

Cloud On Power Ibm

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

Boost your Big Data IQ! Gain insight into how to govern and consume IBM's unique in-motion and at-rest Big Data analytic capabilities Big Data represents a new era of computing—an inflection point of opportunity where data in any format may be explored and utilized for breakthrough insights—whether that data is in-place, in-motion, or at-rest. IBM is uniquely positioned to help clients navigate this transformation. This book reveals how IBM is infusing open source Big Data technologies with IBM innovation that manifest in a platform capable of "changing the game." The four defining characteristics of Big Data—volume, variety, velocity, and veracity—are discussed. You'll understand how IBM is fully committed to Hadoop and integrating it into the enterprise. Hear about how organizations are taking inventories of their existing Big Data assets, with search capabilities that help organizations discover what they could already know, and extend their reach into new data territories for unprecedented model accuracy and discovery. In this book you will also learn not just about the technologies that make up the IBM Big Data platform, but when to leverage its purpose-built engines for analytics on data in-motion and data at-rest. And you'll gain an understanding of how and when to govern Big Data, and how IBM's industry-leading InfoSphere integration and governance portfolio helps you understand, govern, and effectively utilize Big Data. Industry use cases are also included in this practical guide.

The IBM® Hardware Management Console (HMC) provides to systems administrators a tool for planning, deploying, and managing IBM Power Systems™ servers. This IBM Redbooks® publication is an extension of IBM Power Systems HMC Implementation and Usage Guide, SG24-7491 and also merges updated information from IBM Power Systems Hardware Management Console: Version 8 Release 8.1.0 Enhancements, SG24-8232. It explains the new features of IBM Power Systems Hardware Management Console Version V8.8.1.0 through V8.8.4.0. The major functions that the HMC provides are Power Systems server hardware management and virtualization (partition) management. Further information about virtualization management is in the following publications: IBM PowerVM Virtualization Managing and Monitoring, SG24-7590 IBM PowerVM Virtualization Introduction and Configuration, SG24-7940 IBM PowerVM Enhancements What is New in 2013, SG24-8198 IBM Power Systems SR-IOV: Technical Overview and Introduction, REDP-5065 The following features of HMC V8.8.1.0 through HMC V8.8.4.0 are described in this book: HMC V8.8.1.0 enhancements HMC V8.8.4.0 enhancements System and Partition Templates HMC and IBM PowerVM® Simplification Enhancement Manage Partition Enhancement Performance and Capacity Monitoring HMC V8.8.4.0 upgrade changes

Security is a major consideration in the way that business and information technology systems are designed, built, operated, and managed. The need to be able to integrate security into those systems and the discussions with business functions and operations exists more than ever. This IBM® Redbooks® publication explores concerns that characterize security requirements of, and threats to, business and information technology (IT) systems. This book identifies many business drivers that illustrate these concerns, including managing risk and cost, and compliance to business policies and external regulations. This book shows how these drivers can be translated into capabilities and security needs that can be represented in frameworks, such as the IBM Security Blueprint, to better enable enterprise security. To help organizations with their security challenges, IBM created a bridge to address the communication gap between the business and technical perspectives of security to enable simplification of thought and process. The IBM Security Framework can help you translate the business view, and the IBM Security Blueprint describes the technology landscape view. Together, they can help bring together the experiences that we gained from working with many clients to build a comprehensive view of security capabilities and needs. This book is intended to be a valuable resource for business leaders, security officers, and consultants who want to understand and implement enterprise security by considering a set of core security capabilities and services.

For organizations charting their way forward in today's digital economy, the clear imperative is to find better ways of extracting more value from data. By gleaning insight from data regarding customer preferences and business operations, organizations can respond to demand more effectively and better deliver the experiences that today's customers want. To this end, many organizations running SAP solutions seek to make the move to the SAP HANA database. SAP HANA offers the speed of in-memory data processing and the ability to combine transactions and analytics on a single platform for insight in real time. However, considerations at the level of IT infrastructure can make or break the success of an SAP HANA implementation. What the database runs on, in other words, matters significantly. This IBM® Redguide publication explores the value of deploying SAP HANA on SUSE Linux Enterprise Server for SAP Applications and the IBM Power platform with IBM POWER9™ processors. Both offerings are optimized to help your organization reap the rewards of SAP HANA while also transforming IT service delivery more generally. Designed for enterprise-grade operations, SUSE Linux Enterprise Server for SAP Applications offers an open-source software-defined infrastructure (SDI) that is optimized for SAP workloads. Reliable, fast, and secure, it also supports the automation that is needed to substantially free up IT staff from service deployment and management duties. Power Systems servers support SAP HANA implementations according to the SAP Tailored Data Center Integration (TDI) 5.0 specification. Optimized for scale-up and scale-out scenarios and built to support virtual persistent memory, Power Systems serves help you provision faster, scale affordably, and maximize uptime by persisting memory across virtual machines (VMs) and multiple SAP HANA instances. Both SUSE and IBM have partnered with SAP for decades to fine-tune these offerings. Together, SUSE and IBM solutions offer a way forward for deploying, optimizing,

and running SAP HANA implementations that is proven to be successful. This publication looks at various aspects of this combined offering in greater detail.

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

- Improve the performance of the application that is being optimized for the POWER7 system
- Carry over improvements to systems that are based on related processor chips
- Improve performance on other platforms

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

This IBM® Redpaper publication describes practical experiences to run SAP workloads to take advantage of IBM Power Systems I/O capabilities. With IBM POWER® processor-based servers, you have the flexibility to fit seamlessly new applications and workloads into a single data center, and even consolidate them into a single server. This approach highlights all viable options and describes the pros and cons of each one to select the correct option for a specific data center. The target audiences of this book are architects, IT specialists, and systems administrators deploying SAP workloads, who spend much time and effort managing, provisioning, and monitoring SAP software systems and landscapes on IBM Power Systems servers.

The implementation of cloud technologies in healthcare is paving the way to more effective patient care and management for medical professionals around the world. As more facilities start to integrate cloud computing into their healthcare systems, it is imperative to examine the emergent trends and innovations in the field. Cloud Computing Systems and Applications in Healthcare features innovative research on the impact that cloud technology has on patient care, disease management, and the efficiency of various medical systems. Highlighting the challenges and difficulties in implementing cloud technology into the healthcare field, this publication is a critical reference source for academicians, technology designers, engineers, professionals, analysts, and graduate students.

Enter the fast-paced world of SAP HANA 2.0 with this introductory guide. Begin with an exploration of the technological backbone of SAP HANA as a database and platform. Then, step into key SAP HANA user roles and discover core capabilities for administration, application development, advanced analytics, security, data integration, and more. No matter how SAP HANA 2.0 fits into your business, this book is your starting point. In this book, you'll learn about:

- Technology** Discover what makes an in-memory database platform. Learn about SAP HANA's journey from version 1.0 to 2.0, take a tour of your technology options, and walk through deployment scenarios and implementation requirements.
- Tools** Unpack your SAP HANA toolkit. See essential tools in action, from SAP HANA cockpit and SAP HANA studio, to the SAP HANA Predictive Analytics Library and SAP HANA smart data integration.
- Key Roles** Understand how to use SAP HANA as a developer, administrator, data scientist, data center architect, and more. Explore key tasks like backend programming with SQLScript, security setup with roles and authorizations, data integration with the SAP HANA Data Management Suite, and more. Highlights include: 1) Architecture 2) Administration 3) Application development 4) Analytics 5) Security 6) Data integration 7) Data architecture 8) Data center

This book is a guide to building information systems at the "edge of chaos"—that sweet spot for productive change, where front line workers have the capability to pursue their own solutions with minimal central control. The advent of cloud computing presents an unprecedented opportunity for organizations to revolutionize the way in which they build information systems, and in so doing, transform their business. We live in a chaotic world of increasing and ceaseless change and uncertainty. And it is only going to get worse. But while it's true that times like these create unprecedented disruption and dislocation, they also create the potential for new power and new fortunes. The question therefore is: How do we prepare our organizations to not only survive, but to take advantage of the opportunities that rapid change inevitably brings? This book focuses on the role of information systems in this endeavor. Information systems will become increasingly more critical to the success of every enterprise. How they are built and how they are used should therefore be foremost on the mind of anyone responsible for the well-being of an organization.

A New York Times Bestseller, One of The Wall Street Journal's "10 Books to Read Now," and One of Kirkus Reviews's Best Nonfiction Books of Year We all sense it—something big is going on. You feel it in your workplace. You feel it when you talk to your kids. You can't miss it when you read the newspapers or watch the news. Our lives are being transformed in so many realms all at once—and it is dizzying. In Thank You for Being Late, version 2.0, with a new afterword, Thomas L. Friedman exposes the tectonic movements that are reshaping the world today and explains how to get the most out of them and cushion their worst impacts. His thesis: to understand the twenty-first century, you need to understand that the planet's three largest forces—Moore's law (technology), the Market (globalization), and Mother Nature (climate change and biodiversity loss)—are accelerating all at once. These accelerations are transforming five key realms: the workplace, politics, geopolitics, ethics, and community. The year 2007 was the major inflection point: the release of the iPhone, together with advances in silicon chips, software, storage, sensors, and networking, created a new technology platform that is reshaping everything from how we hail a taxi to the fate of nations to our most intimate relationships. It is providing vast new opportunities for individuals and small groups to save the world—or to destroy it. With his trademark vitality, wit, and optimism, Friedman shows that we can overcome the multiple stresses of an age of accelerations—if we slow down, if we dare to be late and use the time to reimagine work, politics, and community. Thank You for Being Late is an essential guide to the present and the future.

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 is a guide to IBM Power Systems Private Cloud with Shared Utility Capacity featuring Power Enterprise Pools (PEP) 2.0. This technology enables multiple servers in an to share base processor and memory resources and draw on pre-paid credits when the base is exceeded. Previously, the Shared Utility Capacity feature supported IBM Power E950 (9040-MR9) and IBM Power E980 (9080-M9S). The feature was extended in August 2020 to include the scale-out IBM Power servers that were announced on 14 July 2020, and it received dedicated processor support later in the year. The IBM Power S922 (9009-22G), and IBM Power S924 (9009-42G) servers, which use the latest IBM POWER9™ processor-based technology and support the IBM AIX®, IBM i, and Linux operating systems (OSs), are now supported. The previous scale-out models of Power S922 (9009-22A), and Power S924 (9009-42A) servers cannot be added to an enterprise pool. With the availability of the IBM Power E1080 (9080-HEX) in September 2021, support for this system as part of a Shared Utility Pool has become available. The goal of this book is to provide an overview of the solution's environment and guidance for planning a deployment of it. The book also covers how to configure IBM Power Systems Private Cloud with Shared Utility Capacity. There are also chapters about migrating from PEP 1.0 to PEP 2.0 and various use cases. This publication is for professionals who want to acquire a better understanding of IBM Power Systems Private Cloud, and Shared Utility Capacity. The intended audience includes: Clients Sales and marketing professionals Technical support professionals IBM Business Partners This book expands the set of IBM Power documentation by providing a desktop reference that offers a detailed technical description of IBM Power Systems Private Cloud with Shared Utility Capacity.

A practical, user-friendly guide that provides an introduction to cloud computing using IBM SmartCloud, along with a thorough understanding of resource management in a cloud environment. This book is great for anyone who wants to get a grasp of what cloud computing is and what IBM SmartCloud has to offer. If you are an IT specialist, IT architect, system administrator, or a developer who wants to thoroughly understand the cloud computing resource model, this book is ideal for you. No prior knowledge of cloud computing is expected.

Reproduction of the original: Love in A Cloud by Arlo Bates

This IBM® Redpaper® publication provides a broad understanding of a new architecture of the IBM Power® E1080 (also known as the Power E1080) server that supports IBM AIX®, IBM i, and selected distributions of Linux operating systems. The objective of this paper is to introduce the Power E1080, the most powerful and scalable server of the IBM Power portfolio, and its offerings and relevant functions: Designed to support up to four system nodes and up to 240 IBM Power10™ processor cores The Power E1080 can be initially ordered with a single system node or two system nodes configuration, which provides up to 60 Power10 processor cores with a single node configuration or up to 120 Power10 processor cores with a two system nodes configuration. More support for a three or four system nodes configuration is to be added on December 10, 2021, which provides support for up to 240 Power10 processor cores with a full combined four system nodes server. Designed to supports up to 64 TB memory The Power E1080 can be initially ordered with the total memory RAM capacity up to 8 TB. More support is to be added on December 10, 2021 to support up to 64 TB in a full combined four system nodes server. Designed to support up to 32 Peripheral Component Interconnect® (PCIe) Gen 5 slots in a full combined four system nodes server and up to 192 PCIe Gen 3 slots with expansion I/O drawers The Power E1080 supports initially a maximum of two system nodes; therefore, up to 16 PCIe Gen 5 slots, and up to 96 PCIe Gen 3 slots with expansion I/O drawer. More support is to be added on December 10, 2021, to support up to 192 PCIe Gen 3 slots with expansion I/O drawers. Up to over 4,000 directly attached serial-attached SCSI (SAS) disks or solid-state drives (SSDs) Up to 1,000 virtual machines (VMs) with logical partitions (LPARs) per system System control unit, providing redundant system master Flexible Service Processor (FSP) Supports IBM Power System Private Cloud Solution with Dynamic Capacity This publication is for professionals who want to acquire a better understanding of Power servers. The intended audience includes the following roles: Customers Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) 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.

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power System H922 (9223-22S), and IBM Power System H924 (9223-42S) servers that support memory-intensive workloads, such as SAP HANA, and deliver superior price and performance for mission-critical applications in IBM AIX®, IBM i, and Linux® operating systems. The goal of this paper is to provide a hardware architecture analysis and highlight the changes, new technologies, and major features that are being introduced in these systems' 2020 release, such as the following examples: Availability of new IBM POWER9™ processor configurations for the number of cores per socket. More performance by using industry-leading IBM Peripheral Component Interconnect® Express (PCIe) Gen4 slots. Enhanced internal disk configuration options, with up to 14 NVMe adapters (four U.2 NVMe plus up to 10 PCIe add-in cards). Twice as fast back-end I/O enables seamless maximum speed and throughput between on-premises and multiple public cloud infrastructures with high availability (HA). This publication is for professionals who want to acquire a better understanding of IBM Power Systems products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power H922 and Power H924 systems.

This IBM® Redbooks® publication gives an overview of Cloud solutions, followed by detailed information and usage scenarios for IBM CloudBurst® in a System x® environment. Cloud computing can be defined as a style of computing in which dynamically scalable resources, such as CPU, storage, or bandwidth, are provided as a service over the Internet. Cloud computing represents a massively scalable, self-service delivery model where processing, storage, networking, and applications can be accessed as services over the Internet. Enterprises can adopt cloud models to improve employee productivity, deploy new products and services faster and reduce operating costs—starting with workloads, such as development and test, virtual desktop, collaboration, and analytics. IBM provides a scalable variety of cloud solutions to meet these needs. This IBM Redbooks publication helps you to tailor an IBM CloudBurst installation on System x to meet virtualized computing requirements in a private cloud environment. This book is intended for IT support personnel who are responsible for customizing IBM CloudBurst to

meet business cloud computing objectives.

This IBM® Redpaper Redbooks® publication presents the IBM PowerKVM virtualization for scale-out Linux systems, including the new LC IBM Power Systems™. PowerKVM is open source server virtualization that is based on the IBM POWER8® processor technology. It includes the Linux open source technology of KVM virtualization, and it complements the performance, scalability, and security qualities of Linux. This book describes the concepts of PowerKVM and how you can deploy your virtual machines with the software stack included in the product. It helps you install and configure PowerKVM on your Power Systems server and provides guidance for managing the supported virtualization features by using the web interface and command-line interface (CLI). This information is for professionals who want to acquire a better understanding of PowerKVM virtualization technology to optimize Linux workload consolidation and use the POWER8 processor features. The intended audience also includes people in these roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors Open source community IBM OpenPower partners It does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, along with existing sources, can be used to increase your knowledge of IBM virtualization solutions. Before you start reading, you must be familiar with the general concepts of kernel-based virtual machine (KVM), Linux, and IBM Power architecture.

Demystify web and mobile development (along with cloud deployment) by leveraging the power of IBM Bluemix About This Book*The first book in the market to leverage the power of IBM Bluemix*Shows developers how to develop and deploy applications on the cloud effectively using IBM Bluemix*A comprehensive guide to help you get to grips with IBM Bluemix using a sample application Who This Book Is For This book is aimed at developers seeking to learn application development and deployment methods on IBM Bluemix. A basic knowledge of Java and Node.js is assumed. What You Will Learn*Discover IBM Bluemix as a PaaS platform and learn about its three delivery models*Develop and deploy a "Hello World" application on IBM Bluemix using the Cloud Foundry command line utility and the Bluemix console*Extend your application by using the API or services provided by IBM Bluemix*Create an application based on microservice architecture*Leverage an on-premise software to build an application on IBM Bluemix*Scale and monitor an application on IBM Bluemix*Explore the three open source compute options on IBM Bluemix and work with each*Build a real-world mobile application on IBM Bluemix based on visual recognition In Detail IBM Bluemix is an open-standard platform for building, running, and managing applications on the cloud. With Bluemix, developers can build excellent applications with various computing options and DevOps tools. Learning IBM Bluemix will take you on a journey from the basics of IBM Bluemix to working with the platform to develop and deploy a new-age application. The sample application use cases employed in the book will introduce you to the transformative nexus of cloud, mobile, and security, all enabled through capabilities provided out-of-the-box by IBM Bluemix. The book will help create a sample mobile application using various Bluemix services, and will demonstrate how Bluemix makes life easy for all types of developer. By the end of the book, you will have understood the benefits and use cases for IBM Bluemix, and will possess the skills to further explore the platform and thus develop, deploy, and secure your own innovative, new-age applications.

To make better informed business decisions, better serve clients, and increase operational efficiencies, you must be aware of changes to key data as they occur. In addition, you must enable the immediate delivery of this information to the people and processes that need to act upon it. This ability to sense and respond to data changes is fundamental to dynamic warehousing, master data management, and many other key initiatives. A major challenge in providing this type of environment is determining how to tie all the independent systems together and process the immense data flow requirements. IBM® InfoSphere® Change Data Capture (InfoSphere CDC) can respond to that challenge, providing programming-free data integration, and eliminating redundant data transfer, to minimize the impact on production systems. In this IBM Redbooks® publication, we show you examples of how InfoSphere CDC can be used to implement integrated systems, to keep those systems updated immediately as changes occur, and to use your existing infrastructure and scale up as your workload grows. InfoSphere CDC can also enhance your investment in other software, such as IBM DataStage® and IBM QualityStage®, IBM InfoSphere Warehouse, and IBM InfoSphere Master Data Management Server, enabling real-time and event-driven processes. Enable the integration of your critical data and make it immediately available as your business needs it.

IBM® Power Virtualization Center (IBM® PowerVCTM) is an advanced, enterprise virtualization management offering for IBM Power Systems™. This IBM Redbooks® publication introduces IBM PowerVC and helps you understand its functions, planning, installation, and setup. IBM PowerVC Version 1.3.2 supports both large and small deployments, either by managing IBM PowerVM® that is controlled by the Hardware Management Console (HMC) by IBM PowerVM NovaLink, or by managing PowerKVM directly. With this capability, IBM PowerVC can manage IBM AIX®, IBM i, and Linux workloads that run on IBM POWER® hardware. IBM PowerVC is available as a Standard Edition, or as a Cloud PowerVC Manager edition. IBM PowerVC includes the following features and benefits: Virtual image capture, deployment, and management Policy-based virtual machine (VM) placement to improve use Management of real-time optimization and VM resilience to increase productivity VM Mobility with placement policies to reduce the burden on IT staff in a simple-to-install and easy-to-use graphical user interface (GUI) Role-based security policies to ensure a secure environment for common tasks The ability to enable an administrator to enable Dynamic Resource Optimization on a schedule IBM Cloud PowerVC Manager includes all of the IBM PowerVC Standard Edition features and adds: A Self-service portal that allows the provisioning of new VMs without direct system administrator intervention. There is an option for policy approvals for the requests that are received from the self-service portal. Pre-built deploy templates that are set up by the cloud administrator that simplify the deployment of VMs by the cloud user. Cloud management policies that simplify management of cloud deployments. Metering data that can be used for chargeback. This publication is for experienced users of IBM PowerVM and other virtualization solutions who want to understand and implement the next generation of enterprise virtualization management for Power Systems. Unless stated otherwise, the content of this publication refers to IBM PowerVC Version 1.3.2.

This IBM® Redpaper publication is a comprehensive guide that covers the IBM Power System IC922 (9183-22X) server that uses IBM POWER9™ processor-based technology and supports Linux operating systems (OSs). The objective of this paper is to introduce the system offerings and their capacities and available features. The Power IC922 server is built to deliver powerful computing, scaling efficiency, and storage capacity in a cost-optimized design to meet the evolving data challenges of the artificial intelligence (AI) era. It includes the following features: High throughput and performance for high-value Linux workloads, such as inferencing data or storage-rich workloads, or cloud. Potentially low acquisition cost through system optimization, such as using industry standard memory and warranty. Two IBM POWER9 processor-based single-chip module (SCM) devices that provide high performance with 24, 32, or 40 fully activated cores and a maximum 2 TB of memory. Up to six NVIDIA T4 graphics processing unit (GPU) accelerators. Up to twenty-four 2.5-inch SAS/SATA drives. One dedicated and one shared 1 Gb Intelligent Platform Management Interface (IPMI) port.. This publication is for professionals who want to acquire a better understanding of IBM Power Systems products. The intended audience includes: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) 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 IC922 server.

This IBM® Redpaper™ publication provides a broad understanding of a new architecture of the IBM Power System E980 (9080-M9S) server that supports IBM AIX®, IBM i, and Linux operating systems (OSes). The objective of this paper is to introduce the major innovative Power E980 offerings and relevant functions: The IBM POWER9™ processor, which is available at frequencies of 3.55 - 4.0 GHz.

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

This IBM® Redpaper publication describes how to deploy Red Hat OpenShift V4.3 on IBM Power Systems servers. This book presents reference architectures for deployment, initial sizing guidelines for server, storage, and IBM Cloud® Paks. Moreover, this publication delivers information about initial supported Power System configurations for Red Hat OpenShift V4.3 deployment (bare metal, IBM PowerVM® LE LPARs, and others). This book serves as a guide for how to deploy Red Hat OpenShift V4.3 and provide start guidelines and recommended practices for implementing it on Power Systems and completing it with the supported IBM Cloud Paks. The publication addresses topics for developers, IT architects, IT specialists, sellers, and anyone who wants to implement a Red Hat OpenShift V4.3 and IBM Cloud Paks on IBM Power Systems. This book also provides technical content to transfer how-to skills to the support teams, and solution guidance to the sales team. This book compliments the documentation that is available at IBM Knowledge Center, and also aligns with the educational offerings that are provided by the IBM Systems Technical Education (SSE).

This book covers cloud security considerations for IBM Power Systems. The first objectives are to examine how Power Systems can fit into the current and developing cloud computing landscape and to outline the proven Cloud Computing Reference Architecture (CCRA) that IBM employs in building private and hybrid cloud environments. It then examines the underlying technology and hones in on the security aspects for the following subsystems: IBM Hardware Management Console, IBM PowerVM, IBM PowerKVM, IBM PowerVC, and IBM Cloud Manager with OpenStack. --

Many organizations must protect their mission-critical applications in production, but security threats can also surface during the development and pre-production phases. Also, during deployment and production, insiders who manage the infrastructure that hosts critical applications can pose a threat given their super-user credentials and level of access to secrets or encryption keys. Organizations must incorporate secure design practices in their development operations and embrace DevSecOps to protect their applications from the vulnerabilities and threat vectors that can compromise their data and potentially threaten their business. IBM® Cloud Hyper Protect Services provide built-in data-at-rest and data-in-flight protection to help developers easily build secure cloud applications by using a portfolio of cloud services that are powered by IBM LinuxONE. The LinuxONE platform ensures that client data is always encrypted, whether at rest or in transit. This feature gives customers complete authority over sensitive data and associated workloads (which restricts access, even for cloud admins) and helps them meet regulatory compliance requirements. LinuxONE also allows customers to build mission-critical applications that require quick time to market and dependable rapid expansion. The purpose of this IBM Redbooks® publication is to: Introduce the IBM Hyper Protect Services that are running on IBM LinuxONE on the IBM Cloud™ and on-premises Provide high-level design architectures Describe deployment best practices Provide guides to getting started and examples of the use of the Hyper Protect Services The target audience for this book is IBM Hyper Protect Virtual Services technical specialists, IT architects, and system administrators.

This IBM® Redbooks® publication provides a security and compliance solution that is optimized for virtualized environments on IBM Power Systems™ servers, running IBM PowerVM® and IBM AIX®. Security control and compliance are some of the key components that are needed to defend the virtualized data center and cloud infrastructure against ever evolving new threats. The IBM business-driven approach to enterprise security that is used with solutions, such as IBM PowerSCTM, makes IBM the premier security vendor in the market today. The book explores, tests, and documents scenarios using IBM PowerSC that leverage IBM Power Systems servers architecture and software solutions from IBM to help defend the virtualized data center and cloud infrastructure against ever evolving new threats. This publication helps IT and Security managers, architects, and consultants to strengthen their security and compliance posture in a virtualized environment running IBM PowerVM.

This IBM® Redpaper Redbooks publication provides guidance about a backup and recovery solution for SAP High-performance Analytic Appliance (HANA) running on IBM Power Systems. This publication provides case studies and how-to procedures that show backup and recovery scenarios. This publication provides information about how to protect data in an SAP HANA environment by using IBM Spectrum® Protect and IBM Spectrum Copy Data Manager. This publication focuses on the data protection solution, which is described through several scenarios. The information in this publication is distributed on an as-is basis without any warranty that is either expressed or implied. Support assistance for the use of this material is limited to situations where IBM Spectrum Scale or IBM Spectrum Protect are supported and entitled, and where the issues are specific to a blueprint implementation. The goal of the publication is to describe the best aspects and options for backup, snapshots, and restore of SAP HANA Multitenant Database Container (MDC) single and multi-tenant installations on IBM Power Systems by using theoretical knowledge, hands-on exercises, and documenting the findings through sample scenarios. This document provides resources about the following processes: Describing how to determine the best option, including SAP Landscape aspects to back up, snapshot, and restore of SAP HANA MDC single and multi-tenant installations based on IBM Spectrum Computing Suite, Red Hat Linux Relax and Recover (ReAR), and other products. Documenting key aspects, such as recovery time objective (RTO) and recovery point objective (RPO), backup impact (load, duration, scheduling), quantitative savings (for example, data deduplication), integration and catalog currency, and tips and tricks that are not covered in the product documentation. Using IBM Cloud® Object Storage and documenting how to use IBM Spectrum Protect to back up to the cloud. SAP HANA 2.0 SPS 05 has this feature that is built in natively. IBM Spectrum Protect for Enterprise Resource Planning (ERP) has this feature too. Documenting Linux ReaR to cover operating system (OS) backup because ReAR is used by most backup products, such as IBM Spectrum Protect and Symantec Endpoint Protection (SEP) to back up OSs. This publication targets technical readers including IT specialists, systems architects, brand specialists, sales teams, and anyone looking for a guide about how to implement the best options for SAP HANA backup and recovery on IBM Power Systems. Moreover, this publication provides documentation to transfer the how-to-skills to the technical teams and solution guidance to the sales team. This publication complements the documentation that is available at IBM Knowledge Center, and it aligns with the educational materials that are provided by IBM Garage™ for Systems Technical Education and Training.

RedHat OpenShift container platform is one of the leading enterprise-grade container orchestration platforms. It is designed for rapid deployment of web applications, databases, and

microservices. Categorized as a container orchestration Platform as a Service (PaaS), it is based on open industry standards, such as the Container Runtime Interface - Open (CRI-O) and Kubernetes. OpenShift allow developers to focus on the code, while the platform manages the complex IT operations and processes. Although open-source, community-driven container orchestration platforms are available, such as OKD and Kubernetes, this IBM® Redpaper® publication focuses on Red Hat OpenShift. It describes the basic concepts of OpenShift persistent storage architecture and its integration into IBM Cloud® Paks. The deployment of the IBM block storage CSI driver also is discussed. This publication also describes the concepts, technology and current working practices for installing the Container Storage Interface (CSI) plug-in for Kubernetes to use IBM Enterprise Storage platforms for persistent storage coupled with Red Hat OpenShift Container Platform (OCP). This publication also provides an overview of containers, Kubernetes, and Openshift for context (it is expected that the reader has a working knowledge of these underlying technologies). It also includes architectural examples of the orchestration platform will be given. This paper serves as a guide about how to deploy the CSI driver for block storage by using the DS8000® and Spectrum Virtualize platforms as persistent storage in a Red Hat OpenShift platform. The publication is intended for storage administrators, IT architects, OpenShift technical specialists and anyone who wants to integrate IBM Enterprise storage on OpenShift V4.3/4.4/4.5 on IBM Power, IBM Z®, and x86 systems.

Cloud native infrastructure is more than servers, network, and storage in the cloud—it is as much about operational hygiene as it is about elasticity and scalability. In this book, you'll learn practices, patterns, and requirements for creating infrastructure that meets your needs, capable of managing the full life cycle of cloud native applications. Justin Garrison and Kris Nova reveal hard-earned lessons on architecting infrastructure from companies such as Google, Amazon, and Netflix. They draw inspiration from projects adopted by the Cloud Native Computing Foundation (CNCF), and provide examples of patterns seen in existing tools such as Kubernetes. With this book, you will: Understand why cloud native infrastructure is necessary to effectively run cloud native applications Use guidelines to decide when—and if—your business should adopt cloud native practices Learn patterns for deploying and managing infrastructure and applications Design tests to prove that your infrastructure works as intended, even in a variety of edge cases Learn how to secure infrastructure with policy as code

This IBM® Blueprint is intended to facilitate the deployment of IBM Storage for Red Hat OpenShift Container Platform by using detailed hardware specifications to build a system. It describes the associated parameters for configuring persistent storage within a Red Hat OpenShift Container Platform environment. To complete the tasks, you must understand Red Hat OpenShift, IBM Storage, the IBM block storage Container Storage Interface (CSI) driver, and the IBM Spectrum Scale CSI driver. The information in this document is distributed on an "as is" basis without any warranty that is either expressed or implied. Support assistance for the use of this material is limited to situations where IBM Storwize® or IBM FlashSystem® storage devices, Enterprise Storage Server®, and IBM Spectrum® Scale are supported and entitled, and where the issues are not specific to a blueprint implementation. IBM Storage Suite for IBM Cloud® Paks is an offering bundle that includes software-defined storage from IBM and Red Hat. Use this document for more information about how to deploy IBM Storage product licenses that are obtained through Storage Suite for Cloud Paks (IBM Spectrum Virtualize and IBM Spectrum Scale).

This IBM® Redbooks® publication addresses performance tuning topics to help leverage the virtualization strengths of the POWER® platform to solve clients' system resource utilization challenges, and maximize system throughput and capacity. We examine the performance monitoring tools, utilities, documentation, and other resources available to help technical teams provide optimized business solutions and support for applications running on IBM POWER systems' virtualized environments. The book offers application performance examples deployed on IBM Power Systems™ utilizing performance monitoring tools to leverage the comprehensive set of POWER virtualization features: Logical Partitions (LPARs), micro-partitioning, active memory sharing, workload partitions, and more. We provide a well-defined and documented performance tuning model in a POWER system virtualized environment to help you plan a foundation for scaling, capacity, and optimization . This book targets technical professionals (technical consultants, technical support staff, IT Architects, and IT Specialists) responsible for providing solutions and support on IBM POWER systems, including performance tuning.

IBM Power Systems Private Cloud with Shared Utility Capacity: Featuring Power Enterprise Pools 2.0 IBM Redbooks

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power System™ E850C (8408-44E) server that supports IBM AIX®, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E850C offerings and their relevant functions. The Power E850C server (8408-44E) is the latest enhancement to the Power Systems portfolio. It offers an improved 4-socket 4U system that delivers faster IBM POWER8® processors up to 4.22 GHz, with up to 4 TB of DDR4 memory, built-in IBM PowerVM® virtualization, and capacity on demand. It also integrates cloud management to help clients deploy scalable, mission-critical business applications in virtualized, private cloud infrastructures. Like its predecessor Power E850 server, which was launched in 2015, the new Power E850C server uses 8-core, 10-core, or 12-core POWER8 processor modules. However, the Power E850C cores are 13%-20% faster and deliver a system with up to 32 cores at 4.22 GHz, up to 40 cores at 3.95 GHz, or up to 48 cores at 3.65 GHz, and use DDR4 memory. A minimum of two processor modules must be installed in each system, with a minimum quantity of one processor module's cores activated. Cloud computing, in its many forms (public, private, or hybrid), is quickly becoming both the delivery and consumption models for IT. However, finding the correct mix between traditional IT, private cloud, and public cloud can be a challenge. The new Power E850C server and IBM Cloud PowerVC manager can enable clients to accelerate the transformation of their IT infrastructure for cloud while providing tremendous flexibility during the transition. IBM Cloud PowerVC Manager provides OpenStack-based cloud management to accelerate and simplify cloud deployment by providing fast and automated VM deployments, prebuilt image templates, and self-service capabilities all with an intuitive interface. PowerVC management upwardly integrates into various third-party hybrid cloud orchestration products, including IBM Cloud Orchestrator, VMware vRealize, and others. Clients can simply manage both their private cloud VMs and their public cloud VMs from a single, integrated management tool. IBM Power Systems is designed to provide the highest levels of reliability, availability, flexibility, and performance to bring you a world-class enterprise private and hybrid cloud infrastructure. Through enterprise-class security, efficient built-in virtualization that drives industry-leading workload density, and dynamic resource allocation and management, the server consistently delivers the highest levels of service across hundreds of virtual workloads on a single system. The Power E850C server includes the cloud management software and services to assist with clients' move to the cloud, both private and hybrid. Those additional capabilities include the following items: Private cloud management with IBM Cloud PowerVC Manager, Cloud-

based HMC Apps as a service, and Open source cloud automation and configuration tooling for AIX Hybrid cloud support Hybrid infrastructure management tools Securely connect system of record workloads and data to cloud native applications IBM Cloud Starter Pack Flexible capacity on demand Power to Cloud Services This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E850C system.

IBM® Power Virtualization Center (IBM® PowerVCTM) is an advanced enterprise virtualization management offering for IBM Power Systems. This IBM Redbooks® publication introduces IBM PowerVC and helps you understand its functions, planning, installation, and setup. It also shows how IBM PowerVC can integrate with systems management tools such as Ansible or Terraform and that it also integrates well into a OpenShift container environment. IBM PowerVC Version 2.0.0 supports both large and small deployments, either by managing IBM PowerVM® that is controlled by the Hardware Management Console (HMC), or by IBM PowerVM NovaLink. With this capability, IBM PowerVC can manage IBM AIX®, IBM i, and Linux workloads that run on IBM POWER® hardware. IBM PowerVC is available as a Standard Edition, or as a Private Cloud Edition. IBM PowerVC includes the following features and benefits: Virtual image capture, import, export, deployment, and management Policy-based virtual machine (VM) placement to improve server usage Snapshots and cloning of VMs or volumes for backup or testing purposes Support of advanced storage capabilities such as IBM SVC vdisk mirroring of IBM Global Mirror Management of real-time optimization and VM resilience to increase productivity VM Mobility with placement policies to reduce the burden on IT staff in a simple-to-install and easy-to-use graphical user interface (GUI) Automated Simplified Remote Restart for improved availability of VMs ifor when a host is down Role-based security policies to ensure a secure environment for common tasks The ability to enable an administrator to enable Dynamic Resource Optimization on a schedule IBM PowerVC Private Cloud Edition includes all of the IBM PowerVC Standard Edition features and enhancements: A self-service portal that allows the provisioning of new VMs without direct system administrator intervention. There is an option for policy approvals for the requests that are received from the self-service portal. Pre-built deploy templates that are set up by the cloud administrator that simplify the deployment of VMs by the cloud user. Cloud management policies that simplify management of cloud deployments. Metering data that can be used for chargeback. This publication is for experienced users of IBM PowerVM and other virtualization solutions who want to understand and implement the next generation of enterprise virtualization management for Power Systems. Unless stated otherwise, the content of this publication refers to IBM PowerVC Version 2.0.0.

This IBM® Redbooks® publication is a comprehensive guide that covers cloud security considerations for IBM Power Systems™. The first objectives of this book are to examine how Power Systems can fit into the current and developing cloud computing landscape and to outline the proven Cloud Computing Reference Architecture (CCRA) that IBM employs in building private and hybrid cloud environments. The book then looks more closely at the underlying technology and hones in on the security aspects for the following subsystems: IBM Hardware Management Console IBM PowerVM IBM PowerKVM IBM PowerVC IBM Cloud Manager with OpenStack IBM Bluemix This publication is for professionals who are involved in security design with regard to planning and deploying cloud infrastructures using IBM Power Systems.

This IBM® Redbooks® publication is a comprehensive guide that covers cloud security considerations for IBM Power Systems. The first objectives of this book are to examine how Power Systems can fit into the current and developing cloud computing landscape and to outline the proven Cloud Computing Reference Architecture (CCRA) that IBM employs in building private and hybrid cloud environments. We then look more closely at the underlying technology and hone in on the security aspects for the following subsystems: IBM Hardware Management Console IBM PowerVM® IBM PowerKVM IBM PowerVC IBM Cloud Manager with OpenStack This publication is geared toward professionals who are involved in security design and implementation regarding planning and deploying cloud infrastructures using IBM Power Systems.

This IBM® Redbooks® publication helps you with the planning, installation, and configuration of the new IBM Spectrum® Archive Enterprise Edition (EE) Version 1.3.1.2 for the IBM TS4500, IBM TS3500, IBM TS4300, and IBM TS3310 tape libraries. IBM Spectrum Archive Enterprise Edition enables the use of the LTFS for the policy management of tape as a storage tier in an IBM Spectrum Scale based environment. It helps encourage the use of tape as a critical tier in the storage environment. This is the ninth edition of IBM Spectrum Archive Installation and Configuration Guide. IBM Spectrum Archive EE can run any application that is designed for disk files on a physical tape media. IBM Spectrum Archive EE supports the IBM Linear Tape-Open (LTO) Ultrium 8, 7, 6, and 5 tape drives in IBM® TS3310, TS3500, TS4300, and TS4500 tape libraries. In addition, IBM TS1160, TS1155, TS1150, and TS1140 tape drives are supported in TS3500 and TS4500 tape library configurations. IBM Spectrum Archive EE can play a major role in reducing the cost of storage for data that does not need the access performance of primary disk. The use of IBM Spectrum Archive EE to replace disks with physical tape in tier 2 and tier 3 storage can improve data access over other storage solutions because it improves efficiency and streamlines management for files on tape. IBM Spectrum Archive EE simplifies the use of tape by making it transparent to the user and manageable by the administrator under a single infrastructure. This publication is intended for anyone who wants to understand more about IBM Spectrum Archive EE planning and implementation. This book is suitable for IBM customers, IBM Business Partners, IBM specialist sales representatives, and technical specialists.

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

This IBM® Redpaper publication provides an update to the original description of IBM Reference Architecture for Genomics. This paper expands the reference architecture to cover all of the

major vertical areas of healthcare and life sciences industries, such as genomics, imaging, and clinical and translational research. The architecture was renamed IBM Reference Architecture for High Performance Data and AI in Healthcare and Life Sciences to reflect the fact that it incorporates key building blocks for high-performance computing (HPC) and software-defined storage, and that it supports an expanding infrastructure of leading industry partners, platforms, and frameworks. The reference architecture defines a highly flexible, scalable, and cost-effective platform for accessing, managing, storing, sharing, integrating, and analyzing big data, which can be deployed on-premises, in the cloud, or as a hybrid of the two. IT organizations can use the reference architecture as a high-level guide for overcoming data management challenges and processing bottlenecks that are frequently encountered in personalized healthcare initiatives, and in compute-intensive and data-intensive biomedical workloads. This reference architecture also provides a framework and context for modern healthcare and life sciences institutions to adopt cutting-edge technologies, such as cognitive life sciences solutions, machine learning and deep learning, Spark for analytics, and cloud computing. To illustrate these points, this paper includes case studies describing how clients and IBM Business Partners alike used the reference architecture in the deployments of demanding infrastructures for precision medicine. This publication targets technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) who are responsible for providing life sciences solutions and support.

[Copyright: ca314a8f8419677fed12481f0ccba77](#)