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IBM Systems Director 6.3 Best Practices Rufus Credle 2013-11-08 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 VMControlTM. 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 ManagerTM 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.
Block Storage Migration in Open Environments Francesco Anderloni 2020-04-16 Companies need to migrate data not only when technology needs to be replaced, but also for consolidation, load balancing, and disaster recovery (DR). Data migration is a critical operation, and this book explains the phases and steps to ensure a smooth migration. Topics range from planning and preparation to execution and validation. The book explains, from a generic standpoint, the appliance-based, storage-based, and host-based techniques that can be used to accomplish the migration. Each method is explained through practical migration scenarios and for various operating systems. This publication addresses the aspects of data migration efforts while focusing on fixed block storage systems in open environment with the IBM® FlashSystem 9100 as the target system. Therefore, the book also emphasizes various migration techniques using the Spectrum Virtualize built-in functions. This document targets storage administrators, storage network administrators, system designers, architects, and IT professionals who design, administer or plan data migrations in large data Centers. The aim is to ensure that you are aware of the current thinking, methods, and products that IBM can make available to you. These items are provided to ensure a data migration process that is as efficient and problem-free as possible. The material presented in this book was developed with versions of the referenced products as of February, 2020.
Implementing IBM FlashSystem 840 Karen Orlando 2015-07-09 Almost all technological components in the data center are getting faster: central processing units, networks, storage area networks (SANs), and memory. All of them have improved their speed by a minimum of 10X; some of them by 100X, for example, data networks. However, spinning disk performance has only increased by 1.2 times. IBM® FlashSystemTM 840 version 1.3 closes this gap. The FlashSystem 840 is optimized for the data center to enable organizations of all sizes to strategically harness the value of stored data. It provides flexible capacity and extreme performance for the most demanding applications, including virtualized or bare-metal online transaction processing (OLTP) and online analytical processing (OLAP) databases, virtual desktop infrastructures (VDI), technical computing applications, and cloud environments. The system accelerates response times with IBM MicroLatency® access times as low as 90 µs write latency and 135 µs read latency to enable faster decision making. The introduction of a low capacity 1 TB flash module allows the FlashSystem 840 to be configured in capacity points as low as 2 TB in protected RAID 5 mode. Coupled with 10 GB iSCSI, the FlashSystem is positioned to bring extreme performance to small and medium-sized businesses (SMB) and growth markets. Implementing the IBM FlashSystem® 840 provides value that goes beyond those benefits that are seen on disk-based arrays. These benefits include better user experience, server and application consolidation, development cycle reduction, application scalability, data center footprint savings, and improved price performance economics. This IBM Redbooks® publication discusses IBM FlashSystem 840 version 1.3. It provides in-depth knowledge of the product architecture, software and hardware, its implementation, and hints and tips. Also illustrated are use cases that show real-world solutions for tiering, flash-only, and preferred read, as well as examples of the benefits gained by integrating the FlashSystem storage into business environments. Also described are product integration scenarios running the IBM FlashSystem 840 with the IBM SAN Volume Controller, and the IBM Storwize® family of products such V7000, V5000, and the V3700, as well as considerations when integrating with the IBM FlashSystem 840. The preferred practice guidance is provided for your FlashSystem environment with IBM 16 Gbps b-type products and features, focusing on Fibre Channel design. This book is intended for pre-sales and post-sales technical support professionals and storage administrators, and for anyone who wants to understand and learn how to implement this exciting technology.
IBM Spectrum Family: IBM Spectrum Control Standard Edition Karen Orlando 2016-03-15 IBM® Spectrum Control (Spectrum Control), a member of the IBM SpectrumTM Family of products, is the next-generation data management solution for software-defined environments (SDEs). With support for block, file, object workloads, and software-defined storage and predictive analytics, and automated and advanced monitoring to identify proactively storage performance problems, Spectrum Control enables administrators to provide efficient management for heterogeneous storage environments. IBM Spectrum ControlTM (formerly IBM Tivoli® Storage Productivity Center) delivers a complete set of functions to manage IBM Spectrum VirtualizeTM, IBM Spectrum AccelerateTM, and IBM Spectrum ScaleTM storage infrastructures, and traditional IBM and select third-party storage hardware systems. This IBM Redbooks® publication provides practical examples and use cases that can be deployed with IBM Spectrum Control Standard Edition, with

an overview of IBM Spectrum Control Advanced Edition. This book complements the Spectrum Control IBM Knowledge Center, which is referenced for product details, and for installation and implementation details throughout this book. You can find this resource at the following website: IBM Spectrum Control Knowledge Center Also provided are descriptions and an architectural overview of the IBM Spectrum Family, highlighting Spectrum Control, as integrated into software-defined storage environments. This publication is intended for storage administrators, clients who are responsible for maintaining IT and business infrastructures, and anyone who wants to learn more about employing Spectrum Control and Spectrum Control Standard Edition.

IBM Copy Services Manager Implementation Guide Octavian Lascu 2017-09-28 This IBM® Redbooks® publication provides an overview of IBM Copy Services Manager (CSM) for IBM Z and open systems, and documents a set of scenarios for using IBM Copy Services manager to automate and manage replication tasks based on IBM Storage. This book reviews and explains the usage of copy services functions and describes how these functions are implemented in IBM Copy Services Manager. IBM Copy Services Manager key concepts, architecture, session types and usage, and new functionality as of IBM Copy Services Manager version 6.1 are also described.

IBM FlashSystem V9000 Version 7.7 Product Guide Jon Herd 2016-10-17 The success or failure of businesses often depends on how well organizations use their data assets for competitive advantage. Deeper insights from data require better information technology. As organizations modernize their IT infrastructure to boost innovation rather than limit it, they need a data storage system that can keep pace with highly virtualized environments, cloud computing, mobile and social systems of engagement, and in-depth, real-time analytics. Making the correct decision on storage investment is critical. Organizations must have enough storage performance and agility to innovate as they need to implement cloud-based IT services, deploy virtual desktop infrastructure, enhance fraud detection, and use new analytics capabilities. At the same time, future storage investments must lower IT infrastructure costs while helping organizations to derive the greatest possible value from their data assets. IBM® FlashSystem storage solutions can accelerate the transformation of the modern organizations into an IBM Cognitive BusinessTM. FlashSystem all-flash storage arrays are purpose-engineered to support the organization's active data sets. FlashSystem solutions offer a broad range of industry-leading storage virtualization and data management features that can provide improved storage system performance, efficiency, and reliability. Even better, FlashSystem can be less expensive than conventional enterprise storage solutions. This IBM Redbooks® Product Guide describes IBM FlashSystem® V9000, which is a comprehensive all-flash enterprise storage solution that delivers the full capabilities of IBM FlashCoreTM technology. In addition, it provides a rich set of software-defined storage features, including IBM Real-time CompressionTM, dynamic tiering, thin provisioning, snapshots, cloning, replication, data copy services, and IBM HyperSwap® for high availability. With the release of FlashSystem V9000 Software V7.7.1, extra functions and features are available, including support for new and more powerful FlashSystem V9000 control enclosure Model AC3 and new SAS-based small form factor (SFF) and large form factor (LFF) expansion enclosures that provide a mixture of nearline hard disk drives (HDDs) and flash mdisks in a pool that can be used for IBM Easy Tier®. The new IBM FlashSystem V9000 SFF expansion enclosure Model 24F offers new tiering options with low-cost solid-state drive (SSD). Up to 20 serial-attached SCSI (SAS) expansions are supported per FlashSystem V9000 controller pair, providing up to 480 drives with expansion Model 24F and up to 240 drives with expansion Model 12F. Also new with FlashSystem V9000 Software V7.7.1 is N_Port ID Virtualization (NPIV) support, which virtualizes worldwide port names (WWPNs) for zero path reduction during controller maintenance and outages. FlashSystem V9000 Software version 7.7.1 replaces version 7.7, and is available to all IBM FlashSystem V9000 customers with current warranty or software maintenance agreements.

IBM b-type Gen 5 16 Gbps Switches and Network Advisor Jon Tate 2014-05-09 IBM® System Storage® Gen 5 fabric backbones are among the industry's most powerful Fibre Channel switching infrastructure offerings. They provide reliable, scalable, and high-performance foundations for mission-critical storage. These fabric backbones also deliver enterprise connectivity options to add support for IBM FICON® connectivity, offering a high-performing and reliable FICON infrastructure with fast and scalable IBM System z® servers. Designed to increase business agility while providing nonstop access to information and reducing infrastructure and administrative costs, Gen 5 Fibre Channel fabric backbones deliver a new level of scalability and advanced capabilities to this robust, reliable, and high-performance technology. Although every network type has unique management requirements, most organizations face similar challenges managing their network environments. These challenges can include minimizing network downtime, reducing operational expenses, managing application service level agreements (SLAs), and providing robust security. Until now, no single tool could address these needs across different network types. To address this issue, the IBM Network Advisor management tool provides comprehensive management for data, storage, and converged networks. This single application can deliver end-to-end visibility and insight across different network types by integrating with Fabric Vision technology; it supports Fibre Channel SANs, including Gen 5 Fibre Channel platforms, IBM FICON, and IBM b-type SAN FCoE networks. In addition, this tool supports comprehensive lifecycle management capabilities across different networks through a simple, seamless user experience. This IBM Redbooks® publication introduces the concepts, architecture, and basic implementation of Gen 5 and IBM Network Advisor. It is aimed at system administrators, and pre- and post-sales support staff.

IBM System Storage Solutions Handbook Ezgi Coskun 2016-07-15 The IBM® System Storage® Solutions Handbook helps you solve your current and future data storage business requirements. It helps you achieve enhanced storage efficiency by design to allow managed cost, capacity of growth, greater mobility, and stronger control over storage performance and management. It describes the most current IBM storage products, including the IBM SpectrumTM family, IBM FlashSystem®, disk, and tape, as well as virtualized solutions such IBM Storage Cloud. This IBM Redbooks® publication provides overviews and information about the most current IBM System Storage products. It shows how IBM delivers the right mix of products for nearly every aspect of business continuance and business efficiency. IBM storage products can help you store, safeguard, retrieve, and share your data. This book is intended as a reference for basic and comprehensive information about the IBM Storage products portfolio. It provides a starting point for establishing your own enterprise storage environment. This book describes the IBM Storage products as of March, 2016.

IBM Software-Defined Storage Guide Larry Coyne 2018-07-21 Today, new business models in the marketplace coexist with traditional ones and their well-established IT architectures. They generate new business needs and new IT requirements that can only be satisfied by new service models and new technological approaches. These changes are reshaping traditional IT concepts. Cloud in its three main variants (Public, Hybrid, and Private) represents the major and most viable answer to those IT requirements, and software-defined infrastructure (SDI) is its major technological enabler. IBM® technology, with its rich and complete set of storage hardware and software products, supports SDI both in an open standard framework and in other vendors' environments. IBM services are able to deliver solutions to the customers with their extensive knowledge of the topic and the experiences gained in partnership with clients. This IBM RedpaperTM publication focuses on software-defined storage (SDS) and IBM Storage Systems product offerings for software-defined environments (SDEs). It also provides use case examples across various industries that cover different client needs, proposed solutions, and results. This paper can help you to understand current organizational capabilities and challenges, and to identify specific business objectives to be achieved by implementing an SDS solution in your enterprise.

Implementing the IBM Storwize V7000 Gen2 Jon Tate 2016-03-29 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. Nevertheless, 72% 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 that it already has. The IBM® Storwize® family, including the IBM SAN Volume Controller Data Platform, is a storage virtualization system that enables a single point of control for storage resources. This functionality helps support improved business application availability and greater resource use. The following list describes the business objectives of this system: To manage storage resources in your information technology (IT) infrastructure To make sure that those resources are used to the advantage of your business To do it quickly, efficiently, and in real time, while avoiding

increases in administrative costs Virtualizing storage with Storwize helps make new and existing storage more effective. Storwize includes many functions traditionally deployed separately in disk systems. By including these functions in a virtualization system, Storwize standardizes them across virtualized storage for greater flexibility and potentially lower costs. Storwize functions benefit all virtualized storage. For example, IBM Easy Tier® optimizes use of flash memory. In addition, IBM Real-time CompressionTM 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 Storwize also means that they are designed to operate smoothly together, reducing management effort. This IBM Redbooks® publication provides information about the latest features and functions of the Storwize V7000 Gen2 and software version 7.3 implementation, architectural improvements, and Easy Tier.

Implementing the IBM Storwize V3500 Jon Tate 2013-10-21 Businesses of all sizes are faced with the challenge of managing huge volumes of data that are becoming increasingly valuable. But storing this data can be costly, and extracting value from the data is becoming more and more difficult. IT organizations have limited resources and cannot afford to make investment mistakes. The IBM® Storwize® V3500 system provides a smarter solution that is affordable, simple, and efficient, which enables businesses to overcome their storage challenges. IBM Storwize V3500 is the most recent addition to the IBM Storwize family of disk systems. It delivers easy-to-use, entry-level configurations that are specifically designed to meet the modest budgets of small and medium-sized businesses. IBM Storwize V3500 features the following highlights: - Consolidate and share data with low cost iSCSI storage networking. - Deploy storage in minutes and perform storage management tasks quickly and easily through a breakthrough graphical user interface. - Experience peace of mind with proven IBM Storwize family high-availability data protection with snapshot technology and IBM warranty support. - Optimize efficiency by allocating only the amount of disk space needed at the time it is required with high performance, thin-provisioning capabilities.

IBM Power System S822 Technical Overview and Introduction Scott Vetter 2020-10-30 This IBM® RedpaperTM 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 POWER8TM 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 EnergyScaleTM 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 SystemsTM 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 Systems Director 6.3 Best Practices: Installation and Configuration David Watts 2013-04-09 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®.

Implementing a VersaStack Solution by Cisco and IBM with IBM FlashSystem 5030, Cisco UCS Mini, Hyper-V, and SQL Server David Green 2020-02-12 VersaStack, an IBM® and Cisco integrated infrastructure solution, combines computing, networking, and storage into a single integrated system. It combines the Cisco Unified Computing System (Cisco UCS) Integrated Infrastructure with IBM Spectrum VirtualizeTM, which includes IBM FlashSystem® storage offerings, for quick deployment and rapid time to value for the implementation of modern infrastructures. This IBM Redbooks® publication covers the preferred practices for implementing a VersaStack Solution with IBM FlashSystem 5030, Cisco UCS Mini, Hyper-V 2016, and Microsoft SQL Server. Cisco UCS Mini is optimized for branch and remote offices, point-of-sale locations, and smaller IT environments. It is the ideal solution for customers who need fewer servers but still want the comprehensive management capabilities provided by Cisco UCS Manager. The IBM FlashSystem 5030 delivers efficient, entry-level configurations that are 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, the IBM FlashSystem 5030 offers advanced software capabilities such as clustering, IBM Easy Tier®, replication and snapshots that are found in more expensive systems. This book is intended for pre-sales and post-sales technical support professionals and storage administrators who are tasked with deploying a VersaStack solution with Hyper-V 2016 and Microsoft SQL Server.

IBM i and IBM Storwize Family: A Practical Guide to Usage Scenarios Sabine Jordan 2015-01-13 The use of external storage and the benefits of virtualization became a topic of discussion in the IBM® i area during the last several years. The question tends to be, what are the advantages of the use of external storage that is attached to an IBM i environment as opposed to the use of internal storage. The use of IBM PowerVM® virtualization technology to virtualize Power server processors and memory also became common in IBM i environments. However, virtualized access to external storage and network resources by using a VIO server is still not widely used. This IBM Redbooks® publication gives a broad overview of the IBM Storwize® family products and their features and functions. It describes the setup that is required on the storage side and describes and positions the different options for attaching IBM Storwize family products to an IBM i environment. Basic setup and configuration of a VIO server specifically for the needs of an IBM i environment is also described. In addition, different configuration options for a combined setup of IBM PowerHA® SystemMirror® for i and the Storwize family products are described and positioned against each other. Detailed examples are provided for the setup process that is required for these environments. The information that is provided in this book is useful for clients, IBM Business Partners, and IBM service professionals who need to understand how to install and configure their IBM i environment with attachment to the Storwize family products.

IBM Power System E980: Technical Overview and Introduction Scott Vetter 2022-12-28 This IBM® RedpaperTM publication provides a broad understanding of a new architecture of the IBM Power System E980 (9080-M9S) server that supports IBM AIX®, IBM i, and Linux operating systems (OSes). The objective of this paper is to introduce the major innovative Power E980 offerings and relevant functions: The IBM POWER9TM processor, which is available at frequencies of 3.55 - 4.0 GHz. Significantly strengthened cores and larger caches. Supports up to 64 TB memory. Integrated I/O subsystem and hot-pluggable Peripheral Component Interconnect Express (PCIe) Gen4 slots, double the bandwidth of Gen3 I/O slots. Supports EXP12SX and ESP24SX external disk drawers, which have 12 Gb SAS interfaces and double the existing EXP24S drawer bandwidth. New IBM EnergyScaleTM technology offers new variable processor frequency modes that provide a significant performance boost beyond the static nominal frequency. This publication is for professionals who want to acquire a better understanding of IBM Power SystemsTM products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E980 server. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

IBM Power Systems SR-IOV: Technical Overview and Introduction Scott Vetter 2017-01-12 This IBM® RedpaperTM publication describes the adapter-based virtualization capabilities that are being deployed in high-end IBM POWER7+TM 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.

iSCSI Implementation and Best Practices on IBM Storwize Storage Systems Jonathan Burton 2017-10-26 This IBM® Redbooks® publication helps administrators and technical professionals understand Internet Small Computer System Interface (iSCSI) and how to implement it for use with IBM Storwize® storage systems. iSCSI can be used alone or with other technologies. This publication provides an overview of the iSCSI protocol and helps you understand how it is similar to and different from Fibre Channel (FC) technology. It helps you plan and design your network topology. It explains how to configure your IBM Storwize storage systems and hosts (including IBM AIX®, Linux, VMware, and Microsoft Windows hosts) to interact with it. It also provides an overview of using IBM Storwize storage systems with OpenStack. This book describes configuring iSCSI for IBM Storwize and SAN Volume Controller storage systems at Version 7.6 or later. In addition to configuration, this publication provides information about performance and troubleshooting.

IBM FlashSystem 9200 Product Guide Jon Herd 2021-04-14 This IBM® Redbooks® Product Guide publication describes the IBM FlashSystem® 9200 solution, which is a comprehensive, all-flash, and NVMe-enabled enterprise storage solution that delivers the full capabilities of IBM FlashCore® technology. In addition, it provides a rich set of software-defined storage (SDS) features, including data reduction and de-duplication, dynamic tiering, thin-provisioning, snapshots, cloning, replication, data copy services, and IBM HyperSwap® for high availability (HA). Scale-out and scale-up configurations further enhance capacity and throughput for better availability.

Configuring VMware Virtual Volumes for Systems Powered by IBM Spectrum Virtualize Adam Reid 2016-03-02 IBM® Spectrum Virtualize and VMware's Virtual Volumes (VVols) are paving the way toward a true IBM Software Defined Environment (SDE). IBM SpectrumTM Virtualize is at the core of software-defined storage. The addition of VVols enables a fundamentally more efficient operational model for storage in virtualized environments, centering it around the virtual machine (VM) rather than the physical infrastructure. This IBM Redbooks® publication provides an overview of the VVols management framework and its implementation on storage systems managed by IBM Spectrum VirtualizeTM..

IBM Storwize V7000, Spectrum Virtualize, HyperSwap, and VMware Implementation Jon Tate 2017-11-27 IBM® Spectrum Virtualize Software Version 7.8 provides software-defined storage capabilities across various platforms, including IBM SAN Volume Controller, IBM Storwize® V7000, Storwize V7000 (Unified), Storwize V5000, Storwize V3700, and Storwize V3500. These offerings help clients reduce the complexities and cost of managing their storage in the following ways: Centralizing management of storage volumes to enable administrators to manage storage volumes from a single point Improving utilization of storage capacity with virtual volumes to enable businesses to tap into previously unused disk capacity Avoiding downtime for backups, maintenance, and upgrades Performing data migration without disruption to applications Enabling all storage devices to be organized into storage pools from which virtual volumes, whether standard, compressed, or thin-provisioned, are created with the characteristics that you want Delivering automation of storage management with SmartCloud Virtual Storage Center, IBM Tivoli® Storage Productivity Center (as applicable by platform), and IBM Tivoli Storage FlashCopy® Manager (as applicable by platform) Increasing the performance efficiency of storage pools with IBM Easy Tier® Restoring data access quickly with near and remote copy capabilities across Fibre Channel (FC), Fibre Channel over Ethernet (FCoE), and IP networks In this IBM Redbooks® publication, which is aimed at storage administrators and technical professionals, we describe the IBM HyperSwap® capability in IBM SpectrumTM Virtualize Software V7.8. HyperSwap delivers high availability (HA) and disaster recovery (DR) in one solution and reuses capital investments to achieve a range of recovery and management options that are transparent to host operations. This book describes how you can use HyperSwap with VMware to create an environment that can withstand robust workloads.

IBM SAN Volume Controller and Storwize Family Native IP Replication Jon Tate 2023-01-10 IBM® has announced native Internet Protocol (IP) replication using Bridgeworks SANSlide technology with its IBM System Storage® SAN Volume Controller (SVC), IBM Storwize® V7000, IBM Storwize V5000 and Storwize V3700 virtualized storage systems. This combination of SANSlide and the SVC/Storwize family provides a powerful solution for clients who require efficient, IP-based replication over long distances. This certification gives SVC/Storwize clients a fully supported, transparent technology that includes unmatched levels of performance and reliability. With the SANSlide protocol acceleration technology, it is now possible to replicate data across continents in a cost-efficient way, with little or no loss in performance. At the same time, bandwidth usage can improve to over 95%, rather than the 1% - 5% normally achieved in long-distance IP networks. This IBM RedpaperTM publication shows the steps required to implement this solution efficiently and speedily.

IBM FlashSystem 5200 Product Guide Aldo Araujo Fonseca 2022-07-22 This IBM® Redbooks® Product Guide publication describes the IBM FlashSystem® 5200 solution, which is a next-generation IBM FlashSystem control enclosure. It is an NVMe end-to-end platform that is targeted at the entry and midrange market and delivers the full capabilities of IBM FlashCore® technology. It also provides a rich set of software-defined storage (SDS) features that are delivered by IBM Spectrum® Virtualize, including the following features: Data reduction and deduplication Dynamic tiering Thin provisioning Snapshots Cloning Replication Data copy services Transparent Cloud Tiering IBM HyperSwap® including 3-site replication for high availability (HA) Scale-out and scale-up configurations further enhance capacity and throughput for better availability. The IBM FlashSystem 5200 is a high-performance storage solution that is based on a revolutionary 1U form factor. It consists of 12 NVMe Flash Devices in a 1U storage enclosure drawer with full redundant canister components and no single point of failure. It is designed for businesses of all sizes, including small, remote, branch offices and regional clients. It is a smarter, self-optimizing solution that requires less management, which enables organizations to overcome their storage challenges. Flash has come of age and price point reductions mean that lower parts of the storage market are seeing the value of moving over to flash and NVMe--based solutions. The IBM FlashSystem 5200 advances this transition by providing incredibly dense tiers of flash in a more affordable package. With the benefit of IBM FlashCore Module compression and new QLC flash-based technology becoming available, a compelling argument exists to move away from Nearline SAS storage and on to NVMe. With the release of IBM FlashSystem 5200 Software V8.4, extra functions and features are available, including support for new Distributed RAID1 (DRAID1) features, GUI enhancements, Redirect-on-write for Data Reduction Pool (DRP) snapshots, and 3-site replication capabilities. This book is aimed at pre-sales and post-sales technical support and marketing and storage administrators.

IBM SAN Volume Controller 2145-DH8 Introduction and Implementation Jon Tate 2015-01-22 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 CompressionTM 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 System Storage SAN Volume Controller, IBM Storwize V7000, and IBM FlashSystem 7200 Best Practices and Performance Guidelines Jon Tate 2020-12-07 This IBM® Redbooks® publication captures several of the preferred practices and describes the performance gains that can be achieved by implementing the IBM System Storage® SAN Volume Controller and IBM Storwize® V7000 powered by IBM Spectrum VirtualizeTM V8.2.1. 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 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 SAN Volume Controller and Storwize V7000. This book is intended for experienced storage, SAN, and SAN Volume Controller administrators and technicians. Understanding his book requires advanced knowledge of the SAN Volume Controller and Storwize V7000 and SAN environments. Important: On 11th February 2020 IBM announced the arrival of SAN Volume Controller SA2 and SV2, and IBM FlashSystem® 7200 to the family. This book was written specifically for prior versions of SVC and Storwize V7000; however, most of the general principles will apply. If you are in any doubt as to their applicability then you should work with your local IBM representative. This book will be updated to comprehensively include SAN Volume Controller SA2 and SV2 and FlashSystem 7200 in due course.

IBM i 7.2 Technical Overview with Technology Refresh Updates Ryan Cooper 2016-11-02 This IBM® Redbooks® publication provides a technical overview of the features, functions, and enhancements that are available in IBM i 7.2, including all the available Technology Refresh (TR) levels, from TR1 to TR3. This publication provides a summary and brief explanation of the many capabilities and functions in the operating system. It also describes many of the licensed programs and application development tools that are associated with IBM i. The information that is provided in this book is useful for clients, IBM Business Partners, and IBM service professionals that are involved with planning, supporting, upgrading, and implementing IBM i 7.2 solutions.

Implementing an IBM High-Performance Computing Solution on IBM Power System S822LC Dino Quintero 2016-07-25 This IBM® Redbooks® publication demonstrates and documents that IBM Power SystemsTM high-performance computing and technical computing solutions deliver faster time to value with powerful solutions. Configurable into highly scalable Linux clusters, Power Systems offer extreme performance for demanding workloads such as genomics, finance, computational chemistry, oil and gas exploration, and high-performance data analytics. This book delivers a high-performance computing solution implemented on the IBM Power System S822LC. The solution delivers high application performance and throughput based on its built-for-big-data architecture that incorporates IBM POWER8® processors, tightly coupled Field Programmable Gate Arrays (FPGAs) and accelerators, and faster I/O by using Coherent Accelerator Processor Interface (CAPI). This solution is ideal for clients that need more processing power while simultaneously increasing workload density and reducing datacenter floor space requirements. The Power S822LC offers a modular design to scale from a single rack to hundreds, simplicity of ordering, and a strong innovation roadmap for graphics processing units (GPUs). This publication is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) responsible for delivering cost effective high-performance computing (HPC) solutions that help uncover insights from their data so they can optimize business results, product development, and scientific discoveries

Introduction and Implementation of Data Reduction Pools and Deduplication Jon Tate 2019-07-30 Continuing its commitment to developing and delivering industry-leading storage technologies, IBM® introduces Data Reduction Pools (DRP) and Deduplication powered by IBM SpectrumTM 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.

Implementing IBM Spectrum Virtualize for Public Cloud Version 8.3 Angelo Bernasconi 2020-05-11 IBM® Spectrum Virtualize is a key member of the IBM SpectrumTM Storage portfolio. It is a highly flexible storage solution that enables rapid deployment of block storage services for new and traditional workloads, on-premises, off-premises and in a combination of both. IBM Spectrum VirtualizeTM for Public Cloud provides the IBM Spectrum Virtualize functionality in IBM CloudTM. This new capability provides a monthly license to deploy and use Spectrum Virtualize in IBM Cloud to enable hybrid cloud solutions, offering the ability to transfer data between on-premises private clouds or data centers and the public cloud. This IBM RedpaperTM publication gives a broad understanding of IBM Spectrum Virtualize for Public Cloud architecture and provides planning and implementation details of the common use cases for this product. This publication helps storage and networking administrators plan and implement install, tailor, and configure IBM Spectrum Virtualize for Public Cloud offering. It also provides a detailed description of troubleshooting tips. IBM Spectrum Virtualize is also available on AWS. For more information, see Implementation guide for IBM Spectrum Virtualize for Public Cloud on AWS, REDP-5534.

IBM Real-time Compression in IBM SAN Volume Controller and IBM Storwize Jon Tate 2018-05-16 IBM® Real-time CompressionTM 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 RedpaperTM 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.

Regain Control of your Environment with IBM Storage Insights Hasan Abdullah Hashmi 2017-03-04 This IBM® RedpaperTM publication introduces you to the new, cloud-based IBM Spectrum ControlTM Storage Insights (IBM Storage Insights, for short) offering, which is designed for small and medium businesses and organizations who need to quickly understand what is happening in their storage environment without implementing complex tools. IBM Storage Insights can be set up in less than 5 minutes and provides actionable insights about your storage in less than 30 minutes. IBM Storage Insights is an off-premise software as a service (SaaS) offering that is offered through the IBM Service Engage website. This simple, graphical tool has built-in reports to help you rapidly understand what is happening in your environment and provides recommendations about how you can maximize the benefits of your storage and improve your decision-making process. This publication is designed to help storage administrators learn about benefits, features, and key implementation scenarios. The retention period for daily performance data was updated in February 2017. IBM Marketplace links were added in March 2017.

Highly Efficient Data Access with RoCE on IBM Elastic Storage Systems and IBM Spectrum Scale Olaf Weiser 2022-02-07 With Remote Direct Memory Access (RDMA), you can make a subset of a host's memory directly available to a remote host. RDMA is available on standard Ethernet-based networks by using the RDMA over Converged Ethernet (RoCE) interface. The RoCE network protocol is an industry-standard initiative by the InfiniBand Trade Association. This IBM® Redpaper publication describes how to set up RoCE to use within an IBM Spectrum® Scale cluster and IBM Elastic Storage® Systems (ESSs). This book is targeted at technical professionals (consultants, technical support staff, IT Architects, and IT

Specialists) who are responsible for delivering cost-effective storage solutions with IBM Spectrum Scale and IBM ESSs.

IBM SAN Volume Controller Best Practices and Performance Guidelines Anil K Nayak 2021-05-14 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.

Implementing IBM FlashSystem V9000 - AC3 with Flash Enclosure Model AE3 Detlef Helmbrecht 2019-03-25 Updated March 2019 - See Appendix B: IBM FlashSystem V9000 FlashCore Forever The success or failure of businesses often depends on how well organizations use their data assets for competitive advantage. Deeper insights from data require better information technology. As organizations modernize their IT infrastructure to boost innovation rather than limit it, they need a data storage system that can keep pace with several areas that affect your business: Highly virtualized environments Cloud computing Mobile and social systems of engagement In-depth, real-time analytics Making the correct decision on storage investment is critical. Organizations must have enough storage performance and agility to innovate when they need to implement cloud-based IT services, deploy virtual desktop infrastructure, enhance fraud detection, and use new analytics capabilities. At the same time, future storage investments must lower IT infrastructure costs while helping organizations to derive the greatest possible value from their data assets. The IBM® FlashSystem V9000 is the premier, fully integrated, Tier 1, all-flash offering from IBM. It has changed the economics of today's data center by eliminating storage bottlenecks. Its software-defined storage features simplify data management, improve data security, and preserve your investments in storage. The IBM FlashSystem® V9000 SAS expansion enclosures provide new tiering options with read-intensive SSDs or nearline SAS HDDs. IBM FlashSystem V9000 includes IBM FlashCore® technology and advanced software-defined storage available in one solution in a compact 6U form factor. IBM FlashSystem V9000 improves business application availability. It delivers greater resource utilization so you can get the most from your storage resources, and achieve a simpler, more scalable, and cost-efficient IT Infrastructure. This IBM Redbooks® publication provides information about IBM FlashSystem V9000 Software V8.1. It describes the core product architecture, software, hardware, and implementation, and provides hints and tips. The underlying basic hardware and software architecture and features of the IBM FlashSystem V9000 AC3 control enclosure and on IBM Spectrum Virtualize 8.1 software are described in these publications: Implementing IBM FlashSystem 900 Model AE3, SG24-8414 Implementing the IBM System Storage SAN Volume Controller V7.4, SG24-7933 Using IBM FlashSystem V9000 software functions, management tools, and interoperability combines the performance of IBM FlashSystem architecture with the advanced functions of software-defined storage to deliver performance, efficiency, and functions that meet the needs of enterprise workloads that demand IBM MicroLatency® response time. This book offers IBM FlashSystem V9000 scalability concepts and guidelines for planning, installing, and configuring, which can help environments scale up and out to add more flash capacity and expand virtualized systems. Port utilization methodologies are provided to help you maximize the full potential of IBM FlashSystem V9000 performance and low latency in your scalable environment. This book is intended for pre-sales and post-sales technical support professionals, storage administrators, and anyone who wants to understand how to implement this exciting technology.

IBM PowerHA SystemMirror for i: Using IBM Storwize (Volume 3 of 4) David Granum 2016-06-15 IBM® PowerHA® SystemMirror® for i is the IBM high-availability (HA), disk-based clustering solution for the IBM i operating system. When combined with IBM i clustering technology, PowerHA for i delivers a complete HA and disaster recovery (DR) solution for business applications running in an IBM i environment. You can use PowerHA for i to support HA capabilities with either native disk storage, IBM DS8000® storage servers, or IBM Storwize® storage servers. Use this IBM Redbooks® publication to help you install, tailor, and configure IBM PowerHA SystemMirror for i with the IBM Storwize storage servers. This publication provides you with planning information to prepare for using the various PowerHA offerings for the IBM Storwize storage family. It also provides implementation and managing information. Finally, it provides guidance on troubleshooting these solutions and identifies the documentation that you must capture before calling support. This book is part of a four-book volume set that gives you a complete understanding of PowerHA for i by using native disk storage, IBM DS8000 storage servers, or IBM Storwize storage servers. The following publications are part of this PowerHA for i volume set: IBM PowerHA SystemMirror for i: Preparation (Volume 1 of 4), SG24-8400 IBM PowerHA SystemMirror for i: Using DS8000 (Volume 2 of 4), SG24-8403 IBM PowerHA SystemMirror for i: Using Geographic Mirroring (Volume 4 of 4), SG24-8401 Important: The information that is presented in this volume set is for technical consultants, technical support staff, IT architects, and IT specialists who are responsible for providing HA and support for IBM i solutions. If you are new to HA, you should first review the information that is presented in the first book of this volume set, IBM PowerHA SystemMirror for i: Preparation (Volume 1 of 4), SG24-8400, to get a general understanding of clustering technology, independent auxiliary storage pools (IASPs), and the PowerHA architecture.

IBM Power System E950: Technical Overview and Introduction Scott Vetter 2019-12-09 This IBM® RedpaperTM publication gives a broad understanding of a new architecture of the IBM Power System E950 (9040-MR9) server that supports IBM AIX®, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E950 offerings and relevant functions: The IBM POWER9TM processor, which is available at frequencies of 2.8 - 3.4 GHz. Significantly strengthened cores and larger caches. Supports up to 16 TB of memory, which is four times more than the IBM POWER8® processor-based IBM Power System E850 server. Integrated I/O subsystem and hot-pluggable Peripheral Component Interconnect Express (PCIe) Gen4 slots, which have double the bandwidth of Gen3 I/O slots. Supports EXP12SX and ESP24SX external disk drawers, which have 12 Gb Serial Attached SCSI (SAS) interfaces and support Active Optical Cables (AOCs) for greater distances and less cable bulk. New IBM EnergyScaleTM technology offers new variable processor frequency modes that provide a significant performance boost beyond the static nominal frequency. This publication is for professionals who want to acquire a better understanding of IBM Power SystemsTM products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E950 server. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

IBM ProtecTIER Implementation and Best Practices Guide Karen Orlando 2016-08-16 This IBM® Redbooks® publication provides best practice guidance for planning, installing, configuring, and employing the IBM TS7600 ProtecTIER® family of products. It provides the latest best practices for the practical application of ProtecTIER Software Version 3.4. This latest release introduces the new ProtecTIER Enterprise Edition TS7650G DD6 model high performance server. This book also includes information about the revolutionary and patented IBM HyperFactor® deduplication engine, along with other data storage efficiency techniques, such as compression and defragmentation. The IBM System Storage® TS7650G ProtecTIER Deduplication Gateway and the IBM System Storage TS7620 ProtecTIER Deduplication Appliance Express are disk-based data storage systems: The Virtual Tape Library (VTL) interface is the foundation of ProtecTIER and emulates traditional automated tape libraries. For your existing ProtecTIER solution, this guide provides best practices and suggestions to boost the performance and the effectiveness of data deduplication with regards to your application platforms for your VTL and FSI (systems prior to version 3.4). When you build a ProtecTIER data deduplication environment, this guide can help IT architects and solution designers plan for the best option and scenario for data deduplication for

their environments. This book can help you optimize your deduplication ratio, while reducing the hardware, power and cooling, and management costs. This Redbooks publication provides expertise that was gained from an IBM ProtecTIER System Client Technical Specialist (CTS), Development, and Quality Assurance teams. This planning should be done by the Sales Representative or IBM Business Partner, with the help of an IBM System CTS or IBM Solution Architect.

Implementing IBM FlashSystem 900 Karen Orlando 2019-04-12 Today's global organizations depend on being able to unlock business insights from massive volumes of data. Now, with IBM® FlashSystem 900, powered by IBM FlashCoreTM technology, they can make faster decisions based on real-time insights and unleash the power of the most demanding applications, including online transaction processing (OLTP) and analytics databases, virtual desktop infrastructures (VDIs), technical computing applications, and cloud environments. This IBM Redbooks® publication introduces clients to the IBM FlashSystem® 900. It provides in-depth knowledge of the product architecture, software and hardware, implementation, and hints and tips. Also illustrated are use cases that show real-world solutions for tiering, flash-only, and preferred-read, and also examples of the benefits gained by integrating the FlashSystem storage into business environments. This book is intended for pre-sales and post-sales technical support professionals and storage administrators, and for anyone who wants to understand how to implement this new and exciting technology. This book describes the following offerings of the IBM SpectrumTM Storage family: IBM Spectrum StorageTM IBM Spectrum ControlTM IBM Spectrum VirtualizeTM IBM Spectrum ScaleTM IBM Spectrum AccelerateTM

IBM FlashSystem 5000 Family Products Jon Tate 2020-03-03 This IBM® Redbooks® publication provides an introduction and overview of the latest products in the IBM FlashSystem® 5000 Family, including their hardware and software features.

Implementing the IBM Storwize V5000 Gen2 (including the Storwize V5010, V5020, and V5030) with IBM Spectrum Virtualize V8.2.1 Jon Tate 2019-08-01 Organizations of all sizes face the challenge of managing massive volumes of increasingly valuable data. But storing this data can be costly, and extracting value from the data is becoming 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® V5000 Gen2 system provides a smarter solution that is affordable, easy to use, and self-optimizing, which enables organizations to overcome these storage challenges. The Storwize V5000 Gen2 delivers efficient, entry-level configurations that are 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, the Storwize V5000 Gen2 offers advanced software capabilities that are found in more expensive systems. This IBM Redbooks® publication is intended for pre-sales and post-sales technical support professionals and storage administrators. It applies to the Storwize V5030, V5020, and V5010, and to IBM Spectrum VirtualizeTM V8.2.1.

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