Deploying PowerVM virtualization and IBM Power Systems offers you the following benefits: Lower energy costs through server consolidation Reduced cost of your existing infrastructure Better management of the growth, complexity, and risk of your infrastructure This IBM Redbooks® publication is an extension of IBM PowerVM Virtualization Introduction and Configuration, SG24-7940. It provides an organized view of best practices for managing and monitoring your PowerVM environment concerning virtualized resources managed by the Virtual I/O Server.

Systems of record (SORs) are engines that generates value for your business. Systems of engagement (SOE) are always evolving and generating new customer-centric experiences and new opportunities to capitalize on the value in the systems of record. The highest value is gained when systems of record and systems of engagement are brought together to deliver insight. Systems of insight (SOI) monitor and analyze what is going on with various behaviors in the systems of engagement and information being stored or transacted in the systems of record. SOIs seek new opportunities, risks, and operational behavior that needs to be reported or have action taken to optimize business outcomes. Systems of insight are at the core of the Digital Experience, which tries to derive insights from the enormous amount of data generated by automated processes and customer interactions. Systems of Insight can also provide the ability to apply analytics and rules to real-time data as it flows within, throughout, and beyond the enterprise (applications, databases, mobile, social, Internet of Things) to gain the wanted insight. Deriving this insight is a key step toward being able to make the best decisions and take the most appropriate actions. Examples of such actions are to improve the number of satisfied clients,

identify clients at risk of leaving and incentivize them to stay loyal, identify patterns of risk or fraudulent behavior and take action to minimize it as early as possible, and detect patterns of behavior in operational systems and transportation that lead to failures, delays, and maintenance and take early action to minimize risks and costs. IBM® Operational Decision Manager is a decision management platform that provides capabilities that support both event-driven insight patterns, and business-rule-driven scenarios. It also can easily be used in combination with other IBM Analytics solutions, as the detailed examples will show. IBM Operational Decision Manager Advanced, along with complementary IBM software offerings that also provide capability for systems of insight, provides a way to deliver the greatest value to your customers and your business. IBM Operational Decision Manager Advanced brings together data from different sources to recognize meaningful trends and patterns. It empowers business users to define, manage, and automate repeatable operational decisions. As a result, organizations can create and shape customer-centric business moments. This IBM Redbooks® publication explains the key concepts of systems of insight and how to implement a system of insight solution with examples. It is intended for IT architects and professionals who are responsible for implementing a systems of insights solution requiring event-based context pattern detection and deterministic decision services to enhance other analytics solution components with IBM Operational Decision Manager Advanced.

This IBM® Redbooks® publication provides an update of the latest AIX Workload Partition (WPAR) capabilities. It provides a how-to guide and well-defined and documented deployment model for system administrators and architects using WPARs in AIX® Version 7.1 within an IBM POWER® System virtualized environment. This book helps clients create a

planned foundation for their future deployments. This book is targeted toward technical professionals, such as business intelligence (BI) consultants, technical support staff, IT architects, and IT specialists, who are responsible for providing solutions and support for IBM POWER Systems and IBM AIX Version 7.1.

This IBM® Redbooks® publication introduces the IBM System z® Personal Development Tool (zPDT), which runs on an underlying Linux system based on an Intel processor. zPDT provides a System z system on a PC capable of running current System z operating systems, including emulation of selected System z I/O devices and control units. It is intended as a development, demonstration, and learning platform and is not designed as a production system. This book, providing an introduction, is the first of three volumes. The second volume describes the installation of zPDT (including the underlying Linux, and a particular z/OS® distribution) and basic usage patterns. The third volume discusses more advanced topics that may not interest all zPDT users. The IBM order numbers for the three volumes are SG24-7721, SG24-7722, and SG24-7723. An additional volume (SG24-7859) describes the use of zPDT in a Parallel Sysplex configuration. The systems discussed in these volumes are complex, with elements of Linux (for the underlying PC machine), z/Architecture® (for the core zPDT elements), System z I/O functions (for emulated I/O devices), and z/OS (providing the System z application interface), and possibly with other System z operating systems. We assume the reader is familiar with general concepts and terminology of System z hardware and software elements and with basic PC Linux characteristics.

IBM® Systems Director is a platform management foundation that streamlines the way that physical

and virtual systems are managed. Using industry standards, IBM Systems Director supports multiple operating systems and virtualization technologies. This paper provides guidance and preferred practices about how to install and configure IBM Systems Director Version 6.3. Also, installation guidance, fundamental topics, such as discovery and inventory, and more advanced topics, such as troubleshooting and automation, are covered. This paper is meant to be a partner to the comprehensive documentation in the IBM Systems Director Information Center. This paper is aimed at IT specialists who are planning to install and configure IBM Systems Director on Microsoft Windows, Linux, or IBM AIX®.

This IBM® Redbooks® publication presents a best practices guide for DB2® and InfoSphere™ Warehouse performance on a AIX® 6L with Power Systems™ virtualization environment. It covers Power hardware features such as PowerVMTM, multi-page support, Reliability, Availability, and Serviceability (RAS) and how to best exploit them with DB2 LUW workloads for both transactional and data warehousing systems. The popularity and reach of DB2 and InfoSphere Warehouse has grown in recent years. Enterprises are relying more on these products for their mission-critical transactional and data warehousing workloads. It is critical that these products be supported by an adequately planned

infrastructure. This publication offers a reference architecture to build a DB2 solution for transactional and data warehousing workloads using the rich features offered by Power systems. IBM Power Systems have been leading players in the server industry for decades. Power Systems provide great performance while delivering reliability and flexibility to the infrastructure. This book presents a reference architecture to build a DB2 solution for transactional and data warehousing workloads using the rich features offered by Power systems. It aims to demonstrate the benefits DB2 and InfoSphere Warehouse can derive from a Power Systems infrastructure and how Power Systems support these products. The book is intended as a guide for a Power Systems specialist to understand the DB2 and InfoSphere Warehouse environment and for a DB2 and InfoSphere Warehouse specialist to understand the facilities available for Power Systems supporting these products.

This IBM® Redbooks® publication describes IBM PureApplication™ System preferred practices that are based on IBM client and Business Partner experience. It explains how PureApplication System enables industries to consolidate workloads, increase efficiency, automate routine processes, reduce costs, and become more agile to respond to continually changing business needs. This book is particularly useful to solution specialists, system or

software architects, and the IT teams who implement PureApplication System cloud services.

This IBM® Redbooks® publication describes the positioning of the IBM Systems Director in the complete management range. It also compares the IBM Systems Director with the IBM Flex Systems Manager (FSM) and describes the environments for which each tool is best suited. This publication helps you plan, install, tailor, and configure the IBM Systems Director on different platforms. It contains information about required system resources and which network ports are used. It shows how to use the Workload Estimator to select the appropriate hardware for IBM Systems Director server and provides information about the IBM Systems Director Editions. Best practices are covered for the basic management tasks that are available in IBM Systems Director, including how to perform discovery; how to collect inventory on discovered resources; how to deploy agent, driver, and firmware updates; how to manage hardware events; and other miscellaneous tasks. An overview of best practices is provided for using IBM Systems Director VMControl™. Systems Director VMControl is a cross-platform product that assists you in rapidly deploying virtual appliances to create virtual servers that are configured with the operating system and software applications that you want. It also enables you to group resources into system pools, which

enable you to centrally manage and control the different workloads in your environment. The following plug-in offerings are described: Energy monitoring and management features offered by IBM Systems Director Active Energy Manager™ along with the best practice, which needs to be followed in using the IBM Systems Director Active Energy Manager. The IBM AIX® Profile Manager is a tool that can help implement and monitor the security of all AIX servers in a production environment but also implement and monitor the system compliance of those AIX servers. Best practices and the most important questions to ask before creating Workload Partition Manager (WPAR) and WPAR Manager infrastructure. In addition, how you can manage and relocate WPARs using WPAR Manager graphical interface and the command-line interface. Network Control basic functionalities and how to plan for Network Control deployments and also a number of common scenarios with best practices. The IBM Systems Director Service and Support Manager describes how to set up and how to handle serviceable events. Best practices for the Storage Monitoring and Management capabilities offered by IBM Systems Director server. This book is for IBM IT specialists and IT architects, IBM Business Partners, and clients, who are utilizing or considering implementing IBM Systems Director.

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.

Monitoring and managing your system's performance is critical to ensure that you are keeping pace with the changing demands of your business. To respond to business changes effectively, your system must change too. Managing your system, at first glance, might seem like just another time-consuming job. But the investment soon pays off because the system runs more

efficiently, and this is reflected in your business. It is efficient because changes are planned and managed. Managing performance of any system can be a complex task that requires a thorough understanding of that system's hardware and software. IBM® i is an industry leader in the area of performance management and has many qualities that are not found in other systems, such as: - Unparalleled performance metrics - Always-on collection of metrics - Graphical investigation of performance data While understanding all the different processes that affect system performance can be challenging and resolving performance problems requires the effective use of a large suite of tools, the functions offered by IBM i are intended to make this job easier for users. This IBM Redbooks® publication explains the tasks and rich tools associated with performance management on IBM i.

The purpose of this IBM® Redbooks® publication is to provide customers with guidance and recommendations for how and when to use the IBM System Storage® Copy Services premium features. The topics discussed in this publication apply to the IBM System Storage DS® models DS3000, DS4000®, and DS5000 running the firmware v7.70, and IBM System Storage DS Storage Manager v10.70. Customers in today's IT world are finding a major need to ensure a good archive of their data

and a requirement to create these archives with minimal interruptions. The IBM Midrange System Storage helps to fulfill these requirements by offering three copy services premium features: IBM FlashCopy® VolumeCopy Enhanced Remote Mirroring (ERM) This publication specifically addresses the copy services premium features and can be used in conjunction with the following IBM DS System Storage books: IBM System Storage DS4000 and Storage Manager V10.30, SG24-7010 IBM System Storage DS3000: Introduction and Implementation Guide, SG24-7065 IBM System Storage DS3500: Introduction and Implementation Guide, SG24-7914 IBM Midrange System Storage Hardware Guide, SG24-7676 IBM Midrange System Storage Implementation and Best Practices Guide, SG24-6363

For the first time it is possible to deploy an integrated hardware platform that brings mainframe and distributed technologies together: a system that can start to replace individual islands of computing and that can work to reduce complexity, improve security, and bring applications closer to the data that they need. With the zEnterprise System a new concept in IT infrastructures is being introduced: zEnterprise ensembles. A zEnterprise ensemble is a collection of highly virtualized diverse systems that can be managed as a single logical entity where diverse workloads can be deployed. Ensembles,

together with the virtualization, flexibility, security, and management capabilities provided by the zEnterprise System are key to solving the problems posed by today's IT infrastructure. The zEnterprise System consists of three components:

- IBM® zEnterprise Central Processor Complex (CPC) The zEnterprise CPC can either be a zEnterprise 196 (z196) or a zEnterprise 114 (z114). Both zEnterprise CPCs offer z/OS, z/VSE, and z/TPF operating systems, as well as the ability to run many virtualized Linux servers under the z/VM operating system.
- IBM zEnterprise BladeCenter Extension (zBX) The zBX provides the capability to run the wide variety of applications typically found in UNIX and x86 architectures. The zBX supports select POWER7 blades running AIX and System x blades running Linux on System x and Microsoft Windows.
- IBM zEnterprise Unified Resource Manager Unified Resource Manager runs in the Hardware Management Console (HMC). It provides integrated management across all elements of the zEnterprise System. This IBM Redbooks® publication discusses how to plan and implement an ensemble, using the zEnterprise Unified Resource Manager. This book assumes a knowledge of IT systems, networks, and storage devices.

This IBM® Redbooks® publication helps you install, tailor, and configure the new IBM PowerHA® SystemMirror® for AIX® 7.1.1 Standard Edition. This

book gives an understanding of the Cluster Aware AIX (CAA). This book helps you design a solution to migrate from the previous version of the IBM PowerHA. This IBM Redbooks publication is targeted toward technical professionals (consultants, technical support staff, IT architects, and IT specialists) responsible for providing continuous availability solutions and support.

Booting servers from a storage area network (SAN) is being used increasingly in complex data center environments today, due to its significant benefits over the traditional method of booting from local disks. SAN Boot enables organizations to maximize consolidation of their IT resources, minimize their equipment costs, and realize the considerable management benefits of centralizing the boot process. In SAN Boot, you can deploy diskless servers in an environment where the boot disk is located on (often RAID-capable) storage connected to the SAN. The server (initiator) communicates with the storage device (target) through the SAN using the Fibre Channel host bus adapter (HBA). The system downtime is greatly minimized in case a critical component such as a processor, memory, or host bus adapter fails and needs to be replaced. The system administrator needs to swap only the hardware and reconfigure the HBA's BIOS, switch zoning, and host-port definitions on the storage server. The system image still exists on the logical

drive, therefore the server is fully operational after the hardware swap and configuration change is completed. This IBM® Redbooks® publication can help you with the SAN Boot implementation. We present various SAN Boot scenarios using IBM System Storage® products that include DS5000, DS8000®, XIV®, and SVC. The operating systems that are covered include Windows 2008, Red Hat Linux, SUSE Linux, and VMware.

This IBM® Redbooks® publication helps you install, tailor, and configure a solution with IBM Systems Director VMControl so that you can move beyond simply managing virtualization to using virtualization to better manage your IT infrastructure. This book describes how the combination of IBM Systems Director and VMControl reduces the total cost of ownership of a virtualized environment by decreasing management costs, increasing asset use, and linking infrastructure performance to business goals. This book provides a broad understanding on how VMControl simplifies the management of virtual environments across multiple virtualization technologies and hardware platforms, freeing you from silos of virtualization and delivering enterprise-wide visibility and control. A leading multi-platform virtualization management solution, VMControl is now available in three Editions (Express, Standard, and Enterprise) to best match your virtualized environment. In addition, this book

describes the VMControl Enterprise Edition plug-in for IBM Systems Director, which uses a workload-optimized approach to decrease infrastructure costs and improve service levels. With VMControl Enterprise Edition, you can manage system pools with the simplicity of managing a single system, an essential capability for moving to cloud computing and a dynamic infrastructure.

IBM® PowerVM® virtualization technology is a combination of hardware and software that supports and manages virtual environments on IBM POWER5, POWER5+, POWER6®, and POWER7® processor-based systems. These systems are available on IBM Power Systems™ and IBM BladeCenter® servers as optional editions, and are supported by the IBM AIX®, IBM i, and Linux operating systems. With this set of comprehensive systems technologies and services, you can aggregate and manage resources with a consolidated, logical view. By deploying PowerVM virtualization and IBM Power Systems, you can take advantage of the following benefits: Lower energy costs through server consolidation Reduced cost of your existing infrastructure Better management of the growth, complexity, and risk of your infrastructure This IBM Redpaper™ publication is a quick start guide to help you install and configure a complete PowerVM virtualization solution on IBM Power Systems. It highlights how to use the following

management console interfaces to configure PowerVM: Integrated Virtualization Manager (IVM) Hardware Management Console (HMC) Systems Director Management Console (SDMC) This paper also highlights advanced configuration of a dual Virtual I/O Server setup. This paper targets new customers who need assistance with quickly and easily installing, configuring, and starting a new PowerVM server in a virtualized environment. This IBM Redbooks publication provides information to help Systems Programmers plan for merging systems into a sysplex. zSeries systems are highly flexible systems capable of processing many workloads. As a result, there are many things to consider when merging independent systems into the more closely integrated environment of a sysplex. This book will help you identify these issues in advance and thereby ensure a successful project. The popularity of the Internet and the affordability of IT hardware and software have resulted in an explosion of applications, architectures, and platforms. Workloads have changed. Many applications, including mission-critical ones, are deployed on a variety of platforms, and the System z® design has adapted to this change. It takes into account a wide range of factors, including compatibility and investment protection, to match the IT requirements of an enterprise. The zEnterprise System consists of the IBM zEnterprise 196 central

processor complex, the IBM zEnterprise Unified Resource Manager, and the IBM zEnterprise BladeCenter® Extension. The z196 is designed with improved scalability, performance, security, resiliency, availability, and virtualization. The z196 Model M80 provides up to 1.6 times the total system capacity of the z10™ EC Model E64, and all z196 models provide up to twice the available memory of the z10 EC. The zBX infrastructure works with the z196 to enhance System z virtualization and management through an integrated hardware platform that spans mainframe, POWER7™, and System x® technologies. Through the Unified Resource Manager, the zEnterprise System is managed as a single pool of resources, integrating system and workload management across the environment. This IBM® Redbooks® publication provides an overview of the zEnterprise System and its functions, features, and associated software support. Greater detail is offered in areas relevant to technical planning. This book is intended for systems engineers, consultants, planners, and anyone wanting to understand the zEnterprise System functions and plan for their usage. It is not intended as an introduction to mainframes. Readers are expected to be generally familiar with existing IBM System z technology and terminology. The changes to this edition are based on the System z hardware announcement dated July 12, 2011.

This IBM® Redbooks® publication for IBM Power Systems™ with IBM PowerHA® SystemMirror® Standard and Enterprise Editions (hardware, software, practices, reference architectures, and tools) documents a well-defined deployment model within an IBM Power Systems environment. It guides you through a planned foundation for a dynamic infrastructure for your enterprise applications. This information is for technical consultants, technical support staff, IT architects, and IT specialists who are responsible for providing high availability and support for the IBM PowerHA SystemMirror Standard and Enterprise Editions on IBM POWER® systems.

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