

Kindle File Format Building Microservices Designing Fine Grained Systems

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Building Microservices-Sam Newman 2015-02-02 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.

Building Microservices-Sam Newman 2015-02-02 Distributed systems have become more fine-grained in the past 10 years, shifting from code-heavy monolithic applications to smaller, self-contained microservices. But developing these systems brings its own set of headaches. With lots of examples and practical advice, this book takes a holistic view of the topics that system architects and administrators must consider when building, managing, and evolving microservice architectures. Microservice technologies are moving quickly. Author Sam Newman provides you with a firm grounding in the concepts while diving into current solutions for modeling, integrating, testing, deploying, and monitoring your own autonomous services. You'll follow a fictional company throughout the book to learn how building a microservice architecture affects a single domain. Discover how microservices allow you to align your system design with your organization's goals Learn options for integrating a service with the rest of your system Take an incremental approach when splitting monolithic codebases Deploy individual microservices through continuous integration Examine the complexities of testing and monitoring distributed services Manage security with user-to-service and service-to-service models Understand the challenges of scaling microservice architectures

Building Microservices-Sam Newman 2015 Distributed systems have become more fine-grained in the past 10 years, shifting from code-heavy monolithic applications to smaller, self-contained microservices. But developing these systems brings its own set of headaches. With lots of examples and practical advice, this book takes a holistic view of the topics that system architects and administrators must consider when building, managing, and evolving microservice architectures.

Monolith to Microservices-Sam Newman 2019-11-14 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

Microservice Architecture-Irakli Nadareishvili 2016-07-18 Microservices can have a positive impact on your enterprise—just ask Amazon and Netflix—but you can fall into many traps if you don't approach them in the right way. This practical guide covers the entire microservices landscape, including the principles, technologies, and methodologies of this unique, modular style of system building. You'll learn about the experiences of organizations around the globe that have successfully adopted microservices. In three parts, this book explains how these services work and what it means to build an application the Microservices Way. You'll explore a design-based approach to microservice architecture with guidance for implementing various elements. And you'll get a set of recipes and practices for meeting practical, organizational, and cultural challenges to microservice adoption. Learn how microservices can help you drive business objectives Examine the principles, practices, and culture that define microservice architectures Explore a model for creating complex systems and a design process for building a microservice architecture Learn the fundamental design concepts for individual microservices Delve into the operational elements of a microservices architecture, including containers and service discovery Discover how to handle the challenges of introducing microservice architecture in your organization

Production-Ready Microservices-Susan J. Fowler 2016-11-30 One of the biggest challenges for organizations that have adopted microservice architecture is the lack of architectural, operational, and organizational standardization. After splitting a monolithic application or building a microservice ecosystem from scratch, many engineers are left wondering what's next. In this practical book, author Susan Fowler presents a set of microservice standards in depth, drawing from her experience standardizing over a thousand microservices at Uber. You'll learn how to design microservices that are stable, reliable, scalable, fault tolerant, performant, monitored, documented, and prepared for any catastrophe. Explore production-readiness standards, including: Stability and Reliability: develop, deploy, introduce, and deprecate microservices; protect against dependency failures Scalability and Performance: learn essential components for achieving greater microservice efficiency Fault Tolerance and Catastrophe Preparedness: ensure availability by actively pushing microservices to fail in real time Monitoring: learn how to monitor, log, and display key metrics; establish alerting and on-call procedures Documentation and Understanding: mitigate tradeoffs that come with microservice adoption, including organizational sprawl and technical debt

Designing Distributed Systems-Brendan Burns 2018-02-20 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.

Building Microservices with Go-Nic Jackson 2017-07-27 Your one-stop guide to the common patterns and practices, showing you how to apply these using the Go programming language About This Book This short, concise, and practical guide is packed with real-world examples of building microservices with Go It is easy to read and will benefit smaller teams who want to extend the functionality of their existing systems Using this practical approach will save your money in terms of maintaining a monolithic architecture and demonstrate capabilities in ease of use Who This Book Is For You should have a working knowledge of programming in Go, including writing and compiling basic applications. However, no knowledge of RESTful architecture, microservices, or web services is expected. If you are looking to apply techniques to your own projects, taking your first steps into microservice architecture, this book is for you. What You Will Learn Plan a microservice architecture and design a microservice Write a microservice with a RESTful API and a database Understand the common idioms and common patterns in microservices architecture Leverage tools and automation that helps microservices become horizontally scalable Get a grounding in containerization with Docker and Docker-Compose, which will greatly accelerate your development lifecycle Manage and secure Microservices at scale with monitoring, logging, service discovery, and automation Test microservices and integrate API tests in Go In Detail Microservice architecture is sweeping the world as the de facto pattern to build web-based applications. Golang is a language particularly well suited to building them. Its strong community, encouragement of idiomatic style, and statically-linked binary artifacts make integrating it with other technologies and managing microservices at scale consistent and intuitive. This book will teach you the common patterns and practices, showing you how to apply these using the Go programming language. It will teach you the fundamental concepts of architectural design and RESTful communication, and show you patterns that provide manageable code that is supportable in development and at scale in production. We will provide you with examples on how to put these concepts and patterns into practice with Go. Whether you are planning a new application or working in an existing monolith, this book will explain and illustrate with practical examples how teams of all sizes can start solving problems with microservices. It will help you understand Docker and Docker-Compose and how it can be used to isolate microservice dependencies and build environments. We finish off by showing you various techniques to monitor, test, and secure your microservices. By the end, you will know the benefits of system resilience of a microservice and the advantages of Go stack. Style and approach The step-by-step tutorial focuses on building microservices. Each chapter expands upon the previous one, teaching you the main skills and techniques required to be a successful microservice practitioner.

Microservices: Patterns and Applications-Lucas Krause 2015-04-01 Microservices: Patterns and Applications Microservices are the next big thing in designing scalable, easy to maintain applications. This book will explain everything you need to know about Microservices to make your next project successful. You will learn: Microservice Patterns This book goes into great detail on all of the Microservice Architecture patterns including * Monolithic Architecture* Microservice Architecture* Service Discovery* Gateway / Proxy API* Orchestrated API* Service Registration* CQRS and Event Sourcing* Bulk Heads* Circuit Breaker* Message Broker The most important thing about Microservices is when and how to apply a pattern, along with explaining what choices you must make and why. Every system is different so it is vital to understand a lot of basics before designing and developing your own Microservices. From Monolithic to Microservice The basics here are how to decompose a Monolithic system into a Microservice and this book shows exactly how this process is completed. Service Oriented Architecture to Microservice A more common need is to migrate your system from a SOA based architecture to Microservices, there are many advantages and the process is not as straightforward as you would expect. New Microservices If you want to build a brand-new system and leverage the power of Microservices this book outlines the pitfalls, strategies and tactics needs to make this work for you. It is not as easy as it would seem and you will understand why after reading this book. Microservice Technologies You'll learn about what technologies you need to use and understand for successful Microservices. *Virtualization*Containers (Docker and Rocket)*Databases*Security (JSON Web Tokens)*Logging*Exceptions*Caching*Timeouts*Scalability (CAP, Cube)*Platform as a Service (PaaS)*Cloud architecture*Technology agnostic Why Microservices? Isn't this just the latest buzz word? While Microservices may be a recent trend and is gaining traction across the industry as a silver-bullet. It is not a silver-bullet. In this book you will learn important reasons why you cannot treat Microservices or any technology or technique as a silver-bullet. There are tradeoffs and advantages to every architectural decision, you will understand the details by reading this book. Most importantly you will understand how Microservices is what SOA had promised and never delivered. Author: Lucas Krause Lucas has been in the

technology industry as a consultant, contractor, architect, engineer, and manager and understands and has used Microservices successfully to solve his client problems. Philosophy of Microservices You'll learn about what the philosophy of Microservices is and why this is important. It is critical to understand the philosophy as that is what makes Microservices work at so many other companies and solutions. If you are looking to gain an understanding of Microservices along with the patterns and application around the process to implementing them than, this is the book for you! Ready to learn about Microservices? Let's go! Want To Be brought up to speed on the latest innovations and techniques with Microservices? Want to Understand Why Microservices? What Makes Microservices so Special? What are the potential pitfalls? Why Are Microservices so popular? How do I make my projects successful?

Microservice Patterns and Best Practices-Vinicius Feitosa Pacheco 2018-01-29 Explore the concepts and tools you need to discover the world of microservices with various design patterns Key Features Get to grips with the microservice architecture and build enterprise-ready microservice applications Learn design patterns and the best practices while building a microservice application Obtain hands-on techniques and tools to create high-performing microservices resilient to possible fails Book Description Microservices are a hot trend in the development world right now. Many enterprises have adopted this approach to achieve agility and the continuous delivery of applications to gain a competitive advantage. This book will take you through different design patterns at different stages of the microservice application development along with their best practices. Microservice Patterns and Best Practices starts with the learning of microservices key concepts and showing how to make the right choices while designing microservices. You will then move onto internal microservices application patterns, such as caching strategy, asynchronism, CQRS and event sourcing, circuit breaker, and bulkheads. As you progress, you'll learn the design patterns of microservices. The book will guide you on where to use the perfect design pattern at the application development stage and how to break monolithic application into microservices. You will also be taken through the best practices and patterns involved while testing, securing, and deploying your microservice application. At the end of the book, you will easily be able to create interoperable microservices, which are testable and prepared for optimum performance. What you will learn How to break monolithic application into microservices Implement caching strategies, CQRS and event sourcing, and circuit breaker patterns Incorporate different microservice design patterns, such as shared data, aggregator, proxy, and chained Utilize consolidate testing patterns such as integration, signature, and monkey tests Secure microservices with JWT, API gateway, and single sign on Deploy microservices with continuous integration or delivery, Blue-Green deployment Who this book is for This book is for architects and senior developers who would like implement microservice design patterns in their enterprise application development. The book assumes some prior programming knowledge.

Designing Data-Intensive Applications-Martin Kleppmann 2017-03-16 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

Building Evolutionary Architectures-Neal Ford 2017-09-18 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.

Kafka: The Definitive Guide-Neha Narkhede 2017-08-31 Learn how to take full advantage of Apache Kafka, the distributed, publish-subscribe queue for handling real-time data feeds. With this comprehensive book, you will understand how Kafka works and how it is designed. Authors Neha Narkhede, Gwen Shapira, and Todd Palino show you how to deploy production Kafka clusters; secure, tune, and monitor them; write rock-solid applications that use Kafka; and build scalable stream-processing applications. Learn how Kafka compares to other queues, and where it fits in the big data ecosystem. Dive into Kafka's internal design. Pick up best practices for developing applications that use Kafka. Understand the best way to deploy Kafka in production monitoring, tuning, and maintenance tasks. Learn how to secure a Kafka cluster.

RESTful Web APIs-Leonard Richardson 2013-09-12 The popularity of REST in recent years has led to tremendous growth in almost-RESTful APIs that don't include many of the architecture's benefits. With this practical guide, you'll learn what it takes to design usable REST APIs that evolve over time. By focusing on solutions that cross a variety of domains, this book shows you how to create powerful and secure applications, using the tools designed for the world's most successful distributed computing system: the World Wide Web. You'll explore the concepts behind REST, learn different strategies for creating hypermedia-based APIs, and then put everything together with a step-by-step guide to designing a RESTful Web API.

Examine API design strategies, including the collection pattern and pure hypermedia. Understand how hypermedia ties representations together into a coherent API. Discover how XMDP and ALPS profile formats can help you meet the Web API "semantic challenge." Learn close to two-dozen standardized hypermedia data formats. Apply best practices for using HTTP in API implementations. Create Web APIs with the JSON-LD standard and other the Linked Data approaches. Understand the CoAP protocol for using REST in embedded systems.

Microservices for the Enterprise-Kasun Indrasiri 2018-11-14 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 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.

The Tao of Microservices-Richard Rodger 2016-09-28 Microservices are small, but they offer big value. A microservice is a very small piece of a larger system that can be coded by one developer within one iteration. Microservices can be added and removed individually, new developers can be immediately productive, and legacy code is easily replaced. Developers are no longer hampered by the communication and coordination overhead caused by monolithic systems. Savvy businesses are discovering that software development productivity can be greatly enhanced with the right engineering approach that enables even junior developers to double their productivity, while reducing delivery risk. *The Tao of Microservices* presents readers with the path to understanding how to apply microservices architecture in their real-world projects. This high-level book offers a conceptual view of microservice architectures, along with core concepts and their application. It also includes a detailed case study for the nodezoo.com system, including all source code and documentation. By the end of the book, readers will have explored in depth the key ideas of the microservice architecture and will be able to design, analyze and implement systems based on this architecture. Purchase of the print book includes a free eBook

in PDF, Kindle, and ePub formats from Manning Publications.

Fundamentals of Software Architecture-Mark Richards 2020-01-28 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.

Web Scalability for Startup Engineers-Artur Ejsmont 2015-07-03 This invaluable roadmap for startup engineers reveals how to successfully handle web application scalability challenges to meet increasing product and traffic demands. *Web Scalability for Startup Engineers* shows engineers working at startups and small companies how to plan and implement a comprehensive scalability strategy. It presents broad and holistic view of infrastructure and architecture of a scalable web application. Successful startups often face the challenge of scalability, and the core concepts driving a scalable architecture are language and platform agnostic. The book covers scalability of HTTP-based systems (websites, REST APIs, SaaS, and mobile application backends), starting with a high-level perspective before taking a deep dive into common challenges and issues. This approach builds a holistic view of the problem, helping you see the big picture, and then introduces different technologies and best practices for solving the problem at hand. The book is enriched with the author's real-world experience and expert advice, saving you precious time and effort by learning from others' mistakes and successes. Language-agnostic approach addresses universally challenging concepts in Web development/scalability—does not require knowledge of a particular language. Fills the gap for engineers in startups and smaller companies who have limited means for getting to the next level in terms of accomplishing scalability. Strategies presented help to decrease time to market and increase the efficiency of web applications.

Software Engineering at Google-Titus Winters 2020-02-28 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.

SOA Source Book-The Open Group 2009-04-04 Software services are established as a programming concept, but their impact on the overall architecture of enterprise IT and business operations is not well-understood. This has led to problems in deploying SOA, and some disillusionment. The SOA Source Book adds to this a collection of reference material for SOA. It is an invaluable resource for enterprise architects working with SOA. The SOA Source Book will help enterprise architects to use SOA effectively. It explains: What SOA is. How to evaluate SOA features in business terms. How to model SOA. How to use The Open Group Architecture Framework (TOGAF™) for SOA. SOA governance. This book explains how TOGAF can help to make an Enterprise Architecture. Enterprise Architecture is an approach that can help management to understand this growing complexity.

Essential Software Architecture-Ian Gorton 2011-04-27 Job titles like “Technical Architect” and “Chief Architect” nowadays abound in software industry, yet many people suspect that “architecture” is one of the most overused and least understood terms in professional software development. Gorton’s book tries to resolve this dilemma. It concisely describes the essential elements of knowledge and key skills required to be a software architect. The explanations encompass the essentials of architecture thinking, practices, and supporting technologies. They range from a general understanding of structure and quality attributes through technical issues like middleware components and service-oriented architectures to recent technologies like model-driven architecture, software product lines, aspect-oriented design, and the Semantic Web, which will presumably influence future software systems. This second edition contains new material covering enterprise architecture, agile development, enterprise service bus technologies, RESTful Web services, and a case study on how to use the MeDICi integration framework. All approaches are illustrated by an ongoing real-world example. So if you work as an architect or senior designer (or want to someday), or if you are a student in software engineering, here is a valuable and yet approachable knowledge source for you.

Designing Microservices Using Django-Shayank Jain 2020-04-15 A step-by-step that will help you build Microservices architecture using Django and Python

KEY FEATURES - Understand in-depth the fundamentals of Microservices - Learn how to create and use Django APIs - Use web technology such as Nginx, Gunicorn, UWSGI, and Postgresql to deploy a Django project

DESCRIPTION Microservices architectures solve the multiple problems of software architecture. Django is a full-stack development framework, written in python. This book includes everything necessary for web application development; from the user views to the information storage: model, persistence, relationships, controllers, forms, validations, rest API and a very useful back office. Furthermore, the book will show how to build production-ready microservices. It will help you create restful APIs and get familiar with Redis and Celery. Towards the end, the book will show how to secure these services and deploy these microservices using Django. Lastly, it will show how to scale our services.

WHAT WILL YOU LEARN - Understand the basics of Python, Django, and Microservices - Learn how to deploy Microservices with Django - Get familiar with Microservices Architecture - Designing, Principles, and Requirements - Implement Asynchronous task, JWT API Authentication and AWS Serverless with Microservice architecture

WHO THIS BOOK IS FOR This book is for those beginners who want to make their careers in software development. It starts from the basics of python and Django, takes the reader to the Microservices architecture.

Table of Contents

1. Basic of Python
2. Major Pillars of OOPS with Python
3. Getting Started with Django
4. API Development with Django
5. Database Modeling with Django
6. First Django API Deployment on Web
7. Django Project Deployment on various web servers
8. What are Microservices
9. Designing Microservice Systems
10. Service Authentication
11. Microservices Deployment With Django
12. JWT Auth Service
13. Asynchronous Tasks
14. AWS Serverless
15. How to Adopt Microservices in Practice

Making Embedded Systems-Elicia White 2011-10-25 Interested in developing embedded systems? Since they don’t tolerate inefficiency, these systems require a disciplined approach to programming. This easy-to-read guide helps you cultivate a host of good development practices, based on classic software design patterns and new patterns unique to embedded programming. Learn how to build system architecture for processors, not operating systems, and discover specific techniques for dealing with hardware difficulties and manufacturing requirements. Written by an expert who’s created embedded systems ranging from urban surveillance and DNA scanners to children’s toys, this book is ideal for intermediate and experienced programmers, no matter what platform you use. Optimize your system to reduce cost and increase performance Develop an architecture that makes your software robust in resource-constrained environments Explore sensors, motors, and other I/O devices Do more with less: reduce RAM consumption, code space, processor cycles, and power consumption Learn how to update embedded code directly in the processor Discover how to implement complex mathematics on small processors Understand what interviewers look for when you apply for an embedded systems job "Making Embedded Systems is the book for a C programmer who wants to enter the fun (and lucrative) world of embedded systems. It’s very well written—entertaining, even—and filled with clear illustrations." —Jack Ganssle, author and embedded system expert.

Designing Social Interfaces-Christian Crumlish 2015-08-13 Designers, developers, and entrepreneurs today must grapple with creating social interfaces to foster user interaction and community, but grasping the

nuances and the building blocks of the digital social experience is much harder than it appears. Now you have help. In the second edition of this practical guide, UX design experts Christian Crumlish and Erin Malone share hard-won insights into what works, what doesn’t, and why. With more than 100 patterns, design principles, and best practices, you’ll learn how to balance opposing forces and grow healthy online communities by co-creating the experience with your users. Understand the overarching principles before applying tactical design patterns Cultivate healthy participation and rein in misbehaving users Learn patterns for adding social components to an existing site Encourage users to interact with one another, whether it’s one-to-one or many-to-many Use a rating system to build a social experience around products or services Orchestrate collaborative groups and discover the real power of social networks Explore numerous examples of each pattern, with an emphasis on mobile apps Learn how to apply social design patterns to enterprise environments

POJOs in Action-Chris Richardson 2006-02-02 The standard platform for enterprise application development has been EJB but the difficulties of working with it caused it to become unpopular. They also gave rise to lightweight technologies such as Hibernate, Spring, JDO, iBATIS and others, all of which allow the developer to work directly with the simpler POJOs. Now EJB version 3 solves the problems that gave EJB 2 a black eye-it too works with POJOs. POJOs in Action describes the new, easier ways to develop enterprise Java applications. It describes how to make key design decisions when developing business logic using POJOs, including how to organize and encapsulate the business logic, access the database, manage transactions, and handle database concurrency. This book is a new-generation Java applications guide: it enables readers to successfully build lightweight applications that are easier to develop, test, and maintain.

Spring Microservices in Action-John Carnell 2017-07 Summary Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microservices break up your code into small, distributed, and independent services that require careful forethought and design. Fortunately, Spring Boot and Spring Cloud simplify your microservice applications, just as the Spring Framework simplifies enterprise Java development. Spring Boot removes the boilerplate code involved with writing a REST-based service. Spring Cloud provides a suite of tools for the discovery, routing, and deployment of microservices to the enterprise and the cloud. About the Book Spring Microservices in Action teaches you how to build microservice-based applications using Java and the Spring platform. You’ll learn to do microservice design as you build and deploy your first Spring Cloud application. Throughout the book, carefully selected real-life examples expose microservice-based patterns for configuring, routing, scaling, and deploying your services. You’ll see how Spring’s intuitive tooling can help augment and refactor existing applications with micro services. What’s Inside Core microservice design principles Managing configuration with Spring Cloud Config Client-side resiliency with Spring, Hystrix, and Ribbon Intelligent routing using Netflix Zuul Deploying Spring Cloud applications About the Reader This book is written for developers with Java and Spring experience. About the Author John Carnell is a senior cloud engineer with twenty years of experience in Java. Table of contents Welcome to the cloud, Spring Building microservices with Spring Boot Controlling your configuration with Spring Cloud configuration server On service discovery When bad things happen: client resiliency patterns with Spring Cloud and Netflix Hystrix Service routing with Spring Cloud and Zuul Securing your microservices Event-driven architecture with Spring Cloud Stream Distributed tracing with Spring Cloud Sleuth and Zipkin Deploying your microservices

Pro Spring Boot 2-Felipe Gutierrez 2018-12-12 Quickly and productively develop complex Spring applications and microservices out of the box, with minimal concern over things like configurations. This revised book will show you how to fully leverage the Spring Boot 2 technology and how to apply it to create enterprise ready applications that just work. It will also cover what’s been added to the new Spring Boot 2 release, including Spring Framework 5 features like WebFlux, Security, Actuator and the new way to expose Metrics through Micrometer framework, and more. This book is your authoritative hands-on practical guide for increasing your enterprise Java and cloud application productivity while decreasing development time. It’s a no nonsense guide with case studies of increasing complexity throughout the book. The author, a senior solutions architect and Principal Technical instructor with Pivotal, the company behind the Spring Framework, shares his experience, insights and first-hand knowledge about how Spring Boot technology works and best practices. Pro Spring Boot 2 is an essential book for your Spring learning and reference library. What You Will Learn Configure and use Spring Boot Use non-functional requirements with Spring

Boot Actuator Carry out web development with Spring Boot Persistence with JDBC, JPA and NoSQL Databases Messaging with JMS, RabbitMQ and WebSockets Test and deploy with Spring Boot A quick look at the Spring Cloud projects Microservices and deployment to the Cloud Extend Spring Boot by creating your own Spring Boot Starter and @Enable feature Who This Book Is For Experienced Spring and Java developers seeking increased productivity gains and decreased complexity and development time in their applications and software services.

Reactive Systems Architecture-Jan Machacek 2018-04-30 Distributed systems have helped application development teams deal with failures, downtime, and poor scaling, but these systems bring technical challenges of their own. With this unique cookbook, system architects will get a detailed understanding of reactive systems, along with proven recipes for dealing with different architectural issues. Each self-contained chapter covers the architecture of an entire reactive system, and--since these systems share many of the same architectural issues--each chapter also focuses on a particular area, such as delivery semantics or monitoring & tracing, with detailed solutions for problems that commonly arise. Learn the architecture and implementation tips for an entire reactive microservices-based system in each chapter Understand the challenges of long-term running and evolution of your distributed system Explore different failure modes of distributed systems and the approaches to address them Learn about proper site reliability and production readiness

Cloud Native Architectures-Tom Laszewski 2018-08-31 Learn and understand the need to architect cloud applications and migrate your business to cloud efficiently Key Features Understand the core design elements required to build scalable systems Plan resources and technology stacks effectively for high security and fault tolerance Explore core architectural principles using real-world examples Book Description Cloud computing has proven to be the most revolutionary IT development since virtualization. Cloud native architectures give you the benefit of more flexibility over legacy systems. To harness this, businesses need to refresh their development models and architectures when they find they don't port to the cloud. Cloud Native Architectures demonstrates three essential components of deploying modern cloud native architectures: organizational transformation, deployment modernization, and cloud native architecture patterns. This book starts with a quick introduction to cloud native architectures that are used as a base to define and explain what cloud native architecture is and is not. You will learn what a cloud adoption framework looks like and develop cloud native architectures using microservices and serverless computing as design principles. You'll then explore the major pillars of cloud native design including scalability, cost optimization, security, and ways to achieve operational excellence. In the concluding chapters, you will also learn about various public cloud architectures ranging from AWS and Azure to the Google Cloud Platform. By the end of this book, you will have learned the techniques to adopt cloud native architectures that meet your business requirements. You will also understand the future trends and expectations of cloud providers. What you will learn Learn the difference between cloud native and traditional architecture Explore the aspects of migration, when and why to use it Identify the elements to consider when selecting a technology for your architecture Automate security controls and configuration management Use infrastructure as code and CI/CD pipelines to run environments in a sustainable manner Understand the management and monitoring capabilities for AWS cloud native application architectures Who this book is for Cloud Native Architectures is for software architects who are keen on designing resilient, scalable, and highly available applications that are native to the cloud.

Cloud Native DevOps with Kubernetes-John Arundel 2019-03-08 Kubernetes is the operating system of the cloud-native world, providing a reliable and scalable platform for running containerized workloads. This book shows developers and operations staff how to apply industry-standard DevOps practices to Kubernetes in a cloud-native context. You'll learn all about the Kubernetes ecosystem and discover battle-tested solutions to everyday problems. In this friendly, pragmatic book, cloud experts John Arundel and Justin Domingus show you what Kubernetes can do—and what you can do with it. You'll build, step by step, an example cloud-native application and its supporting infrastructure, along with a development environment and continuous deployment pipeline that you can use for your own applications. Understand containers and Kubernetes from first principles—no experience necessary Run your own clusters or choose a managed Kubernetes service from Amazon, Google, and others Design your own cloud-native services and infrastructure Use Kubernetes to manage resource usage and the container lifecycle Optimize clusters for cost, performance, resilience, capacity, and scalability Learn the best tools for developing, testing, and deploying your applications Apply the latest

industry practices for observability and monitoring Secure your containers and clusters in production Adopt DevOps principles to help make your development teams lean, fast, and effective

Microservices: Building Scalable Software-Sourabh Sharma 2017

Effective Kafka-Emil Koutanov 2020-03-17 The software architecture landscape has evolved dramatically over the past decade. Microservices have displaced monoliths. Data and applications are increasingly becoming distributed and decentralised. But composing disparate systems is a hard problem. More recently, software practitioners have been rapidly converging on event-driven architecture as a sustainable way of dealing with complexity - integrating systems without increasing their coupling. In Effective Kafka, Emil Koutanov explores the fundamentals of Event-Driven Architecture - using Apache Kafka - the world's most popular and supported open-source event streaming platform. You'll learn: - The fundamentals of event-driven architecture and event streaming platforms- The background and rationale behind Apache Kafka, its numerous potential uses and applications- The architecture and core concepts - the underlying software components, partitioning and parallelism, load-balancing, record ordering and consistency modes- Installation of Kafka and related tooling - using standalone deployments, clusters, and containerised deployments with Docker- Using CLI tools to interact with and administer Kafka classes, as well as publishing data and browsing topics- Using third-party web-based tools for monitoring a cluster and gaining insights into the event streams- Building stream processing applications in Java 11 using off-the-shelf client libraries- Patterns and best-practice for organising the application architecture, with emphasis on maintainability and testability of the resulting code- The numerous gotchas that lurk in Kafka's client and broker configuration, and how to counter them- Theoretical background on distributed and concurrent computing, exploring factors affecting their liveness and safety- Best-practices for running multi-tenanted clusters across diverse engineering teams, how teams collaborate to build complex systems at scale and equitably share the cluster with the aid of quotas- Operational aspects of running Kafka clusters at scale, performance tuning and methods for optimising network and storage utilisation- All aspects of Kafka security -including network segregation, encryption, certificates, authentication and authorization. The coverage is progressively delivered and carefully aimed at giving you a journey-like experience into becoming proficient with Apache Kafka and Event-Driven Architecture. The goal is to get you designing and building applications. And by the conclusion of this book, you will be a confident practitioner and a Kafka evangelist within your organisation - wielding the knowledge necessary to teach others.

Python for Data Analysis-Wes McKinney 2013 Presents case studies and instructions on how to solve data analysis problems using Python.

The Software Architect Elevator-Gregor Hohpe 2020-04-08 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

Hands-On Microservices with Spring Boot and Spring Cloud-Magnus Larsson 2019-09-20 Apply microservices patterns to build resilient and scalable distributed systems Key Features Understand the challenges of building large-scale microservice landscapes Build cloud-native production-ready microservices with this comprehensive guide Discover how to get the best out of Spring Cloud, Kubernetes, and Istio when used together Book Description Microservices architecture allows developers to build and maintain applications with ease, and enterprises are rapidly adopting it to build software using Spring Boot as their default framework. With this book, you'll learn how to efficiently build and deploy microservices using Spring Boot. This microservices book will take you through tried and tested

approaches to building distributed systems and implementing microservices architecture in your organization. Starting with a set of simple cooperating microservices developed using Spring Boot, you'll learn how you can add functionalities such as persistence, make your microservices reactive, and describe their APIs using Swagger/OpenAPI. As you advance, you'll understand how to add different services from Spring Cloud to your microservice system. The book also demonstrates how to deploy your microservices using Kubernetes and manage them with Istio for improved security and traffic management. Finally, you'll explore centralized log management using the EFK stack and monitor microservices using Prometheus and Grafana. By the end of this book, you'll be able to build microservices that are scalable and robust using Spring Boot and Spring Cloud. What you will learn

- Build reactive microservices using Spring Boot
- Develop resilient and scalable microservices using Spring Cloud
- Use OAuth 2.0/OIDC and Spring Security to protect public APIs
- Implement Docker to bridge the gap between development, testing, and production
- Deploy and manage microservices using Kubernetes
- Apply Istio for improved security, observability, and traffic management

Who this book is for This book is for Java and Spring developers and architects who want to learn how to break up their existing monoliths into microservices and deploy them either on-premises or in the cloud using Kubernetes as a container orchestrator and Istio as a service Mesh. No familiarity with microservices architecture is required to get started with this book.

Domain-Driven Design Distilled-Vaughn Vernon 2016-06-01 Domain-Driven Design (DDD) software modeling delivers powerful results in practice, not just in theory, which is why developers worldwide are rapidly moving to adopt it. Now, for the first time, there's an accessible guide to the basics of DDD: What it is, what problems it solves, how it works, and how to quickly gain value from it. Concise, readable, and actionable, Domain-Driven Design Distilled never buries you in detail—it focuses on what you need to know to get results. Vaughn Vernon, author of the best-selling *Implementing Domain-Driven Design*, draws on his twenty years of experience applying DDD principles to real-world situations. He is uniquely well-qualified to demystify its complexities, illuminate its subtleties, and help you solve the problems you might encounter. Vernon guides you through each core DDD technique for building better software. You'll learn how to segregate domain models using the powerful Bounded Contexts pattern, to develop a Ubiquitous Language within an explicitly bounded context, and to help domain experts and developers work together to create that language. Vernon shows how to use Subdomains to handle legacy systems and to integrate multiple Bounded Contexts to define both team relationships and technical mechanisms. Domain-Driven Design Distilled brings DDD to life. Whether you're a developer, architect, analyst, consultant, or customer, Vernon helps you truly understand it so you can benefit from its remarkable power. Coverage includes

- What DDD can do for you and your organization—and why it's so important
- The cornerstones of strategic design with DDD: Bounded Contexts and Ubiquitous Language
- Strategic design with Subdomains
- Context Mapping: helping teams work together and integrate software more strategically
- Tactical design with Aggregates and Domain Events
- Using project acceleration and management tools to establish and maintain team cadence

Infrastructure as Code-Kief Morris 2020-12-08 Six years ago, Infrastructure as Code was a new concept. Today, as even banks and other conservative organizations plan moves to the cloud, development teams for companies worldwide are attempting to build large infrastructure codebases. With this practical book, Kief Morris of ThoughtWorks shows you how to effectively use principles, practices, and patterns pioneered by DevOps teams to manage cloud-age infrastructure. Ideal for system administrators, infrastructure engineers, software developers, team leads, and architects, this updated edition demonstrates how you can exploit cloud and automation technology to make changes easily, safely, quickly, and responsibly. You'll learn how to define everything as code and apply software design and engineering practices to build your system from small, loosely coupled pieces. This book covers:

- Foundations: Use Infrastructure as Code to drive continuous change and raise the bar of operational quality, using tools and technologies to build cloud-based platforms
- Working with infrastructure stacks: Learn how to define, provision, test, and continuously deliver changes to infrastructure resources
- Working with servers and other platforms: Use patterns to design provisioning and configuration of servers and clusters
- Working with large systems and teams: Learn workflows, governance, and architectural patterns to create and manage infrastructure elements

Building Microservices with Spring-Dinesh Rajput 2018-12-18 Learn and use the design patterns and best practices in Spring to solve common design problems and build user-friendly microservices

- Key Features
- Study the benefits of using the right design pattern in your toolkit
- Manage your

code easily with Spring's dependency injection pattern

- Explore the features of Docker and Mesos to build successful microservices
- Book Description
- Getting Started with Spring Microservices begins with an overview of the Spring Framework 5.0, its design patterns, and its guidelines that enable you to implement responsive microservices at scale. You will learn how to use GoF patterns in application design. You will understand the dependency injection pattern, which is the main principle behind the decoupling process of the Spring Framework and makes it easier to manage your code. Then, you will learn how to use proxy patterns in aspect-oriented programming and remoting. Moving on, you will understand the JDBC template patterns and their use in abstracting database access. After understanding the basics, you will move on to more advanced topics, such as reactive streams and concurrency. Written to the latest specifications of Spring that focuses on Reactive Programming, the Learning Path teaches you how to build modern, internet-scale Java applications in no time. Next, you will understand how Spring Boot is used to deploying serverless autonomous services by removing the need to have a heavyweight application server. You'll also explore ways to deploy your microservices to Docker and managing them with Mesos. By the end of this Learning Path, you will have the clarity and confidence for implementing microservices using Spring Framework. This Learning Path includes content from the following Packt products:
- Spring 5 Microservices by Rajesh R V
- Spring 5 Design Patterns by Dinesh Rajput
- What you will learn
- Develop applications using dependency injection patterns
- Build web applications using traditional Spring MVC patterns
- Utilize the reactive programming pattern to build reactive web apps
- Learn concurrency and handle multiple connections inside a web server
- Use Spring Boot and Spring Cloud to develop microservices
- Leverage reactive programming to build cloud-native applications

Who this book is for Getting Started with Spring Microservices is ideal for Spring developers who want to use design patterns to solve common design problems and build cloud-ready, Internet-scale applications, and simple RESTful services.

Building Microservices Applications on Microsoft Azure-Harsh Chawla 2019-09-09 Implement microservices starting with their architecture and moving on to their deployment, manageability, security, and monitoring. This book focuses on the key scenarios where microservices architecture is preferred over a monolithic architecture. Building Microservices Applications on Microsoft Azure begins with a survey of microservices architecture compared to monolithic architecture and covers microservices implementation in detail. You'll see the key scenarios where microservices architecture is preferred over a monolithic approach. From there, you will explore the critical components and various deployment options of microservices on platforms such as Microsoft Azure (public cloud) and Azure Stack (hybrid cloud). This includes in-depth coverage of developing, deploying, and monitoring microservices on containers and orchestrating with Azure Service Fabric and Azure Kubernetes Cluster (AKS). This book includes practical experience from large-scale enterprise deployments, therefore it can be a quick reference for solution architects and developers to understand the critical factors while designing a microservices application. What You Will Learn

- Explore the use cases of microservices and monolithic architecture
- Discover the architecture patterns to build scalable, agile, and secure microservices applications
- Develop and deploy microservices using Azure Service Fabric and Azure Kubernetes Service
- Secure microservices using the gateway pattern
- See the deployment options for Microservices on Azure Stack
- Implement database patterns to handle the complexities introduced by microservices

Who This Book Is For Architects and consultants who work on Microsoft Azure and manage large-scale deployments.

Practical Microservices-Ethan Garofolo 2020-04-09 MVC and CRUD make software easier to write, but harder to change. Microservice-based architectures can help even the smallest of projects remain agile in the long term, but most tutorials meander in theory or completely miss the point of what it means to be microservice-based. Roll up your sleeves with real projects and learn the most important concepts of evented architectures. You'll have your own deployable, testable project and a direction for where to go next. Much ink has been spilled on the topic of microservices, but all of this writing fails to accurately identify what makes a system a monolith, define what microservices are, or give complete, practical examples, so you're probably left thinking they have nothing to offer you. You don't have to be at Google or Facebook scale to benefit from a microservice-based architecture. Microservices will keep even small and medium teams productive by keeping the pieces of your system focused and decoupled. Discover the basics of message-based architectures, render the same state in different shapes to fit the task at hand, and learn what it is that makes something a monolith (it has nothing to do with how many machines you deploy to). Conserve resources by performing background jobs with microservices. Deploy specialized microservices for registration, authentication, payment processing, e-mail, and more. Tune your services

by defining appropriate service boundaries. Deploy your services effectively for continuous integration. Master debugging techniques that work across different services. You'll finish with a deployable system and skills you can apply to your current project. Add the responsiveness and flexibility of microservices to your project, no matter what the size or complexity. What You Need: While the principles of this book transcend programming language, the code examples are in Node.js because JavaScript, for better or worse, is widely read. You'll use PostgreSQL for data storage, so

familiarity with it is a plus. The book does provide Docker images to make working with PostgreSQL a bit easier, but extensive Docker knowledge is not required.