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Microservice Patterns and Best Practices May 20 2022 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.

Practical Microservices May 08 2021 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 books does provide Docker images to make working with PostgreSQL a bit easier, but extensive Docker knowledge is not required.

Microservices with Azure Feb 02 2021 Compute, Explore and Architect Microservices using Azure Service fabric About This Book* Handle Microservices with ease using Azure Service Fabric* Diagnose and monitor applications deployed on Service Fabric along with event driven scenarios.* Secure your microservices using certificates and manage Service Fabric clusters using PowerShell. Who This Book Is For The book is aimed at IT architects, system administrators and DevOps engineers who have no knowledge about Microservices and how it can be leveraged with Azure What You Will Learn* Understand Azure offerings for hosting Microservices.* Know about Service Fabric architecture and service.* Explore Service Fabric application programming models.* Take a deep look at the various design patterns from industrial scenarios.* Manage and deploy Microservices on Azure.* Glance at the future of Microservices with containers and serverless computing. In Detail Microsoft Azure is rapidly evolving and is widely used as a platform on which one can build Microservices that can be deployed on premise and on cloud through Microsoft Azure Service Fabric. With this book you will understand the concepts of Microservices architecture and how you can build highly maintainable and scalable applications using various services of Microsoft Azure. We will begin with laying out the foundation of Microservices and its advantages over monolithic architecture and service oriented architecture. We will showcase various scenarios where Microservices should and should not be used and you will also understand the architecture of Microservices based system. You will get an in depth look at Microsoft Azure Service Fabric, which is the platform for building Microservices. You will explore how to develop and deploy sample applications on Microsoft Azure Service Fabric to have a thorough understanding of it. We will also take you through several design patterns that solve the various challenges associated with realizing Microservices architecture in industrial applications. Each pattern will be clearly illustrated with example and code. Finally, you will be introduced to advanced topics that cover possible architectures for Microservices such as CQRS and Event Sourcing. You will learn how to use Microservices architecture to realize an IoT solution.

TypeScript Microservices Aug 11 2021 Build robust microservice-based applications that are distributed, fault tolerant, and always available Key Features Learn to build message-driven services for effective communication Design microservices API using Reactive programming design patterns Deploy, scale and monitor microservices for consistent high performance Book Description In the last few years or so, microservices have achieved the rock star status and right now are one of the most tangible solutions in enterprises to make quick, effective, and scalable applications. The apparent rise of Typescript and long evolution from ES5 to ES6 has seen lots of big companies move to ES6 stack. If you want to learn how to leverage the power of microservices to build robust architecture using reactive programming and Typescript in Node.js, then this book is for you. Typescript Microservices is an end-to-end guide that shows you the implementation of microservices from scratch; right from starting the project to hardening and securing your services. We will begin with a brief introduction to microservices before learning to break your monolith applications into microservices. From here, you will learn reactive programming patterns and how to build APIs for microservices. The next set of topics will take you through the microservice architecture with TypeScript and communication between services. Further, you will learn to test and deploy your TypeScript microservices using the latest tools and implement continuous integration. Finally, you will learn to secure and harden your microservice.

By the end of the book, you will be able to build production-ready, scalable, and maintainable microservices using Node.js and Typescript. What you will learn Get acquainted with the fundamentals behind microservices. Explore the behavioral changes needed for moving from monolithic to microservices. Dive into reactive programming, Typescript and Node.js to learn its fundamentals in microservices Understand and design a service gateway and service registry for your microservices. Maintain the state of microservice and handle dependencies. Perfect your microservice with unit testing and Integration testing Develop a microservice, secure it, deploy it, and then scale it Who this book is for This book is for JavaScript developers seeking to utilize their Node.js and Typescript skills to build microservices and move away from the monolithic architecture. Prior knowledge of TypeScript and Node.js is assumed.

Designing Microservices Using Django Sep 11 2021 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

Monolith to Microservices Jan 28 2023 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

The Tao of Microservices Jul 10 2021 Summary The Tao of Microservices guides you on the path to understanding how to apply microservice architectures to your own real-world projects. This high-level book offers a conceptual view of microservice design, along with core concepts and their application. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology An application, even a complex one, can be designed as a system of independent components, each of which handles a single responsibility. Individual microservices are easy for small teams without extensive knowledge of the entire system design to build and maintain. Microservice applications rely on modern patterns like asynchronous, message-based communication, and they can be optimized to work well in cloud and container-centric environments. About the Book The Tao of Microservices guides you on the path to understanding and building microservices. Based on the invaluable experience of microservices guru Richard Rodger, this book exposes the thinking behind microservice designs. You'll master individual concepts like asynchronous messaging, service APIs, and encapsulation as you learn to apply microservices architecture to real-world projects. Along the way, you'll dig deep into detailed case studies with source code and documentation and explore best practices for team development, planning for change, and tool choice. What's Inside Principles of the microservice architecture Breaking down real-world case studies Implementing large-scale systems When not to use microservices About the Reader This book is for developers and architects. Examples use JavaScript and Node.js. About the Author Richard Rodger, CEO of voxgig, a social network for the events industry, has many years of experience building microservice-based systems for major global companies. Table of Contents PART 1 - BUILDING MICROSERVICES Brave new world Services Messages Data Deployment PART 2 - RUNNING MICROSERVICES Measurement Migration People Case study: Nodezoo.com

Building Microservices Mar 18 2022 Distributed systems have become more fine-grained as organizations shift from code-heavy monolithic applications to smaller, self-contained microservices. But developing these systems brings its own set of problems. With lots of examples and practical advice, this expanded second edition takes a holistic view of the topics system architects and administrators must consider when building, managing, and evolving microservices architectures. Author Sam Newman provides you with a firm grounding in the concepts while diving into the latest solutions for modeling, integrating, testing, deploying, and monitoring your own autonomous services. Through real-world examples, you'll learn how organizations worldwide are getting the most out of these architectures. Microservices technologies are moving quickly. This book brings you up to speed. Get new information on user interfaces, container orchestration, and serverless Use microservices to align system design with your organization's goals Explore 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 expanded content around user-to-service and service-to-service models Understand the challenges of scaling microservices architectures.

Pro Microservices in .NET 6 Feb 23 2020 Know the fundamentals of creating and deploying microservices using .NET 6 and gain insight from prescriptive guidance in this book on the when and why to incorporate them. The microservices architecture is a way of distributing process workloads to independent applications. This distribution allows for the independent applications to scale and evolve separately. It also enables developers to dismantle large applications into smaller, easier-to-maintain, scalable parts. While the return is valuable and the concept straightforward, applying it to an application is far more complicated. Where do you start? How do you find the optimal dividing point for your app, and strategically, how should your app be parceled out into separate services? Pro Microservices in .NET 6 will introduce you to all that and more. The authors get you started with an overview of microservices, .NET 6, event storming, and domain-driven design. You will use that foundational information to build a reference application throughout the book. From there, you will create your first microservice using .NET 6 that you can deploy into Docker and Azure Kubernetes Service. You will also learn about communication styles, decentralizing data, and testing microservices. Finally, you will learn about logging, metrics, tracing, and use that information for debugging. What You Will Learn Build a foundation of basic microservices architecture design Follow an example of using event storming and domain-driven design to understand the monolithic application modified for microservices Understand, via detailed commands, how Docker is used to containerize applications Get an overview of creating microservices from a monolithic application Call microservices using RPC and messaging communication styles with MassTransit Comprehend decentralizing data and handling distributed transactions Use Azure Kubernetes Service to host and scale your microservices Know the methods to make your microservices more robust Discover testing techniques for RPC and messaging communication styles Apply the applications you build for actual use Practice cross-cutting concerns such as logging, metrics, and tracing Who This Book Is For Developers and software architects. Readers should have basic familiarity with Visual Studio and experience with .NET, ASP.NET Core, and C#.

Building Microservices May 27 2020 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

Hands-On Docker for Microservices with Python Sep 23 2022 A step-by-step guide to building microservices using Python and Docker, along with managing and orchestrating them with Kubernetes Key Features Learn to use Docker containers to create, operate, and deploy your microservices Create workflows to manage independent deployments on coordinating services using CI and GitOps through GitHub, Travis CI, and Flux Develop a REST microservice in Python using the Flask framework and Postgres database Book Description Microservices architecture helps create complex systems with multiple, interconnected services that can be maintained by independent teams working in parallel. This book guides you on how to develop these complex systems with the help of containers. You'll start by learning to design an efficient strategy for migrating a legacy monolithic system to microservices. You'll build a RESTful microservice with Python and learn how to encapsulate the code for the services into a container using Docker. While developing the services, you'll understand how to use tools such as GitHub and Travis CI to ensure continuous delivery (CD) and continuous integration (CI). As the systems become complex and grow in size, you'll be introduced to Kubernetes and explore how to orchestrate a system of containers while managing multiple services. Next, you'll configure Kubernetes clusters for production-ready environments and secure them for reliable deployments. In the concluding chapters, you'll learn how to detect and debug critical problems with the help of logs and metrics. Finally, you'll discover a variety of strategies for working with multiple teams dealing with different microservices for effective collaboration. By the end of this book, you'll be able to build production-grade microservices as well as orchestrate a complex system of services using containers. What you will learn Discover how to design, test, and operate scalable microservices Coordinate and deploy different services using Kubernetes Use Docker to construct scalable and manageable applications with microservices Understand how to monitor a complete system to ensure early detection of problems Become well versed with migrating from an existing monolithic system to a microservice one Use load balancing to ensure seamless operation between the old monolith and the new service Who this book is for This book is for developers, engineers, or software architects who are trying to move away from traditional approaches for building complex multi-service systems by adopting microservices and containers. Although familiarity with Python programming is assumed, no prior knowledge of Docker is required.

Microservices Development Cookbook Jan 16 2022 Quickly learn and employ practical methods for developing microservices Key Features Get to grips with microservice architecture to build enterprise-ready applications Adopt the best practices to find solutions to specific problems Monitor and manage your services in production Book Description Microservices have become a popular way to build distributed systems that power modern web and mobile apps. Deploying your application as a suite of independently deployable, modular, and scalable services has many benefits. In this book, you'll learn to employ microservices in order to make your application more fault-tolerant and easier to scale and change. Using an example-driven approach, *Microservice Development Cookbook* introduces you to the microservice architectural style. You'll learn how to transition from a traditional monolithic application to a suite of small services that interact to provide smooth functionality to your client applications. You'll also learn about the patterns used to organize services, so you can optimize request handling and processing and see how to handle service-to-service interactions. You'll then move on to understanding how to secure microservices and add monitoring in order to debug problems. This book also covers fault-tolerance and reliability patterns that help you use microservices to isolate failures in your applications. By the end of the book, you'll be able to work with a team to break a large, monolithic codebase into independently deployable and scalable microservices. You'll also study how to efficiently and effortlessly manage a microservice-based architecture. What you will learn Learn how to design microservice-based systems Create services that fail without impacting users Monitor your services to perform debugging and create observable systems Manage the security of your services Create fast and reliable deployment pipelines Manage multiple environments for your services Simplify the local development of microservice-based systems Who this book is for *Microservice Development Cookbook* is for developers who would like to build effective and scalable microservices. Basic knowledge of the microservices architecture is assumed.

Building Event-Driven Microservices Jul 30 2020 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

Microservices for Beginners Mar 25 2020 You Are 1-Click Away From Learning How To Leverage The Power Of Microservices To Design, Build, Deploy And Maintain Scalable And Maintainable Applications With Ease! They say breaking big tasks into small, simple and doable tasks is the secret to getting stuff done fast. In the tech world, nothing represents this concept of breaking big tasks/goals/projects into small, bit sized tasks (modular components/services) that can be done by multiple people and teams than microservices. And the truth is; microservice technologies are evolving very fast, with distributed systems becoming more fine-grained in the last decade, shifting from monolithic applications to self-contained microservices. However, while microservices are indeed great for designing, building, deploying, maintaining and scaling complex applications fast, these systems can be challenging to understand and put together to work as efficiently as expected. If you are new to the whole concept of microservices, I know you are probably wondering.... So, what are the benefits of using microservices? Why should you use microservices/what makes them so special? How can you use microservices security patterns in the real world? How can you design and develop microservices that function properly? How do you troubleshoot everything? And how can you apply the most modern techniques around messaging technologies and to overcome inter-service communication problems? If you have any of these and any other related questions, this book is for you so keep reading, as this detailed yet simple guide will show you the grounding concepts while diving into current solutions for integrating, modeling, deploying, testing and monitoring your own autonomous services. More precisely, inside this book, you will learn: The basics of microservices, including what they are, the approach behind microservices, the evolution of microservices and the features of microservices How communication works in microservices, including factors to consider for microservices architecture building The ins and outs of a service-oriented architecture, including the microservices drawbacks and the secret benefits of using microservices The architecture mindset on microservices How to design scalable backend infrastructures from scratch Everything you need to know about integration of microservices and the difference between orchestration and choreography The ins and out of representational state transfer, including the downsides to remainder over HTTP and the complexities of asynchronous architectures How to use DRY and perils of code reuse in a microservice All about versioning and how it is used in microservices The API composition, the UI fragment composition and backends for frontends How to test microservices, including solution examinations, end-to-end tests, trade-offs and implementing service tests Monitoring microservices, including the ins and outs of solitary service, single server Cascading failures and how to deal with them Everything you need to know about microservices security and how to implement them Service-to-service authentication and authorization And much more Even if this is the first time coming across the term 'microservices', worry no more because this book takes a beginner friendly approach to ensure you understand everything you learn and can start putting it into action! Are you ready to take your application development skillset to the next level with microservices? If you are, Scroll up and click

Building Evolutionary Architectures Dec 03 2020 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 in Action Nov 13 2021 Summary *Microservices in Action* is a practical book about building and deploying microservice-based applications. Written for developers and architects with a solid grasp of service-oriented development, it tackles the challenge of putting microservices into production. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Invest your time in designing great applications, improving infrastructure, and making the most out of your dev teams. Microservices are easier to write, scale, and maintain than traditional enterprise applications because they're built as a system of

independent components. Master a few important new patterns and processes, and you'll be ready to develop, deploy, and run production-quality microservices. About the Book *Microservices in Action* teaches you how to write and maintain microservice-based applications. Created with day-to-day development in mind, this informative guide immerses you in real-world use cases from design to deployment. You'll discover how microservices enable an efficient continuous delivery pipeline, and explore examples using Kubernetes, Docker, and Google Container Engine. What's inside An overview of microservice architecture Building a delivery pipeline Best practices for designing multi-service transactions and queries Deploying with containers Monitoring your microservices About the Reader Written for intermediate developers familiar with enterprise architecture and cloud platforms like AWS and GCP. About the Author Morgan Bruce and Paulo A. Pereira are experienced engineering leaders. They work daily with microservices in a production environment, using the techniques detailed in this book. Table of Contents PART 1 - The lay of the land Designing and running microservices Microservices at SimpleBank PART 2 - Design Architecture of a microservice application Designing new features Transactions and queries in microservices Designing reliable services Building a reusable microservice framework PART 3 - Deployment Deploying microservices Deployment with containers and schedulers Building a delivery pipeline for microservices PART 4 - Observability and ownership Building a monitoring system Using logs and traces to understand behavior Building microservice teams

Microservices, IoT and Azure Oct 25 2022 This book provides practical guidance for adopting a high velocity, continuous delivery process to create reliable, scalable, Software-as-a-Service (SaaS) solutions that are designed and built using a microservice architecture, deployed to the Azure cloud, and managed through automation. *Microservices, IoT, and Azure* offers software developers, architects, and operations engineers' step-by-step directions for building SaaS applications—applications that are available 24x7, work on any device, scale elastically, and are resilient to change--through code, script, exercises, and a working reference implementation. The book provides a working definition of microservices and contrasts this approach with traditional monolithic Layered Architecture. A fictitious, homebiomedical startup is used to demonstrate microservice architecture and automation capabilities for cross-cutting and business services as well as connected device scenarios for Internet of Things (IoT). Several Azure PaaS services are detailed including Storage, SQL Database, DocumentDb, Redis Cache, Cloud Services, Web API's, API Management, IoT Hub, IoT Suite, Event Hub, and Stream Analytics. Finally the book looks to the future and examines Service Fabric to see how microservices are becoming the de facto approach to building reliable software in the cloud. In this book, you'll learn: What microservices are and why are they're a compelling architecture pattern for SaaS applications How to design, develop, and deploy microservices using Visual Studio, PowerShell, and Azure Microservice patterns for cross-cutting concerns and business capabilities Microservice patterns for Internet of Things and big data analytics solutions using IoT Hub, Event Hub, and Stream Analytics Techniques for automating microservice provisioning, building, and deployment What Service Fabric is and how it's the future direction for microservices on Microsoft Azure

Practical Microservices Architectural Patterns Dec 27 2022 Take your distributed applications to the next level and see what the reference architectures associated with microservices can do for you. This book begins by showing you the distributed computing architecture landscape and provides an in-depth view of microservices architecture. Following this, you will work with CQRS, an essential pattern for microservices, and get a view of how distributed messaging works. Moving on, you will take a deep dive into Spring Boot and Spring Cloud. Coming back to CQRS, you will learn how event-driven microservices work with this pattern, using the Axon 2 framework. This takes you on to how transactions work with microservices followed by advanced architectures to address non-functional aspects such as high availability and scalability. In the concluding part of the book you develop your own enterprise-grade microservices application using the Axon framework and true BASE transactions, while making it as secure as possible. What You Will Learn Shift from monolith architecture to microservices Work with distributed and ACID transactions Build solid architectures without two-phase commit transactions Discover the high availability principles in microservices Who This Book Is For Java developers with basic knowledge of distributed and multi-threaded application architecture, and no knowledge of Spring Boot or Spring Cloud. Knowledge of CQRS and event-driven architecture is not mandatory as this book will cover these in depth.

Microservices Architecture For Beginners Oct 13 2021 Microservices, or very commonly known as Mircoservices Architecture are used for describing the methods and resources that are used for architecture specification achievement. What are the steps followed or how the arrangement of all these resources is done and the design techniques that have been employed for achieving the performance goal and target cost is called as Microservices architecture.

Building Microservices with Go Dec 15 2021 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.

Hands-On Microservices with C# Aug 30 2020 Build enterprise-grade microservice ecosystems with intensive case studies using C# Key Features Learn to build message-based microservices Packed with case studies to explain the intricacies of large-scale microservices Build scalable, modular, and robust architectures with C# Book Description C# is a powerful language when it comes to building applications and software architecture using rich libraries and tools such as .NET. This book will harness the strength of C# in developing microservices architectures and applications. This book shows developers how to develop an enterprise-grade, event-driven, asynchronous, message-based microservice framework using C#, .NET, and various open source tools. We will discuss how to send and receive messages, how to design many types of microservice that are truly usable in a corporate environment. We will also dissect each case and explain the code, best practices, pros and cons, and more. Through our journey, we will use many open source tools, and create file monitors, a machine learning microservice, a quantitative financial microservice that can handle bonds and credit default swaps, a deployment microservice to show you how to better manage your deployments, and memory, health status, and other microservices. By the end of this book, you will have a complete microservice ecosystem you can place into production or customize in no time. What you will learn Explore different open source tools within the context of designing microservices Learn to provide insulation to exception-prone function calls Build common messages used between microservices for communication Learn to create a microservice using our base class and interface Design a quantitative financial machine microservice Learn to design a microservice that is capable of using Blockchain technology Who this book is for C# developers, software architects, and professionals who want to master the art of designing the microservice architecture that is scalable based on environment. Developers should have a basic understanding of .NET application development using C# and Visual Studio

Essentials of Microservices Architecture Jun 28 2020 Microservices architecture (MSA) is increasingly popular with software architects and engineers as it accelerates software solution design, development, and deployment in a risk-free manner. Placing a software system into a production environment is elegantly simplified and sped up with the use of MSA development platforms, runtime environments, acceleration engines, design patterns, integrated

frameworks, and related tools. The MSA ecosystem is expanding with third-party products that automate as many tasks as possible. MSA is being positioned as the enterprise-grade and agile-application design method. This book covers in-depth the features and facilities that make up the MSA ecosystem. Beginning with an overview of Service-Oriented Architecture (SOA) that covers the Common Object Request Broker Architecture (CORBA), Distributed Component Object Model (DCOM), and Remote Method Invocation (RMI), the book explains the basic essentials of MSA and the continuous delivery of applications to customers. The book gives software developers insight into: Current and emerging communication models Key architectural elements of MSA-based applications Designing efficient APIs for microservices MSA middleware platforms such as REST, SOAP, Apache Thrift, and gRPC Microservice discovery and the API gateway Service orchestration and choreography for composing individual services to achieve a useful business process Database transactions in MSA-centric applications Design, composition, security, and deployment patterns MSA security Modernizing legacy applications The book concludes with a chapter on composing and building powerful microservices. With the exponential growth of IoT devices, microservices are being developed and deployed on resource-constrained but resource-intensive devices in order to provide people-centric applications. The book discusses the challenges of these applications. Finally, the book looks at the role of microservices in smart environments and upcoming trends including ubiquitous yet disappearing microservices.

Microservice by examples using .NET Core Jul 22 2022 This book predominately covers Microservices architecture with real-world example which can help professionals with ease of adoption of this technology. Following the trend of modularity in real world, the idea behind Microservice by Examples is to allow developers to build their applications from various independent components which can be easily changed, removed or upgraded. Also, it is relevant now because of enterprises are moving towards DevOps/ Modernization, this book will emphasize on containers and Docker as well.

Learn Microservices with Spring Boot Nov 01 2020 Build a microservices architecture with Spring Boot, by evolving an application from a small monolith to an event-driven architecture composed of several services. This book follows an incremental approach to teach microservice structure, test-driven development, Eureka, Ribbon, Zuul, and end-to-end tests with Cucumber. Author Moises Macero follows a very pragmatic approach to explain the benefits of using this type of software architecture, instead of keeping you distracted with theoretical concepts. He covers some of the state-of-the-art techniques in computer programming, from a practical point of view. You'll focus on what's important, starting with the minimum viable product but keeping the flexibility to evolve it. What You'll Learn Build microservices with Spring Boot Use event-driven architecture and messaging with RabbitMQ Create RESTful services with Spring Master service discovery with Eureka and load balancing with Ribbon Route requests with Zuul as your API gateway Write end-to-end tests for an event-driven architecture using Cucumber Carry out continuous integration and deployment Who This Book Is For Those with at least some prior experience with Java programming. Some prior exposure to Spring Boot recommended but not required.

Spring Microservices in Action, Second Edition Dec 23 2019 By dividing large applications into separate self-contained units, Microservices are a great step toward reducing complexity and increasing flexibility. Spring Microservices in Action, Second Edition teaches you how to build microservice-based applications using Java and the Spring platform. This second edition is fully updated for the latest version of Spring, with expanded coverage of API routing with Spring Cloud Gateway, logging with the ELK stack, metrics with Prometheus and Grafana, security with the Hashicorp Vault, and modern deployment practices with Kubernetes and Istio. about the technology Microservices break up your code into independent interconnected services that require careful forethought and design. Fortunately, Spring Boot, Spring Cloud, and Spring Cloud Gateway simplify the tedious plumbing and infrastructure setup required for microservice applications. 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. Spring Cloud Gateway provides a clear and effective routing to APIs, with a single entry point into a system. Together, they make it a snap to spin up Spring applications as microservices and wire them together into a reliable, scalable system. about the book Fully updated and upgraded for the latest version of Spring, Spring Microservices in Action, Second Edition is an expanded revision of a Manning bestseller. In it, you'll learn how to build microservice-based applications using Java and the Spring platform and how to efficiently monitor and log your microservices operations. 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 microservices and how Spring Cloud Gateway makes it easy to handle multiple APIs with a single tool. You'll also pick up best practices for using Spring with modern deployment platforms based on Kubernetes and Istio. what's inside Core microservice design principles Microservices best practices Using docker containers to run microservices Managing configuration with Spring Cloud Config and Hashicorp Vault for sensitive information Client-side resiliency with Hystrix, and Ribbon Managing application metrics with Prometheus and Grafana Intelligent routing using Spring Cloud Gateway Distributed tracing with Spring Cloud Sleuth, Zipkin and ELK Stack Deploying Spring Cloud applications with Kubernetes and Istio about the reader This book is written for developers with Java and Spring experience. about the authors John Carnell is a senior cloud engineer with twenty years of experience in Java. Illary Huaylupo Sánchez is a software engineer with an MBA in IT management and over twelve years of experience in Java.

Designing and Building Solid Microservice Ecosystems Jan 22 2020 It's not new to us that microservices are changing the way we conceive digital transformation, as organizations embrace digital transformation. Every day, more and more companies are betting on microservice adoption, and there is a strong reason for this: business needs to evolve and change at a fast pace, in order to adapt itself to satisfy a demanding 2.0 digital customer's experience in terms of overall service quality. Ensuring that such a change occurs seamlessly and progressively is one of the goals for microservices, and designing and building a solid microservice architecture is the way to guarantee that this happens from inception, by observing principles, best practices, design patterns, and reference models. This book provides a comprehensive walkthrough across the different concepts, frameworks, methodologies, and architecture building blocks that make up a microservice ecosystem and constitute a reference architecture from which you can get to multiple sub-architectures and implementations. Being an architect, you'll learn how to better design microservice-led and event-centric architectures in the right way from the early beginning, by showcasing learned lessons, best-practices do's, and don'ts. If you are starting your architecture career, it's the right place to get introduced to concepts and methodologies that you will then grow over time, as you acquire more experience. If you are a developer, but willing to jump into the exciting architecture world, this can also be good reading, however, be warned that some basic architectural understandings and concepts need to be first incorporated before walking through the advanced concepts presented throughout this book. This book requires you to have some minimal background around Docker and Microservices to better understand the more advanced concepts that are being explained.

Building Microservices Applications on Microsoft Azure Apr 26 2020 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.

Hands-On Enterprise Java Microservices with Eclipse MicroProfile Jun 08 2021 An effective guide to designing, building, and deploying enterprise Java microservices with Eclipse MicroProfile Key Features Create cloud-native microservices with ease using this detailed guide Avoid vendor lock-in when implementing microservices using Eclipse MicroProfile Discover why MicroProfile is a great specification for building microservices in multi-cloud environments Book Description Eclipse MicroProfile has gained momentum in the industry as a multi-vendor, interoperable, community-driven specification. It is a major disruptor that allows organizations with large investments in enterprise Java to move to microservices without spending a lot on retraining their workforce. This book is based on MicroProfile 2.2, however, it will guide you in running your applications in MicroProfile 3.0. You'll start by understanding why microservices are important in the digital economy and how MicroProfile addresses the need for enterprise Java microservices. You'll learn about the subprojects that make up a MicroProfile, its value proposition

to organizations and developers, and its processes and governance. As you advance, the book takes you through the capabilities and code examples of MicroProfile's subprojects - Config, Fault Tolerance, Health Check, JWT Propagation, Metrics, and OpenTracing. Finally, you'll be guided in developing a conference application using Eclipse MicroProfile, and explore possible scenarios of what's next in MicroProfile with Jakarta EE. By the end of this book, you'll have gained a clear understanding of Eclipse MicroProfile and its role in enterprise Java microservices. What you will learn Understand why microservices are important in the digital economy Analyze how MicroProfile addresses the need for enterprise Java microservices Test and secure your applications with Eclipse MicroProfile Get to grips with various MicroProfile capabilities such as OpenAPI and Typesafe REST Client Explore reactive programming with MicroProfile Stream and Messaging candidate APIs Discover and implement coding best practices using MicroProfile Who this book is for If you're a Java developer who wants to create enterprise microservices, this book is for you. Familiarity with Java EE and the concept of microservices will help you get the most out of this book.

Production-Ready Microservices Feb 14 2022 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

Microservices Patterns Apr 30 2023 "A comprehensive overview of the challenges teams face when moving to microservices, with industry-tested solutions to these problems." - Tim Moore, Lightbend 44 reusable patterns to develop and deploy reliable production-quality microservices-based applications, with worked examples in Java Key Features 44 design patterns for building and deploying microservices applications Drawing on decades of unique experience from author and microservice architecture pioneer Chris Richardson A pragmatic approach to the benefits and the drawbacks of microservices architecture Solve service decomposition, transaction management, and inter-service communication Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About The Book *Microservices Patterns* teaches you 44 reusable patterns to reliably develop and deploy production-quality microservices-based applications. This invaluable set of design patterns builds on decades of distributed system experience, adding new patterns for composing services into systems that scale and perform under real-world conditions. More than just a patterns catalog, this practical guide with worked examples offers industry-tested advice to help you design, implement, test, and deploy your microservices-based application. What You Will Learn How (and why!) to use microservices architecture Service decomposition strategies Transaction management and querying patterns Effective testing strategies Deployment patterns This Book Is Written For Written for enterprise developers familiar with standard enterprise application architecture. Examples are in Java. About The Author Chris Richardson is a Java Champion, a JavaOne rock star, author of Manning's *POJOs in Action*, and creator of the original *CloudFoundry.com*. Table of Contents Escaping monolithic hell Decomposition strategies Interprocess communication in a microservice architecture Managing transactions with sagas Designing business logic in a microservice architecture Developing business logic with event sourcing Implementing queries in a microservice architecture External API patterns Testing microservices: part 1 Testing microservices: part 2 Developing production-ready services Deploying microservices Refactoring to microservices

Building Microservices with JavaScript Mar 06 2021 Explore microservices by developing with Express, deploying with Docker, and scaling with Swarm and Kubernetes. Key Features Build cloud-native microservices using only Node and Express Write clean and maintainable code with JavaScript for improved microservices development Learn ways to monitor and manage your services in a production environment Book Description Microservices are a popular way to build distributed systems that power modern web and mobile apps. With the help of this Learning Path, you'll learn how to develop your applications as a suite of independently deployable and scalable services. Using an example-driven approach, this Learning Path will uncover how you can dismantle your monolithic application and embrace microservice architecture, right from architecting your services and modeling them to integrating them into your application. You'll also explore ways to overcome challenges in testing and deploying these services by setting up deployment pipelines that break down the application development process into several stages. You'll study serverless architecture for microservices and understand its benefits. Furthermore, this Learning Path delves into the patterns used for organizing services, helping you optimize request handling and processing. You'll then move on to learn the fault-tolerance and reliability patterns that help you use microservices to isolate failures in your applications. By the end of this Learning Path, you'll have the skills necessary to build enterprise-ready applications using microservices. This Learning Path includes content from the following Packt products: *Hands-On Microservices with Node.js* by Diogo Resende *Microservices Development Cookbook* by Paul Osman What you will learn Use Docker and Swarm for continuous deployment and scaling Build and deploy cloud-native microservices and avoid vendor lock-in Explore different service architectures such as Hydra and Seneca Create services that don't impact users upon failure Monitor your services to perform debugging and create observable systems Develop fast and reliable deployment pipelines Manage multiple environments for your services Simplify the local development of microservice-based systems Who this book is for If you're a JavaScript developer looking to put your skills to work by building microservices and moving away from the monolithic architecture, this book is for you. To understand the concepts explained in this Learning Path, you must have knowledge of Node.js and be familiar with the microservices architecture.

Microservice Architecture Nov 25 2022 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

Microservices: Up and Running Apr 18 2022 Microservices architectures offer great benefits: faster change speeds, better scalability and cleaner, evolvable architectures. But, implementing your first Microservices architecture to get those rewards is difficult. How do you quickly educate your team on all the technical details of execution to maximize your chances of success? How do you survive the first year of bringing your microservices implementation to life? How do you improve your execution? Making the right implementation decisions is difficult and you don't have the luxury of time to find out if the decisions you are making are the right ones. This book offers a prescriptive guide for building a Microservices architecture to combat that uncertainty. Inside, you will find a step-by-step implementation journey mapped out based on the techniques and architectures that have been proven to work for Microservices systems. This book solves the following problems for users: What does a "good" microservices project look like? Are the decisions you're making for your project the "right" ones? How do you come up with a good microservices design that fits your own context as quickly as possible? Where should you spend time thinking/designing and where should you just implement "best practices"?

Microservices for the Enterprise Jun 20 2022 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

Cloud Native Programming with Golang Oct 01 2020 Discover practical techniques to build cloud-native apps that are scalable, reliable, and always available. Key Features Build well-designed and secure microservices. Enrich your microservices with continuous integration and monitoring. Containerize your application with Docker Deploy your application to AWS. Learn how to utilize the powerful AWS services from within your application Book Description Awarded as one of the best books of all time by BookAuthority, *Cloud Native Programming with Golang* will take you on a journey into the world of microservices and cloud computing with the help of Go. Cloud computing and microservices are two very important concepts in modern software architecture. They represent key skills that ambitious software engineers need to acquire in order to design and build software applications capable of performing and scaling. Go is a modern cross-platform programming language that is very powerful yet simple; it is an excellent choice for microservices and cloud applications. Go is gaining more and more popularity, and becoming a very attractive skill. This book starts by covering the software architectural patterns of cloud applications, as well as practical concepts regarding how to scale, distribute, and deploy those applications. You will also learn how to build a JavaScript-based front-end for your application, using TypeScript and React. From there, we dive into commercial cloud offerings by covering AWS. Finally, we conclude our book by providing some overviews of other concepts and technologies that you can explore, to move from where the book leaves off. What you will learn Understand modern software applications architectures Build secure microservices that can effectively communicate with other services Get to know about event-driven architectures by diving into message queues such as Kafka, Rabbitmq, and AWS SQS. Understand key modern database technologies such as MongoDB, and Amazon's DynamoDB Leverage the power of containers Explore Amazon cloud services fundamentals Know how to utilize the power of the Go language to access key services in the Amazon cloud such as S3, SQS, DynamoDB and more. Build front-end applications using ReactJS with Go Implement CD for modern applications Who this book is for This book is for developers who want to begin building secure, resilient, robust, and scalable Go applications that are cloud native. Some knowledge of the Go programming language should be sufficient. To build the front-end application, you will also need some knowledge of JavaScript programming.

Hands-On Microservices – Monitoring and Testing Feb 26 2023 Learn and implement various techniques related to testing, monitoring and optimization for microservices architecture. Key Features Learn different approaches for testing microservices to design and implement, robust and secure applications Become more efficient while working with microservices Explore Testing and Monitoring tools such as JMeter, Ready API, and AppDynamics Book Description Microservices are the latest "right" way of developing web applications. Microservices architecture has been gaining momentum over the past few years, but once you've started down the microservices path, you need to test and optimize the services. This book focuses on exploring various testing, monitoring, and optimization techniques for microservices. The book starts with the evolution of software architecture style, from monolithic to virtualized, to microservices architecture. Then you will explore methods to deploy microservices and various implementation patterns. With the help of a real-world example, you will understand how external APIs help product developers to focus on core competencies. After that, you will learn testing techniques, such as Unit Testing, Integration Testing, Functional Testing, and Load Testing. Next, you will explore performance testing tools, such as JMeter, and Gatling. Then, we deep dive into monitoring techniques and learn performance benchmarking of the various architectural components. For this, you will explore monitoring tools such as Appdynamics, Dynatrace, AWS CloudWatch, and Nagios. Finally, you will learn to identify, address, and report various performance issues related to microservices. What you will learn Understand the architecture of microservices and how to build services Establish how external APIs help to accelerate the development process Understand testing techniques, such as unit testing, integration testing, end-to-end testing, and UI/functional testing Explore various tools related to the performance testing, monitoring, and optimization of microservices Design strategies for performance testing Identify performance issues and fine-tune performance Who this book is for This book is for developers who are involved with microservices architecture to develop robust and secure applications. Basic knowledge of microservices is essential in order to get the most out of this book.

Building Microservices Mar 30 2023 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 Server-side and Microservices with Go Jan 04 2021 Develop and deploy efficient server-side applications and microservice architectures. KEY FEATURES ? Extensive examples of the Go programming language and REST concepts. ? Includes graphical illustrations and visual explanation of the microservice architecture. ? Graphs and visual explanation for Docker and Kubernetes commands. DESCRIPTION 'Building Server-side and Microservices with Go' teaches you the fundamentals of Go programming languages, REST server applications, and microservices. You can develop efficient server-side applications and use modern development concepts such as microservices after reading this book. We will create simple server-side applications and add new features as and when a new topic is covered. We will begin with the fundamentals of Go programming languages, which will create simple server-side applications. During development, a layered design will be introduced, with each application layer serving a specific purpose. We will introduce you to the microservice concept, and it is further divided into a couple of smaller microservices. Finally, we'll look at how to use Docker and Kubernetes to deploy and scale microservices. After reading this book, we will be able to successfully develop monolithic and microservice applications and identify when one approach is more appropriate than another. This book can also help improve existing applications. It is a perfect handy guide to build proficiency with Docker and Kubernetes. WHAT YOU WILL LEARN ? Basics of Go programming language (data types, structures, loops, functions, concurrency, etc). ? REST concept development and implementation. ? Introduction to layered server-side application designs and key roles. ? PostgreSQL database design, CRUD operations, and queries. ? Introduction to microservices, common practices, and advantages and disadvantages of microservices. ? Microservices development with Go and how to break monolithic applications into microservices. ? Understanding protocol buffers and message queuing protocols for microservice communications. WHO THIS BOOK IS FOR This book is intended for backend developers, software architects, and students interested in learning about the Go programming language, REST Server Applications, and Microservices. Knowing fundamental programming concepts would be an advantage but not essential. TABLE OF CONTENTS 1. Fundamentals of Go Programming Language 2. REST Server Applications 3. HTTP Layer and Handler 4. Core Layer 5. Data Layer and Database 6. Microservices 7. Microservices in Go 8. Microservice Communication 9. Deployment and Scaling

Microservices: Up and Running Aug 23 2022 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

Microservices: Up and Running Apr 06 2021 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

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