

Enterprise Application Integration Middleware

The practice of enterprise application development has benefited from the emergence of many new enabling technologies. Multi-tiered object-oriented platforms, such as Java and .NET, have become commonplace. These new tools and technologies are capable of building powerful applications, but they are not easily implemented. Common failures in enterprise applications often occur because their developers do not understand the architectural lessons that experienced object developers have learned. Patterns of Enterprise Application Architecture is written in direct response to the stiff challenges that face enterprise application developers. The author, noted object-oriented designer Martin Fowler, noticed that despite changes in technology--from Smalltalk to CORBA to Java to .NET--the same basic design ideas can be adapted and applied to solve common problems. With the help of an expert group of contributors, Martin distills over forty recurring solutions into patterns. The result is an indispensable handbook of solutions that are applicable to any enterprise application platform. This book is actually two books in one. The first section is a short tutorial on developing enterprise applications, which you can read from start to finish to understand the scope of the book's lessons. The next section, the bulk of the book, is a detailed reference to the patterns themselves. Each pattern provides usage and implementation information, as well as detailed code examples in Java or C#. The entire book is also richly illustrated with UML diagrams to further explain the concepts. Armed with this book, you will have the knowledge necessary to make important architectural decisions about building an enterprise application and the proven patterns for use when building them. The topics covered include

- Dividing an enterprise application into layers
- The major approaches to organizing business logic
- An in-depth treatment of mapping between objects and relational databases
- Using Model-View-Controller to organize a Web presentation
- Handling concurrency for data that spans multiple transactions
- Designing distributed object interfaces

This comprehensive guide reveals the key elements of successful B2B integration and collaborative e-commerce, by highlighting business needs, technologies, and development strategies. It equips companies with practical guidelines for quickly implementing an effective B2Bi strategy, and prepares them for the next wave of B2B integration and collaborative e-commerce. It clarifies the intricate dependencies among all the components of B2Bi, including integration patterns, enterprise application integration (EAI), business process management (BPM), Internet security, XML, Web services, middleware technologies, and integration brokers. Included are future technologies that will have a significant impact on B2Bi architectures, such as intelligent software agents, wireless technologies, and peer-to-peer computing. This reference provides a suitable framework for the design, development, and implementation of B2B integration, along

with several case studies. Editors: Dr Marcus Healey — Strategy Consultant for InfoFirst Inc., USA Dr Shyam Samtani (Language Editor) — Professor of English, P G Department of English, Indore Christian College, India Contributors: Kenneth Tamburello — Senior Consultant Specialist at Bluesphere (an EDS company), USA Deepak Bajaj — Course Coordinator of Project Management, University of Technology Sydney (UTS), Australia Dimple Sadhwani — Senior Software Engineer, Island ECN, USA Pawan Samtani — Country Operations Manager, Oracle Corporation, India Contents: The Big Picture: Introduction Components, Benefits, Challenges and Applications of B2B Integration Established Integration Components: Integration Patterns Enterprise Application Integration (EAI) Business Process Management (BPM) Extensible Markup Language (XML) XML Standards for E-Business Middleware Technologies Integration Brokers Internet Security Evolving Integration Components: Web Services Wireless Technologies Software Agents B2Bi-Enabled Applications: Supply Chain Management (SCM) E-Marketplaces and Collaborative Networks Conclusion: B2B to P2P Evolution Readership: MBA students, business executives, IT managers and programmers, and CIOs.

Dealing with the concepts behind a vendor's products, this a guide for IT managers on how to ensure the IT infrastructure matches the need of the enterprise, and which procedures should be followed to ensure this happens.

Middleware is a layer of software that lets business applications inter-operate and eases the problem of constructing complex applications that can include market places, CRM and Internet access. The world of middleware has recently been galvanised by the arrival of the Internet and then by Java, making it part of the e-commerce revolution. This text provides a practical introduction to the different forms of middleware (RPC, message queues, hub and spoke, CORBA and Java) and how they can be combined to produce complex architectures that are suited to business needs.

-Contributes to the diffusion and understanding of the importance of the role of middleware in the design of complex information systems. -Relevant text for courses on Information Technology applied to Business Management. -The first edition of this title was a bestseller.

- Defines Web services and integration and the relationship between EAI and Web services
- Outlines the types of Web services integration from standards, implementation to enabling technologies
- Features Web services integration scenarios and case studies

Enterprise solutions have emerged as promising tools for integrating and extending business processes across business functions. Supplying a clear and comprehensive introduction to the field, this book provides a detailed description of enterprise information integration—from the development of enterprise systems to extended enterprise information Software services are established as a programming concept, but their impact on the overall architecture of enterprise IT and business operations is not well-understood. This has led to problems in deploying SOA, and some disillusionment.

The SOA Source Book adds to this a collection of reference material for SOA. It is an invaluable resource for enterprise architects working with SOA. The SOA Source Book will help enterprise architects to use SOA effectively. It explains: What SOA is How to evaluate SOA features in business terms How to model SOA How to use The Open Group Architecture Framework (TOGAF™) for SOA SOA governance This book explains how TOGAF can help to make an Enterprise Architecture. Enterprise Architecture is an approach that can help management to understand this growing complexity.

Despite the buzz surrounding the cloud computing, only a small percentage of organizations have actually deployed this new style of IT—so far. If you're planning your long-term cloud strategy, this practical book provides insider knowledge and actionable real-world lessons regarding planning, design, operations, security, and application transformation. This book teaches business and technology managers how to transition their organization's traditional IT to cloud computing. Rather than yet another book trying to sell or convince readers on the benefits of clouds, this book provides guidance, lessons learned, and best practices on how to design, deploy, operate, and secure an enterprise cloud based on real-world experience. Author James Bond provides useful guidance and best-practice checklists based on his field experience with real customers and cloud providers. You'll view cloud services from the perspective of a consumer and as an owner/operator of an enterprise private or hybrid cloud, and learn valuable lessons from successful and less-than-successful organization use-case scenarios. This is the information every CIO needs in order to make the business and technical decisions to finally execute on their journey to cloud computing. Get updated trends and definitions in cloud computing, deployment models, and for building or buying cloud services Discover challenges in cloud operations and management not foreseen by early adopters Use real-world lessons to plan and build an enterprise private or hybrid cloud Learn how to assess, port, and migrate legacy applications to the cloud Identify security threats and vulnerabilities unique to the cloud Employ a cloud management system for your enterprise (private or multi-provider hybrid) cloud ecosystem Understand the challenges for becoming an IT service broker leveraging the power of the cloud

A state-of-the-art guide to middleware technologies, and their pivotal role in communications networks. Middleware is about integration and interoperability of applications and services running on heterogeneous computing and communications devices. The services it provides - including identification, authentication, authorization, soft-switching, certification and security - are used in a vast range of global appliances and systems, from smart cards and wireless devices to mobile services and e-Commerce. Qusay H. Mahmoud has created an invaluable reference tool that explores the origins and current uses of middleware (highlighting the importance of such technologies as CORBA, J2EE and JMS) and has thus compiled the roadmap to future research in this area. Middleware for Communications: discusses the

emerging fields of Peer-to-Peer (P2P) and grid middleware detailing middleware platforms such as JXTA and the Globus middleware toolkit. shows how Middleware will play a significant role in mobile computing. presents a Platform Supporting Mobile Applications (PLASMA) - a middleware platform that consists of components for location, event, and profile handling of Location-Based Services. introduces middleware security focusing on the appropriate aspects of CORBA, J2EE, and .NET and demonstrates how to realize complex security capabilities such as role-based access control (RBAC) and mandatory access control (MAC). discusses how Quality of Service (QoS) component middleware can be combined with Model Driven Architecture (MDA) technologies to rapidly develop, generate, assemble and deploy flexible communications applications. This incomparable overview of middleware for communications is suitable for graduate students and researchers in communications and computing departments. It is also an authoritative guide for engineers and developers working on distributed systems, mobile computing and networked appliances.

"This book explores technical integration challenges with a focus on identifying a viable solution on how to enable rich, flexible, and responsive information links, in support of the changing business operations across organizations"--Provided by publisher.

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 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.

This book is a thorough introduction to Java Message Service (JMS), the standard Java application program interface (API) from Sun Microsystems that supports the formal communication known as "messaging" between computers in a

network. JMS provides a common interface to standard messaging protocols and to special messaging services in support of Java programs. The messages exchange crucial data between computers, rather than between users--information such as event notification and service requests. Messaging is often used to coordinate programs in dissimilar systems or written in different programming languages. Using the JMS interface, a programmer can invoke the messaging services of IBM's MQSeries, Progress Software's SonicMQ, and other popular messaging product vendors. In addition, JMS supports messages that contain serialized Java objects and messages that contain Extensible Markup Language (XML) pages. Messaging is a powerful new paradigm that makes it easier to uncouple different parts of an enterprise application. Messaging clients work by sending messages to a message server, which is responsible for delivering the messages to their destination. Message delivery is asynchronous, meaning that the client can continue working without waiting for the message to be delivered. The contents of the message can be anything from a simple text string to a serialized Java object or an XML document. Java Message Service shows how to build applications using the point-to-point and publish-and-subscribe models; how to use features like transactions and durable subscriptions to make an application reliable; and how to use messaging within Enterprise JavaBeans. It also introduces a new EJB type, the MessageDrivenBean, that is part of EJB 2.0, and discusses integration of messaging into J2EE.

This practical technical guide to embedded middleware implementation offers a coherent framework that guides readers through all the key concepts necessary to gain an understanding of this broad topic. Big picture theoretical discussion is integrated with down-to-earth advice on successful real-world use via step-by-step examples of each type of middleware implementation. Technically detailed case studies bring it all together, by providing insight into typical engineering situations readers are likely to encounter. Expert author Tammy Noergaard keeps explanations as simple and readable as possible, eschewing jargon and carefully defining acronyms. The start of each chapter includes a "setting the stage" section, so readers can take a step back and understand the context and applications of the information being provided. Core middleware, such as networking protocols, file systems, virtual machines, and databases; more complex middleware that builds upon generic pieces, such as MOM, ORB, and RPC; and integrated middleware software packages, such as embedded JVMs, .NET, and CORBA packages are all demystified. Embedded middleware theory and practice that will get your knowledge and skills up to speed Covers standards, networking, file systems, virtual machines, and more Get hands-on programming experience by starting with the downloadable open source code examples from book website

Master All Aspects of Oracle Fusion Middleware Management Govern a unified platform for agile, intelligent business applications using the detailed information contained in this Oracle Press book. Oracle Fusion Middleware 11g

Architecture and Management explains the entire suite of Oracle Fusion Middleware components and lays out core use cases, best practices, and step-by-step administrative instructions. Discover how to provision servers and clusters, configure Web services, manage portals, and optimize the performance of the full stack of Oracle Fusion Middleware components. Monitoring, diagnosing, and security are also covered in this definitive resource. Understand key architectural concepts behind Oracle Fusion Middleware 11g Create and deploy Oracle WebLogic Server domains and clusters Set up and manage applications built using Oracle Application Development Framework Maximize the value of your Oracle SOA Suite environments Manage portals and Enterprise 2.0 services from Oracle WebCenter Secure deployments with Oracle Platform Security Services and Oracle Identity Management Understand Oracle Exalogic and Oracle Virtual Assembly Builder

Three super-hot topics come together in this first complete guide to Enterprise Application Integration with XML and Java. The book teaches readers to identify data exchange requirements and meet them with Java and XML. It contains easy-to-read, well-documented code throughout. The CD-ROM contains extensive source code from the book, plus a library of leading-edge software and trialware.

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. 0321200683B09122003

Successfully implement your own enterprise integration architecture using the Trivadis Integration Architecture Blueprint with this book and eBook.

Build robust, scalable, end-to-end business solutions with J2EE(TM) Web Services. This is the definitive practitioner's guide to building enterprise-class J2EE Web Services that integrate with any B2B application and interoperate with any legacy system. Sun senior architect Ray Lai introduces 25 vendor-independent architectural patterns and best practices for designing Web Services that deliver outstanding performance, scalability, and reliability. Lai takes you to the frontiers of emerging Web Services technologies, showing how to make the most of today's leading-edge tools, from Java Web Services Developer Pack to Apache Axis. Coverage includes: Web Services: making the business case, and overcoming the technical and business challenges Real-life examples and scenarios, and a start-to-finish application case study Expert guidance on reducing risk and avoiding implementation pitfalls Building complete business solutions with rich messaging and workflow collaboration Mainframe interoperability and B2B integration within and beyond the enterprise Framework and methodology to develop your Web Services patterns and best practices Up-to-the-minute coverage of Web Services security New applications: service consolidation, wireless, and more An extensive library of links to Web resources, reference material, and vendors Whether you're an architect, designer, project leader, or developer, these are the best practices, patterns, and techniques you need to succeed with Web services in your enterprise environment. Enterprises seeking to leverage Web Services to revolutionize the ways they deliver services to customers, partners, and employees will find the answers they need in this book. "Ray Lai's J2EETM Platform Web Services is a comprehensive look at J2EE platform architecture and should be a must read for any serious Web Services developer." --Larry Tabb, Senior Strategic Advisor, Tower Group "This is a book for true practitioners. It's for those interested in designing and implementing Web Services now-and preparing for new opportunities on the horizon." --Jonathan Schwartz, Executive Vice President, Sun Microsystems

"This book provides methods that allow for access to corporate and customer data independent of where it resides"--Provided by publisher. Learn to utilize today's hottest EAI technologies to ensure interoperability across your organization What exactly is enterprise application integration (EAI)? What makes this \$300 million market so hot that it's expected to grow to \$6.5 billion in the next two years? How do you apply it in the real world? Whether you're an IT professional or systems architect, business manager or software developer, if you're looking into EAI as a solution for unifying applications and systems across the enterprise, then the answers are in this book. You'll find a complete and unbiased survey of the different technologies, architectures, and approaches available for EAI implementations, including pros and cons, clear explanations of all concepts, and first-rate guidance on how to choose the best EAI strategy for your company. The authors draw on their pioneering work with early implementations to show you how to: Define your specific integration problem in a useful form that enables a real solution Develop your own EAI architecture and ensure interoperability of legacy, stovepipe, COTS, client-server and modern

technology applications Choose the best among messaging architecture, object architecture, and transaction architecture Work with the best implementation technologies, including Microsoft's COM+, the OMG's CORBA, and Sun's EJB Utilize the proven Secure Application Integration Methodology (SAIM) Wiley Tech Briefs Focused on the needs of the corporate IT and business manager, the Tech Briefs series provides in-depth information on a new or emerging technology, solutions, and vendor offerings available in the marketplace. With their accessible approach, these books will help you get quickly up-to-speed on a topic so that you can effectively compete, grow, and better serve your customers.

Business-to-business (B2B) integration is a buzzword which has been used a lot in recent years, with a variety of meanings. Starting with a clear technical definition of this term and its relation to topics like A2A (Application-to-Application), ASP (Application Service Provider), A2A, and B2C (Business-to-Consumer), Christoph Bussler outlines a complete and consistent B2B integration architecture based on a coherent conceptual model. He shows that B2B integration not only requires the exchange of business events between distributed trading partners across networks like the Internet, but also demands back-end application integration within business processes, and thus goes far beyond traditional approaches to enterprise application integration approaches. His detailed presentation describes how B2B integration standards like RosettaNet or SWIFT, the application integration standard J2EE Connector Architecture and basic standards like XML act together in order to enable business process integration. The book is the first of its kind that discusses B2B concepts and architectures independent of specific and short-term industrial or academic approaches and thus provides solid and long-lasting knowledge for researchers, students, and professionals interested in the field of B2B integration.

Maintaining compatibility among all affected network and application interfaces of modern enterprise systems can quickly become costly and overwhelming. This handbook presents the knowledge and practical experience of a global group of experts from varying disciplines to help you plan and implement enterprise integration projects that respond to bu

Use Java CAPS to Streamline IT Services and Leverage Legacy Applications Design patterns are a useful tool for streamlining enterprise integration and Web development projects: the mission-critical projects that directly impact your competitiveness. Enterprise Integration Patterns by Gregor Hohpe and Bobby Woolf (Addison-Wesley, 2004) described many of the most useful patterns for enterprise developers. Until recently, however, implementing the patterns in that classic reference required the extensive use of raw Java code. Now there's a better alternative: Using Sun's Java Composite Application Suite (Java CAPS), architects and developers can implement enterprise integration patterns succinctly, elegantly, and completely. In Java™ CAPS Basics, Sun's own Java CAPS experts show how to quickly put these new tools and technologies to work in your real-world enterprise application integration projects. After reviewing the challenges of enterprise integration, they introduce Java CAPS and show how it can simplify the development of today's state-of-the-art "composite" applications. Next, they bridge the gap between abstract pattern languages and practical implementation details. You will learn essential Java CAPS concepts and methods in the context of the patterns you'll actually use for real-world message and system management. Coverage includes Comparing approaches to enterprise application integration and finding ways to integrate non-invasively, with fewer changes and lower costs Mastering the core integration tools provided by Java CAPS: eGate, eInsight, eWays and JMS Using enterprise integration patterns to improve application reusability, scalability, resilience, security, and manageability Implementing patterns for message exchange, correlation, infrastructure, routing, construction, transformation, and endpoints Generating and using cryptographic objects such as X.509 Certificates, PKCS#12, and JKS Keystores Using advanced techniques such as solution partitioning and subprocess implementation, many of which are

covered nowhere else Constructing two complete example solutions that bring together many of the patterns discussed and illustrated in this book The companion CD contains detailed illustrations for most of the relevant patterns and two complete Java CAPS-based case studies (with solutions) that implement a number of the patterns discussed in the book. In addition, Part II contains a chapter on cryptographic objects used to configure security-related aspects of the suite. It also provides more than sixty detailed examples designed to illustrate the concepts and patterns presented in this book. Built with JCAPS eDesigner, these graphical, component-based examples can easily be used by business analysts and others with or without strong coding skills.

Mobile commerce is based on the rapidly growing applications of wireless technologies and mobile communications. This study collects holistic perspectives to explore strategic considerations regarding potential opportunities and issues in mobile commerce.

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.

Both application developers and software product vendors will be the audience for this guide to the J2EE connector architecture and its use in building resource adapters and enterprise information systems. Readers will find information on the history of enterprise application integration (EAI), different approaches to integrating all the parts of an information infrastructure, an overview of J2EE connector architecture, various interfaces and their use, transaction concepts and applications, and applications to other EISs and legacy systems. Annotation copyrighted by Book News Inc., Portland, OR.

The definitive book and eBook guide to Oracle information integration and migration in a heterogeneous world.

Explains how to leverage Java's architecture and mechanisms to design enterprise applications and considers code modularity, nonduplication, network efficiency, maintainability, and reusability.

Large IT organizations increasingly face the challenge of integrating various web services, applications, and other technologies into a single network. The solution to finding a meaningful large-scale architecture that is capable of spanning a global enterprise appears to have been met in ESB, or Enterprise Service Bus. Rather than conform to the hub-and-spoke architecture of traditional enterprise application integration

products, ESB provides a highly distributed approach to integration, with unique capabilities that allow individual departments or business units to build out their integration projects in incremental, digestible chunks, maintaining their own local control and autonomy, while still being able to connect together each integration project into a larger, more global integration fabric, or grid. Enterprise Service Bus offers a thorough introduction and overview for systems architects, system integrators, technical project leads, and CTO/CIO level managers who need to understand, assess, and evaluate this new approach. Written by Dave Chappell, one of the best known and authoritative voices in the field of enterprise middleware and standards-based integration, the book drills down into the technical details of the major components of ESB, showing how it can utilize an event-driven SOA to bring a variety of enterprise applications and services built on J2EE, .NET, C/C++, and other legacy environments into the reach of the everyday IT professional. With Enterprise Service Bus, readers become well versed in the problems faced by IT organizations today, gaining an understanding of how current technology deficiencies impact business issues. Through the study of real-world use cases and integration patterns drawn from several industries using ESB--including Telcos, financial services, retail, B2B exchanges, energy, manufacturing, and more--the book clearly and coherently outlines the benefits of moving toward this integration strategy. The book also compares ESB to other integration architectures, contrasting their inherent strengths and limitations. If you are charged with understanding, assessing, or implementing an integration architecture, Enterprise Service Bus will provide the straightforward information you need to draw your conclusions about this important disruptive technology.

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.

The challenges of designing, building, and maintaining large-scale, distributed enterprise systems are truly daunting. Written for all IT professionals, The Complete Book of Middleware will aid in resolving new business objectives, new technologies, and vendor disputes. This book focuses on the essential principles and priorities of system design and emphasizes the new requirements brought forward by the rise of e-commerce and distributed integrated systems. This reference highlights the changes to middleware technologies and standards. It offers a concise overview of middleware technology alternatives and distributed systems. Many increasingly complex examples are incorporated throughout and the book concludes with guidelines on the practice of IT architecture. Performance considerations such as caching and monitoring are reviewed and the appendix includes middleware resources and new modeling standards. The scope includes traditional middleware and also next-generation techniques that serve to glue disparate systems in the ever-expanding world of distributed network systems. Provided with concepts, principles, and alternatives discussed in The Complete Book of Middleware, systems architects, systems analysts, systems designers, systems developers, and programmers, can proceed with greater confidence in designing complex enterprise

systems.

The challenges of designing, building, and maintaining large-scale, distributed enterprise systems are truly daunting. Written by and for IT professionals, *IT Architectures and Middleware, Second Edition*, will help you rise above the conflicts of new business objectives, new technologies, and vendor wars, allowing you to think clearly and productively about the particular challenges you face. This book focuses on the essential principles and priorities of system design and emphasizes the new requirements emerging from the rise of e-commerce and distributed, integrated systems. It offers a concise overview of middleware technology alternatives and distributed systems. Numerous increasingly complex examples are incorporated throughout, and the book concludes with some short case studies. Topics covered include: Middleware technology review Key principles of distributed systems: resiliency, performance and scalability, security, and systems management Information access requirements and data consistency Application integration design Recasting existing applications as services In this new edition, with updates throughout, coverage has been expanded to include: Service-oriented architecture concepts Web services and .NET technology A more structured approach to system integration design

Use Java features such as JAX-RS, EJBs, and JPAs to build powerful middleware for newer architectures such as the cloud Key Features Explore EJBs to build middleware solutions for enterprise and distributed applications Understand middleware designs such as event-based and message-driven web services Learn to design and maintain large-scale systems and vendor disputes Book Description Middleware is the infrastructure in software based applications that enables businesses to solve problems, operate more efficiently, and make money. As the use of middleware extends beyond a single application, the importance of having it written by experts increases substantially. This book will help you become an expert in developing middleware for a variety of applications. The book starts off by exploring the latest Java EE 8 APIs with newer features and managing dependencies with CDI 2.0. You will learn to implement object-to-relational mapping using JPA 2.1 and validate data using bean validation. You will also work with different types of EJB to develop business logic, and with design RESTful APIs by utilizing different HTTP methods and activating JAX-RS features in enterprise applications. You will learn to secure your middleware with Java Security 1.0 and implement various authentication techniques, such as OAuth authentication. In the concluding chapters, you will use various test technologies, such as JUnit and Mockito, to test applications, and Docker to deploy your enterprise applications. By the end of the book, you will be proficient in developing robust, effective, and distributed middleware for your business. What you will learn Implement the latest Java EE 8 APIs and manage dependencies with CDI 2.0 Perform CRUD operations and access databases with JPA 2.1 Use bean validation API 2.0 to validate data Develop business logic with EJB 3.2 Incorporate the REST architecture and RESTful API design patterns Perform serialization and deserialization on JSON documents using JSON-B Utilize JMS for messaging and queuing models and securing applications Test applications using JUnit and Mockito and deploy them using Docker Who this book is for Enterprise architects, designers, developers, and programmers who are interested in learning how to build robust middleware solutions for enterprise software will find this book useful. Prior knowledge of Java EE is essential

Throughout the history of the IT industry, integration has been an important part of most projects. Whether it is integration of transactions, data, or processes, each has challenges and associated patterns and antipatterns. In an age of mobile devices, social networks, and cloud services, and big data analytics, integration is more important than ever, but the scope of the challenge for IT projects has changed. Partner APIs, social networks, physical sensors and devices, all of these and more are important sources of capability or insight. It is no longer sufficient to integrate resources under control of the enterprise, because many important resources are in the ecosystem beyond enterprise

boundaries. With this as the basic tenet, we address these questions: What are the current integration patterns that help enterprises become and remain competitive? How do you choose when to use which pattern? What is the topology for a "composable business"? And how do you accelerate the process of implementation through intelligent choice of supporting integration middleware? This IBM® Redbooks® publication guides integration practitioners and architects in choosing integration patterns and technologies.

Emerging Technology Strategies and the Great Global Grid The next generation of the Internet will produce dramatic economic and social changes exceeding even the World Wide Web. Several emerging technologies are converging to create a Great Global Grid infrastructure where universal connectivity to large computing resources will be available for consumers and enterprises. The goal of this book is to provide a systematic survey of the full spectrum of Great Global Grid technologies from an enterprise viewpoint. The Great Global Grid - The range of technologies comprising the Great Global Grid is very wide. One of the main contributions of the book is to categorize these technologies in detail and to explain the dependencies among them. The technologies include: Application Servers and Portals Enterprise Application Integration and B2B Middleware Web Services and XML Messaging Peer-to-Peer Collaboration Pervasive Computing: Middleware and Software Platforms Distributed Resource Managers, Clusters and Grids Global Grid Middleware Conclusions for the Future Emerging Technology Strategies - The book does not hype these technologies or their benefits. Section 1 of the book describes examples of past emerging technologies that failed to realize their initial vision. Based on the lessons learned from these experiences, a pragmatic technology evaluation template is created that includes: Overview of the technology Relationships to other technologies Important technical and business trends Specific applications Industry and official standards Vendor overview by application area Leading implementation approaches Advice on deployment Future technical and business directions Recommendations Audience - The information collected in this book is not available from any other single source. The broad range of technologies, standards and vendors covered is necessary to understand the future enterprise applications of the Internet. The following groups should find the contents of this book especially valuable. Decision makers for the evaluation strategy and discussions of current products, standards and open issues Developers and architects for the overview of many advanced software technologies and their relationships Consultants for the industry analysis of vendors and business applications Futurists for the trends and research that are the basis of the next generation Internet Students for the industrial applications and open source projects "This book gives an overview of the technologies used for enterprise application integration. It covers all the aspects of middleware. It introduces its readers to basic concepts of middleware, state-of-art middleware technologies and middleware services. Sample programs to work on different object middleware technologies like RMI, CORBA, DCOM and EJB are also provided in this book." -- Publisher's description.

Explores the technology that enables application integration between businesses engaging in e-commerce, covering data-oriented, application interface-oriented, method-oriented, portal-oriented, and process integration-oriented technologies.

Managing Data in Motion describes techniques that have been developed for significantly reducing the complexity of managing system interfaces and enabling scalable architectures. Author April Reeve brings over two decades of experience to present a vendor-neutral approach to moving data between computing environments and systems. Readers will learn the techniques, technologies, and best practices for managing the passage of data between computer systems and integrating disparate data together in an enterprise environment. The average enterprise's computing environment is comprised of hundreds to thousands computer systems that have been built, purchased, and acquired over time. The data from these various systems needs to be integrated for reporting and analysis, shared for business transaction

processing, and converted from one format to another when old systems are replaced and new systems are acquired. The management of the "data in motion" in organizations is rapidly becoming one of the biggest concerns for business and IT management. Data warehousing and conversion, real-time data integration, and cloud and "big data" applications are just a few of the challenges facing organizations and businesses today. Managing Data in Motion tackles these and other topics in a style easily understood by business and IT managers as well as programmers and architects. Presents a vendor-neutral overview of the different technologies and techniques for moving data between computer systems including the emerging solutions for unstructured as well as structured data types Explains, in non-technical terms, the architecture and components required to perform data integration Describes how to reduce the complexity of managing system interfaces and enable a scalable data architecture that can handle the dimensions of "Big Data"

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