

## Websphere Application Server 61 Tuning Guide

**Pro (IBM) WebSphere Application Server 7 Internals covers the internal architecture and implementation of the WebSphere Application Server (WAS) version 7 product set and how other IBM products extend it. It presents information to enable administrators, developers, and architects to learn about the aspects of WAS that apply to them: Administrators will come to understand how the WAS7 environment functions to best optimize it for their environment, and what to do when things go wrong. Developers will learn to extend the functionality in the base WAS product. Architects will see how the WAS product underpins the IBM offerings to fit in an enterprise.**

**This IBM® Redbooks® publication provides system administrators and developers with the knowledge to configure an IBM WebSphere® Application Server Version 8 runtime environment, to package and deploy applications, and to perform ongoing management of the WebSphere environment. As one in a series of IBM Redbooks publications and IBM Redpapers publications for V8, the entire series is designed to give you in-depth information about key WebSphere Application Server features. In this book, we provide a detailed exploration of the WebSphere Application Server V8 runtime administration process. This book includes configuration and administration information for**

**WebSphere Application Server V8 and WebSphere Application Server Network Deployment V8 on distributed platforms and WebSphere Application Server for z/OS® V8. The following publications are prerequisites for this book: WebSphere Application Server V8.0 Technical Overview, REDP-4756 IBM WebSphere Application Server V8 Concepts, Planning, and Design Guide, SG24-7957 This IBM® Redbooks® publication contains a summary of the leading practices for implementing and managing a WebSphere® eXtreme Scale installation. The information in this book is a result of years of experience that IBM has had in with production WebSphere eXtreme Scale implementations. The input was received from specialists, architects, and other practitioners who have participated in engagements around the world. The book provides a brief introduction to WebSphere eXtreme Scale and an overview of the architecture. It then provides advice about topology design, capacity planning and tuning, grid configuration, ObjectGrid and backing map plug-ins, application performance tips, and operations and monitoring. This book is written for a WebSphere eXtreme Scale-knowledgeable audience.**

**Virtualizing and Tuning Large-Scale Java Platforms Technical best practices and real-world tips for optimizing enterprise Java applications on VMware vSphere® Enterprises no longer ask, “Can Java be virtualized”? Today, they ask, “Just how large can we scale virtualized Java application platforms, and just how**

efficiently can we tune them?” Now, the leading expert on Java virtualization answers these questions, offering detailed technical information you can apply in any production or QA/test environment. Emad Benjamin has spent nine years virtualizing VMware's own enterprise Java applications and working with nearly 300 leading VMware customers on projects of all types and sizes—from 100 JVMs to 10,000+, with heaps from 1GB to 360GB, and including massive big-data applications built on clustered JVMs. Reflecting all this experience, he shows you how to successfully size and tune any Java workload. This reference and performance “cookbook” identifies high-value optimization opportunities that apply to physical environments, virtual environments, or both. You learn how to rationalize and scale existing Java infrastructure, modernize architecture for new applications, and systematically benchmark and improve every aspect of virtualized Java performance. Throughout, Benjamin offers real performance studies, specific advice, and “from-the-trenches” insights into monitoring and troubleshooting. Coverage includes --Performance issues associated with large-scale Java platforms, including consolidation, elasticity, and flexibility --Technical considerations arising from theoretical and practical limits of Java platforms --Building horizontal in-memory databases with VMware vFabric SQLFire to improve scalability and response times --Tuning large-scale Java using throughput/parallel GC and Concurrent Mark and Sweep (CMS) techniques

--Designing and sizing a new virtualized Java environment --Designing and sizing new large-scale Java platforms when migrating from physical to virtualized deployments --Designing and sizing large-scale Java platforms for latency-sensitive in-memory databases --Real-world performance studies: SQLFire vs. RDBMS, Spring-based Java web apps, vFabric SpringTrader, application tiers, data tiers, and more --Performance differences between ESXi3, 4.1, and 5 --Best-practice considerations for each type of workload: architecture, performance, design, sizing, and high availability --Identifying bottlenecks in the load balancer, web server, Java application server, or DB Server tiers --Advanced vSphere Java performance troubleshooting with esxtop --Performance FAQs: answers to specific questions enterprise customers have asked

**WebSphere Application Server V8.5 Concepts, Planning, and Design Guide**  
**Performance Optimization and Tuning Techniques for IBM Power Systems Processors Including IBM POWER8**

**IBM z/OS V2R2 Communications Server TCP/IP Implementation: Volume 3 High Availability, Scalability, and Performance**

**IBM i 6.1 Technical Overview**

**IBM Business Process Manager V8.5 Performance Tuning and Best Practices**

This IBM Redbooks publication gives a broad understanding of a new

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32-bit Java Virtual Machine (JVM) in IBM i5/OS. With the arrival of this new JVM, IBM System i platform now comfortably supports Java and WebSphere applications on a wide array of different server models: from entry size boxes to the huge enterprise systems. This book provides in-depth information about setting Java and IBM WebSphere environments with new 32-bit JVM, tuning its performance, and monitoring or troubleshooting its runtime with the new set of tools. Information in this book helps system architects, Java application developers, and system administrators in their work with 32-bit JVM in i5/OS. Important: Despite the fact that this book targets i5/OS implementation, most information in this book applies to all IBM server platforms, where the new 32-bit JVM is supported.

LinuxONE is a portfolio of hardware, software, and solutions for an enterprise-grade Linux environment. It has been designed to run more transactions faster and with more security and reliability specifically for the open community. It fully embraces open source-based technology. Two servers are available for LinuxONE: The IBM® LinuxONE III LT1 and IBM LinuxONE III LT2. We describe these servers in "IBM LinuxONE servers" on page 5. Aside from still running SUSE Linux Enterprise Server and Red Hat Enterprise Linux Servers, LinuxONE runs Ubuntu, which is popular on x86 hardware. Ubuntu, which runs the cloud, smartphones, a computer that can remote control a planetary

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rover for NASA, many market-leading companies, and the Internet of Things, is now available on IBM LinuxONE servers. Together, these two technology communities deliver the perfect environment for cloud and DevOps. Ubuntu 16.04 on LinuxONE offers developers, enterprises, and Cloud Service Providers a scalable and secure platform for next generation applications that include OpenStack, KVM, Docker, and JuJu. The following are reasons why you would want to optimize your servers through virtualization using LinuxONE: Too many distributed physical servers with low utilization A lengthy provisioning process that delays the implementation of new applications Limitations in data center power and floor space High total cost of ownership (TCO) Difficulty allocating processing power for a dynamic environment This IBM Redbooks® publication provides a technical planning reference for IT organizations that are considering a migration from their x86 distributed servers to LinuxONE. This book walks you through some of the important considerations and planning issues that you might encounter during a migration project. Within the context of a pre-existing UNIX based or x86 environment, it presents an end-to-end view of the technical challenges and methods necessary to complete a successful migration to LinuxONE.

This IBM® Redbooks® publication demonstrates and documents that IBM Power Systems™ high-performance computing and technical computing

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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

This IBM Redbooks publication focuses on the differences introduced in

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IBM AIX Version 6.1 when compared to AIX 5L Version 5.3. It is intended to help system administrators, developers, and users understand these enhancements and evaluate potential benefits in their own environments. AIX Version 6.1 introduces many new features, including workload partitions, advanced security, continuous availability, and managing and monitoring enhancements. There are many other new features available with AIX Version 6.1, and you can explore them all in this publication. For clients who are not familiar with the enhancements of AIX through Version 5.3, a companion publication, AIX 5L Differences Guide Version 5.3 Edition, SG24-7463 is available, along with an addendum, AIX 5L Differences Guide Version 5.3 Addendum, SG24-7414, which includes between release enhancements that are available through applying service updates.

IBM System Storage DS8000 Performance Monitoring and Tuning  
Co-locating Transactional and Data Warehouse Workloads on System z  
IBM Technology for Java Virtual Machine in IBM i5/OS  
Leveraging IBM Cognos 8 BI for Linux on IBM System z  
Performance Tuning for IBM Security Directory Server

**As business cycles speed up, many customers gain significant competitive advantage from quicker and more accurate business decision-making by using real data. For many customers, choosing**

**the path to co-locate their transactional and analytical workloads on System z® better leverages their existing investment in hardware, software, and skills. We created a project to address a number of best practice questions on how to manage these newer, analytical type workloads, especially when co-located with traditional transactional workloads. The goal of this IBM® Redbooks® publication is to provide technical guidance and performance trade-offs associated with resource management and potentially DB2® data-sharing in a variety of mixed transactional / data warehouse System z topologies. The term co-location used here and in the rest of the book is specifically defined as the practice of housing both transactional (OLTP) and data warehouse (analytical) workloads within the same System z configuration. We also assumed that key portions of the transactional and data warehouse databases would reside on DB2 for z/OS®. The databases may or may not reside in a DB2 data-sharing environment; we discuss those pros and cons in this book. The intended audience includes DB2 data warehouse architects and practitioners who are facing choices in resource management and system topologies in the data warehouse arena. This specifically**

**includes Business Intelligence (BI) administrators, DB2 database administrators (DBAs) and z/OS performance administrators / systems programmers. In addition, decision makers and architects can utilize this book to assist in making platform and database topology decisions. The book is divided into four parts. Part I, "Introducing the co-location project" covers the System z value proposition and why one should consider System z as the central platform for their data warehousing / business analytics needs. Some topics are risk avoidance via data consolidation, continuous availability, simplified disaster recovery, IBM Smart Analytics Optimizer, reduced network bandwidth requirements, and the unique virtualization and resource management capabilities of System z LPAR, z/VM® and WLM. Part I also provides some of the common System z co-location topologies along with an explanation of the general pros and cons of each. This would be useful input for an architect to understand where a customer is today and where they might consider moving to. Part II, "Project environment" covers the environment, products, workloads, workload drivers, and data models implemented for this study. The environment consisted of a logically partitioned z10TM 32way, running z/VM, Linux®, and**

**z/OS operating system instances. On those instances we ran products such as z/OS DB2 V9, IBM Cognos® Business Intelligence Version 8.4 for Linux on System z, InfoSphere™ Warehouse for System z, InfoSphere Change Data Capture, z/OS WebSphere® V7, Tivoli® Omegamon for DB2 Performance expert. Utilizing these products we created transactional (OLTP), data warehouse query, and data warehouse refresh workloads. All the workloads were based on an existing web-based transactional Bookstore workload, that's currently utilized for internal testing within the System p® and z labs. While some IBM Cognos BI and ISWz product usage and experiences information is covered in this book, we do not go into the depth typically found in IBM Redbooks publications, since there's another book focused specifically on that**

**This IBM® Redbooks® publication provides information about the concepts, planning, and design of IBM WebSphere® Application Server V8.5 environments. The target audience of this book is IT architects and consultants who want more information about the planning and design of application-serving environments, from small to large, and complex implementations. This book addresses the packaging and features in WebSphere Application Server, and**

**highlights the most common implementation topologies. It provides information about planning for specific tasks and components that conform to the WebSphere Application Server environment. Also in this book are planning guidelines for Websphere Application Server and Websphere Application Server Network Deployment on distributed platforms. It also includes guidelines for WebSphere Application Server for IBM z/OS®. This book contains information about migration considerations when moving from previous releases. This book has been updated with the new features introduced with WebSphere Application Server V8.5.5.**

**IBM DB2® for z/OS® is a high-performance database management system (DBMS) with a strong reputation in traditional high-volume transaction workloads that are based on relational technology. IBM WebSphere® Application Server is web application server software that runs on most platforms with a web server and is used to deploy, integrate, execute, and manage Java Platform, Enterprise Edition applications. In this IBM® Redbooks® publication, we describe the application architecture evolution focusing on the value of having DB2 for z/OS as the data server and IBM z/OS® as the platform for traditional and for modern applications. This book**

**provides background technical information about DB2 and WebSphere features and demonstrates their applicability presenting a scenario about configuring WebSphere Version 8.5 on z/OS and type 2 and type 4 connectivity (including the XA transaction support) for accessing a DB2 for z/OS database server taking into account high-availability requirements. We also provide considerations about developing applications, monitoring performance, and documenting issues. DB2 database administrators, WebSphere specialists, and Java application developers will appreciate the holistic approach of this document. In today's highly connected world, directory servers are the IT cornerstone of many businesses. These components of the corporate infrastructure are the foundation of authentication systems for internal and, more commonly, external user populations. Managing a directory server with several hundred internal users is not all that difficult. However, managing a directory server with several million external users in all 24 time zones throughout the world is a much more daunting task. IBM® Security Directory Server software can handle millions of entries, given the right architecture, configuration, and performance tuning.**

**However, that tuning can differ greatly from tuning for a smaller server with only a few hundred thousand entries. Managing and tuning a directory server of this size requires a change in mindset. Tuning and performance must be a focus even before the hardware is ordered. A proactive approach must be taken after installation also, including the pretuning steps to better interface with other products to make installations and migrations successful, and then regular maintenance to keep the directory running smoothly. This IBM Redbooks® publication is the accumulation of lessons learned in many different real-world environments, including a 24-server fault tolerant configuration with more than 300 million entries. The authors pooled their knowledge and resources to provide the most comprehensive performance view possible, from hardware to software, sort heaps to buffer pools, and table cardinalities. In large directory server deployments, use this document as a guide for how to get the right fit for your environment.**

**Practical Migration from x86 to LinuxONE**

**WebSphere Application Server V8: Administration and Configuration Guide**

**Maximizing Performance and Scalability with IBM WebSphere**

### **IBM CICS and the JVM server: Developing and Deploying Java Applications**

#### **Virtualizing and Tuning Large Scale Java Platforms**

This guide will help readers learn how to employ the significant power of use cases to their software development efforts. It provides a practical methodology, presenting key use case concepts.

IBM WebSphere Application Server 8.0 Administration Guide is a highly practical, example-driven tutorial. You will be introduced to WebSphere Application Server 8.0, and guided through configuration, deployment, and tuning for optimum performance. If you are an administrator who wants to get up and running with IBM WebSphere Application Server 8.0, then this book is not to be missed. Experience with WebSphere and Java would be an advantage, but is not essential.

This IBM® Redbooks® publication helps you plan and execute the migration of J2EE applications developed for Oracle WebLogic Server, JBoss, GlassFish, and Apache Tomcat, so that they run on WebSphere® Application Server V7. This book provides detailed information to plan migrations, suggested approaches for developing portable applications, and migration working examples for each of the platforms from which we migrated. It is not our intention to provide a feature-by-feature comparison of these application servers versus WebSphere Application Server V7, or to argue the relative merits of the products, but to produce practical technical advice for developers who have to migrate applications from these vendors to WebSphere Application Server V7. The book is intended as a migration guide for IT specialists who are working on migrating applications written for other application servers to

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### WebSphere Application Server V7.

This IBM® Redbooks® publication provides information about the new Java virtual machine (JVM) server technology in IBM CICS® Transaction Server for z/OS® V4.2. We begin by outlining the many advantages of its multi-threaded operation over the pooled JVM function of earlier releases. The Open Services Gateway initiative (OSGi) is described and we highlight the benefits OSGi brings to both development and deployment. Details are then provided about how to configure and use the new JVM server environment. Examples are included of the deployment process, which takes a Java application from the workstation Eclipse integrated development environment (IDE) with the IBM CICS Explorer® software development kit (SDK) plug-in, through the various stages up to execution in a stand-alone CICS region and an IBM CICSplex® environment. The book continues with a comparison between traditional CICS programming, and CICS programming from Java. As a result, the main functional areas of the Java class library for CICS (JCICS) application programming interface (API) are extensively reviewed. Further chapters are provided to demonstrate interaction with structured data such as copybooks, and how to access relational databases by using Java Database Connectivity (JDBC) and Structured Query Language for Java (SQLJ). Finally, we devote a chapter to the migration of applications from the pooled JVM model to the new JVM server run time.

IBM WebSphere Application Server 8.0 Administration Guide

Performance Analysis for Java Web Sites

IBM AIX Version 6.1 Differences Guide

High Availability and Disaster Recovery for Temenos T24 with IBM DB2 and AIX

Workload Optimized Systems: Tuning POWER7 for Analytics

**IBM® Business Process Manager (IBM BPM) is a comprehensive business process management (BPM) suite that provides visibility and management of your business processes. IBM BPM supports the whole BPM lifecycle approach: Discover and document Plan Implement Deploy Manage Optimize Process owners and business owners can use this solution to engage directly in the improvement of their business processes. IBM BPM excels in integrating role-based process design, and provides a social BPM experience. It enables asset sharing and creating versions through its Process Center. The Process Center acts as a unified repository, making it possible to manage changes to the business processes with confidence. IBM BPM supports a wide range of standards for process modeling and exchange. Built-in analytics and search capabilities help to further improve and optimize the business processes. This IBM Redbooks® publication provides valuable information for project teams and business people that are involved in projects using IBM BPM. It describes the important design decisions that you face as a team. These decisions invariably have an effect on the success of your project. These decisions range from the more business-centric decisions, such as which should be your first process, to the more technical decisions, such as solution analysis and architectural**

**considerations.**

**This IBM® Redpaper™ publication was produced by the WebSphere® Business Process Management performance teams. It provides performance tuning tips and best practices for WebSphere Process Server 7.0.0.1, WebSphere Enterprise Service Bus 7.0.0.1, WebSphere Integration Developer 7.0.0.1, WebSphere Business Monitor 7.0.0.0, and WebSphere Business Modeler 7.0.0.1. These products represent an integrated development and runtime environment based on a key set of service-oriented architecture (SOA) and business process management (BPM) technologies: Service Component Architecture (SCA), Service Data Object (SDO), and Business Process Execution Language for Web Services (BPEL). This paper is aimed at a wide variety of groups, both within IBM (development, services, technical sales, and so forth) and by customers. For those who are either considering or are in the early stages of implementing a solution incorporating these products, this document should prove a useful reference, both in terms of best practices during application development and deployment, and as a reference for setup, tuning, and configuration information. This paper provides a useful introduction to many of the issues influencing each product's performance, and can serve as a guide for making rational first choices in terms of**

**configuration and performance settings. Similarly, those who have already implemented a solution using these products might use the information presented here to gain insight as to how their overall integrated solution performance might be improved. All of these products build on the core capabilities of the WebSphere Application Server infrastructure, so BPM solutions also benefit from tuning, configuration, and best practices information for WebSphere Application Server and the corresponding platform Java™ Virtual Machines (JVMs). Pointers to this information can be found in "Related publications" on page 67. The reader is encouraged to use this paper in conjunction with these references..**

**IBM® Operational Decision Management (ODM) is a family of products used by IT and business users to create and manage business decision logic throughout their organization. This IBM Redpaper™ publication offers advice on all aspects of performance, including hardware, architecture, authoring, quality of service, monitoring, and tuning. The advice is based upon preferred practices and experience gained from real customer situations. This paper is aimed at a wide ODM audience, including IBM employees and customers, and provides useful information to both new and experienced users. Although the product family is known as IBM WebSphere® Operational Decision Management (WODM), at V8.0, with**

**V8.0.1** the the name is now simply IBM Operational Decision Manager (ODM). The performance information in this paper is based on V8.0 of this product family and differences introduced with V8.0.1 are pointed out. This IBM Red paper books publication presents Workload Partitions (WPARs), a set of completely new software-based system virtualization features introduced in IBM AIX Version 6.1. Adding WPARs to the AIX operating system provides a new level of system virtualization capability. WPARs complement the already existing AIX and System p virtualization features, by allowing:

- The partitioning of an AIX instance into multiple environments, each hosting applications and providing isolation from applications executing in the other environments
- The ability to checkpoint and restart execution of applications without modification of the application code
- The capability to relocate a live application into a different AIX instance, whether it is hosted in an LPAR of the same physical server or executing on a different physical server
- Fine-grained control of resource utilization by each application executing within an AIX instance

**Exploiting IBM PowerVM Virtualization Features with IBM Cognos 8 Business Intelligence**

**Performance Monitoring and Best Practices for WebSphere on Z/OS Pro (IBM) WebSphere Application Server 7 Internals**

**Running IBM WebSphere Application Server on System P and AIX  
DS8800 Performance Monitoring and Tuning**

***This IBM® Redbooks® publication addresses topics to leverage the virtualization strengths of the IBM Power platform to solve customer system resource utilization challenges and maximize system throughput and capacity. This IBM Redbooks publication will help you leverage the strengths of the POWER platform, provide implementation scenarios with Cognos® 8 Business Intelligence (BI) with the comprehensive set of the IBM PowerVMTM virtualization features, and identify and document best practices for exploiting the IBM PowerVM virtualization features within Cognos BI deployments to maximize utilization of system resources and maximize Cognos throughput and capacity. This book is targeted toward technical professionals (BI consultants, technical support staff, IT architects, and IT specialists) responsible for providing business intelligence solutions and support for Cognos BI on POWER® systems.***

***This IBM® Redbooks® publication addresses topics to help***

***clients to take advantage of the virtualization strengths of the POWER® platform to solve system resource utilization challenges and maximize system throughput and capacity. This publication examines the tools, utilities, documentation, and other resources available to help technical teams provide business solutions and support for Cognos® Business Intelligence (BI) and Statistical Package for the Social Sciences (SPSS®) on Power Systems™ virtualized environments. This book addresses topics to help address complex high availability requirements, help maximize the availability of systems, and provide expert-level documentation to the worldwide support teams. This book strengthens the position of the Cognos and SPSS solutions with a well-defined and documented deployment model within a POWER system virtualized environment. This model provides clients with a planned foundation for security, scaling, capacity, resilience, and optimization. This book is targeted toward technical professionals (BI consultants, technical support staff, IT Architects, and IT Specialists) who are responsible for providing Smart Analytics solutions and***

***support for Cognos and SPSS on Power Systems.  
Develop and deploy powerful Web-based applications on multiple platforms--including UNIX, NT, and AIX. Packed with essential information as well as advanced techniques for developers and system integrators, this book will help you maximize every aspect of WebSphere's functionality, and fully leverage the power of this key e-infrastructure software. Covering core Web technologies including EJB, J2EE, and servlets and including original source code for hundreds of working programs, IBM WebSphere Application Server Programming belongs in the hands of every serious WebSphere developer and system integrator.  
IBM Operational Decision Management V8.0 Performance Tuning Guide  
IBM Redbooks  
WebSphere Application Server V7: Competitive Migration Guide***

***WebSphere eXtreme Scale Best Practices for Operation and Management  
NetWare 4.0-6.0***

### ***Writing Effective Use Cases***

In this IBM® Redbooks® publication, we describe the role Cognos® plays in an Information On Demand (IOD) solution for IBM System z® and detail the functions of IBM Cognos 8 BI for Linux® on System z in current deployment scenarios. We show typical deployment architectures that show how to access disparate data sources both on and off the System z platform and show how the functions of the Cognos family of products provides a way to consolidate different BI solutions on System z. We provide examples of Cognos functions for resolving business requirements using reporting and OLAP capabilities as well as general deployment considerations of IBM Cognos 8 BI for Linux on System z. This publication is meant to help the Cognos Business Intelligence professional understand the strong points of System z architecture and the database specialist appreciate the Cognos family of products.

For more than 50 years, IBM® mainframes have supported an extraordinary portion of the world's computing work, providing centralized corporate databases and mission-critical enterprise-wide applications. IBM z Systems™ platform, the latest

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generation of the IBM distinguished family of mainframe systems, has come a long way from its IBM System/360 heritage. Likewise, its IBM z/OS® operating system is far superior to its predecessors in providing, among many other capabilities, world-class and state-of-the-art support for the TCP/IP protocol suite. TCP/IP is a large and evolving collection of communication protocols managed by the Internet Engineering Task Force (IETF), an open, volunteer organization. Because of its openness, the TCP/IP protocol suite has become the foundation for the set of technologies that form the basis of the Internet. The convergence of IBM mainframe capabilities with Internet technology, connectivity, and standards (particularly TCP/IP) is dramatically changing the face of information technology and driving requirements for even more secure, scalable, and highly available mainframe TCP/IP implementations. The IBM z/OS Communications Server TCP/IP Implementation series provides understandable, step-by-step guidance for enabling the most commonly used and important functions of z/OS Communications Server TCP/IP. This IBM Redbooks® publication is for people who install and support z/OS Communications Server. It starts with a

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discussion of virtual IP addressing (VIPA) for high-availability, with and without a dynamic routing protocol. It describes several workload balancing approaches with the z/OS Communications Server. It also explains optimized sysplex distributor intra-sysplex load balancing. This function represents improved application support using optimized local connections together with weight values from extended Workload Manager (WLM) interfaces. Finally, this book highlights important tuning parameters and suggests parameter values to maximize performance in many client installations.

This IBM® Redbooks® publication introduces a technical overview of the main new features, functions and enhancements available in IBM i 6.1 (formerly called i5/OS® V6R1). It gives a summary and brief explanation of new capabilities and what has changed in the operating system, and also discusses many of the licensed programs and application development tools associated with IBM i. Many other new and enhanced functions are described, such as virtualization of storage, security, Java™ performance, improved performance with IBM System Storage™ devices, backup and recovery, including base IBM i, Backup, Recovery and Media

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Services (BRMS). The book introduces the PowerHATM product, IBM Systems Director-based system management and an easier Web enablement. The information provided in this book will be useful for customers, Business Partners, and IBM service professionals involved with planning, supporting, upgrading, and implementing IBM i 6.1 solutions.

Manage and administer your WebSphere application server to create a reliable, secure, and scalable environment for running your applications with this book and eBook.

Business Process Management Design Guide: Using IBM Business Process Manager

WebSphere Application Server 7.0 Administration Guide

IBM SAN Volume Controller Stretched Cluster with PowerVM and PowerHA

IBM Operational Decision Management V8.0 Performance Tuning Guide

Introduction to Workload Partition Management in IBM AIX Version 6.1

*Targeting the critical issue of performance, this guide shows how to resolve bottlenecks, increase speed, and get better*

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overall performance for Java Websites. The author team is a group of seasoned performance experts who have helped hundreds of customers resolve enterprise Website performance issues. This IBM® Redbooks® publication describes the IBM Storage Area Network and IBM SAN Volume Controller Stretched Cluster solution when combined with PowerVM® and PowerHA®. We describe guidelines, settings, and the implementation steps that are necessary to achieve a successful implementation. This book is for administrators who are familiar with the SAN, IBM SAN Volume Controller, and IBM PowerVM and PowerHA Systems. This IBM® Redbooks® publication focuses on gathering the correct technical information, and laying out simple guidance for optimizing code performance on IBM POWER8® processor-based systems that run the IBM AIX®, IBM i, or Linux operating systems. There is straightforward performance optimization that can be performed with a minimum of effort and without extensive previous experience or in-depth knowledge. The POWER8 processor contains many new and important performance features, such as support for eight hardware threads in each core and support for transactional memory. The POWER8 processor is a strict superset

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*of the IBM POWER7+™ processor, and so all of the performance features of the POWER7+ processor, such as multiple page sizes, also appear in the POWER8 processor. Much of the technical information and guidance for optimizing performance on POWER8 processors that is presented in this guide also applies to POWER7+ and earlier processors, except where the guide explicitly indicates that a feature is new in the POWER8 processor. This guide strives to focus on optimizations that tend to be positive across a broad set of IBM POWER® processor chips and systems. Specific guidance is given for the POWER8 processor; however, the general guidance is applicable to the IBM POWER7+, IBM POWER7®, IBM POWER6®, IBM POWER5, and even to earlier processors. This guide is directed at personnel who are responsible for performing migration and implementation activities on POWER8 processor-based systems. This includes system administrators, system architects, network administrators, information architects, and database administrators (DBAs).*

*This IBM® Redbooks® publication provides information about the concepts, planning, and design of IBM WebSphere® Application*

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*Server V8 environments. The target audience of this book is IT architects and consultants who want more information about the planning and designing of application-serving environments, from small to large, and complex implementations. This book addresses the packaging and features in WebSphere Application Server V8 and highlights the most common implementation topologies. It provides information about planning for specific tasks and components that conform to the WebSphere Application Server environment. Also in this book are planning guidelines for WebSphere Application Server V8 and WebSphere Application Server Network Deployment V8 on distributed platforms and for WebSphere Application Server for z/OS® V8. This book contains information about migration considerations when moving from previous releases.*

*IBM WebSphere Application Server V8 Concepts, Planning, and Design Guide*

*IBM(R) WebSphere(R) Application Server Programming*

*DB2 for z/OS and WebSphere Integration for Enterprise Java Applications*

*Best Practices for DB2 on AIX 6.1 for POWER Systems*

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### *Optimization and Best Practices*

NetWare Administration contains information from a consultant's or administrator's viewpoint. There are no other NetWare books like it. The author went right to the meat—the NetWare client starts Chapter 1. This book provides tips, tricks, high-level explanations and Foust's hardcore experience in the field for Novell. He includes information that his clients had to pay \$10,000 a week to receive, including practical coverage of NDS, upgrading to 6.0, and thousands of detailed instructions to accomplish virtually any enterprise-wide task. This book has more specific information than any you have ever seen on NetWare. It covers NetWare 4.x through 5.x up to NetWare 6 (due out end of this year). Covers new features in v. 6.0 Great for troubleshooting client problems Learn how to re-design your NDS tree

This IBM® Redbooks® publication provides performance tuning tips and best practices for IBM Business Process Manager (IBM BPM) V8.5.5 (all editions) and IBM Business Monitor V8.5.5. These products represent an integrated development and runtime environment based on a key set of service-oriented architecture (SOA) and business process management (BPM) technologies. Such technologies include Service Component Architecture (SCA), Service Data Object (SDO), Business Process Execution Language (BPEL) for web services, and Business Processing Modeling Notation (BPMN). Both IBM Business Process Manager and Business Monitor build on the core capabilities of the IBM WebSphere® Application Server infrastructure. As a result, Business Process Manager solutions benefit from tuning, configuration, and best practices information for WebSphere Application Server and the

corresponding platform Java virtual machines (JVMs). This book targets a wide variety of groups, both within IBM (development, services, technical sales, and others) and customers. For customers who are either considering or are in the early stages of implementing a solution incorporating Business Process Manager and Business Monitor, this document proves a useful reference. The book is useful both in terms of best practices during application development and deployment and as a reference for setup, tuning, and configuration information. This book talks about many issues that can influence performance of each product and can serve as a guide for making rational first choices in terms of configuration and performance settings. Similarly, customers who already implemented a solution with these products can use the information presented here to gain insight into how their overall integrated solution performance can be improved.

This IBM® Redbooks® publication provides guidance about how to configure, monitor, and manage your IBM DS8880 storage systems to achieve optimum performance, and it also covers the IBM DS8870 storage system. It describes the DS8880 performance features and characteristics, including hardware-related performance features, synergy items for certain operating systems, and other functions, such as IBM Easy Tier® and the DS8000® I/O Priority Manager. The book also describes specific performance considerations that apply to particular host environments, including database applications. This book also outlines the various tools that are available for monitoring and measuring I/O performance for different server environments, and it describes how to monitor the performance of the entire DS8000 storage

system. This book is intended for individuals who want to maximize the performance of their DS8880 and DS8870 storage systems and investigate the planning and monitoring tools that are available. The IBM DS8880 storage system features, as described in this book, are available for the DS8880 model family with R8.0 release bundles (Licensed Machine Code (LMC) level 7.8.0).

This IBM® Redbooks® publication presents a best practices guide for DB2® and InfoSphere™ Warehouse performance on a AIX® 6L with Power Systems™ virtualization environment. It covers Power hardware features such as PowerVMTM, multi-page support, Reliability, Availability, and Serviceability (RAS) and how to best exploit them with DB2 LUW workloads for both transactional and data warehousing systems. The popularity and reach of DB2 and InfoSphere Warehouse has grown in recent years. Enterprises are relying more on these products for their mission-critical transactional and data warehousing workloads. It is critical that these products be supported by an adequately planned infrastructure. This publication offers a reference architecture to build a DB2 solution for transactional and data warehousing workloads using the rich features offered by Power systems. IBM Power Systems have been leading players in the server industry for decades. Power Systems provide great performance while delivering reliability and flexibility to the infrastructure. This book presents a reference architecture to build a DB2 solution for transactional and data warehousing workloads using the rich features offered by Power systems. It aims to demonstrate the benefits DB2 and InfoSphere Warehouse can derive from a Power Systems infrastructure and how Power Systems

support these products. The book is intended as a guide for a Power Systems specialist to understand the DB2 and InfoSphere Warehouse environment and for a DB2 and InfoSphere Warehouse specialist to understand the facilities available for Power Systems supporting these products.

WebSphere Business Process Management and WebSphere Enterprise Service Bus V7  
Performance Tuning

Implementing an IBM High-Performance Computing Solution on IBM Power System S822LC  
NetWare Administration

This IBM® Redbooks® publication provides guidance about how to configure, monitor, and manage your IBM System Storage® DS8800 and DS8700 storage systems to achieve optimum performance. It describes the DS8800 and DS8700 performance features and characteristics, including IBM System Storage Easy Tier® and DS8000® I/O Priority Manager. It also describes how they can be used with the various server platforms that attach to the storage system. Then, in separate chapters, we detail specific performance recommendations and discussions that apply for each server environment, as well as for database and DS8000 Copy Services environments. We also outline the various tools available for monitoring and measuring I/O performance for different server environments, as well as describe how to monitor the performance of the entire DS8000 storage system. This book is intended for individuals who want to maximize the performance of their DS8800 and DS8700 storage systems and investigate the

planning and monitoring tools that are available. The IBM System Storage DS8800 and DS8700 storage system features, as described in this book, are available for the DS8700 with Licensed Machine Code (LMC) level 6.6.2x.xxx or higher and the DS8800 with Licensed Machine Code (LMC) level 7.6.2x.xxx or higher. For information about optimizing performance with the previous DS8000 models, DS8100 and DS8300, see the following IBM Redbooks publication: DS8000 Performance Monitoring and Tuning, SG24-7146.

The Temenos T24 core banking application is a critical application for the banks that use it and has a primary focus on providing an appropriate level of high availability and disaster recovery. The level of availability is determined largely by the configuration of the infrastructure that supports T24. This infrastructure is built on hardware, middleware, and networking, in addition to the operational procedures and practices that are used to operate T24. Many options are available for meeting a client's high availability and disaster recovery requirements. The solution chosen by a Temenos T24 user depends on many factors. These factors include a user's detailed availability and recovery requirements; their existing datacenter standards, practices, and processes; and the available network infrastructure. Therefore, the optimum solution must be determined on a case-by-case basis for each deployment. This IBM® Redpaper™ publication serves as a guide to help IT architects and other technical staff who are designing, configuring, and building the infrastructure to support Temenos T24. It shows how IBM software can deliver high availability and disaster

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recovery for Temenos T24 to meet a client's requirements. This software might run on IBM AIX®, IBM WebSphere® Application Server, WebSphere MQ Server, and IBM DB2®. These IBM software components are typically used for a Temenos T24 deployment on an IBM middleware stack to ensure a highly available infrastructure for T24.

\* Describes the IBM WebSphere versions 4.0 and 5.0 architecture from a nuts and bolts level, giving visibility to the technology and underlying WebSphere platform design \* Describes how to proactively manage the performance of an IBM WebSphere v4 or v5 platform \* Thorough descriptions of tuning WebSphere with performance and robustness in mind \* Teaches the reader how to develop custom IBM WebSphere performance monitoring and management tools