

Enterprise Integration Patterns Designing Building And Deploying Messaging Solutions Addison Wesley Signature

Provides information on service oriented architecture, covering such topics as XML, SOA standards, BPEL, SCA, SDO, and data components.

The software development ecosystem is constantly changing, providing a constant stream of new tools, frameworks, techniques, and paradigms. Over the past few years, incremental developments in core engineering practices for software development have created the foundations for rethinking how architecture changes over time, along with ways to protect important architectural characteristics as it evolves. This practical guide ties those parts together with a new way to think about architecture and time.

Enterprise developers face several challenges when it comes to building serverless applications, such as integrating applications and building container images from source. With more than 60 practical recipes, this cookbook helps you solve these issues with Knative—the first serverless platform natively designed for Kubernetes. Each recipe contains detailed examples and exercises, along with a discussion of how and why it works. If you have a good understanding of serverless computing and Kubernetes core resources such as deployment, services, routes, and replicas, the recipes in this cookbook show you how to apply Knative in real enterprise application development. Authors Kamesh Sampath and Burr Sutter include chapters on autoscaling, build and eventing, observability, Knative on OpenShift, and more. With this cookbook, you'll learn how to: Efficiently build, deploy, and manage modern serverless workloads Apply Knative in real enterprise scenarios, including advanced eventing Monitor your Knative serverless applications effectively Integrate Knative with CI/CD principles, such as using pipelines for faster, more successful production deployments Deploy a rich ecosystem of enterprise integration patterns and connectors in Apache Camel K as Kubernetes and Knative components

Summary Camel in Action, Second Edition is the most complete Camel book on the market. Written by core developers of Camel and the authors of the highly acclaimed first edition, this book distills their experience and practical insights so that you can tackle integration tasks like a pro. Forewords by James Strachan and Dr. Mark Little Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the

Technology Apache Camel is a Java framework that implements enterprise integration patterns (EIPs) and comes with over 200 adapters to third-party systems. A concise DSL lets you build integration logic into your app with just a few lines of Java or XML. By using Camel, you benefit from the testing and experience of a large and vibrant open source community.

About the Book Camel in Action, Second Edition is the definitive guide to the Camel framework. It starts with core concepts like sending, receiving, routing, and transforming data. It then goes in depth on many topics such as how to develop, debug, test, deal with errors, secure, scale, cluster, deploy, and monitor your Camel applications. The book also discusses how to run Camel with microservices, reactive systems, containers, and in the cloud. What's

Inside Coverage of all relevant EIPs Camel microservices with Spring Boot Camel on Docker and Kubernetes Error handling, testing, security, clustering, monitoring, and deployment Hundreds of examples in Java and XML About the Reader Readers should be familiar with Java. This book is accessible to beginners and invaluable to experts. About the Author Claus Ibsen is a senior principal engineer working for Red Hat specializing in cloud and integration. He has worked on Apache Camel for the last nine years where he heads the project. Claus lives in Denmark. Jonathan Anstey is an engineering manager at Red Hat and a core Camel contributor. He lives in Newfoundland, Canada. Table of Contents Part 1 - First steps Meeting

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Camel Routing with Camel Part 2 - Core Camel Transforming data with Camel Using beans with Camel Enterprise integration patterns Using components Part 3 - Developing and testing Microservices Developing Camel projects Testing RESTful web services Part 4 - Going further with Camel Error handling Transactions and idempotency Parallel processing Securing Camel Part 5 - Running and managing Camel Running and deploying Camel Management and monitoring Part 6 - Out in the wild Clustering Microservices with Docker and Kubernetes Camel tooling Bonus online chapters Available at <https://www.manning.com/books/camel-in-?action-second-edition> and in electronic versions of this book: Reactive Camel Camel and the IoT by Henryk Konsek

A single dramatic software failure can cost a company millions of dollars - but can be avoided with simple changes to design and architecture. This new edition of the best-selling industry standard shows you how to create systems that run longer, with fewer failures, and recover better when bad things happen. New coverage includes DevOps, microservices, and cloud-native architecture. Stability antipatterns have grown to include systemic problems in large-scale systems. This is a must-have pragmatic guide to engineering for production systems. If you're a software developer, and you don't want to get alerts every night for the rest of your life, help is here. With a combination of case studies about huge losses - lost revenue, lost reputation, lost time, lost opportunity - and practical, down-to-earth advice that was all gained through painful experience, this book helps you avoid the pitfalls that cost companies millions of dollars in downtime and reputation. Eighty percent of project life-cycle cost is in production, yet few books address this topic. This updated edition deals with the production of today's systems - larger, more complex, and heavily virtualized - and includes information on chaos engineering, the discipline of applying randomness and deliberate stress to reveal systematic problems. Build systems that survive the real world, avoid downtime, implement zero-downtime upgrades and continuous delivery, and make cloud-native applications resilient. Examine ways to architect, design, and build software - particularly distributed systems - that stands up to the typhoon winds of a flash mob, a Slashdotting, or a link on Reddit. Take a hard look at software that failed the test and find ways to make sure your software survives. To skip the pain and get the experience...get this book.

With the immense cost savings and scalability the cloud provides, the rationale for building cloud native applications is no longer in question. The real issue is how. With this practical guide, developers will learn about the most commonly used design patterns for building cloud native applications using APIs, data, events, and streams in both greenfield and brownfield development. You'll learn how to incrementally design, develop, and deploy large and effective cloud native applications that you can manage and maintain at scale with minimal cost, time, and effort. Authors Kasun Indrasiri and Sriskandarajah Suhothayan highlight use cases that effectively demonstrate the challenges you might encounter at each step. Learn the fundamentals of cloud native applications Explore key cloud native communication, connectivity, and composition patterns Learn decentralized data management techniques Use event-driven architecture to build distributed and scalable cloud native applications Explore the most commonly used patterns for API management and consumption Examine some of the tools and technologies you'll need for building cloud native systems

This text aims to help all members of the development team make the correct nuts-and-bolts architecture decisions that ensure project success.

An expert guide to solving real business problems using components This groundbreaking book gets developers up to speed on Enterprise JavaBeans, CORBA components, and other cutting edge technologies that are making it easier and cheaper than ever for companies to integrate all of their applications into unified systems to support corporate decision-making. Fred Cummins presents an overview of the integration architecture and then dives right into the details, including communications messaging techniques for integrating application

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components, the "publish and subscribe" mechanism for linking components and monitoring business activities, using "adapters" to integrate applications, integrating Web services, workflow management, and he also supplies proven code solutions for an array of problems associated with integrating packaged and custom applications across the enterprise. Companion Web site features source code and updates on the EAI architecture and underlying technologies.

This is the eagerly-anticipated revision to one of the seminal books in the field of software architecture which clearly defines and explains the topic.

Provides information on using Crystal Reports to create presentations and reports from a variety of data sources.

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.

Summary Spring Integration in Action is a hands-on guide to Spring-based messaging and integration. After addressing the core messaging patterns, such as those used in transformation and routing, the book turns to the adapters that enable integration with external systems. Readers will explore real-world enterprise integration scenarios using JMS, Web Services, file systems, and email. They will also learn about Spring Integration's support for working with XML. The book concludes with a practical guide to advanced topics such as concurrency, performance, system-management, and monitoring. The book features a foreword by Rod Johnson, Founder of the Spring Network. About the Technology Spring Integration extends the Spring Framework to support the patterns described in Gregor Hohpe and Bobby Woolf's Enterprise Integration Patterns. Like the Spring Framework itself, it focuses on developer productivity, making it easier to build, test, and maintain enterprise integration solutions. About the Book Spring Integration in Action is an introduction and guide to enterprise integration and messaging using the Spring Integration framework. The book starts off by reviewing core messaging patterns, such as those used in transformation and routing. It then drills down into real-world enterprise integration scenarios using JMS, Web Services, filesystems, email, and more. You'll find an emphasis on testing, along with practical coverage of topics like concurrency, scheduling, system management, and monitoring. This book is accessible to developers who know Java. Experience with Spring and EIP is helpful but not assumed. 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. What's Inside Realistic examples Expert advice from Spring Integration creators Detailed coverage of Spring Integration 2 features About the Authors Mark Fisher is the Spring Integration founder and project lead. Jonas Partner, Marius Bogoevici, and Iwein Fuld have all been project committers and are recognized experts on Spring and Spring Integration. Table of Contents PART 1 BACKGROUND Introduction to Spring Integration Enterprise integration fundamentals 24 PART 2 MESSAGING Messages and channels Message Endpoints Getting down to business

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Go beyond sequential processing: routing and filtering Splitting and aggregating messages
PART 3 INTEGRATING SYSTEMS Handling messages with XML payloads Spring Integration and the Java Message Service Email-based integration Filesystem integration Spring Integration and web services Chatting and tweeting PART 4 ADVANCED TOPICS Monitoring and management Managing scheduling and concurrency Batch applications and enterprise integration Scaling messaging applications with OSGi Testing

A collection of hands-on lessons based upon the authors' considerable experience in enterprise integration, the 65 patterns included with this guide show how to use message-oriented middleware to connect enterprise applications.

Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services, and learn from their architectures

Engineering Asset Management discusses state-of-the-art trends and developments in the emerging field of engineering asset management as presented at the Fourth World Congress on Engineering Asset Management (WCEAM). It is an excellent reference for practitioners, researchers and students in the multidisciplinary field of asset management, covering such topics as asset condition monitoring and intelligent maintenance; asset data warehousing, data mining and fusion; asset performance and level-of-service models; design and life-cycle integrity of physical assets; deterioration and preservation models for assets; education and training in asset management; engineering standards in asset management; fault diagnosis and prognostics; financial analysis methods for physical assets; human dimensions in integrated asset management; information quality management; information systems and knowledge management; intelligent sensors and devices; maintenance strategies in asset management; optimisation decisions in asset management; risk management in asset management; strategic asset management; and sustainability in asset management.

Technologists who want their ideas heard, understood, and funded are often told to speak the language of business—without really knowing what that is. This book's toolkit provides architects, product managers, technology managers, and executives with a shared language—in the form of repeatable, practical patterns and templates—to produce great technology strategies. Author Eben Hewitt developed 39 patterns over the course of a decade in his work as CTO, CIO, and chief architect for several global tech companies. With these proven tools, you can define, create, elaborate, refine, and communicate your architecture goals, plans, and approach in a way that executives can readily understand, approve, and execute. This book covers: Architecture and strategy: Adopt a strategic architectural mindset to make a meaningful material impact Creating your strategy: Define the components of your technology strategy using proven patterns Communicating the strategy: Convey your technology strategy in a compelling way to a variety of audiences Bringing it all together: Employ patterns individually or in clusters for specific problems; use the complete framework

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for a comprehensive strategy

Pattern-oriented software architecture is a new approach to software development. This book represents the progression and evolution of the pattern approach into a system of patterns capable of describing and documenting large-scale applications. A pattern system provides, on one level, a pool of proven solutions to many recurring design problems. On another it shows how to combine individual patterns into heterogeneous structures and as such it can be used to facilitate a constructive development of software systems. Uniquely, the patterns that are presented in this book span several levels of abstraction, from high-level architectural patterns and medium-level design patterns to low-level idioms. The intention of, and motivation for, this book is to support both novices and experts in software development. Novices will gain from the experience inherent in pattern descriptions and experts will hopefully make use of, add to, extend and modify patterns to tailor them to their own needs. None of the pattern descriptions are cast in stone and, just as they are borne from experience, it is expected that further use will feed in and refine individual patterns and produce an evolving system of patterns. Visit our Web Page

<http://www.wiley.com/compbooks/>

A complete practitioner's catalog of proven domain services design solutions that can help any organization leverage SOA's full benefits * *Provides a vocabulary of proven SOA design solutions, with concrete examples and code that is easy for architects to adapt and implement. *By Rob Daigneau, one of the industry's leading experts in complex systems integration. *Helps architects and IT leaders accurately set stakeholder expectations for major SOA initiatives. Service-oriented architectures are typically called upon to deliver two general categories of services: enterprise services and domain services. Enterprise services are essentially composite services that typically leverage technologies such as message-oriented middleware. Domain services are the building blocks these composites depend upon. Each service category is best served by a distinct set of design solutions. This is the first book to systematically identify and explain best practice patterns for domain services. Rob Daigneau expands upon the Service Layer concept (covered expertly by Fowler in Patterns of Enterprise Application Architecture) domain services can be used with Enterprise Integration Patterns (made famous by Hohpe and Woolf). Daigneau begins by reviewing SOA concepts, illuminating the distinctions between enterprise and domain services, and identifying key relationships between domain services and other pattern groups. Next, he introduces each essential pattern for creating and delivering domain services, providing a vocabulary of design solutions that architects and other IT professionals can implement by referencing and adapting the concrete examples he supplies.

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

Salary surveys worldwide regularly place software architect in the top 10 best jobs, yet no real guide exists to help developers become architects. Until now. This book provides the first comprehensive overview of software architecture's many aspects. Aspiring and existing architects alike will examine architectural characteristics, architectural patterns, component determination, diagramming and presenting architecture, evolutionary architecture, and many other topics. Mark Richards and Neal Ford—hands-on practitioners who have taught software architecture classes professionally for years—focus on architecture principles that apply across all technology stacks. You'll explore software architecture in a modern light, taking into account all the innovations of the past decade. This book examines: Architecture patterns: The technical basis for many architectural decisions Components: Identification, coupling, cohesion, partitioning, and granularity Soft skills: Effective team management, meetings, negotiation,

presentations, and more Modernity: Engineering practices and operational approaches that have changed radically in the past few years Architecture as an engineering discipline: Repeatable results, metrics, and concrete valuations that add rigor to software architecture

As the digital economy changes the rules of the game for enterprises, the role of software and IT architects is also transforming. Rather than focus on technical decisions alone, architects and senior technologists need to combine organizational and technical knowledge to effect change in their company's structure and processes. To accomplish that, they need to connect the IT engine room to the penthouse, where the business strategy is defined. In this guide, author Gregor Hohpe shares real-world advice and hard-learned lessons from actual IT transformations. His anecdotes help architects, senior developers, and other IT professionals prepare for a more complex but rewarding role in the enterprise. This book is ideal for: Software architects and senior developers looking to shape the company's technology direction or assist in an organizational transformation Enterprise architects and senior technologists searching for practical advice on how to navigate technical and organizational topics CTOs and senior technical architects who are devising an IT strategy that impacts the way the organization works IT managers who want to learn what's worked and what hasn't in large-scale transformation

Enterprise Architecture (EA) is typically an aggregate of the business, application, data, and infrastructure architectures of any forward-looking enterprise. Due to constant changes and rising complexities in the business and technology landscapes, producing sophisticated architectures is on the rise. Architectural patterns are gaining a lot ...

“For software developers of all experience levels looking to improve their results, and design and implement domain-driven enterprise applications consistently with the best current state of professional practice, Implementing Domain-Driven Design will impart a treasure trove of knowledge hard won within the DDD and enterprise application architecture communities over the last couple decades.”
—Randy Stafford, Architect At-Large, Oracle Coherence Product Development
“This book is a must-read for anybody looking to put DDD into practice.” —Udi Dahan, Founder of NServiceBus Implementing Domain-Driven Design presents a top-down approach to understanding domain-driven design (DDD) in a way that fluently connects strategic patterns to fundamental tactical programming tools. Vaughn Vernon couples guided approaches to implementation with modern architectures, highlighting the importance and value of focusing on the business domain while balancing technical considerations. Building on Eric Evans' seminal book, Domain-Driven Design, the author presents practical DDD techniques through examples from familiar domains. Each principle is backed up by realistic Java examples—all applicable to C# developers—and all content is tied together by a single case study: the delivery of a large-scale Scrum-based SaaS system for a multitenant environment. The author takes you far beyond “DDD-

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lite” approaches that embrace DDD solely as a technical toolset, and shows you how to fully leverage DDD’s “strategic design patterns” using Bounded Context, Context Maps, and the Ubiquitous Language. Using these techniques and examples, you can reduce time to market and improve quality, as you build software that is more flexible, more scalable, and more tightly aligned to business goals. Coverage includes Getting started the right way with DDD, so you can rapidly gain value from it Using DDD within diverse architectures, including Hexagonal, SOA, REST, CQRS, Event-Driven, and Fabric/Grid-Based Appropriately designing and applying Entities—and learning when to use Value Objects instead Mastering DDD’s powerful new Domain Events technique Designing Repositories for ORM, NoSQL, and other databases

Enterprise Patterns and MDA teaches you how to customize any archetype pattern—such as Customer, Product, and Order—to reflect the idiosyncrasies of your own business environment. Because all the patterns work harmoniously together and have clearly documented relationships to each other, you’ll come away with a host of reusable solutions to common problems in business-software design. This book shows you how using a pattern or a fragment of a pattern can save you months of work and help you avoid costly errors. You’ll also discover how—when used in literate modeling—patterns can solve the difficult challenge of communicating UML models to broad audiences. The configurable patterns can be used manually to create executable code. However, the authors draw on their extensive experience to show you how to tap the significant power of MDA and UML for maximum automation. Not surprisingly, the patterns included in this book are highly valuable; a blue-chip company recently valued a similar, but less mature, set of patterns at hundreds of thousands of dollars. Use this practical guide to increase the efficiency of your designs and to create robust business applications that can be applied immediately in a business setting.

For any software developer who has spent days in “integration hell,” cobbling together myriad software components, Continuous Integration: Improving Software Quality and Reducing Risk illustrates how to transform integration from a necessary evil into an everyday part of the development process. The key, as the authors show, is to integrate regularly and often using continuous integration (CI) practices and techniques. The authors first examine the concept of CI and its practices from the ground up and then move on to explore other effective processes performed by CI systems, such as database integration, testing, inspection, deployment, and feedback. Through more than forty CI-related practices using application examples in different languages, readers learn that CI leads to more rapid software development, produces deployable software at every step in the development lifecycle, and reduces the time between defect introduction and detection, saving time and lowering costs. With successful implementation of CI, developers reduce risks and repetitive manual processes, and teams receive better project visibility. The book covers How to make integration a “non-event” on your software development projects How to reduce the amount of repetitive processes you perform when building your software Practices and techniques for using CI effectively with your teams Reducing the risks of late defect discovery, low-quality software, lack of visibility, and lack of deployable software Assessments of different CI servers and related tools on the market The book’s companion Web site, www.integratebutton.com, provides updates and code examples.

Summary SOA Patterns provides architectural guidance through patterns and antipatterns. It shows you how to build real SOA services that feature flexibility, availability, and scalability. Through an extensive set of patterns, this book identifies the major SOA pressure points and provides reusable techniques to address them. Each pattern pairs the classic problem/solution

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format with a unique technology map, showing where specific solutions fit into the general pattern. About the Technology The idea of service-oriented architecture is an easy one to grasp and yet developers and enterprise architects often struggle with implementation issues. Here are some of them: How to get high availability and high performance How to know a service has failed How to create reports when data is scattered within multiple services How to make loose coupling looser How to solve authentication and authorization for service consumers How to integrate SOA and the UI About the Book SOA Patterns provides detailed, technology-neutral solutions to these challenges, and many others, using plain language. You'll understand the design patterns that promote and enforce flexibility, availability, and scalability. Each of the 26 patterns uses the classic problem/solution format and a unique technology map to show where specific solutions fit into the general pattern. The book is written for working developers and architects building services and service-oriented solutions. Knowledge of Java or C# is helpful but not required. 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. Table of Contents PART 1 SOA PATTERNS Solving SOA pains with patterns Foundation structural patterns Patterns for performance, scalability, and availability Security and manageability patterns Message exchange patterns Service consumer patterns Service integration patterns PART 2 SOA IN THE REAL WORLD Service antipatterns Putting it all together—a case study SOA vs. the world

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Enterprise Information Systems (EIS) integrate and support business processes across functional boundaries in a supply chain environment, and have become increasingly popular over the last 15 years. In recent years, more and more enterprises world-wide have adopted EIS such as Enterprise Resource Planning (ERP) for running their businesses. Previously, information systems such as CAD, CAM, MRPII and CRM were widely used for partial functional integration within a business organization. With global operation, global supply chain, and fierce competition in place, there is a need for suitable EIS such as ERP, E-Business or E-Commerce systems to integrate extended enterprises in a supply chain environment with the objective of achieving efficiency, competency, and competitiveness. As a result, there is a growing demand for researching EIS to provide insights into challenges, issues, and solutions related to the design, implementation and management of EIS. The papers in Advances in Enterprise Information Systems were selected from two premier international conferences: the International Forum of Information Systems Frontiers—Xian International Symposium (IFISF), June 29-30, 2006, Xian, China and the IFIP TC 8.9 International Conference on Research and Practical Issues of Enterprise Information Systems (Confenis 2007), October 14-16, Beijing, China. Both events provided an excellent opportunity for EIS academicians and practitioners in the world to gather and exchange ideas, and present original research in their fields. Advances in Enterprise Information Systems will be invaluable to scientists, researchers and professionals in EIS.

"Camel in Action" is for developers working with integration of any kind. This highly practical book introduces Camel and shows examples of how to use it with the more than 45 supported enterprise integration patterns.

The latest knowledge on mineral ore genesis and the exploration of ore deposits Global demand for metals has risen considerably over the past decade. Geologists are developing new approaches for studying ore deposits and discovering new sources. Ore Deposits: Origin, Exploration, and Exploitation is a compilation of diverse case studies on new prospects in ore deposit geology including atypical examples of mineral deposits and new methods for ore exploration. Volume highlights include: Presentation of the latest research on a range of ore deposit types Application of ore deposits to multiple areas of geology and geophysical

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exploration Emphasis on diverse methods and tools for the study of ore deposits Useful case studies for geologists in both academia and industry Ore Deposits: Origin, Exploration, and Exploitation is a valuable resource for economic geologists, mineralogists, petrologists, geochemists, mining engineers, research professionals, and advanced students in relevant areas of academic study.

Many large enterprises are feeling pressure from the rapid digitalization of the world: digital disruptors attack unexpectedly with brand-new business models; the "FaceBook generation" has dramatically different user expectations; and a whole slew of new technologies has become available to everyone with a credit card. This is tough stuff for enterprises that have been, and still are, very successful, but are built around traditional technology and organizational structures. "Turning the tanker", as the need to transform is often described, has become a board room-level topic in many traditional enterprises. Not as easily done as said. Chief IT Architects and CTOs play a key role in such a digital transformation endeavor. They combine the technical, communication, and organizational skill to understand how a tech stack refresh can actually benefit the business, what "being agile" and "DevOps" really mean, and what technology infrastructure is needed to assure quality while moving faster. Their job is not an easy one, though: they must maneuver in an organization where IT is often still seen as a cost center, where operations means "run" as opposed to "change", and where middle-aged middle-management has become cozy neither understanding the business strategy nor the underlying technology. It's no surprise then that IT architects have become some of the most sought-after IT professionals around the globe. This book aims to equip IT architects with the skills necessary to become effective not just in systems architecture, but also in shaping and driving the necessary transformation of large-scale IT departments. In today's world, technical transformation and organizational transformation have become inseparable. Organized into 37 episodes, this book explains: The role and qualities of an architect in a large enterprise How to think about architecture at enterprise scale How to communicate to a variety of stakeholders Organizational structures and systems How to transform traditional organizations Armed with these insights, architects and CTOs will be able to ride the Architect Elevator up and down the organization to instill lasting change.

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

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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

Every enterprise application creates data, whether it's log messages, metrics, user activity, outgoing messages, or something else. And how to move all of this data becomes nearly as important as the data itself. If you're an application architect, developer, or production engineer new to Apache Kafka, this practical guide shows you how to use this open source streaming platform to handle real-time data feeds. Engineers from Confluent and LinkedIn who are responsible for developing Kafka explain how to deploy production Kafka clusters, write reliable event-driven microservices, and build scalable stream-processing applications with this platform. Through detailed examples, you'll learn Kafka's design principles, reliability guarantees, key APIs, and architecture details, including the replication protocol, the controller, and the storage layer. Understand publish-subscribe messaging and how it fits in the big data ecosystem. Explore Kafka producers and consumers for writing and reading messages Understand Kafka patterns and use-case requirements to ensure reliable data delivery Get best practices for building data pipelines and applications with Kafka Manage Kafka in production, and learn to perform monitoring, tuning, and maintenance tasks Learn the most critical metrics among Kafka's operational measurements Explore how Kafka's stream delivery capabilities make it a perfect source for stream processing systems

In this new book, intended as a language companion to the classic *Design Patterns*, noted Smalltalk and design patterns experts implement the 23 design patterns using Smalltalk code. This approach has produced a language-specific companion that tailors the topic of design patterns to the Smalltalk programmer. The authors have worked closely with the authors of *Design Patterns* to ensure that this companion volume meets the same quality standards that made the original a bestseller and indispensable resource. The full source code will be available on the AWL web site.

In the race to compete in today's fast-moving markets, large enterprises are busy adopting new technologies for creating new products, processes, and business models. But one obstacle on the road to digital transformation is placing too much emphasis on technology, and not enough on the types of processes technology enables. What if different lines of business could build their own services and applications—and decision-making was distributed rather than centralized? This report explores the concept of a digital business platform as a way of empowering individual business sectors to act on data in real time. Much innovation in a digital enterprise will increasingly happen at the edge, whether it involves business users (from marketers to data scientists) or IoT devices. To facilitate the process, your core IT team can provide these sectors with the digital tools they need to innovate quickly. This report explores: Key cultural and organizational changes for developing business capabilities through cross-functional product teams A platform for integrating applications, data sources, business partners, clients, mobile apps, social networks, and IoT devices Creating internal API programs for building innovative edge services in low-code or no-code environments Tools including Integration Platform as a Service, Application Platform as a Service, and Integration Software as a Service The challenge of integrating microservices and serverless architectures Event-driven architectures for processing and reacting to events in real time You'll also learn about a complete pervasive integration solution as a core component of a digital business platform to serve every audience in your organization.

This book is a guide to designing and building knowledge graphs from enterprise relational databases in practice. It presents a principled framework centered on mapping patterns to connect relational databases with knowledge graphs, the roles within an organization responsible for the knowledge graph, and the process that combines data and people. The content of this book is applicable to knowledge graphs being built either with property graph or

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RDF graph technologies. Knowledge graphs are fulfilling the vision of creating intelligent systems that integrate knowledge and data at large scale. Tech giants have adopted knowledge graphs for the foundation of next-generation enterprise data and metadata management, search, recommendation, analytics, intelligent agents, and more. We are now observing an increasing number of enterprises that seek to adopt knowledge graphs to develop a competitive edge. In order for enterprises to design and build knowledge graphs, they need to understand the critical data stored in relational databases. How can enterprises successfully adopt knowledge graphs to integrate data and knowledge, without boiling the ocean? This book provides the answers.

USE THE ACTOR MODEL TO BUILD SIMPLER SYSTEMS WITH BETTER PERFORMANCE AND SCALABILITY Enterprise software development has been much more difficult and failure-prone than it needs to be. Now, veteran software engineer and author Vaughn Vernon offers an easier and more rewarding method to succeeding with Actor model. *Reactive Messaging Patterns with the Actor Model* shows how the reactive enterprise approach, Actor model, Scala, and Akka can help you overcome previous limits of performance and scalability, and skillfully address even the most challenging non-functional requirements. Reflecting his own cutting-edge work, Vernon shows architects and developers how to translate the longtime promises of Actor model into practical reality. First, he introduces the tenets of reactive software, and shows how the message-driven Actor model addresses all of them—making it possible to build systems that are more responsive, resilient, and elastic. Next, he presents a practical Scala bootstrap tutorial, a thorough introduction to Akka and Akka Cluster, and a full chapter on maximizing performance and scalability with Scala and Akka. Building on this foundation, you'll learn to apply enterprise application and integration patterns to establish message channels and endpoints; efficiently construct, route, and transform messages; and build robust systems that are simpler and far more successful. Coverage Includes How reactive architecture replaces complexity with simplicity throughout the core, middle, and edges The characteristics of actors and actor systems, and how Akka makes them more powerful Building systems that perform at scale on one or many computing nodes Establishing channel mechanisms, and choosing appropriate channels for each application and integration challenge Constructing messages to clearly convey a sender's intent in communicating with a receiver Implementing a Process Manager for your Domain-Driven Designs Decoupling a message's source and destination, and integrating appropriate business logic into its router Understanding the transformations a message may experience in applications and integrations Implementing persistent actors using Event Sourcing and reactive views using CQRS Find unique online training on Domain-Driven Design, Scala, Akka, and other software craftsmanship topics using the [for{comprehension} website at forcomprehension.com](http://forcomprehension.com). Annotation Over the past 10 years, distributed systems have become more fine-grained. From the large multi-million line long monolithic applications, we are now seeing the benefits of smaller self-contained services. Rather than heavy-weight, hard to change Service Oriented Architectures, we are now seeing systems consisting of collaborating microservices. Easier to change, deploy, and if required retire, organizations which are in the right position to take advantage of them are yielding significant benefits. This book takes an holistic view of the things you need to be cognizant of in order to pull this off. It covers just enough understanding of technology, architecture, operations and organization to show you how to move towards finer-grained systems.

Understand the key challenges and solutions around building microservices in the enterprise application environment. This book provides a comprehensive understanding of microservices architectural principles and how to use microservices in real-world scenarios. Architectural challenges using microservices with service integration and API management are presented and you learn how to eliminate the use of centralized integration products such as the

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enterprise service bus (ESB) through the use of composite/integration microservices. Concepts in the book are supported with use cases, and emphasis is put on the reality that most of you are implementing in a “brownfield” environment in which you must implement microservices alongside legacy applications with minimal disruption to your business. Microservices for the Enterprise covers state-of-the-art techniques around microservices messaging, service development and description, service discovery, governance, and data management technologies and guides you through the microservices design process. Also included is the importance of organizing services as core versus atomic, composite versus integration, and API versus edge, and how such organization helps to eliminate the use of a central ESB and expose services through an API gateway. What You'll Learn Design and develop microservices architectures with confidence Put into practice the most modern techniques around messaging technologies Apply the Service Mesh pattern to overcome inter-service communication challenges Apply battle-tested microservices security patterns to address real-world scenarios Handle API management, decentralized data management, and observability Who This Book Is For Developers and DevOps engineers responsible for implementing applications around a microservices architecture, and architects and analysts who are designing such systems

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