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Building Evolutionary Architectures Building Evolutionary Architectures Building Evolutionary Architectures Fundamentals of Software Architecture Software Architecture: The Hard Parts Building Microservices Just Enough Software Architecture An Evolutionary Architecture Presentation Patterns Software Architecture Hour The Architecture of Science The Productive Programmer The Software Architect Elevator Software Architect's Handbook Building Evolutionary Architectures Building Micro-Frontends Talking with Tech Leads Practical Event-Driven Microservices Architecture Refactoring Databases Monolith to Microservices Information Architecture for the World Wide Web Sustainable Software Architecture Automated Machine Learning Recipes for Continuous Database Integration Technology Strategy Patterns The Timeless Way of Building Microservices: Up and Running Building Event-Driven Microservices Team Topologies Designing Hexagonal Architecture with Java The Art of Systems Architecting, Third Edition Thinking Architecturally Software Engineering at Google Becoming an Agile Software Architect Designing Data-Intensive Applications Data Mesh Building Evolutionary Architectures Head First Design Patterns Flow Architectures Building Secure and Reliable Systems

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It is your certainly own times to piece of legislation reviewing habit. accompanied by guides you could enjoy now is **Building Evolutionary Architectures** below.

There are no easy decisions in software architecture. Instead, there are many hard parts--difficult problems or issues with no best practices--that force you to choose among various compromises. With this book, you'll learn how to think critically about the trade-offs involved with distributed architectures. Architecture veterans and practicing consultants Neal Ford, Mark Richards, Pramod Sadalage, and Zhamak Dehghani discuss strategies for choosing an appropriate architecture. By interweaving a story about a fictional group of technology professionals--the Sysops Squad--they examine

everything from how to determine service granularity, manage workflows and orchestration, manage and decouple contracts, and manage distributed transactions to how to optimize operational characteristics, such as scalability, elasticity, and performance. By focusing on commonly asked questions, this book provides techniques to help you discover and weigh the trade-offs as you confront the issues you face as an architect. Analyze trade-offs and effectively document your decisions Make better decisions regarding service granularity Understand the complexities of breaking apart monolithic applications Manage and decouple contracts between services Handle data in a highly distributed architecture Learn patterns to manage workflow and transactions when breaking apart applications Evolutionary architecture attempts to evolve form and structure in emulation of the evolutionary processes of nature. It considers architecture as a form of artificial life. This approach has formed the basis for the author's teaching programme for AA Diploma Unit II. Table of Contents The Architecture of Science by Galison, Peter L. (Editor); Edelman, Shimon (Editor); Thompson, Emily (Editor) Terms of Use Acknowledgments Notes on Contributors 1 Buildings and the Subject of Science Peter Galison 1 Of Secrecy and Openness: Science and Architecture in Early Modern Europe 2 Masculine Prerogatives: Gender, Space, and Knowledge in the Early Modern Museum Paula Findlen 3 Alchemical Symbolism and Concealment: The Chemical House of Libavius William R. Newman 4 Openness and Empiricism: Values and Meaning in Early Architectural Writings and in Seventeenth-Century Experimental Philosophy Pamela O. Long II Displaying and Concealing Technics in the Nineteenth Century 5 Architecture for Steam M. Norton Wise 6 Illuminating the Opacity of Achromatic Lens Production: Joseph von Fraunhofer's Use of Monastic Architecture and Space as a Laboratory Myles W. Jackson 7 The Spaces of Cultural Representation, circa 1887 and 1969: Reflections on Museum

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Index Descriptive content provided by Syndetics"! a Bowker service. A comprehensive guide to exploring software architecture concepts and implementing best practices **Key Features** Enhance your skills to grow your career as a software architect **Design efficient software architectures using patterns and best practices** Learn how software architecture relates to an organization as well as software development methodology **Book Description** The Software Architect's Handbook is a comprehensive guide to help developers, architects, and senior

programmers advance their career in the software architecture domain. This book takes you through all the important concepts, right from design principles to different considerations at various stages of your career in software architecture. The book begins by covering the fundamentals, benefits, and purpose of software architecture. You will discover how software architecture relates to an organization, followed by identifying its significant quality attributes. Once you have covered the basics, you will explore design patterns, best practices, and paradigms for efficient software development. The book discusses which factors you need to consider for performance and security enhancements. You will learn to write documentation for your architectures and make appropriate decisions when considering DevOps. In addition to this, you will explore how to design legacy applications before understanding how to create software architectures that evolve as the market, business requirements, frameworks, tools, and best practices change over time. By the end of this book, you will not only have studied software architecture concepts but also built the soft skills necessary to grow in this field. What you will learn

Design software architectures using patterns and best practices
Explore the different considerations for designing software architecture
Discover what it takes to continuously improve as a software architect
Create loosely coupled systems that can support change
Understand DevOps and how it affects software architecture
Integrate, refactor, and re-architect legacy applications
Who this book is for
The Software Architect's Handbook is for you if you are a software architect, chief technical officer (CTO), or senior developer looking to gain a firm grasp of software architecture. 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

Using research

in neurobiology, cognitive science and learning theory, this text loads patterns into your brain in a way that lets you put them to work immediately, makes you better at solving software design problems, and improves your ability to speak the language of patterns with others on your team. This volume provides the opening work in Christopher Alexander's seminal trilogy on architecture (continued in *A Pattern Language* and *The Oregon Experiment*). Here he provides a fascinating introduction to the ideas behind the succeeding two books. Organizations today often struggle to balance business requirements with ever-increasing volumes of data. Additionally, the demand for leveraging large-scale, real-time data is growing rapidly among the most competitive digital industries. Conventional system architectures may not be up to the task. With this practical guide, you'll learn how to leverage large-scale data usage across the business units in your organization using the principles of event-driven microservices. Author Adam Bellemare takes you through the process of building an event-driven microservice-powered organization. You'll reconsider how data is produced, accessed, and propagated across your organization. Learn powerful yet simple patterns for unlocking the value of this data. Incorporate event-driven design and architectural principles into your own systems. And completely rethink how your organization delivers value by unlocking near-real-time access to data at scale. You'll learn: How to leverage event-driven architectures to deliver exceptional business value The role of microservices in supporting event-driven designs Architectural patterns to ensure success both within and between teams in your organization Application patterns for developing powerful event-driven microservices Components and tooling required to get your microservice ecosystem off the ground Can a system be considered truly reliable if it isn't fundamentally secure? Or can it be considered secure if it's unreliable? Security is crucial to the design and operation of scalable systems in production, as it plays an important part in product

quality, performance, and availability. In this book, experts from Google share best practices to help your organization design scalable and reliable systems that are fundamentally secure. Two previous O'Reilly books from Google—Site Reliability Engineering and The Site Reliability Workbook—demonstrated how and why a commitment to the entire service lifecycle enables organizations to successfully build, deploy, monitor, and maintain software systems. In this latest guide, the authors offer insights into system design, implementation, and maintenance from practitioners who specialize in security and reliability. They also discuss how building and adopting their recommended best practices requires a culture that's supportive of such change. You'll learn about secure and reliable systems through:

- Design strategies
- Recommendations for coding, testing, and debugging practices
- Strategies to prepare for, respond to, and recover from incidents
- Cultural best practices that help teams across your organization collaborate effectively
- Software development today is embracing events and streaming data, which optimizes not only how technology interacts but also how businesses integrate with one another to meet customer needs. This phenomenon, called flow, consists of patterns and standards that determine which activity and related data is communicated between parties over the internet. This book explores critical implications of that evolution: What happens when events and data streams help you discover new activity sources to enhance existing businesses or drive new markets? What technologies and architectural patterns can position your company for opportunities enabled by flow? James Urquhart, global field CTO at VMware, guides enterprise architects, software developers, and product managers through the process. Learn the benefits of flow dynamics when businesses, governments, and other institutions integrate via events and data streams
- Understand the value chain for flow integration through Wardley mapping visualization and promise theory modeling
- Walk through basic concepts behind today's event-driven systems marketplace

Learn how today's integration patterns will influence the real-time events flow in the future Explore why companies should architect and build software today to take advantage of flow in coming years This is a practical guide for software developers, and different than other software architecture books. Here's why: It teaches risk-driven architecting. There is no need for meticulous designs when risks are small, nor any excuse for sloppy designs when risks threaten your success. This book describes a way to do just enough architecture. It avoids the one-size-fits-all process tar pit with advice on how to tune your design effort based on the risks you face. It democratizes architecture. This book seeks to make architecture relevant to all software developers. Developers need to understand how to use constraints as guiderails that ensure desired outcomes, and how seemingly small changes can affect a system's properties. It cultivates declarative knowledge. There is a difference between being able to hit a ball and knowing why you are able to hit it, what psychologists refer to as procedural knowledge versus declarative knowledge. This book will make you more aware of what you have been doing and provide names for the concepts. It emphasizes the engineering. This book focuses on the technical parts of software development and what developers do to ensure the system works not job titles or processes. It shows you how to build models and analyze architectures so that you can make principled design tradeoffs. It describes the techniques software designers use to reason about medium to large sized problems and points out where you can learn specialized techniques in more detail. It provides practical advice. Software design decisions influence the architecture and vice versa. The approach in this book embraces drill-down/pop-up behavior by describing models that have various levels of abstraction, from architecture to data structure design. Anyone who develops software for a living needs a proven way to produce it better, faster, and cheaper. The Productive Programmer offers critical timesaving and productivity tools that you can adopt

right away, no matter what platform you use. Master developer Neal Ford not only offers advice on the mechanics of productivity-how to work smarter, spurn interruptions, get the most out your computer, and avoid repetition-he also details valuable practices that will help you elude common traps, improve your code, and become more valuable to your team. You'll learn to: Write the test before you write the code Manage the lifecycle of your objects fastidiously Build only what you need now, not what you might need later Apply ancient philosophies to software development Question authority, rather than blindly adhere to standards Make hard things easier and impossible things possible through meta-programming Be sure all code within a method is at the same level of abstraction Pick the right editor and assemble the best tools for the job This isn't theory, but the fruits of Ford's real-world experience as an Application Architect at the global IT consultancy ThoughtWorks. Whether you're a beginner or a pro with years of experience, you'll improve your work and your career with the simple and straightforward principles in *The Productive Programmer*. 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 for a comprehensive strategy 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. A practical guide for software architects and Java developers to build cloud-native hexagonal applications using Java and Quarkus to create systems that are easier to refactor, scale, and maintain Key Features Learn techniques to decouple business and technology code in an application Apply hexagonal architecture principles to produce more organized, coherent, and maintainable software Minimize technical debts and tackle complexities derived from multiple teams dealing with the same code base Book Description Hexagonal architecture enhances developers' productivity by decoupling business code from technology code, making the software more change-tolerant, and allowing it to evolve and incorporate new technologies without the need for significant refactoring. By adhering to hexagonal principles, you can structure your software in a way that reduces the effort required to understand and maintain the code. This book starts with an in-depth analysis of hexagonal architecture's building blocks, such as entities, use cases, ports, and adapters. You'll learn how to assemble business code in the Domain hexagon, create features by using ports and use cases in the Application hexagon, and make your software compatible with different technologies by employing adapters in the Framework hexagon. Moving on, you'll get your hands dirty developing a system based on a real-world scenario applying all the hexagonal architecture's building blocks.

By creating a hexagonal system, you'll also understand how you can use Java modules to reinforce dependency inversion and ensure the isolation of each hexagon in the architecture. Finally, you'll get to grips with using Quarkus to turn your hexagonal application into a cloud-native system. By the end of this hexagonal architecture book, you'll be able to bring order and sanity to the development of complex and long-lasting applications. What you will learn

- Find out how to assemble business rules algorithms using the specification design pattern
- Combine domain-driven design techniques with hexagonal principles to create powerful domain models
- Employ adapters to make the system support different protocols such as REST, gRPC, and WebSocket
- Create a module and package structure based on hexagonal principles
- Use Java modules to enforce dependency inversion and ensure isolation between software components
- Implement Quarkus DI to manage the life cycle of input and output ports

Who this book is for This book is for software architects and Java developers who want to improve code maintainability and enhance productivity with an architecture that allows changes in technology without compromising business logic, which is precisely what hexagonal architecture does. Intermediate knowledge of the Java programming language and familiarity with Jakarta EE will help you to get the most out of this book. 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. If engineering is the art and science of technical problem solving, systems architecting happens when you don't yet know what the problem is. The third edition of a highly respected bestseller, *The Art of Systems*

Architecting provides in-depth coverage of the least understood part of systems design: moving from a vague concept and limited resources to a satisfactory and feasible system concept and an executable program. The book provides a practical, heuristic approach to the "art" of systems architecting. It provides methods for embracing, and then taming, the growing complexity of modern systems. New in the Third Edition: Five major case studies illustrating successful and unsuccessful practices Information on architecture frameworks as standards for architecture descriptions New methods for integrating business strategy and architecture and the role of architecture as the technical embodiment of strategy Integration of process guidance for organizing and managing architecture projects Updates to the rapidly changing fields of software and systems-of-systems architecture Organization of heuristics around a simple and practical process model A Practical Heuristic Approach to the Art of Systems Architecting Extensively rewritten to reflect the latest developments, the text explains how to create a system from scratch, presenting invention/design rules together with clear explanations of how to use them. The author supplies practical guidelines for avoiding common systematic failures while implementing new mandates. He uses a heuristics-based approach that provides an organized attack on very ill-structured engineering problems. Examining architecture as more than a set of diagrams and documents, but as a set of decisions that either drive a system to success or doom it to failure, the book provide methods for integrating business strategy with technical architectural decision making. A guide to successfully operating in a lean-agile organization for solutions architects and enterprise architects Key Features Develop the right combination of processes and technical excellence to address architectural challenges Explore a range of architectural techniques to modernize legacy systems Discover how to design and continuously improve well-architected sustainable software Book Description Many organizations have

embraced Agile methodologies to transform their ability to rapidly respond to constantly changing customer demands. However, in this melee, many enterprises often neglect to invest in architects by presuming architecture is not an intrinsic element of Agile software development. Since the role of an architect is not pre-defined in Agile, many organizations struggle to position architects, often resulting in friction with other roles or a failure to provide a clear learning path for architects to be productive. This book guides architects and organizations through new Agile ways of incrementally developing the architecture for delivering an uninterrupted, continuous flow of values that meets customer needs. You'll explore various aspects of Agile architecture and how it differs from traditional architecture. The book later covers Agile architects' responsibilities and how architects can add significant value by positioning themselves appropriately in the Agile flow of work. Through examples, you'll also learn concepts such as architectural decision backlog, the last responsible moment, value delivery, architecting for change, DevOps, and evolutionary collaboration. By the end of this Agile book, you'll be able to operate as an architect in Agile development initiatives and successfully architect reliable software systems. What you will learn

- Acquire clarity on the duties of architects in Agile development
- Understand architectural styles such as domain-driven design and microservices
- Identify the pitfalls of traditional architecture and learn how to develop solutions
- Understand the principles of value and data-driven architecture
- Discover DevOps and continuous delivery from an architect's perspective
- Adopt Lean-Agile documentation and governance
- Develop a set of personal and interpersonal qualities
- Find out how to lead the transformation to achieve organization-wide agility

Who this book is for This agile study guide is for architects currently working on agile development projects or aspiring to work on agile software delivery, irrespective of the methodology they are using. You will also find this book

useful if you're a senior developer or a budding architect looking to understand an agile architect's role by embracing agile architecture strategies and a lean-agile mindset. To understand the concepts covered in this book easily, you need to have prior knowledge of basic agile development practices. How is long-term planning possible when everything changes all the time--and how do you address the unfortunate fact that architectures often gradually degrade? Evolutionary architectures support the building of systems that allow architects and developers to make sweeping changes to the most important parts with confidence. Join us for a special conversation on evolutionary architectures with Neal Ford and Thoughtworks CTO Rebecca Parsons. They'll discuss how their ideas around evolutionary architectures have evolved since the publication of their 2017 book *Building Evolutionary Architectures* (cowritten with Patrick Kua). Learn practices that allow developers to build continual architectures, which evolve cleanly without the need for a crystal ball. This is a chance for you to learn about architecture and Neal and Rebecca's own career journeys. They'll spend a few minutes covering the trends that are influencing architecture, then tell you what you need to know to stay ahead of the curve. What you'll learn and how you can apply it

Understand what evolutionary architectures are and how to implement them See what's coming next with software architecture This live event is for you because ... You want to learn more about building and maintaining evolutionary architectures. You're looking for ways to improve your architecture. Recommended follow-up: Read *Building Evolutionary Architectures* (book) Read *Software Architecture Metrics* (book) Read *Fundamentals of Software Architecture* (book) Read *Software Architecture: The Hard Parts* (book) Explore *Evolutionary Architectures Fundamentals* (course) Attend *Software Architecture Superstream: Architecture Meets Data* (live online event on November 30, 2022). We're at an inflection point in data, where our data management solutions no longer match the

complexity of organizations, the proliferation of data sources, and the scope of our aspirations to get value from data with AI and analytics. In this practical book, author Zhamak Dehghani introduces data mesh, a decentralized sociotechnical paradigm drawn from modern distributed architecture that provides a new approach to sourcing, sharing, accessing, and managing analytical data at scale. Dehghani guides practitioners, architects, technical leaders, and decision makers on their journey from traditional big data architecture to a distributed and multidimensional approach to analytical data management. Data mesh treats data as a product, considers domains as a primary concern, applies platform thinking to create self-serve data infrastructure, and introduces a federated computational model of data governance. Get a complete introduction to data mesh principles and its constituents

- Design a data mesh architecture
- Guide a data mesh strategy and execution
- Navigate organizational design to a decentralized data ownership model
- Move beyond traditional data warehouses and lakes to a distributed data mesh

In *Team Topologies*, DevOps consultants Matthew Skelton and Manuel Pais share secrets of successful team patterns and interactions to help readers choose and evolve the right team patterns for their organization, making sure to keep the software healthy and optimize value streams. *Team Topologies* will help readers discover:

- Team patterns used by successful organizations.
- Common team patterns to avoid with modern software systems.
- When and why to use different team patterns
- How to evolve teams effectively.
- How to split software and align to teams.

Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy. This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google,

software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck, present a candid and insightful look at how some of the world's leading practitioners construct and maintain software. This book covers Google's unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You'll explore three fundamental principles that software organizations should keep in mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions In the simplest terms, event-driven architectures are like onions; they are manageable as a single layer (like a monolith) but when you get into them, they begin to cascade apart and you quickly realize that there are many complex layers (distributed microservices architecture). And that's when the tears begin. This prescriptive guide takes you through the steps of moving a platform with millions of users from a monolith to a microservices event-driven architecture. You will learn about the challenges and complexities that arise in high-throughput environments that often contain upwards of hundreds of microservices. This book is designed to be your single best resource for learning how to apply event-driven architectures in real-world scenarios and offers hundreds of patterns to overcome the common and not so common challenges. While event-driven architectures have been the standard for decoupled, pluggable, evolutionary architectures for years, they have only recently been adopted by enterprises for the purpose of distributed microservices and there is little information about adopting them. Using them at scale can save valuable resources, but requires different considerations, including the added complexity of supporting several moving parts and getting the event schema right from the start in order to avoid large restructuring later on. Author

Hugo Rocha understands that these kinds of challenges, as well as many others, need to be considered from the beginning, and helps teach you the mindset needed to create a deliberate strategy upfront. This book offers learning approaches and patterns to get you up to speed in order to sustainably build and manage event-driven architectures.

What You Will Learn

- Understand the real-world challenges of event-driven architectures and the patterns to deal with those challenges and the trade-offs of each solution
- Leverage the advantages of event-driven architectures to build scalable solutions and address legacy applications
- Plan successful future implementations to avoid common pitfalls and apply proven patterns to deal with challenges in a real-world platform with millions of users
- Decide whether event-driven solutions are the right choice for the requirements at hand
- Discuss and understand advanced concepts about event-driven architectures

Who Is This Book For

Software engineers and software architects. Anyone currently working with microservice architectures, primarily event-driven microservices, will greatly benefit from this book. Readers working with monoliths will benefit, as the book explores migration from a monolithic application to an event-driven microservice architecture.

This is the eBook version of the printed book. The past few years have seen the rise of agile or evolutionary methods in software development. These methods embrace change in requirements even late in the project. The ability to change software is because of certain practices that are followed within teams, such as Test Driven Development, Pair Programming, and Continuous Integration. Continuous Integration provides a way for software teams to integrate their work more than once a day, and promotes confidence in the software that is being developed by the team. It is thought that this practice is difficult to apply when continuously integrating the database with application code; hence, Evolutionary Database Development is considered a mismatch with agile methods. Pramod Sadalag shows that this is not necessarily true. Continuous

Integration changed the way software is written. Why not extend and make the database part of the same Continuous Integration cycle so that you can see integrated results of your application as well as your database? Delivered in PDF format for quick and easy access, Recipes for Continuous Database Integration shows how the database can be brought under the preview of Continuous Integration, allowing all teams to integrate not only their application code, but also their database. This Short Cut presents a recipe for each task that needs to be done. Each recipe starts with a statement of a problem, followed by an explanation and solution. It provides concrete ways and examples to implement ideas in Refactoring Databases: Evolutionary Database Design by Scott W Ambler and Pramod Sadalage. Table of Contents What This Short Cut Covers Introduction Recipe 1 Continuously Integrating? Recipe 2 Extracting Your Database in Scripts Recipe 3 Using Version Control for Your Database Recipe 4 Automating Database or Schema Creation Recipe 5 Creating Objects in Your Database Recipe 6 Removing Database Objects Recipe 7 Removing Your Database Recipe 8 Using the Build Property Files Recipe 9 Re-Creating Your Application Database for Any Build Recipe 10 Making It Easy for New Developers to Join the Team Recipe 11 Integrating on Every Check-In Recipe 12 Naming Upgrade Scripts Recipe 13 Automating Database Change Script Creation Recipe 14 Implementing Database Version Checking Recipe 15 Sending Upgrades to Customers Sample Code Further Reading About the Author What's in the Companion Book Related Publication What's the answer to today's increasingly complex web applications? Micro-frontends. Inspired by the microservices model, this approach lets you break interfaces into separate features managed by different teams of developers. With this practical guide, Luca Mezzalana shows software architects, tech leads, and software developers how to build and deliver artifacts atomically rather than use a big bang deployment. You'll learn how micro-frontends enable your team to

choose any library or framework. This gives your organization technical flexibility and allows you to hire and retain a broad spectrum of talent. Micro-frontends also support distributed or colocated teams more efficiently. Pick up this book and learn how to get started with this technological breakthrough right away. Explore available frontend development architectures Learn how microservice principles apply to frontend development Understand the four pillars for creating a successful micro-frontend architecture Examine the benefits and pitfalls of existing micro-frontend architectures Learn principles and best practices for creating successful automation strategies Discover patterns for integrating micro-frontend architectures using microservices or a monolith API layer 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. Microservices architectures offer faster change speeds, better scalability, and cleaner, evolvable system designs. But implementing your first microservices architecture is difficult. How do you make myriad choices, educate your team on all the technical details, and navigate the organization to a successful execution to maximize your chance of success? With this book, authors Ronnie Mitra and Irakli Nadareishvili provide step-by-step guidance for building an effective microservices architecture. Architects and engineers will follow an implementation journey based on techniques and architectures that have proven to work for microservices systems. You'll build an operating model, a microservices design, an infrastructure foundation, and two working microservices, then put those pieces together as a single implementation. For anyone tasked

with building microservices or a microservices architecture, this guide is invaluable. Learn an effective and explicit end-to-end microservices system design Define teams, their responsibilities, and guidelines for working together Understand how to slice a big application into a collection of microservices Examine how to isolate and embed data into corresponding microservices Build a simple yet powerful CI/CD pipeline for infrastructure changes Write code for sample microservices Deploy a working microservices application on Amazon Web Services Refactoring has proven its value in a wide range of development projects—helping software professionals improve system designs, maintainability, extensibility, and performance. Now, for the first time, leading agile methodologist Scott Ambler and renowned consultant Pramodkumar Sadalage introduce powerful refactoring techniques specifically designed for database systems. Ambler and Sadalage demonstrate how small changes to table structures, data, stored procedures, and triggers can significantly enhance virtually any database design—without changing semantics. You’ll learn how to evolve database schemas in step with source code—and become far more effective in projects relying on iterative, agile methodologies. This comprehensive guide and reference helps you overcome the practical obstacles to refactoring real-world databases by covering every fundamental concept underlying database refactoring. Using start-to-finish examples, the authors walk you through refactoring simple standalone database applications as well as sophisticated multi-application scenarios. You’ll master every task involved in refactoring database schemas, and discover best practices for deploying refactorings in even the most complex production environments. The second half of this book systematically covers five major categories of database refactorings. You’ll learn how to use refactoring to enhance database structure, data quality, and referential integrity; and how to refactor both architectures and methods. This book provides an extensive set of examples built with

Oracle and Java and easily adaptable for other languages, such as C#, C++, or VB.NET, and other databases, such as DB2, SQL Server, MySQL, and Sybase. Using this book's techniques and examples, you can reduce waste, rework, risk, and cost—and build database systems capable of evolving smoothly, far into the future. Through a critical study of issues such as order, form, space, style, place-making, aesthetics, and architectural theory, students are encouraged to think about their own creative ideas. The use of analytical reasoning, lateral thinking, drawing and modelling is emphasised. 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. Today's programmers don't develop software systems from scratch. Instead, they spend their time fixing, extending, modifying, and enhancing existing software. Legacy systems often turn into an unwieldy mess that becomes increasingly difficult to modify, and with architecture that continually accumulates technical debt. Carola Lilienthal has analyzed more than 300 software systems written in Java, C#, C++, PHP, ABAP, and TypeScript and, together with her teams, has successfully refactored them. This book condenses her experience with monolithic systems, architectural and design patterns, layered architectures, domain-driven design, and microservices. With more than 200 color images from real-world systems, good and sub-optimal sample solutions are presented in a comprehensible and

thorough way, while recommendations and suggestions based on practical projects allow the reader to directly apply the author's knowledge to their daily work. "Throughout the book, Dr. Lilienthal has provided sound advice on diagnosing, understanding, disentangling, and ultimately preventing the issues that make software systems brittle and subject to breakage. In addition to the technical examples that you'd expect in a book on software architecture, she takes the time to dive into the behavioral and human aspects that impact sustainability and, in my experience, are inextricably linked to the health of a codebase. She also expertly zooms out, exploring architecture concepts such as domains and layers, and then zooms in to the class level where your typical developer works day-to-day. This holistic approach is crucial for implementing long-lasting change." From the Foreword of Andrea Goulet CEO, Corgibytes, Founder, Legacy Code Rocks 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
Presentation Patterns is the first book on
presentations that categorizes and organizes the building blocks (or
patterns) that you'll need to communicate effectively using
presentation tools like Keynote and PowerPoint. Patterns are like the
lower-level steps found inside recipes; they are the techniques you
must master to be considered a master chef or master presenter. You
can use the patterns in this book to construct your own recipes for
different contexts, such as business meetings, technical
demonstrations, scientific expositions, and keynotes, just to name a
few. Although there are no such things as antirecipes, this book
shows you lots of antipatterns—things you should avoid doing in
presentations. Modern presentation tools often encourage ineffective
presentation techniques, but this book shows you how to avoid
them. Each pattern is introduced with a memorable name, a
definition, and a brief explanation of motivation. Readers learn
where the pattern applies, the consequences of applying it, and how
to apply it. The authors also identify critical antipatterns: clichés,
fallacies, and design mistakes that cause presentations to disappoint.
These problems are easy to avoid—once you know how.
Presentation Patterns will help you Plan what you'll say, who you'll
say it to, how long you'll talk, and where you'll present Perfectly
calibrate your presentation to your audience Use the storyteller's
“narrative arc” to full advantage Strengthen your credibility—and
avoid mistakes that hurt it Hone your message before you ever touch
presentation software Incorporate visuals that support your message
instead of hindering it Create highly effective “infodecks” that work
when you're not able to deliver a talk in person Construct slides that
really communicate and avoid “Ant Fonts,” “Floodmarks,”
“Alienating Artifacts,” and other errors Master 13 powerful
techniques for delivering your presentation with power, authority,
and clarity Whether you use this book as a handy reference or read it

from start to finish, it will be a revelation: an entirely new language for systematically planning, creating, and delivering more powerful presentations. You'll quickly find it indispensable—no matter what you're presenting, who your audiences are, or what message you're driving home. Today's web sites and intranets are larger, more valuable, and more complex than ever before, and their users are busier and less forgiving. Designers, information architects, and web site managers are required to juggle vast amounts of information, frequent changes, new technologies, and corporate politics, making some web sites look like a fast-growing but poorly planned city - roads everywhere, but impossible to navigate. A well-planned information architecture has never been as essential as it is now. *Information Architecture for the World Wide Web, Second Edition*, shows how to use both aesthetics and mechanics to create distinctive, cohesive web sites that work. Most books on web development concentrate either on the graphics or on the technical issues of a site. This book focuses on the framework that holds the two together. By applying the principles outlined in this completely updated classic, you'll build scalable and maintainable web sites that are easier to navigate and more appealing to your users. Using examples and case studies, *Information Architecture for the World Wide Web* will help you: Develop a strong, cohesive vision for your site that makes it both distinctive and usable; Organize your site's hierarchy in ways that are meaningful to its users and that minimize the need to re-engineer the site; Create navigation systems that allow users to move through the site without getting lost or frustrated; Accurately label your site's content; Organize your site in a way that supports both searching for specific items and casual browsing; Configure search systems so that users' queries actually retrieve meaningful results; Manage the process of developing an information architecture, from selling the concept to research and conceptual design to planning and production. "The world will be a better place when web designers read this book. It's smart, funny,

and artfully distills years of the authors' hard-won experience. Information Architecture for the World Wide Web tackles political/organizational challenges as well as content, structure, and user interface. This is not design-lite, but a deep treatment of fundamental issues of information presentation that advances the state of the art. It's light years ahead of the competition." -Bonnie Nardi, Co-author of Information Ecologies- Using Technology with Heart

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. This open access book presents the first comprehensive overview of general methods in Automated Machine Learning (AutoML), collects descriptions of existing systems based on these methods, and discusses the first series of international challenges of AutoML systems. The recent success of commercial ML applications and the rapid growth of the field has created a high demand for off-the-shelf ML methods that can be used easily and without expert knowledge. However, many of the recent machine learning successes crucially rely on human experts, who manually select appropriate ML architectures (deep learning architectures or more traditional ML workflows) and their hyperparameters. To overcome this problem, the field of AutoML targets a progressive automation of machine learning, based on principles from optimization and machine learning itself. This book serves as a point of entry into this quickly-developing field for researchers and advanced students alike, as well as providing a reference for practitioners aiming to use AutoML in their work. How do you detangle a monolithic system and migrate it to a microservice architecture? How do you do it while maintaining

business-as-usual? As a companion to Sam Newman's extremely popular *Building Microservices*, this new book details a proven method for transitioning an existing monolithic system to a microservice architecture. With many illustrative examples, insightful migration patterns, and a bevy of practical advice to transition your monolith enterprise into a microservice operation, this practical guide covers multiple scenarios and strategies for a successful migration, from initial planning all the way through application and database decomposition. You'll learn several tried and tested patterns and techniques that you can use as you migrate your existing architecture. Ideal for organizations looking to transition to microservices, rather than rebuild Helps companies determine whether to migrate, when to migrate, and where to begin Addresses communication, integration, and the migration of legacy systems Discusses multiple migration patterns and where they apply Provides database migration examples, along with synchronization strategies Explores application decomposition, including several architectural refactoring patterns Delves into details of database decomposition, including the impact of breaking referential and transactional integrity, new failure modes, and more A book for Tech Leads, from Tech Leads. Discover how more than 35 Tech Leads find the delicate balance between the technical and non-technical worlds. Discover the challenges a Tech Lead faces and how to overcome them. You may be surprised by the lessons they have to share.

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