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# Microservices In Practice From Architecture To Deployment

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**ORTIZ HAAS**

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*Microservices Best  
Practices for Java*

"O'Reilly Media, Inc." 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 macroservices. 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 Event-Driven Microservices* Packt Publishing Ltd 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  
**Microservices: Up and Running** Apress 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.

[Microservices from Theory to Practice: Creating Applications in IBM Bluemix Using the Microservices Approach](#) "O'Reilly Media, Inc."

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 *Building Microservices with Go* Packt Publishing Ltd A step-by-step that will help you build Microservices architecture using Django and Python Ê



KEY FEATURES - Understand in-depth the fundamentals of Microservices - Learn how to create and use Django APIs - Use web technology such as Nginx, Unicorn, 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.É 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 Microservices for Beginners IBM Redbooks Dive into the cutting-edge world of microservices with "Microservices Architecture: Design Patterns and Best Practices," your comprehensive guide to mastering this modern architectural style. Ideal for software architects, developers, and IT professionals, this book demystifies the complexities of microservices, offering in-depth insights into designing, implementing, and managing resilient, scalable, and efficient microservices architectures. Throughout this meticulously structured

guide, you'll explore essential topics such as design principles, communication patterns, database strategies, security protocols, testing strategies, monitoring, observability, deployment practices, scaling techniques, and the synergy between microservices and cloud computing. Each chapter is packed with practical guidance, best practices, and real-world examples, ensuring you're equipped with the knowledge to tackle the challenges of building high-quality software systems. Whether you're looking to enhance your existing skills or embark on a transformative digital strategy, "Microservices Architecture: Design

Patterns and Best Practices" provides the expert advice and actionable strategies you need. Embrace the power of microservices to drive agility, innovation, and growth in your software development projects. **Production-Ready Microservices** Pearson Education 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.

### **Building**

**Microservices** BPB Publications

Use the new, enticing, and highly portable event-driven runtime to simplify building resilient and scalable

microservices for cloud and edge applications  
Key Features  
Build resilient, stateless, and stateful microservice applications that run on the cloud and edge  
Solve common distributed systems such as low latency and scaling using any language and framework  
Use real-time and proactive monitoring tools to support a reliable and highly available system  
Book Description  
Over the last decade, there has been a huge shift from heavily coded monolithic applications to finer, self-contained microservices. Dapr is a new, open source project by Microsoft that provides proven techniques and best practices for developing modern applications. It offers

platform-agnostic features for running your applications on public cloud, on-premises, and even on edge devices. This book will help you get to grips with microservice architectures and how to manage application complexities with Dapr in no time. You'll understand how Dapr offers ease of implementation while allowing you to work with multiple languages and platforms. You'll also understand how Dapr's runtime, services, building blocks, and software development kits (SDKs) help you to simplify the creation of resilient and portable microservices. Dapr provides an event-driven runtime that supports the essential features you need to

build microservices, including service invocation, state management, and publish/subscribe messaging. You'll explore all of those in addition to various other advanced features with this practical guide to learning Dapr. By the end of this book, you'll be able to write microservices easily using your choice of language or framework by implementing industry best practices to solve problems related to distributed systems. What you will learnUse Dapr to create services, invoking them directly and via pub/subDiscover best practices for working with microservice architecturesLeverage the actor model to orchestrate data and

behaviorUse Azure Kubernetes Service to deploy a sample applicationMonitor Dapr applications using Zipkin, Prometheus, and GrafanaScale and load test Dapr applications on KubernetesWho this book is for This book is for developers looking to explore microservices architectures and implement them in Dapr applications using examples on Microsoft .NET Core. Whether you are new to microservices or have knowledge of this architectural approach and want to get hands-on experience in using Dapr, you'll find this book useful. Familiarity with .NET Core will help you to understand the C# samples and code snippets used in the book.

*Essentials of Microservices Architecture* Packt Publishing Ltd  
Microservices is an architectural style in which large, complex software applications are composed of one or more smaller services. Each of these microservices focuses on completing one task that represents a small business capability. These microservices can be developed in any programming language. They communicate with each other using language-neutral protocols, such as Representational State Transfer (REST), or messaging applications, such as IBM® MQ Light. This IBM Redbooks® publication gives a broad understanding of this increasingly

popular architectural style, and provides some real-life examples of how you can develop applications using the microservices approach with IBM Bluemix™. The source code for all of these sample scenarios can be found on GitHub (<https://github.com/>). The book also presents some case studies from IBM products. We explain the architectural decisions made, our experiences, and lessons learned when redesigning these products using the microservices approach. Information technology (IT) professionals interested in learning about microservices and how to develop or redesign an application in Bluemix using microservices can

benefit from this book.

[Microservices Architecture For Beginners](#) IBM Redbooks

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.

### **Implementing Domain-driven**

**Design** Speedy Publishing LLC Strategies, best practices, and patterns that will help you design resilient microservices architecture and streamline your API integrations. In Microservice APIs, you'll discover: Service decomposition strategies for microservices Documentation-driven development for APIs Best practices for designing REST and GraphQL APIs Documenting REST APIs with the OpenAPI specification (formerly Swagger) Documenting GraphQL APIs using the Schema Definition

Language Building microservices APIs with Flask, FastAPI, Ariadne, and other frameworks Service implementation patterns for loosely coupled services Property-based testing to validate your APIs, and using automated API testing frameworks like schemathesis and Dredd Adding authentication and authorization to your microservice APIs using OAuth and OpenID Connect (OIDC) Deploying and operating microservices in AWS with Docker and Kubernetes Microservice APIs teaches you practical techniques for designing robust microservices with APIs that are easy to understand, consume, and maintain. You'll

benefit from author José Haro Peralta's years of experience experimenting with microservices architecture, dodging pitfalls and learning from mistakes he's made. Inside you'll find strategies for delivering successful API integrations, implementing services with clear boundaries, managing cloud deployments, and handling microservices security. Written in a framework-agnostic manner, its universal principles can easily be applied to your favorite stack and toolset. About the technology Clean, clear APIs are essential to the success of microservice applications. Well-designed APIs enable reliable integrations between services and

help simplify maintenance, scaling, and redesigns. This book teaches you the patterns, protocols, and strategies you need to design, build, and deploy effective REST and GraphQL microservices APIs. About the book Microservice APIs gathers proven techniques for creating and building easy-to-consume APIs for microservices applications. Rich with proven advice and Python-based examples, this practical book focuses on implementation over philosophy. You'll learn how to build robust microservice APIs, test and protect them, and deploy them to the cloud following principles and patterns that work in any language. What's

inside Service decomposition strategies for microservices Best practices for designing and building REST and GraphQL APIs Service implementation patterns for loosely coupled components API authorization with OAuth and OIDC Deployments with AWS and Kubernetes About the reader For developers familiar with the basics of web development. Examples are in Python. About the author José Haro Peralta is a consultant, author, and instructor. He's also the founder of microapis.io. Table of Contents PART 1 INTRODUCING MICROSERVICE APIS 1 What are microservice APIs? 2 A basic API implementation 3 Designing

microservices PART 2 DESIGNING AND BUILDING REST APIS 4 Principles of REST API design 5 Documenting REST APIs with OpenAPI 6 Building REST APIs with Python 7 Service implementation patterns for microservices PART 3 DESIGNING AND BUILDING GRAPHQL APIS 8 Designing GraphQL APIs 9 Consuming GraphQL APIs 10 Building GraphQL APIs with Python PART 4 SECURING, TESTING, AND DEPLOYING MICROSERVICE APIS 11 API authorization and authentication 12 Testing and validating APIs 13 Dockerizing microservice APIs 14 Deploying microservice APIs with Kubernetes *Microservices From Day One* "O'Reilly

Media, Inc." "Mastering Microservices: Architectural Principles and Practices" serves as a comprehensive guide for professionals and enthusiasts delving into the intricate world of microservices architecture. With a focus on architectural principles and best practices, this book offers invaluable insights into designing, implementing, and managing microservices-based systems. The book begins by laying a solid foundation, elucidating the fundamental concepts and principles that underpin microservices architecture. It navigates readers through the core architectural patterns and principles,

emphasizing the importance of modularity, scalability, and resilience in distributed systems. Drawing from real-world examples and case studies, "Mastering Microservices" illustrates how to effectively decompose monolithic applications into microservices, leveraging techniques such as domain-driven design and API gateways. It explores strategies for communication and coordination among microservices, including synchronous and asynchronous patterns, event-driven architecture, and service discovery. Furthermore, the book addresses critical concerns such as data management, security, and monitoring in

microservices environments, offering practical solutions and recommendations to mitigate challenges and ensure robustness. Beyond design and implementation, "Mastering Microservices" delves into operational aspects, discussing deployment strategies, containerization with technologies like Docker and Kubernetes, and continuous integration and delivery pipelines tailored for microservices-based systems. Throughout the journey, the book emphasizes the significance of agility, autonomy, and evolutionary architecture, empowering readers to navigate the complexities of modern software development

with confidence. In essence, "Mastering Microservices" equips readers with the knowledge, tools, and methodologies necessary to architect scalable, resilient, and adaptable microservices-based systems, making it an indispensable resource for architects, developers, and engineers striving to excel in the realm of distributed computing.

**Microservices Architecture** "O'Reilly Media, Inc."

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.  
*Microservice APIs* BPB  
 Publications  
 Deliver microservices  
 architecture, step-by-  
 step: from defining  
 business problems  
 through development,  
 deployment, and  
 monitoring  
 Increasingly,  
 organizations are  
 modernizing  
 application  
 development by  
 integrating open  
 source technologies  
 into a holistic  
 architecture for



delivering high-quality workloads to the cloud. This is a complete, step-by-step guide to building flexible microservices architecture by leveraging Microsoft Azure cloud services, together with key open source technologies such as Java, Node.JS, .NET Core and Angular. Through a realistic case study project, expert Microsoft engineers Ovais Mehboob Ahmed Khan and Arvind Chandaka guide you through every step of technical implementation required to achieve value: establishing end-to-end infrastructure, developing cloud-native applications, automating deployments, monitoring operations, and more. Microsoft

engineers Ovais Mehboob Ahmed Khan and Arvind Chandaka show how to: Define application features and business requirements, and map them onto microservices using modeling techniques Design microservices solution architecture that enables high-quality workloads Develop an application front-end, and build microservices with open source technologies Leverage Azure Kubernetes Services for Docker container orchestration Use various patterns to build reliable and resilient microservices Enforce microservices app security, and use Azure AD B2C for user authentication/authorization Establish an API gateway that provides a unified “front door”

to back-end microservices Set up continuous integration and deployment with Azure DevOps Monitor microservices with Azure Monitor and Azure Application Insights About This Book For everyone interested in developing microservices, including architects, engineers, and consultants Will help IT professionals build new applications, modernize existing systems, migrate workloads, improve app management, and more.

*Mastering*

*Microservices: Architectural Principles and Practices* Taylor & Francis

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  
*Strategic Monoliths and  
 Microservices* Simon  
 and Schuster  
 "The one [and only]  
 book on implementing  
 microservices with a  
 real-world, cover-to-  
 cover example you can  
 relate to." - Christian  
 Bach, Swiss Re  
 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  
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 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 Designing and running microservices Microservices at SimpleBank Architecture of a microservice application Designing new features Transactions and queries in microservices Designing reliable services Building a reusable microservice framework Deploying microservices Deployment with containers and schedulers Building a delivery pipeline for

microservices Building a monitoring system  
 Using logs and traces to understand behavior  
 Building microservice teams PART 1 - The lay of the land PART 2 - Design PART 3 - Deployment PART 4 - Observability and ownership  
Building Microservices  
 Apress  
 The common patterns and practices of the microservice architecture and their application using the Clojure programming language. Key Features  
 Relevance of the microservice architecture and benefits of Clojure's functional and simple features to implement it. Learn best practices and common principles to avoid common pitfalls while developing microservices. Learn

how to use Pedestal to build your next microservices, secure them using JWT, and monitor them using the ELK stack Book  
 Description The microservice architecture is sweeping the world as the de facto pattern with which to design and build scalable, easy-to-maintain web applications. This book will teach you common patterns and practices, and will show you how to apply these using the Clojure programming language. This book 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 of how to put these concepts and patterns into practice with Clojure. This book will explain and illustrate, with practical examples, how teams of all sizes can start solving problems with microservices. You will learn the importance of writing code that is asynchronous and non-blocking and how Pedestal helps us do this. Later, the book explains how to build Reactive microservices in Clojure that adhere to the principles underlying the Reactive Manifesto. We finish off by showing you various ways to monitor, test, and secure your microservices. By the end, you will be fully capable of setting up, modifying, and

deploying a microservice with Clojure and Pedestal. What you will learn Explore the pros and cons of monolithic and microservice architectures Use Clojure to effectively build a reallife application using Microservices Gain practical knowledge of the Clojure Pedestal framework and how to use it to build Microservices Explore various persistence patterns and learn how to use Apache Kafka to build event-driven microservice architectures Secure your Microservices using JWT Monitor Microservices at scale using the ELK stack Deploy Microservices at scale using container orchestration platforms such as Kubernetes Who this

book is for You should have a working knowledge of programming in Clojure. 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.

*Cloud-Native*

*Application*

*Architecture* Addison-

Wesley Professional

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#. *Designing and Building Solid Microservice Ecosystems* Pragmatic Bookshelf

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

**Monolith to  
Microservices**

Independently  
Published  
A complete reference for designing and building scalable microservices platforms with NATS messaging technology for inter-service communication with security and

observability Key Features Understand the use of a messaging backbone for inter-service communication in microservices architecture Design and build a real-world microservices platform with NATS as the messaging backbone using the Go programming language Explore security, observability, and best practices for building a microservices platform with NATS Book Description Building a scalable microservices platform that caters to business demands is critical to the success of that platform. In a microservices architecture, inter-service communication becomes a bottleneck when the platform scales. This book provides a reference

architecture along with a practical example of how to implement it for building microservices-based platforms with NATS as the messaging backbone for inter-service communication. In Designing Microservices Platforms with NATS, you'll learn how to build a scalable and manageable microservices platform with NATS. The book starts by introducing concepts relating to microservices architecture, inter-service communication, messaging backbones, and the basics of NATS messaging. You'll be introduced to a reference architecture that uses these concepts to build a scalable microservices platform and guided

through its implementation. Later, the book touches on important aspects of platform securing and monitoring with the help of the reference implementation. Finally, the book concludes with a chapter on best practices to follow when integrating with existing platforms and the future direction of microservices architecture and NATS messaging as a whole. By the end of this microservices book, you'll have developed the skills to design and implement microservices platforms with NATS. What you will learn Understand the concepts of microservices architecture Get to grips with NATS messaging

technology Handle transactions and message delivery guarantees with microservices Implement a reference architecture for microservices using NATS Discover how to improve the platform's security and observability Explore how a NATS microservices platform integrates with an enterprise ecosystem Who this book is for This book is for enterprise software architects and developers who want to gain hands-on microservices experience for designing, implementing, and managing complex distributed systems with microservices architecture concepts. Intermediate-level experience in any

programming language  
and software

architecture is required  
to make the most of  
this book.