

Read Online Serverless Architectures With Aws Lambda

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Foreword by Werner Vogels, Vice President and Corporate Technology Officer, Amazon The AWS exam has been updated. Your study guide should be, too. The AWS Certified Developer Official Study Guide-Associate Exam is your ultimate preparation resource for the latest exam! Covering all exam objectives, this invaluable resource puts a team of AWS experts at your side with expert guidance, clear explanations, and the wisdom of experience with AWS best practices. You'll master core services and basic architecture, and equip yourself to develop, deploy, and debug cloud-based applications using AWS. The AWS Developer certification is earned by those who demonstrate the technical knowledge and skill associated with best practices for building secure, reliable cloud-based applications using AWS technology. This book is your official exam prep companion, providing everything you need to know to pass with flying colors. Study the AWS Certified Developer Exam objectives Gain expert insight on core AWS services and best practices Test your understanding of key concepts with challenging chapter questions Access online study tools including electronic flashcards, a searchable glossary, practice exams, and more Cloud computing offers businesses the opportunity to replace up-front capital infrastructure expenses with low, variable costs that scale as they grow. This customized responsiveness has negated the need for far-future infrastructure planning, putting thousands of servers at their disposal as needed—and businesses have responded, propelling AWS to the number-one spot among cloud service providers. Now these businesses need qualified AWS developers, and the AWS certification validates the exact skills and knowledge they're looking for. When you're ready to get serious about your cloud credentials, the AWS Certified Developer Official Study Guide-Associate Exam is the resource you need to pass the exam with flying colors. NOTE: As of October 7, 2019, the accompanying code for hands-on exercises in the book is available for downloading from the secure Resources area in the online test bank. You'll find code for Chapters 1, 2, 11, and 12. Serverless revolutionizes the way organizations build and deploy software. With this hands-on guide, Java engineers will learn how to use their experience in the new world of serverless computing. You'll discover how this cloud computing execution model can drastically decrease the complexity in developing and operating applications while reducing costs and time to market. Engineering leaders John Chapin and Mike Roberts guide you through the process of developing these applications using AWS Lambda, Amazon's event-driven, serverless computing platform. You'll learn how to prepare the development environment, program Lambda functions, and deploy and operate your serverless software. The chapters include exercises to help you through each aspect of the process. Get an introduction to serverless, functions as a service, and AWS Lambda Learn how to deploy working Lambda functions to the cloud Program Lambda functions and learn how the Lambda platform integrates with other AWS services Build and package Java-based Lambda code and dependencies Create serverless applications by building a serverless API and data pipeline Test your serverless applications using automated techniques Apply advanced techniques to build production-ready applications Understand both the gotchas and new opportunities of serverless architecture

Choose the right architecture and design it using design patterns to create a serverless application that cuts costs and is easily scalable Key Features Design enterprise ready serverless applications that effortlessly meet your customers' requirements Effectively deploy, manage, monitor, and orchestrate serverless applications using AWS Use Cloud9 to provision a secured development environment in the cloud Book Description Serverless is a cloud computing execution model where the cloud provider dynamically manages the allocation and provisioning of servers. Many companies have started using serverless architectures to cut costs and improve scalability. Hands-On Serverless Applications with Kotlin is your one-stop guide to designing serverless architectures for your applications with AWS and Kotlin. To start with, you'll explore the fundamentals of serverless architecture and how AWS Lambda functions work. You will then learn to design, build, secure, and deploy your application to production. In addition to these activities, you'll understand how to implement non-functional requirements such as auditing and logging. Moving on, you'll discover how to scale up and orchestrate serverless applications using an open source framework and handle distributed serverless systems in production. By the end of the book, you'll have gained the knowledge needed to build scalable and cost-efficient Kotlin applications with a serverless framework. What you will learn Design a serverless architecture Use AWS Lambda to contain your serverless API Explore the various ways to keep serverless apps safe and

secure Understand how a serverless API allows you to use huge infrastructure and cut costs Discover how to handle distributed systems in Kotlin Design the data flow between cloud services and custom business logic Secure your Kotlin AWS serverless application Master Kotlin design patterns for serverless applications Who this book is for Hands-On Serverless Applications with Kotlin is for you if you are a Kotlin developer who wants to learn about serverless architectures. It is assumed that you have some knowledge of Kotlin programming and AWS.

Summary Amazon Web Services in Action, Second Edition is a comprehensive introduction to computing, storing, and networking in the AWS cloud. You'll find clear, relevant coverage of all the essential AWS services you to know, emphasizing best practices for security, high availability and scalability. Foreword by Ben Whaley, AWS community hero and author. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The largest and most mature of the cloud platforms, AWS offers over 100 prebuilt services, practically limitless compute resources, bottomless secure storage, as well as top-notch automation capabilities. This book shows you how to develop, host, and manage applications on AWS. About the Book Amazon Web Services in Action, Second Edition is a comprehensive introduction to deploying web applications in the AWS cloud. You'll find clear, relevant coverage of all essential AWS services, with a focus on automation, security, high availability, and scalability. This thoroughly revised edition covers the latest additions to AWS, including serverless infrastructure with AWS Lambda, sharing data with EFS, and in-memory storage with ElastiCache. What's inside Completely revised bestseller Secure and scale distributed applications Deploy applications on AWS Design for failure to achieve high availability Automate your infrastructure About the Reader Written for mid-level developers and DevOps engineers. About the Author Andreas Wittig and Michael Wittig are software engineers and DevOps consultants focused on AWS. Together, they migrated the first bank in Germany to AWS in 2013. Table of Contents PART 1 - GETTING STARTED What is Amazon Web Services? A simple example: WordPress in five minutes PART 2 - BUILDING VIRTUAL INFRASTRUCTURE CONSISTING OF COMPUTERS AND NETWORKING Using virtual machines: EC2 Programming your infrastructure: The command-line, SDKs, and CloudFormation Automating deployment: CloudFormation, Elastic Beanstalk, and OpsWorks Securing your system: IAM, security groups, and VPC Automating operational tasks with Lambda PART 3 - STORING DATA IN THE CLOUD Storing your objects: S3 and Glacier Storing data on hard drives: EBS and instance store Sharing data volumes between machines: EFS Using a relational database service: RDS Caching data in memory: Amazon ElastiCache Programming for the NoSQL database service: DynamoDB PART 4 - ARCHITECTING ON AWS Achieving high availability: availability zones, auto-scaling, and CloudWatch Decoupling your infrastructure: Elastic Load Balancing and Simple Queue Service Designing for fault tolerance Scaling up and down: auto-scaling and CloudWatch

Build, deploy, test, and run cloud-native serverless applications using AWS Lambda and other popular AWS services Key Features Learn how to write, run, and deploy serverless applications in Amazon Web Services Make the most of AWS Lambda functions to build scalable and cost-efficient systems Build and deploy serverless applications with Amazon API Gateway and AWS Lambda functions Book Description Serverless computing is a way to run your code without having to provision or manage servers. Amazon Web Services provides serverless services that you can use to build and deploy cloud-native applications. Starting with the basics of AWS Lambda, this book takes you through combining Lambda with other services from AWS, such as Amazon API Gateway, Amazon DynamoDB, and Amazon Step Functions. You'll learn how to write, run, and test Lambda functions using examples in Node.js, Java, Python, and C# before you move on to developing and deploying serverless APIs efficiently using the Serverless Framework. In the concluding chapters, you'll discover tips and best practices for leveraging Serverless Framework to increase your development productivity. By the end of this book, you'll have become well-versed in building, securing, and running serverless applications using Amazon API Gateway and AWS Lambda without having to manage any servers. What you will learn Understand the core concepts of serverless computing in AWS Create your own AWS Lambda functions and build serverless APIs using Amazon API Gateway Explore best practices for developing serverless applications at scale using Serverless Framework Discover the DevOps patterns in a modern CI/CD pipeline with AWS CodePipeline Build serverless data processing jobs to extract, transform, and load data Enforce resource tagging policies with continuous com-

pliance and AWS Config Create chatbots with natural language understanding to perform automated tasks Who this book is for This AWS book is for cloud architects and developers who want to build and deploy serverless applications using AWS Lambda. A basic understanding of AWS is required to get the most out of this book.

Practical tutorial for software developers and architects building applications for the modern cloud, using AWS Lambda and AWS SAM.

Serverless Architectures on AWS, Second Edition teaches you how to design, secure, and manage serverless backend APIs for web and mobile applications on the AWS platform. You'll get going quickly with this book's relevant real-world examples, code listings, diagrams, and clearly-described architectures that you can readily apply to your own work. You'll master serverless systems using AWS Lambda and the myriad other services on the AWS platform. This new edition has been fully updated to reflect the newest serverless design best practices and changes to AWS. It features two entirely new chapters dedicated to DevOps, monitoring, and microservices, as well as working with DynamoDB, GraphQL and Kinesis. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

This book is a guide to the TypeScript language, from basic concepts to advanced features, and will get you up and running quickly. You'll learn TypeScript programming in depth as you use popular application frameworks and utilize modern design patterns and architectural patterns to build modular, testable and enterprise-ready applications.

Don't waste your energy thinking about servers; use AWS to build enterprise-grade serverless applications. Key Features Learn how to quickly and easily go serverless Explore AWS and Lambda: the first building blocks of serverless applications on AWS Study different approaches to deploy and maintain serverless applications Book Description Serverless Architecture with AWS begins with an introduction to the serverless model and helps you get started with AWS and Lambda. You'll also get to grips with other capabilities of the AWS Serverless Platform and see how AWS supports enterprise-grade serverless applications with and without Lambda. This book will guide you in deploying your first serverless project and exploring the capabilities of serverless Amazon Athena, an interactive query service that makes it easy to analyze data in Amazon Simple Storage Service (S3 Amazon) using standard SQL. You'll also learn about AWS Glue, a fully managed ETL service that makes categorizing data easy and cost-effective. You'll study how Amazon Kinesis makes it possible to unleash the potential of real-time data insights and analytics with capabilities such as video streams, data streams, data firehose, and data analytics. Last but not least, you'll be equipped to combine Amazon Kinesis capabilities with AWS Lambda to create lightweight serverless architectures. By the end of the book, you will be ready to create and run your first serverless application that takes advantage of the high availability, security, performance, and scalability of AWS. What you will learn Explore AWS services for supporting a serverless environment Set up AWS services to make applications scalable and highly available Deploy a static website with a serverless architecture Build your first serverless web application Study the changes in a deployed serverless web application Apply best practices to ensure overall security, availability, and reliability Who this book is for This book is for you if you want to develop serverless applications and have some prior coding experience. Though no prior experience of AWS is needed, basic knowledge of Java or Node.js will be an added advantage.

Learn to build, secure, deploy, and manage your serverless application in Golang with AWS Lambda Key Features Implement AWS lambda to build scalable and cost-efficient applications in Go Design and set the data flow between cloud services and custom business logic Learn to design Lambda functions using real-world examples and implementation scenarios Book Description Serverless architecture is popular in the tech community due to AWS Lambda. Go is simple to learn, straightforward to work with, and easy to read for other developers; and now it's been heralded as a supported language for AWS Lambda. This book is your optimal guide to designing a Go serverless application and deploying it to Lambda. This book starts with a quick introduction to the world of serverless architecture and its benefits, and then delves into AWS Lambda using practical examples. You'll then learn how to design and build a production-ready application in Go using AWS serverless services with zero upfront infrastructure investment. The book will help you learn how to scale up serverless applications and handle distributed serverless systems in production. You will also learn how to log and test your application. Along the way,

you'll also discover how to set up a CI/CD pipeline to automate the deployment process of your Lambda functions. Moreover, you'll learn how to troubleshoot and monitor your apps in near real-time with services such as AWS CloudWatch and X-ray. This book will also teach you how to secure the access with AWS Cognito. By the end of this book, you will have mastered designing, building, and deploying a Go serverless application. What you will learn Understand how AWS Lambda works and use it to create an application Understand how to scale up serverless applications Design a cost-effective serverless application in AWS Build a highly scalable and fault-tolerant CI/CD pipeline Understand how to troubleshoot and monitor serverless apps in AWS Discover the working of APIs and single page applications Build a production-ready serverless application in Go Who this book is for This book is for Go developers who would like to learn about serverless architecture. Go programming knowledge is assumed. DevOps and Solution Architects who are interested in building serverless applications in Go can also choose this book.

Build scalable, efficient, and highly available web apps using AWS About This Book Get an in-depth understanding of the serverless model Build a complete serverless web application end to end Learn how to use the Serverless Framework to improve your productivity Who This Book Is For If you're looking to learn more about scalable and cost-efficient architectures, this book is for you. Basic knowledge of Node.js skills or familiarity with cloud services is required. For other topics, we cover the basics. What You Will Learn Get a grasp of the pros and cons of going serverless and its use cases Discover how you can use the building blocks of AWS to your advantage Set up the environment and create a basic app with the Serverless Framework Host static files on S3 and CloudFront with HTTPS support Build a sample application with a frontend using React as a SPA Develop the Node.js backend to handle requests and connect to a SimpleDB database Secure your applications with authentication and authorization Implement the publish-subscribe pattern to handle notifications in a serverless application Create tests, define the workflow for deployment, and monitor your app In Detail This book will equip you with the knowledge needed to build your own serverless apps by showing you how to set up different services while making your application scalable, highly available, and efficient. We begin by giving you an idea of what it means to go serverless, exploring the pros and cons of the serverless model and its use cases. Next, you will be introduced to the AWS services that will be used throughout the book, how to estimate costs, and how to set up and use the Serverless Framework. From here, you will start to build an entire serverless project of an online store, beginning with a React SPA frontend hosted on AWS followed by a serverless backend with API Gateway and Lambda functions. You will also learn to access data from a SimpleDB database, secure the application with authentication and authorization, and implement serverless notifications for browsers using AWS IoT. This book will describe how to monitor the performance, efficiency, and errors of your apps and conclude by teaching you how to test and deploy your applications. Style and approach This book takes a step-by-step approach on how to use the Serverless Framework and AWS services to build Serverless Applications. It will give you a hands-on feeling, allowing you to practice while reading. It provides a brief introduction of concepts while keeping the focus on the practical skills required to develop applications.

Cloud computing is typically associated with backend development and DevOps. But with the rise of serverless technologies and a new generation of services and frameworks, frontend and mobile developers can build robust applications with production-ready features such as authentication and authorization, API gateways, chatbots, augmented reality scenes, and more. This hands-on guide shows you how. Nader Dabit, developer advocate at Amazon Web Services, guides you through the process of building full stack applications using React, AWS, GraphQL, and AWS Amplify. You'll learn how to create and incorporate services into your client applications while learning general best practices, deployment strategies, rich media management, and continuous integration and delivery along the way. Learn how to build serverless applications that solve real problems Understand what is (and isn't) possible when using these technologies Create a GraphQL API that interacts with DynamoDB and a NoSQL database Examine how authentication works—and learn the difference between authentication and authorization Get an in-depth view of how serverless functions work and why they're important Build full stack applications on AWS and create offline apps with Amplify DataStore

Deploy, orchestrate, and monitor serverless applications using Kubernetes Key Features Get hands-on experience with frameworks, such as Kubeless, Apache OpenWhisk, and FunktionMaster the basics of Kubernetes and prepare yourself for challenging technical assessments Learn how to launch Kubernetes both locally and in a public cloud Book Description Kubernetes has established itself as the standard platform for container management, orchestration, and deployment. By learning Kubernetes, you'll be able to design your own serverless architecture by implementing the function-as-a-service (FaaS) model. After an accelerated, hands-on overview of the serverless architecture and various Kubernetes concepts, you'll cover a wide range of real-world development

challenges faced by real-world developers, and explore various techniques to overcome them. You'll learn how to create production-ready Kubernetes clusters and run serverless applications on them. You'll see how Kubernetes platforms and serverless frameworks such as Kubeless, Apache OpenWhisk and OpenFaaS provide the tooling to help you develop serverless applications on Kubernetes. You'll also learn ways to select the appropriate framework for your upcoming project. By the end of this book, you'll have the skills and confidence to design your own serverless applications using the power and flexibility of Kubernetes. What you will learn Deploy a Kubernetes cluster locally with Minikube Get familiar with AWS Lambda and Google Cloud Functions Create, build, and deploy a webpage generated by the serverless functions in the cloud Create a Kubernetes cluster running on the virtual kubernetes hardware abstraction Create, test, troubleshoot, and delete an OpenFaaS function Create a sample Slackbot with Apache OpenWhisk actions Who this book is for This book is for software developers and DevOps engineers who have basic or intermediate knowledge about Kubernetes and want to learn how to create serverless applications that run on Kubernetes. Those who want to design and create serverless applications running on the cloud, or on-premise Kubernetes clusters will also find this book useful.

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 a 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.

This book is for anyone interested in Serverless, regardless of their technical level. I share strategic insights for entrepreneurs and executives, planning and team insights for project managers, and technical insights for architects and team leads. The intent is to provide a deep but relevant understanding of Serverless Architecture and how it could impact your business and your projects.

Enterprise Integration Patterns provides an invaluable catalog of sixty-five patterns, with real-world solutions that demonstrate the formidable of messaging and help you to design effective messaging solutions for your enterprise. The authors also include examples covering a variety of different integration technologies, such as JMS, MSMQ, TIBCO ActiveEnterprise, Microsoft BizTalk, SOAP, and XSL. A case study describing a bond trading system illustrates the patterns in practice, and the book offers a look at emerging standards, as well as insights into what the future of enterprise integration might hold. This book provides a consistent vocabulary and visual notation framework to describe large-scale integration solutions across many technologies. It also explores in detail the advantages and limitations of asynchronous messaging architectures. The authors present practical advice on designing code that connects an application to a messaging system, and provide extensive information to help you determine when to send a message, how to route it to the proper destination, and how to monitor the health of a messaging system. If you want to know how to manage, monitor, and maintain a messaging system once it is in use, get this book.

Deploy functions efficiently using different cloud-based serverless offerings Key Features Understand the concept of Function-as-a-Service Implement Serverless solutions using AWS Lambda, Azure Functions and Google Cloud Functions Practical approach towards choosing the best tool for your serverless environment Book Description Serverless applications and architectures are gaining momentum and are increasingly being used by companies of all sizes. Serverless software takes care of many problems that developers face when running systems and servers, such as fault tolerance, centralized logging, horizontal scalability, and deployments. You will learn how to harness serverless technology to rapidly reduce production time and minimize your costs, while still having the freedom to customize your code, without hindering functionality. Upon finishing the book, you will have the knowledge and resources to build your own serverless application hosted in AWS, Microsoft Azure, or Google Cloud Platform, and will have experienced the benefits of event-driven technology for yourself. This hands-on guide dives into the basis of serverless architectures and how to build them using Node.js as a programming language, Visual Studio Code for code editing, and Postman for quickly and securely developing applications without the hassle of configuring and maintaining infrastructure on three public cloud platforms. What you will learn Understand the benefits of serverless computing and know when to use it Develop serverless applications on AWS, Azure, and Google Cloud Get to grips with Function as a Service (FaaS) Apply triggers to serverless functions Build event-driven apps using serverless frameworks Use the Node.js programming language to build serverless apps Use code editors, such as Visual Studio Code, as development environments Master the best development practices for creating scalable and practical solutions Who this book is for This book is targeted towards developers, system administrators or any stake-

holder working in the Serverless environment and want to understand how functions work. Basic idea of serverless architecture can be an added advantage

Build cost-effective and highly scalable Serverless applications using AWS Lambda. About This Book Leverage AWS Lambda to significantly lower your infrastructure costs and deploy out massively scalable, event-driven systems and applications Learn how to design and build Lambda functions using real-world examples and implementation scenarios Explore the Serverless ecosystem with a variety of toolsets and AWS services including DynamoDB, API Gateway, and much more! Who This Book Is For If you are a Cloud administrator and/or developer who wishes to explore, learn, and leverage AWS Lambda to design, build, and deploy Serverless applications in the cloud, then this is the book for you! The book assumes you have some prior knowledge and hands-on experience with AWS core services such as EC2, IAM, S3, along with the knowledge to work with any popular programming language such as Node.js, Java, C#, and so on. What You Will Learn Understand the hype, significance, and business benefits of Serverless computing and applications Plunge into the Serverless world of AWS Lambda and master its core components and how it works Find out how to effectively and efficiently design, develop, and test Lambda functions using Node.js, along with some keen coding insights and best practices Explore best practices to effectively monitor and troubleshoot Serverless applications using AWS CloudWatch and other third-party services in the form of Datadog and Loggly Quickly design and develop Serverless applications by leveraging AWS Lambda, DynamoDB, and API Gateway using the Serverless Application Framework (SAF) and other AWS services such as Step Functions Explore a rich variety of real-world Serverless use cases with Lambda and see how you can apply it to your environments In Detail AWS is recognized as one of the biggest market leaders for cloud computing and why not? It has evolved a lot since the time it started out by providing just basic services such as EC2 and S3 and today; they go all the way from IoT to Machine Learning, Image recognition, Chatbot Frameworks, and much more! One of those recent services that is also gaining a lot of traction is AWS Lambda! Although seemingly simple and easy to use, Lambda is a highly effective and scalable compute service that provides developers with a powerful platform to design and develop Serverless event-driven systems and applications. The book begins with a high-level introduction into the world of Serverless computing and its advantages and use cases, followed by a deep dive into AWS Lambda! You'll learn what services AWS Lambda provides to developers; how to design, write, and test Lambda functions; as well as monitor and troubleshoot them. The book is designed and accompanied with a vast variety of real-world examples, use cases, and code samples that will enable you to get started on your Serverless applications quickly. By the end of the book, you will have gained all the skills required to work with AWS Lambda services! Style and approach This step-by-step guide will help you build Serverless applications and run Serverless workloads using the AWS Lambda service. You'll be able to get started with it in a matter of minutes with easy-to-follow code snippets and examples.

Serverless architecture is about having more time to focus on code, and moving quickly. In these new architectures, traditional back-end servers are replaced with cloud functions acting as discrete single-purpose services. With serverless compute technologies like AWS Lambda, developers can build entirely serverless platforms at scale. Serverless Architectures on AWS teaches how to build, secure and manage serverless architectures that can power the most demanding web and mobile apps. This book has many ready-made and real-world examples, code snippets, diagrams, and descriptions of architectures that can be readily applied. It describes a traditional application and its back end concerns and then shows how to solve these same problems with a serverless approach. By the end, readers will be able to reason about serverless systems and be able to compose their own systems by applying these ideas and examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Summary Serverless Applications with Node.js walks you through building serverless apps on AWS using JavaScript. Inside, you'll discover what Claudia.js brings to the table as you build and deploy a scalable event-based serverless application, based around a pizzeria that's fully integrated with AWS services, including Lambda and API Gateway. Each chapter is filled with exercises, examples, tips, and more to make sure you're ready to bring what you've learned into your own work. Foreword by Gojko Adzic. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The benefits of cloud-hosted serverless web apps are undeniable: lower complexity, quicker time to market, and easier scalability than traditional, server-dependent designs. And thanks to JavaScript support in AWS Lambda and powerful new serverless API tools like the Claudia.js library, you can build and deploy serverless apps end to end without learning a new language. About the Book Serverless Applications with Node.js teaches you to design and build serverless web apps on AWS using JavaScript, Node, and Claudia.js. You'll master the basics of writing AWS Lambda functions, along with core serverless patterns like API Gateway.

Along the way, you'll practice your new skills by building a working chatbot and a voice assistant with Amazon Alexa. You'll also discover techniques for migrating existing apps to a serverless platform. What's inside Authentication and database storage Asynchronous functions Interesting real-world examples Developing serverless microservices About the Reader For web developers comfortable with JavaScript and Node.js. About the Author Slobodan Stojanović and Aleksandar Simović are AWS Serverless Heroes and core contributors to the Claudia.js project. They are also coauthors of *Desole*, an open source serverless errortracking tool, and the lead developers of *Claudia Bot Builder*. Table of Contents PART 1 - Serverless pizzeria Introduction to serverless with Claudia Building your first serverless API Asynchronous work is easy, we Promise() Pizza delivery: Connecting an external service Houston, we have a problem! Level up your API Working with files PART 2 - Let's talk When pizza is one message away: Chatbots Typing... Async and delayed responses Jarvis, I mean Alexa, order me a pizza Paying for pizza Migrating to serverless Real-world case studies appendix A - Installation and configuration appendix B - Facebook Messenger, Twilio, and Alexa configuration appendix C - Stripe and MongoDB setup appendix D - The pizza recipe

Discover techniques and tools for building serverless applications with AWS Lambda Key Features Learn to write, run, and deploy Lambda functions in the AWS cloud Make the most of AWS Lambda functions to build scalable and cost-efficient systems A practical guide to developing serverless services and applications in Node.js, Java, Python, and C# Book Description AWS Lambda is a part of AWS that lets you run your code without provisioning or managing servers. This enables you to deploy applications and backend services that operate with no upfront cost. This book gets you up to speed on how to build scalable systems and deploy serverless applications with AWS Lambda. The book starts with the fundamental concepts of AWS Lambda, and then teaches you how to combine your applications with other AWS services, such as AmazonAPI Gateway and DynamoDB. This book will also give a quick walk through on how to use the Serverless Framework to build larger applications that can structure code or autogenerate boilerplate code that can be used to get started quickly for increased productivity. Toward the end of the book, you will learn how to write, run, and test Lambda functions using Node.js, Java, Python, and C#. What you will learn Understand the fundamental concepts of AWS Lambda Get to grips with the Serverless Framework and how to create a serverless project Testing and debugging Lambda functions Create a stateful, serverless backend with DynamoDB Program AWS Lambda with Java, Python, and C# Program a lambda function with Node.js Who this book is for This book is primarily for IT architects and developers who want to build scalable systems and deploy serverless applications with AWS Lambda. No prior knowledge of AWS is necessary.

Migrating your application to a cloud-based serverless architecture doesn't have to be difficult. Reduce complexity and minimize the time you spend administering servers or worrying about availability with this comprehensive guide to serverless applications on Azure. Key Features Provides information on integration of Azure products Plan and implement your own serverless backend to meet tried-and-true development standards Includes step-by-step instructions to help you navigate advanced concepts and application integrations Book Description Many businesses are rapidly adopting a microservices-first approach to development, driven by the availability of new commercial services like Azure Functions and AWS Lambda. In this book, we'll show you how to quickly get up and running with your own serverless development on Microsoft Azure. We start by working through a single function, and work towards integration with other Azure services like App Insights and Cosmos DB to handle common user requirements like analytics and highly performant distributed storage. We finish up by providing you with the context you need to get started on a larger project of your own choosing, leaving you equipped with everything you need to migrate to a cloud-first serverless solution. What you will learn Identify the key advantages and disadvantages of serverless development Build a fully-functioning serverless application and utilize a wide variety of Azure services Create, deploy, and manage your own Azure Functions in the cloud Implement core design principles for writing effective serverless code Who this book is for This book is ideal for back-end developers or engineers who want a quick hands-on introduction to developing serverless applications within the Microsoft ecosystem.

Building and hosting microservices without servers using AWS Lambda KEY FEATURES ● Learn end-to-end development of microservices using .NET Core and AWS Lambda. ● Learn a new way of hosting the .NET Core Web API on the AWS Lambda serverless platform. ● Mastering microservices using .NET Core and AWS Lambda. DESCRIPTION Building Modern Serverless Web APIs introduces you to the serverless paradigm of the Web API application, its advantages, and presents you the modern approach of developing the Web API. The book makes efficient use of AWS Lambda services to develop efficient, scalable, and cost-effective API solutions. The book begins with a quick introduction to microservices, its characteristics, and current challenges faced in developing and implementing them. The book explores core concepts of ASP.NET Core and some important AWS services that are commonly used to build microservices using AWS. It explores and provides

real hands-on microservice patterns and some of the best practices used in designing the serverless architecture. Furthermore, the book covers end-to-end demonstration of an application where you will learn to develop, build, deploy, and monitor microservices on AWS Lambda using .NET Core 3.1. By the end of this book, you will be proficient in developing microservices with AWS Lambda and become a self-starter to build your own secure microservices. WHAT YOU WILL LEARN ● Learn about microservices, their characteristics, patterns, and where to use them. ● Understand popular microservice design patterns being used with the serverless architecture. ● Learn about the ASP.NET Core Web API and its hosting strategies for building serverless microservices. ● Learn about Amazon Web Services and the services commonly used to build microservices. ● Discover how to configure authorization and authentication to secure microservices in AWS. ● Learn about AWS services available for Continuous Deployment and Integration to deploy microservices. WHO THIS BOOK IS FOR This book is for a seasoned .NET developer or AWS practitioner who wants to learn about the microservices architecture, patterns, and how to deploy using AWS Lambda. TABLE OF CONTENTS 1. Microservices: Its Characteristics and Challenges 2. Introduction to the ASP.NET Core Web API 3. Introduction to AWS Services 4. Microservices Patterns 5. The Serverless Paradigm 6. Communication Patterns and Service Discovery 7. Collaborating between Microservices 8. Distributed Monitoring 9. Security 10. Continuous Integration and Deployment 11. AWS Best Practices

Learn how to build a wide range of scalable real-world web applications using a professional development toolkit. If you already know the basics of Node.js, now is the time to discover how to bring it to production level by leveraging its vast ecosystem of packages. With this book, you'll work with a varied collection of standards and frameworks and see how all those pieces fit together. Practical Node.js takes you from installing all the necessary modules to writing full-stack web applications. You'll harness the power of the Express.js and Hapi frameworks, the MongoDB database with Mongoose and Mongoose. You'll also work with Pug and Handlebars template engines, Stylus and LESS CSS languages, OAuth and Everyauth libraries, and the Socket.IO and Derby libraries, and everything in between. This exciting second edition is fully updated for ES6/ES2015 and also covers how to deploy to Heroku and AWS, daemonize apps, and write REST APIs. You'll build full-stack real-world Node.js apps from scratch, and also discover how to write your own Node.js modules and publish them on NPM. You already know what Node.js is; now learn what you can do with it and how far you can take it! What You'll Learn Manipulate data from the mongo console Use the Mongoose and Mongoose MongoDB libraries Build REST API servers with Express and Hapi Deploy apps to Heroku and AWS Test services with Mocha, Expect and TravisCI Utilize sessions for authentication Implement a third-party OAuth strategy with Everyauth Apply Redis, domains, WebSockets, and clusters Write your own Node.js module, and publish it on NPM Who This Book Is For Web developers who have some familiarity with the basics of Node.js and want to learn how to use it to build apps in a professional environment.

Work through exciting recipes to administer your AWS cloud Key Features Build secure environments using AWS components and services Explore core AWS features with real-world applications and best practices Design and build Lambda functions using real-world examples Book Description With this Learning Path, you'll explore techniques to easily manage applications on the AWS cloud. You'll begin with an introduction to serverless computing, its advantages, and the fundamentals of AWS. The following chapters will guide you on how to manage multiple accounts by setting up consolidated billing, enhancing your application delivery skills, with the latest AWS services such as CodeCommit, CodeDeploy, and CodePipeline to provide continuous delivery and deployment, while also securing and monitoring your environment's workflow. It'll also add to your understanding of the services AWS Lambda provides to developers. To refine your skills further, it demonstrates how to design, write, test, monitor, and troubleshoot Lambda functions. By the end of this Learning Path, you'll be able to create a highly secure, fault-tolerant, and scalable environment for your applications. This Learning Path includes content from the following Packt products: AWS Administration: The Definitive Guide, Second Edition by Yohan Wadia AWS Administration Cookbook by Rowan Udell, Lucas Chan Mastering AWS Lambda by Yohan Wadia, Udit Gupta What you will learn Explore the benefits of serverless computing and applications Deploy apps with AWS Elastic Beanstalk and Amazon Elastic File System Secure environments with AWS CloudTrail, AWSConfig, and AWS Shield Run big data analytics with Amazon EMR and Amazon Redshift Back up and safeguard data using AWS Data Pipeline Create monitoring and alerting dashboards using CloudWatch Effectively monitor and troubleshoot serverless applications with AWS Design serverless apps via AWS Lambda, DynamoDB, and API Gateway Who this book is for This Learning Path is specifically designed for IT system and network administrators, AWS architects, and DevOps engineers who want to effectively implement AWS in their organization and easily manage daily activities. Familiarity with Linux, web services, cloud computing platforms, virtualization, networking, and other administration-related tasks will assist in understanding the concepts in the book. Prior hands-on experience with

AWS core services such as EC2, IAM, S3, and programming languages, such as Node.js, Java, and C#, will also prove beneficial. Summary Kafka Streams in Action teaches you everything you need to know to implement stream processing on data flowing into your Kafka platform, allowing you to focus on getting more from your data without sacrificing time or effort. Foreword by Neha Narkhede, Cocreator of Apache Kafka Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Not all stream-based applications require a dedicated processing cluster. The lightweight Kafka Streams library provides exactly the power and simplicity you need for message handling in microservices and real-time event processing. With the Kafka Streams API, you filter and transform data streams with just Kafka and your application. About the Book Kafka Streams in Action teaches you to implement stream processing within the Kafka platform. In this easy-to-follow book, you'll explore real-world examples to collect, transform, and aggregate data, work with multiple processors, and handle real-time events. You'll even dive into streaming SQL with KSQL! Practical to the very end, it finishes with testing and operational aspects, such as monitoring and debugging. What's inside Using the KStreams API Filtering, transforming, and splitting data Working with the Processor API Integrating with external systems About the Reader Assumes some experience with distributed systems. No knowledge of Kafka or streaming applications required. About the Author Bill Bejeck is a Kafka Streams contributor and Confluent engineer with over 15 years of software development experience. Table of Contents PART 1 - GETTING STARTED WITH KAFKA STREAMS Welcome to Kafka Streams Kafka quicklyPART 2 - KAFKA STREAMS DEVELOPMENT Developing Kafka Streams Streams and state The KTable API The Processor APIPART 3 - ADMINISTERING KAFKA STREAMS Monitoring and performance Testing a Kafka Streams applicationPART 4 - ADVANCED CONCEPTS WITH KAFKA STREAMS Advanced applications with Kafka Streams-APPENDIXES Appendix A - Additional configuration information Appendix B - Exactly once semantics

Build scalable, reliable, and cost-effective applications with a serverless architecture About This Book Design a real-world serverless application from scratch Learn about AWS Lambda function and how to use Lambda functions to glue other AWS Services Use the Java programming language and well-known design patterns. Although Java is used for the examples in this book, the concept is applicable across all languages Learn to migrate your JAX-RS application to AWS Lambda and API Gateway Who This Book Is For This book is for developers and software architects who are interested in designing on the back end. Since the book uses Java to teach concepts, knowledge of Java is required. What You Will Learn Learn to form microservices from bigger Softwares Orchestrate and scale microservices Design and set up the data flow between cloud services and custom business logic Get to grips with cloud provider's APIs, limitations, and known issues Migrate existing Java applications to a serverless architecture Acquire deployment strategies Build a highly available and scalable data persistence layer Unravel cost optimization techniques In Detail Over the past years, all kind of companies from start-ups to giant enterprises started their move to public cloud providers in order to save their costs and reduce the operation effort needed to keep their shops open. Now it is even possible to craft a complex software system consisting of many independent micro-functions that will run only when they are needed without needing to maintain individual servers. The focus of this book is to design serverless architectures, and weigh the advantages and disadvantages of this approach, along with decision factors to consider. You will learn how to design a serverless application, get to know that key points of services that serverless applications are based on, and known issues and solutions. The book addresses key challenges such as how to slice out the core functionality of the software to be distributed in different cloud services and cloud functions. It covers basic and advanced usage of these services, testing and securing the serverless software, automating deployment, and more. By the end of the book, you will be equipped with knowledge of new tools and techniques to keep up with this evolution in the IT industry. Style and approach The book takes a pragmatic approach, showing you all the examples you need to build efficient serverless applications.

A practical guide for developing end-to-end serverless microservices in Python for developers, DevOps, and architects. Key Features Create a secure, cost-effective, and scalable serverless data API Use identity management and authentication for a user-specific and secure web application Go beyond traditional web hosting to explore the full range of cloud hosting options Book Description Over the last few years, there has been a massive shift from monolithic architecture to microservices, thanks to their small and independent deployments that allow increased flexibility and agile delivery. Traditionally, virtual machines and containers were the principal mediums for deploying microservices, but they involved a lot of operational effort, configuration, and maintenance. More recently, serverless computing has gained popularity due to its built-in autoscaling abilities, reduced operational costs, and increased productivity. Building Serverless Microservices in Python begins by introducing you to serverless microservice structures. You will then learn how to create your first serverless data API

and test your microservice. Moving on, you'll delve into data management and work with serverless patterns. Finally, the book introduces you to the importance of securing microservices. By the end of the book, you will have gained the skills you need to combine microservices with serverless computing, making their deployment much easier thanks to the cloud provider managing the servers and capacity planning. What you will learn Discover what microservices offer above and beyond other architectures Create a serverless application with AWS Gain secure access to data and resources Run tests on your configuration and code Create a highly available serverless microservice data API Build, deploy, and run your serverless configuration and code Who this book is for If you are a developer with basic knowledge of Python and want to learn how to build, test, deploy, and secure microservices, then this book is for you. No prior knowledge of building microservices is required.

This book constitutes the proceedings of the 6th International Symposium on Model-Based Safety and Assessment, IMBSA 2019, held in Thessaloniki, Greece, in October 2019. The 24 revised full papers presented were carefully reviewed and selected from 46 initial submissions. The papers are organized in topical sections on safety models and languages; dependability analysis process; safety assessment; safety assessment in automotive industry; AI in safety assessment.

Build, deploy, test, and run cloud-native serverless applications using AWS Lambda and other popular AWS services Key Features Learn how to write, run, and deploy serverless applications in Amazon Web Services Make the most of AWS Lambda functions to build scalable and cost-efficient systems Build and deploy serverless applications with Amazon API Gateway and AWS Lambda functions Book Description Serverless computing is a way to run your code without having to provision or manage servers. Amazon Web Services provides serverless services that you can use to build and deploy cloud-native applications. Starting with the basics of AWS Lambda, this book takes you through combining Lambda with other services from AWS, such as Amazon API Gateway, Amazon DynamoDB, and Amazon Step Functions. You'll learn how to write, run, and test Lambda functions using examples in Node.js, Java, Python, and C# before you move on to developing and deploying serverless APIs efficiently using the Serverless Framework. In the concluding chapters, you'll discover tips and best practices for leveraging Serverless Framework to increase your development productivity. By the end of this book, you'll have become well-versed in building, securing, and running serverless applications using Amazon API Gateway and AWS Lambda without having to manage any servers. What you will learn Understand the core concepts of serverless computing in AWS Create your own AWS Lambda functions and build serverless APIs using Amazon API Gateway Explore best practices for developing serverless applications at scale using Serverless Framework Discover the DevOps patterns in a modern CI/CD pipeline with AWS CodePipeline Build serverless data processing jobs to extract, transform, and load data Enforce resource tagging policies with continuous compliance and AWS Config Create chatbots with natural language understanding to perform automated tasks Who this book is for This AWS book is for cloud architects and developers who want to build and deploy serverless applications using AWS Lambda. A basic understanding of AWS is required to get the most out of this book.

Summary AWS Lambda in Action is an example-driven tutorial that teaches you how to build applications that use an event-driven approach on the back end. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology With AWS Lambda, you write your code and upload it to the AWS cloud. AWS Lambda responds to the events triggered by your application or your users, and automatically manages the underlying computer resources for you. Back-end tasks like analyzing a new document or processing requests from a mobile app are easy to implement. Your application is divided into small functions, leading naturally to a reactive architecture and the adoption of microservices. About the Book AWS Lambda in Action is an example-driven tutorial that teaches you how to build applications that use an event-driven approach on the back-end. Starting with an overview of AWS Lambda, the book moves on to show you common examples and patterns that you can use to call Lambda functions from a web page or a mobile app. The second part of the book puts these smaller examples together to build larger applications. By the end, you'll be ready to create applications that take advantage of the high availability, security, performance, and scalability of AWS. What's Inside Create a simple API Create an event-driven media-sharing application Secure access to your application in the cloud Use functions from different clients like web pages or mobile apps Connect your application with external services About the Reader Requires basic knowledge of JavaScript. Some examples are also provided in Python. No AWS experience is assumed. About the Author Danilo Poccia is a technical evangelist at Amazon Web Services and a frequent speaker at public events and workshops. Table of Contents PART 1 - FIRST STEPS Running functions in the cloud Your first Lambda function Your function as a web API PART 2 - BUILDING EVENT-DRIVEN APPLICATIONS Managing security Using standalone functions Managing identities Calling functions from a

client Designing an authentication service Implementing an authentication service Adding more features to the authentication service Building a media-sharing application Why event-driven? PART 3 - FROM DEVELOPMENT TO PRODUCTION Improving development and testing Automating deployment Automating infrastructure management PART 4 - USING EXTERNAL SERVICES Calling external services Receiving events from other services Gain all the essentials you need to create scalable microservices, which will help you solve real challenges when deploying services into production. This book will take you through creating a scalable data layer with polygot persistence. You'll cover data access and query patterns in Spring and JPA in high-performance environments. As part of this topic, you'll see the advantages of multiple persistence frameworks in Java and especially the easy persistence offered by NoSQL databases and reactive web solutions. The last few chapters present advanced concepts that are useful for very high-performance real-time applications: you'll implement applications using Spring's good support for Web sockets in their raw form as well as for connecting to message brokers such as RabbitMQ. This can be useful for applications such as navigation systems and gaming platforms. What You Will Learn Build end-to-end modern applications using microservices, persistence essentials, reactive web, and other high-performance concepts Master Spring's configuration options Secure microservices efficiently Monitor your services post deployment Who This Book Is For Java developers and architects interested in microservices.

Building efficient Python applications at minimal cost by adopting serverless architectures Key Features Design and set up a data flow between cloud services and custom business logic Make your applications efficient and reliable using serverless architecture Build and deploy scalable serverless Python APIs Book Description Serverless architectures allow you to build and run applications and services without having to manage the infrastructure. Many companies have adopted this architecture to save cost and improve scalability. This book will help you design serverless architectures for your applications with AWS and Python. The book is divided into three modules. The first module explains the fundamentals of serverless architecture and how AWS lambda functions work. In the next module, you will learn to build, release, and deploy your application to production. You will also learn to log and test your application. In the third module, we will take you through advanced topics such as building a serverless API for your application. You will also learn to troubleshoot and monitor your app and master AWS lambda programming concepts with API references. Moving on, you will also learn how to scale up serverless applications and handle distributed serverless systems in production. By the end of the book, you will be equipped with the knowledge required to build scalable and cost-efficient Python applications with a serverless framework. What you will learn Understand how AWS Lambda and Microsoft Azure Functions work and use them to create an application Explore various triggers and how to select them, based on the problem statement Build deployment packages for Lambda functions Master the finer details about building Lambda functions and versioning Log and monitor serverless applications Learn about security in AWS and Lambda functions Scale up serverless applications to handle huge workloads and serverless distributed systems in production Understand SAM model deployment in AWS Lambda Who this book is for This book is for Python developers who would like to learn about serverless architecture. Python programming knowledge is assumed.

Summary Serverless Architectures on AWS teaches you how to build, secure and manage serverless architectures that can power the most demanding web and mobile apps. Forewords by Patrick Debois (Founder of devopsdays) and Dr. Donald F. Ferguson (Columbia University). Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology There's a shift underway toward serverless cloud architectures. With the release of serverless computer technologies such as AWS Lambda, developers are now building entirely serverless platforms at scale. In these new architectures, traditional back-end servers are replaced with cloud functions acting as discrete single-purpose services. By composing and combining these serverless cloud functions together in a loose orchestration and adopting useful third-party services, developers can create powerful yet easy-to-understand applications. About the Book Serverless Architectures on AWS teaches you how to build, secure, and manage serverless architectures that can power the most demanding web and mobile apps. You'll get going quickly with this book's ready-made real-world examples, code snippets, diagrams, and descriptions of architectures that can be readily applied. By the end, you'll be able to architect and build your own serverless applications on AWS. What's Inside First steps with serverless computing Important patterns and architectures Writing AWS Lambda functions and using the API Gateway Composing serverless applications using key services like Auth0 and Firebase Securing, deploying, and managing serverless architectures About the Reader This book is for software developers interested in back end technologies. Experience with JavaScript (node.js) and AWS is useful but not required. About the Author Dr. Peter Sbarski is a well-known AWS expert, VP of engineering at A Cloud Guru, and head of Serverlessconf. Table of Contents PART 1 - FIRST STEPS Going serverless Architectures and patterns Build-

ing a serverless application Setting up your cloud PART 2 - CORE IDEAS Authentication and authorization Lambda the orchestrator API Gateway PART 3 - GROWING YOUR ARCHITECTURE Storage Database Going the last mile APPENDIXES Services for your serverless architecture Installation and setup More about authentication and authorization Lambda insider Models and mapping Learn the basics of serverless computing and how to develop event-driven architectures with the three major cloud platforms: Amazon Web Services, Microsoft Azure, and Google Cloud. This hands-on guide dives into the foundations of serverless computing, its use cases, and how to apply it using developer tools such as Node.js, Visual Studio Code, Postman, and Serverless Framework. You will apply the fundamentals of serverless technology from the ground up, and come away with a greater understanding of its power and how to make it work for you. This book teaches you how to quickly and securely develop applications without the hassle of configuring and maintaining infrastructure. You will learn how to harness serverless technology to rapidly reduce production time and minimize your costs, while still having the freedom to customize your code, without hindering functionality. Upon completion, you will have the knowledge and resources to build your own serverless application hosted in AWS, Azure, or Google Cloud and will have experienced the benefits of event-driven technology for yourself. What You'll Learn Gain a deeper understanding of serverless computing and when to use it Use development tools such as Node.js, Postman, and VS code to quickly set up your serverless development environment and produce applications Apply triggers to your serverless functions that best suit the architecture for the problem the functions are solving Begin building applications across cloud providers that utilize the power of serverless technology Understand best development practices with serverless computing to maintain scalable and practical solutions Code with an agnostic approach to cloud providers to minimize provider dependency Who This Book Is For Any developer looking to expand current knowledge of serverless computing, its applications, and how to architect serverless solutions, or someone just beginning in these areas

Set up complete CI and CD pipelines for your serverless applications using DevOps principles Key Features Understand various services for designing serverless architecture Build CD pipelines using various cloud providers for your serverless applications Implement DevOps best practices when building serverless applications Book Description Serverless applications are becoming very popular among developers and are generating a buzz in the tech market. Many organizations struggle with the effective implementation of DevOps with serverless applications. DevOps for Serverless Applications takes you through different DevOps-related scenarios to give you a solid foundation in serverless deployment. You will start by understanding the concepts of serverless architecture and development, and why they are important. Then, you will get to grips with the DevOps ideology and gain an understanding of how it fits into the Serverless Framework. You'll cover deployment framework building and deployment with CI and CD pipelines for serverless applications. You will also explore log management and issue reporting in the serverless environment. In the concluding chapters, you will learn important security tips and best practices for secure pipeline management. By the end of this book, you will be in a position to effectively build a complete CI and CD delivery pipeline with log management for serverless applications. What you will learn Explore serverless fundamentals and effectively combine them with DevOps Set up CI and CD with AWS Lambda and other popular Serverless service providers with the help of the Serverless Framework Perform monitoring and logging with serverless applications Set up a dynamic dashboard for different service providers Discover best practices for applying DevOps to serverless architecture Understand use cases for different serverless architectures Who this book is for DevOps for Serverless Applications is for DevOps engineers, architects, or anyone interested in understanding the DevOps ideology in the serverless world. You will learn to use DevOps with serverless and apply continuous integration, continuous delivery, testing, logging, and monitoring with serverless.

Get started with designing your serverless application using optimum design patterns and industry standard practices Key Features Learn the details of popular software patterns and how they are applied to serverless applications Understand key concepts and components in serverless designs Walk away with a thorough understanding of architecting serverless applications Book Description Serverless applications handle many problems that developers face when running systems and servers. The serverless pay-per-invocation model can also result in drastic cost savings, contributing to its popularity. While it's simple to create a basic serverless application, it's critical to structure your software correctly to ensure it continues to succeed as it grows. Serverless Design Patterns and Best Practices presents patterns that can be adapted to run in a serverless environment. You will learn how to develop applications that are scalable, fault tolerant, and well-tested. The book begins with an introduction to the different design pattern categories available for serverless applications. You will learn the trade-offs between GraphQL and REST and how they fare regarding overall application design in a serverless ecosystem. The book will also show you how to migrate an existing API

to a serverless backend using AWS API Gateway. You will learn how to build event-driven applications using queuing and streaming systems, such as AWS Simple Queuing Service (SQS) and AWS Kinesis. Patterns for data-intensive serverless application are also explained, including the lambda architecture and MapReduce. This book will equip you with the knowledge and skills you need to develop scalable and resilient serverless applications confidently. What you will learn Comprehend the popular design patterns currently being used with serverless architectures Understand the various design options and corresponding implementations for serverless web application APIs Learn multiple patterns for data-intensive serverless systems and pipelines, including MapReduce and Lambda Architecture Learn how to leverage hosted databases, queues, streams, storage services, and notification services Understand error handling and system monitoring in a serverless architecture a serverless architecture Learn how to set up a serverless application for continuous integration, continuous delivery, and continuous deployment Who this book is for If you're a software architect, engineer, or someone who wants to build serverless applications, which are non-trivial in complexity and

scope, then this book is for you. Basic knowledge of programming and serverless computing concepts are assumed.

Embracing the cloud—a Serverless architecture to solve problems at scale About This Book Learn to develop, manage, deploy, and monitor Azure functions in any language. Make the most out of Azure functions to build scalable systems. A step-by-step guide that will help you eliminate the pain points of implementing a serverless architecture. Who This Book Is For This book aims at IT architects and developers who want to build scalable systems and deploy serverless applications with Azure functions. No prior knowledge of Azure functions is necessary. What You Will Learn Understand the folder structure of a function and the purposes of the files Deploy a function and test it Explore the common triggers that are used to activate a function Discover how bindings can be used to output the results of a function Build a dll that has functionality that can be leveraged by a function Chain functions to allow the invocation of one function from another Understand how to monitor the health of your functions In Detail Functions help you easily run small pieces of code in cloud with Azure func-

tions without worrying about a whole application or the infrastructure to run it. With Azure functions, you can use triggers to execute your code and bindings to simplify the input and output of your code. This book will start with the basics of Azure Functions. You will learn the steps to set up the environment and the tools that we will be using in the further chapters. Once you have a better understanding of this, we will be creating our first hello world function app. Later you will be introduced to triggers, how they are used to activate a function, and how binding can be used to output results of a function. You will also explore the steps to create an assembly with complex functionality that can be used by functions. Next, this book will teach you to scale your functions and use them to process data, integrate systems, and build simple APIs and microservices. Finally, this book will cover some diagnostic techniques with Azure App services and best practices of working with Azure Functions. By the end of this book, you will be well-versed with the techniques of scaling your Azure functions and making the most of serverless architecture. Style and Approach A step-by-side guide filled with real world examples that will guide you with the steps to build a scalable Cloud system