

## Introduction To Ibm Mq Advanced Message Security Mq Ams

IBM® Informix® is a low-administration, easy-to-use, and embeddable database that is ideal for application development. It supports a wide range of development platforms, such as Java™, .NET, PHP, and web services, enabling developers to build database applications in the language of their choice. Informix is designed to handle RDBMS data and XML without modification and can be extended easily to handle new data sets. This IBM Redbooks® publication provides fundamentals of Informix application development. It covers the Informix Client installation and configuration for application development environments. It discusses the skills and techniques for building Informix applications with Java, ESQL/C, OLE DB, .NET, PHP, Ruby on Rails, DataBlade®, and Hibernate. The book uses code examples to demonstrate how to develop an Informix application with various drivers, APIs, and interfaces. It also provides application development troubleshooting and considerations for performance. This book is intended for developers who use IBM Informix for application development. Although some of the topics that we discuss are highly technical, the information in the book might also be helpful for managers or database administrators who are looking to better understand their Informix development environment. This IBM® Redbooks® publication introduces the latest IBM z Systems™ platforms, the IBM z13™ and IBM z13s. It includes information about the z Systems environment and how it can help integrate data, transactions, and insight for faster and more accurate business decisions. The z13 and z13s are state-of-the-art data and transaction systems that deliver advanced capabilities that are vital to modern IT infrastructures. These capabilities include: Accelerated data and transaction serving Integrated analytics Access to the API economy Agile development and operations Efficient, scalable, and secure cloud services End-to-end security for data and transactions This book explains how these systems use both new innovations and traditional z Systems strengths to satisfy growing demand for cloud, analytics, and mobile applications. With one of these z Systems platforms as the base, applications can run in a trusted, reliable, and secure environment that both improves operations and lessens business risk. This IBM® Redbooks® publication is divided into four parts: Part 1 introduces message-oriented middleware and the WebSphere® MQ product. It explains how messaging technologies are implemented in WebSphere MQ and shows how to get started with configuring a WebSphere MQ environment. This part briefly lists the new features of WebSphere MQ V7.1 and V7.5. Part 2 introduces the enhancements to WebSphere MQ in Version 7 Release 1. It provides a description of the new features, their business value, and usage examples. It describes enhancements to WebSphere MQ for multiplatforms and z/OS®. Examples of features that are discussed in this part include multiple installation support for multiplatforms, enhanced security with channel authentication

records, enhanced clustering, improved availability and scalability on z/OS, and more. Part 3 introduces the enhancements to WebSphere MQ in Version 7 Release 5 for multiplatforms. It provides a description of the new features, their business value, and usage examples. Examples of enhancements that are discussed in this part include new installation options, such as the bundling of WebSphere MQ Advanced Message Security and WebSphere MQ Managed File Transfer. Part 4 contains practical scenarios that demonstrate how the new features and enhancements work and how to use them. In summary, the introduction gives a broad understanding of messaging technologies and WebSphere MQ. It helps you understand the business value of WebSphere MQ. It provides introductory information to help you get started with WebSphere MQ. No previous knowledge of the product and messaging technologies is assumed. The remaining parts of this book discuss enhancements to previous versions of WebSphere MQ. The information helps you understand the benefits of upgrading to WebSphere MQ V7.1 and V7.5 and how to implement the new functions. Knowledge of WebSphere MQ V7.0 and earlier versions is assumed. This book provides details about IBM WebSphere MQ product features and enhancements that are required for individuals and organizations to make informed application and design decisions prior to implementing a WebSphere MQ infrastructure or begin development of a WebSphere MQ application. This publication is intended to be of use to a wide-ranging audience.

& • Everything Java developers need to start building J2EE applications using WebSphere Tools for the WebSphere Application Server & & • Hands-on techniques and case studies: servlets, JSP, EJB, IBM VisualAge for Java, and more & & • Written by IBM insiders for IBM Press

Like many other incipient technologies, Web services are still surrounded by a substantial level of noise. This noise results from the always dangerous combination of wishful thinking on the part of research and industry and of a lack of clear understanding of how Web services came to be. On the one hand, multiple contradictory interpretations are created by the many attempts to realign existing technology and strategies with Web services. On the other hand, the emphasis on what could be done with Web services in the future often makes us lose track of what can be really done with Web services today and in the short term. These factors make it extremely difficult to get a coherent picture of what Web services are, what they contribute, and where they will be applied. Alonso and his co-authors deliberately take a step back. Based on their academic and industrial experience with middleware and enterprise application integration systems, they describe the fundamental concepts behind the notion of Web services and present them as the natural evolution of conventional middleware, necessary to meet the challenges of the Web and of B2B application integration. Rather than providing a reference guide or a "how to write your first Web service" kind of book, they discuss the main objectives of Web services, the challenges that must be faced to achieve them, and the opportunities that this novel

technology provides. Established, as well as recently proposed, standards and techniques (e.g., WSDL, UDDI, SOAP, WS-Coordination, WS-Transactions, and BPEL), are then examined in the context of this discussion in order to emphasize their scope, benefits, and shortcomings. Thus, the book is ideally suited both for professionals considering the development of application integration solutions and for research and students interesting in understanding and contributing to the evolution of enterprise application technologies.

First-ever comprehensive introduction to the major new subject of quantum computing and quantum information.

MQ Telemetry Transport (MQTT) is a messaging protocol that is lightweight enough to be supported by the smallest devices, yet robust enough to ensure that important messages get to their destinations every time. With MQTT devices such as smart energy meters, cars, trains, satellite receivers, and personal health care devices can communicate with each other and with other systems or applications. This IBM® Redbooks® publication introduces MQTT and takes a scenario-based approach to demonstrate its capabilities. It provides a quick guide to getting started and then shows how to grow to an enterprise scale MQTT server using IBM WebSphere® MQ Telemetry. Scenarios demonstrate how to integrate MQTT with other IBM products, including WebSphere Message Broker. This book also provides typical usage patterns and guidance on scaling a solution. The intended audience for this book ranges from new users of MQTT and telemetry to those readers who are looking for in-depth knowledge and advanced topics.

This IBM® Redpaper™ publication provides information about how to build, deploy, and use IBM MQ as a service. The information in this paper includes the key factors that must be considered while planning the use of IBM MQ as a service. Through descriptions and examples, this paper explains how to apply as a service methodologies to an IBM MQ environment, and describes techniques and preferred practices for integrating IBM MQ into a self-service portal. This paper explains how to create and use an IBM MQ as a service self-service menu for a portal. It includes examples that show how to use an IBM MQ as a service catalog. This paper describes options and techniques for deploying IBM MQ as a service that is tailored to the specific enterprise messaging needs of an organization. Although these techniques can be employed in a cloud environment, they are equally applicable in an on-premises enterprise data center. This paper includes information about the various infrastructure options that can be selected when implementing IBM MQ as a service. The information in this paper helps infrastructure administrators to define services so that you can provision IBM MQ resources quickly. The target audiences of this paper are developers, infrastructure administrators, and line-of-business (LOB) professionals who want to provision IBM MQ resources to be accessed as services in small, medium, large, and complex implementations.

This IBM® Redbooks® publication is based on the book Introduction to the New

Mainframe: z/OS Basics, SG24-6366, which was produced by the International Technical Support Organization (ITSO), Poughkeepsie Center. It provides students of information systems technology with the background knowledge and skills necessary to begin using the basic facilities of a mainframe computer. For optimal learning, students are assumed to have successfully completed an introductory course in computer system concepts, such as computer organization and architecture, operating systems, data management, or data communications. They should also have successfully completed courses in one or more programming languages, and be PC literate. This textbook can also be used as a prerequisite for courses in advanced topics, or for internships and special studies. It is not intended to be a complete text covering all aspects of mainframe operation. It is also not a reference book that discusses every feature and option of the mainframe facilities. Others who can benefit from this course include experienced data processing professionals who have worked with non-mainframe platforms, or who are familiar with some aspects of the mainframe but want to become knowledgeable with other facilities and benefits of the mainframe environment. As we go through this course, we suggest that the instructor alternate between text, lecture, discussions, and hands-on exercises. Many of the exercises are cumulative, and are designed to show the student how to design and implement the topic presented. The instructor-led discussions and hands-on exercises are an integral part of the course, and can include topics not covered in this textbook. In this course, we use simplified examples and focus mainly on basic system functions. Hands-on exercises are provided throughout the course to help students explore the mainframe style of computing. At the end of this course, you will be familiar with the following information: Basic concepts of the mainframe, including its usage and architecture Fundamentals of IBM z/VSE® (VSE), an IBM zTM Systems entry mainframe operating system (OS) An understanding of mainframe workloads and the major middleware applications in use on mainframes today The basis for subsequent course work in more advanced, specialized areas of z/VSE, such as system administration or application programming

The differences between well-designed security and poorly designed security are not always readily apparent. Poorly designed systems give the appearance of being secure but can over-authorize users or allow access to non-users in subtle ways. The problem is that poorly designed security gives a false sense of confidence. In some ways, it is better to knowingly have no security than to have inadequate security believing it to be stronger than it actually is. But how do you tell the difference? Although it is not rocket science, designing and implementing strong security requires strong foundational skills, some examples to build on, and the capacity to devise new solutions in response to novel challenges. This IBM® Redbooks® publication addresses itself to the first two of these requirements. This book is intended primarily for security specialists and IBM WebSphere® MQ administrators that are responsible for securing WebSphere

MQ networks but other stakeholders should find the information useful as well. Chapters 1 through 6 provide a foundational background for WebSphere MQ security. These chapters take a holistic approach positioning WebSphere MQ in the context of a larger system of security controls including those of adjacent platforms' technologies as well as human processes. This approach seeks to eliminate the simplistic model of security as an island, replacing it instead with the model of security as an interconnected and living system. The intended audience for these chapters includes all stakeholders in the messaging system from architects and designers to developers and operations. Chapters 7 and 8 provide technical background to assist in preparing and configuring the scenarios and chapters 9 through 14 are the scenarios themselves. These chapters provide fully realized example configurations. One of the requirements for any scenario to be included was that it must first be successfully implemented in the team's lab environment. In addition, the advice provided is the cumulative result of years of participation in the online community by the authors and reflect real-world practices adapted for the latest security features in WebSphere MQ V7.1 and WebSphere MQ V7.5. Although these chapters are written with WebSphere MQ administrators in mind, developers, project leaders, operations staff, and architects are all stakeholders who will find the configurations and topologies described here useful. The third requirement mentioned in the opening paragraph was the capacity to devise new solutions in response to novel challenges. The only constant in the security field is that the technology is always changing. Although this book provides some configurations in a checklist format, these should be considered a snapshot at a point in time. It will be up to you as the security designer and implementor to stay current with security news for the products you work with and integrate fixes, patches, or new solutions as the state of the art evolves.

This IBM® Redbooks® publication describes how to exchange data between applications running in two separate enterprises reliably and securely. This book includes an overview of the concepts of managed file transfer, the technologies that can be used, and common topologies for file transfer solutions. It then provides four scenarios that address different requirements. These scenarios provide a range of options that can be suited to your individual needs. This book is intended for anyone who needs to design or develop a file transfer solution for his enterprise. The first scenario shows the use of an HTTPS web gateway to allow files to be transferred from an external web client to an internal WebSphere MQ File Transfer Edition backbone network. This option uses the WebSphere MQ File Transfer Edition Web Gateway SupportPac FO02. The second scenario uses the WebSphere MQ File Transfer Edition bridge agent to allow files to be transferred from an external File Transfer Protocol (FTP)/Secure File Transfer Protocol (SFTP) server to a WebSphere MQ File Transfer Edition backbone network. The third scenario extends the concept of file transfer between enterprises by introducing more sophisticated transfer capabilities, along with

enhanced security. This scenario uses the IBM WebSphere DataPower B2B Appliance XB60 to look at the specific case of file transfers between business partners. The last scenario also illustrates the integration of the IBM WebSphere DataPower B2B Appliance XB60 and WebSphere MQ File Transfer Edition, but in this case, non-business-to-business protocols are used. The file transfer is further enhanced through the use of WebSphere® Message Broker to mediate the file transfer for routing and protocol transformation within the enterprise. A complete guide to developing and managing robust distributed business applications with IBM's MQSeries Coauthored by a former IBM professional who was intimately connected with the development of IBM's MQSeries and a middleware expert who is building products based on MQSeries, this book/CD package provides you with all the expert guidance, tips, and software tools you need to get the most out of this incredibly versatile technology. Distributed Computing with IBM MQSeries is the first book to approach MQSeries implementation from a business/management perspective. Throughout, the emphasis is on using MQSeries messaging and queuing software to solve current and future business problems. Len Gilman and Richard Schreiber introduce you to MQSeries architecture, features, functions, and its future. Then, with the help of many real-life case studies demonstrating successful MQSeries implementation in a broad array of business sectors, from finance to manufacturing, they show you step by step how to: Identify when MQSeries is a good fit for your business. Get started with MQSeries and streamline the integration process. Develop robust distributed applications using MQSeries. Solve a wide range of business problems with the software. Manage an MQ-based system. Recognize and handle potential problems. Use reengineered IT processes to take full advantage of MQSeries. On the CD-ROM you'll find: A fully functional software developers' kit for MQSeries Link with Lotus Notes. Live video overview of MQSeries. MQSeries application simulations, documentation, and product specification sheets. Also includes tear-out card for FREE one-year subscription to MQ Magazine.

- \* 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

"This book discusses non-distributed operating systems that benefit researchers, academicians, and practitioners"--Provided by publisher.

This IBM® Redbooks® publication describes important networking concepts and industry standards that are used to support high availability on IBM System z®. Some of the networking standards described here are VLANs, VLAN trunking, link aggregation, virtual switches, VNICs, and load-balancing. We examine the various aspects of network setups and introduce the main Linux on System z

networking commands and configuration files. We describe the management of network interface parameters, assignment of addresses to a network interface, and usage of the `ifconfig` command to configure network interfaces. We provide an overview of connectivity options available on the System z platform. We also describe high availability concepts and building a high availability solution using IBM Tivoli® System Automation. We also provide the implementation steps necessary to build a redundant network connections set up between an IBM z/VM® system and the external network switches using two Open Systems Adapter-Express 3 (OSA-Express 3) adapters with 10 Gb Ethernet ports. We describe the tests performed in our lab environment. The objectives of these tests were to gather information about performance and failover from the perspective of a real scenario, where the concepts of described in this book were applied. This book is focused on information that is practical and useful for readers with experience in network analysis and engineering networks, System z and Linux systems administrators, especially for readers that administer networks in their day-to-day activities. For additional reading: A Technote is available that explains changes to using channel bonding interfaces introduced with SLES 11 SP 2. It can be found at:

<http://www.redbooks.ibm.com/abstracts/tips1000.html?Open>

This IBM Redbooks publication describes the fundamental concepts and benefits of message queuing technology. This book is an update of a very popular Redpaper (REDP-0021) based on IBM WebSphere MQ Versions 5.0 to 5.2. This publication provides a design-level overview and technical introduction for the established and reliable WebSphere MQ product. A broad technical understanding of the WebSphere MQ product can improve design and implementation decisions for WebSphere MQ infrastructures and applications. To reduce the time required to gain this understanding, this book summarizes relevant information from across the WebSphere MQ product documentation. We also include hands-on security and troubleshooting sections to aid understanding and provide a reference for common administrative actions performed when building and maintaining WebSphere MQ infrastructures. In the appendix, we provide a summary of the new features in WebSphere MQ Version 6.0.

This IBM® Redbooks® publication provides you with a path to demystify the complexity of adopting a service-oriented architecture (SOA) approach to integrating applications and services. With an iterative evolution of a fictitious company, which is called ITSO Enterprise, we demonstrate several scenarios about how we can implement an IBM Smart SOA approach that helps ITSO Enterprise to achieve its business goals to be a global interconnected enterprise, one step at a time. It is not our intention to dive into the extremely technical details of every product or to tell you specific solutions for specific problems, but rather, to advise you about how to look at these problems from a business context perspective and then to provide you with a concise deployment using the IBM WebSphere® Connectivity portfolio of products to easily address them. This

book will be a reference for IT Specialists and IT Architects working on implementing Smart SOA solutions using the IBM WebSphere Connectivity portfolio of products at client sites, as well as for decision makers, IBM employees, IBM Business Partners, and IT Managers.

This IBM® Redbooks® publication describes how IBM has enhanced its managed file transfer portfolio consisting of MQ File Transfer Edition with the Sterling Business Integration Suite. The Sterling Business Integration Suite consists of Sterling File Gateway and Sterling Connect:Direct. Sterling Commerce, an IBM company, transforms and optimizes your business collaboration network by improving business agility, efficiency, and performance. These managed file transfer components from Sterling Commerce, an IBM company, partnered with MQ File Transfer Edition deliver proven value by protecting privacy and integrity of data in transit with governance, eliminate operations cell center traffic regarding file transfer exceptions, show a faster time to revenue, and bring a six-sigma level performance to key business processes. The integration and combination of these products allows for organizations to switch between protocols internally, allowing for diversity across business needs while still positioning the organization to easily move files outside their secured intra-enterprise network through an edge server to the external trading partner regardless of what protocol the external trading partner is using. This book is intended for organizations that find themselves wanting to trade data in a secure, reliable, and auditable way across both intra-enterprise and multi-enterprise protocols.

By using this innovative text, students will obtain an understanding of how contemporary operating systems and middleware work, and why they work that way.

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

Class-tested and coherent, this textbook teaches classical and web information retrieval, including web search and the related areas of text classification and text clustering from basic concepts. It gives an up-to-date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents; methods for evaluating systems; and an introduction to the use of machine learning methods on text collections. All the important ideas are explained using examples and figures, making it perfect for introductory courses in information retrieval for advanced undergraduates and graduate students in

computer science. Based on feedback from extensive classroom experience, the book has been carefully structured in order to make teaching more natural and effective. Slides and additional exercises (with solutions for lecturers) are also available through the book's supporting website to help course instructors prepare their lectures.

Applications in enterprises need to communicate, most commonly done by messaging. Apache ActiveMQ is an open-source implementation of the Java Message Service (JMS), which provides messaging in Java applications. ActiveMQ in Action is a thorough, practical guide to implementing message-oriented systems using ActiveMQ and Java. Co-authored by one of the leading ActiveMQ developers, Bruce Snyder, the book starts with the anatomy of a core Java message, then moves quickly through fundamentals including data persistence, authentication and authorization. Later chapters cover advanced features such as configuration and performance tuning, illustrating each concept with a running real-world stock portfolio application. Readers will learn to integrate ActiveMQ with Apache Geronimo and JBoss, and tie into both Java and non-Java technologies including AJAX, .NET, C++, Ruby, and the Spring framework. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book.

IBM WebSphere® Message Broker is a lightweight, advanced enterprise service bus (ESB) that provides a broad range of integration capabilities that enable companies to rapidly integrate internal applications and connect to partner applications. Messages from business applications can be transformed, augmented and routed to other business applications. The types and complexity of the integration required will vary by company, application types, and a number of other factors. Processing logic in WebSphere Message Broker is implemented using message flows. Through message flows, messages from business applications can be transformed, augmented, and routed to other business applications. Message flows are created by connecting nodes together. A wide selection of built-in nodes are provided with WebSphere Message Broker. These nodes perform tasks that are associated with message routing, transformation, and enrichment. Message flows are created and tested using the Message Broker Toolkit, a sophisticated, easy-to-use programming tool that provides a full range of programming aids. This IBM® Redbooks® publication focuses on two specific integration requirements that apply to many midmarket companies. The first is the ability to use WebSphere Message Broker to integrate Microsoft.NET applications into a broader connectivity solution. WebSphere Message Broker V8 introduces the ability to integrate with existing Microsoft .NET Framework applications. A .NET assembly can be called from within a message flow and the WebSphere Message Broker runtime can host and run .NET code. Solutions explored in this book cover connectivity to applications using Windows Communications Framework (WCF), Microsoft Message Queuing, Microsoft Dynamics CRM, and other Microsoft applications. The second is the ability to

integrate WebSphere Message Broker with file transfer networks, specifically with WebSphere MQ File Transfer Edition and IBM Sterling Connect Direct. Would you like to use a consistent visual notation for drawing integration solutions? "Look inside the front cover." Do you want to harness the power of asynchronous systems without getting caught in the pitfalls? "See "Thinking Asynchronously" in the Introduction." Do you want to know which style of application integration is best for your purposes? "See Chapter 2, Integration Styles." Do you want to learn techniques for processing messages concurrently? "See Chapter 10, Competing Consumers and Message Dispatcher." Do you want to learn how you can track asynchronous messages as they flow across distributed systems? "See Chapter 11, Message History and Message Store." Do you want to understand how a system designed using integration patterns can be implemented using Java Web services, .NET message queuing, and a TIBCO-based publish-subscribe architecture? "See Chapter 9, Interlude: Composed Messaging." Utilizing years of practical experience, seasoned experts Gregor Hohpe and Bobby Woolf show how asynchronous messaging has proven to be the best strategy for enterprise integration success. However, building and deploying messaging solutions presents a number of problems for developers. "Enterprise Integration Patterns" provides an invaluable catalog of sixty-five patterns, with real-world solutions that demonstrate the formidable of messaging and help you to design effective messaging solutions for your enterprise. The authors also include examples covering a variety of different integration technologies, such as JMS, MSMQ, TIBCO ActiveEnterprise, Microsoft BizTalk, SOAP, and XSL. A case study describing a bond trading system illustrates the patterns in practice, and the book offers a look at emerging standards, as well as insights into what the future of enterprise integration might hold. This book provides a consistent vocabulary and visual notation framework to describe large-scale integration solutions across many technologies. It also explores in detail the advantages and limitations of asynchronous messaging architectures. The authors present practical advice on designing code that connects an application to a messaging system, and provide extensive information to help you determine when to send a message, how to route it to the proper destination, and how to monitor the health of a messaging system. If you want to know how to manage, monitor, and maintain a messaging system once it is in use, get this book.

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IBM's one-stop guide to the newest versions of IMS: the database used by the world's largest companies for their most mission-critical data \* \*The ideal resource for every IT professional who is new to IMS or upgrading to a current or recent version. \*Updated, authoritative coverage of IMS Versions 12, 11, and 10: components, architecture, database and transaction managers, application development, system administration, security, recovery, tools, and more. \*95% of Fortune 1000 companies rely on IMS. Over four decades, IBM's Information Management System (IMS) has consistently earned the trust of the world's largest enterprises. Thanks to its reliability, security, and

performance, nearly 95% of Fortune 1000 companies rely on IMS for their most critical IBM System z data management needs: 50,000,000,000+ transactions run through IMS databases every day. What's more, IBM continues to upgrade IMS to meet new challenges more flexibly at lower cost. In *An Introduction to IMS*, leading IMS experts offer the definitive introduction to the latest versions: IMS 12, 11, and 10. This edition reflects major recent enhancements, including dynamic information generation capabilities; new access, interoperability and development tools; improved SOA support, and more. Not just a complete tutorial, this book provides examples, cases, problems, solutions, glossaries, and more: everything database professionals need to succeed with IMS, regardless of experience.

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 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).

The organization pursuing digital transformation must embrace new ways to use and deploy integration technologies, so they can move quickly in a manner appropriate to the goals of multicloud, decentralization, and microservices. The integration layer must transform to allow organizations to move boldly in building new customer experiences, rather than forcing models for architecture and development that pull away from maximizing the organization's productivity. Many organizations have started embracing agile application techniques, such as microservice architecture, and are now seeing the benefits of that shift. This approach complements and accelerates an enterprise's API strategy. Businesses should also seek to use this approach to modernize their existing integration and messaging infrastructure to achieve more effective ways to manage and operate their integration services in their private or public cloud. This IBM® Redbooks® publication explores the merits of what we refer to as agile integration; a container-based, decentralized, and microservice-aligned approach for integration solutions that meets the demands of agility, scalability, and resilience required by digital transformation. It also discusses how the IBM Cloud Pak for Integration marks a

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significant leap forward in integration technology by embracing both a cloud-native approach and container technology to achieve the goals of agile integration. The target audiences for this book are cloud integration architects, IT specialists, and application developers.

& • Details the JMS API, covering the latest version 1.1, and discusses application development based on IBM WebSphere implementations & & • Key coverage on WebSphere MQ, Websphere MQ Event Broker, JMS administration tasks, and common usage scenarios & & • Examples coding JMS in servlets, portlets, EJBs and communicating with non-JMS applications

Cryptography is now ubiquitous – moving beyond the traditional environments, such as government communications and banking systems, we see cryptographic techniques realized in Web browsers, e-mail programs, cell phones, manufacturing systems, embedded software, smart buildings, cars, and even medical implants. Today's designers need a comprehensive understanding of applied cryptography. After an introduction to cryptography and data security, the authors explain the main techniques in modern cryptography, with chapters addressing stream ciphers, the Data Encryption Standard (DES) and 3DES, the Advanced Encryption Standard (AES), block ciphers, the RSA cryptosystem, public-key cryptosystems based on the discrete logarithm problem, elliptic-curve cryptography (ECC), digital signatures, hash functions, Message Authentication Codes (MACs), and methods for key establishment, including certificates and public-key infrastructure (PKI). Throughout the book, the authors focus on communicating the essentials and keeping the mathematics to a minimum, and they move quickly from explaining the foundations to describing practical implementations, including recent topics such as lightweight ciphers for RFIDs and mobile devices, and current key-length recommendations. The authors have considerable experience teaching applied cryptography to engineering and computer science students and to professionals, and they make extensive use of examples, problems, and chapter reviews, while the book's website offers slides, projects and links to further resources. This is a suitable textbook for graduate and advanced undergraduate courses and also for self-study by engineers.

The power of IBM® MQ is its flexibility combined with reliability, scalability, and security. This flexibility provides a large number of design and implementation choices. Making informed decisions from this range of choices can simplify the development of applications and the administration of an MQ messaging infrastructure. Applications that access such an infrastructure can be developed using a wide range of programming paradigms and languages. These applications can run within a substantial array of software and hardware environments. Customers can use IBM MQ to integrate and extend the capabilities of existing and varied infrastructures in the information technology (IT) system of a business. IBM MQ V8.0 was released in June 2014. Before that release, the product name was IBM WebSphere® MQ. This IBM Redbooks® publication covers the core enhancements made in IBM MQ V8 and the concepts that must be understood. A broad understanding of the product features is key to making informed design and implementation choices for both the infrastructure and the applications that access it. Details of new areas of function for IBM MQ are introduced throughout this book, such as the changes to security, publish/subscribe clusters, and IBM System z exploitation. This book is for individuals and organizations

who make informed decisions about design and applications before implementing an IBM MQ infrastructure or begin development of an IBM MQ application.

IBM® Cloud Private is an application platform for developing and managing containerized applications across hybrid cloud environments, on-premises and public clouds. It is an integrated environment for managing containers that includes the container orchestrator Kubernetes, a private image registry, a management console, and monitoring frameworks. This IBM Redbooks covers tasks performed by IBM Cloud Private system administrators such as installation for high availability, configuration, backup and restore, using persistent volumes, networking, security, logging and monitoring. Istio integration, troubleshooting and so on. As part of this project we also developed several code examples and you can download those from the IBM Redbooks GitHub location: <https://github.com/IBMRedbooks>. The authors team has many years of experience in implementing IBM Cloud Private and other cloud solutions in production environments, so throughout this document we took the approach of providing you the recommended practices in those areas. If you are an IBM Cloud Private system administrator, this book is for you. If you are developing applications on IBM Cloud Private, you can see the IBM Redbooks publication IBM Cloud Private Application Developer's Guide, SG24-8441.

### Secure Messaging Scenarios with WebSphere MQ IBM Redbooks

This IBM® Redbooks® publication is for anyone needing to increase WebSphere® messaging availability, especially people interested in the new capabilities of WebSphere MQ and WebSphere Message Broker. It discusses and demonstrates solutions to provide high availability for WebSphere Messaging solutions. For the distributed platforms, this ranges from the traditional PowerHATM for AIX® to the new WebSphere MQ multi-instance queue managers and WebSphere Message Broker multi-instance brokers. For the appliance users, we included solutions for WebSphere DataPower®. For enterprises that need continuous availability of WebSphere MQ messages, MQ Queue Sharing Groups and the CICS® Group Attach features are demonstrated. The book includes guidance on HA options, such as when you might need PowerHA (or a similar solution for your platform), when the multi-instance features work for your applications, and when duplexing the coupling facility structures might be appropriate.

Is it time for you to modernize your IBM® z/OS® applications to allow for access to an entire system of open source and Linux on IBM Z® workloads? Is co-location of these workloads on the z/OS platform with no porting requirements of value to you? Your open source or Linux on IBM Z software can benefit from being co-located and managed inside a z/OS environment; leveraging z/OS quality of service for optimized business continuity. Your software can be integrated with and can help complement existing z/OS workloads and environments. If your software can communicate with z/OS and external components by using TCP/IP, now is the time examine how IBM z/OS Container Extensions (IBM zCX) makes it possible to integrate Linux on Z applications with z/OS. This IBM Redbooks® publication is a follow-on to Getting started with z/OS Container Extensions and Docker, SG24-8457, which provides some interesting use cases for zCX. We start with a brief overview of IBM zCX. In Part 1, "Integration" on page 9, we demonstrate use cases that integrate with zCX. In Part 2, "DevOps in zCX" on page 165, we describe how organizations can benefit from running

a DevOps flow in zCX and we describe the set up of necessary components. Finally, in Part 3, "Monitoring and managing zCX systems" on page 229, we discuss IBM Service Management Unite Automation, a free-of-charge customizable dashboard interface and an important discussion of creating the suitable container restart policy.

This IBM® Redbooks® publication describes the IBM MQ Appliance M2000, an application connectivity option that combines secure, reliable IBM MQ messaging with the simplicity and low overall costs of a hardware appliance. This book presents underlying concepts and practical advice for integrating the IBM MQ Appliance M2000 into an IBM MQ infrastructure. Therefore, it is aimed at enterprises that are considering a possible first use of IBM MQ and the IBM MQ Appliance M2000 and those that already identified the appliance as a logical addition to their messaging environment. Details about new functionality and changes in approaches to application messaging are also described. The authors' goal is to help readers make informed design and implementation decisions so that the users can successfully integrate the IBM MQ Appliance M2000 into their environments. A broad understanding of enterprise messaging is required to fully comprehend the details that are provided in this book. Readers are assumed to have at least some familiarity and experience with complimentary IBM messaging products.

This IBM® Red paper books® publication is divided into three parts: Part 1, "Introduction" on page1, provides an introduction to message-oriented middleware and the WebSphere® MQ product. We discuss the concept of messaging, explaining what is new in WebSphere MQ V7.0 and how it is implemented. An overview is provided on how it fits within the service-oriented architecture (SOA) framework. Part 2, "WebSphere MQ V7.0 enhancements and changes" on page 41, explains the new WebSphere MQ V7.0 features and enhancements in detail and includes compatibility and the migration considerations from the previous supported versions. Part 3, "Scenario" on page253, contains a scenario that demonstrates how the new features and enhancements work and how to use them. The sample programs and scripts used for this scenario are available for download by following the instructions in Appendix B, "Additional material" on page379.

In a smarter planet, information-centric processes are exploding in growth. The mainframe has always been the IT industry's leading platform for transaction processing, consolidated and secure data serving, and support for available enterprise-wide applications. IBM® has extended the mainframe platform to help large enterprises reshape their client experiences through information-centric computing and to deliver on key business initiatives. IBM zEnterprise® is recognized as the most reliable and trusted system, and the most secure environment for core business operations. The new zEnterprise System consists of the IBM zEnterprise EC12 (zEC12) or IBM zEnterprise BC12 (zBC12), the IBM zEnterprise Unified Resource Manager, and the IBM zEnterprise IBM BladeCenter® Extension (zBX) Model 003. This IBM Redbooks® publication describes the zEC12 and zBC12, with their improved scalability, performance, security, resiliency, availability, and virtualization. The zEnterprise System has no peer as a trusted platform that also provides the most efficient transaction processing and database management. With efficiency at scale delivering significant cost savings on core processes, resources can be freed up to focus on developing new services to drive growth. This book provides a technical overview of the zEC12, zBC12,

zBX Model 003, and Unified Resource Manager. This publication is intended for IT managers, architects, consultants, and anyone else who wants to understand the elements of the zEnterprise System. For this introduction to the zEnterprise System, readers are not expected to be familiar with current IBM System z® technology and terminology.

Your first Business Process Management (BPM) project is a crucial first step on your BPM journey. It is important to begin this journey with a philosophy of change that allows you to avoid common pitfalls that lead to failed BPM projects, and ultimately, poor BPM adoption. This IBM® Redbooks® publication describes the methodology and best practices that lead to a successful project and how to use that success to scale to enterprise-wide BPM adoption. This updated edition contains a new chapter on planning a BPM project. The intended audience for this book includes all people who participate in the discovery, planning, delivery, deployment, and continuous improvement activities for a business process. These roles include process owners, process participants, subject matter experts (SMEs) from the operational business, and technologists responsible for delivery, including BPM analysts, BPM solution architects, BPM administrators, and BPM developers.

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