

Building Microservices With Net Core Develop Skills In Reactive Microservices Database Scaling Azure Microservices And More

Performance tuning for real-world applications often involves activities geared towards finding bottlenecks, however this alone cannot solve the dreaded problem of slow code. If you want to improve the speed of your code and optimize the performance of your apps, then this book is for you. Understand .NET memory management internal workings, pitfalls, and techniques in order to effectively avoid a wide range of performance and scalability problems in your software. Despite automatic memory management in .NET, there are many advantages to be found in understanding how .NET memory works and how you can best write software that interacts with it efficiently and effectively. Pro .NET Memory Management is your comprehensive guide to writing better software by understanding and working with memory management in .NET. Thoroughly vetted by the .NET Team at Microsoft, this book contains 25 valuable troubleshooting scenarios designed to help diagnose challenging memory problems. Readers will also benefit from a multitude of .NET memory management “rules” to live by that introduce

methods for writing memory-aware code and the means for avoiding common, destructive pitfalls. What You'll Learn Understand the theoretical underpinnings of automatic memory management Take a deep dive into every aspect of .NET memory management, including detailed coverage of garbage collection (GC) implementation, that would otherwise take years of experience to acquire Get practical advice on how this knowledge can be applied in real-world software development Use practical knowledge of tools related to .NET memory management to diagnose various memory-related issues Explore various aspects of advanced memory management, including use of Span and Memory types Who This Book Is For .NET developers, solution architects, and performance engineers Annotation Over the past 10 years, distributed systems have become more fine-grained. From the large multi-million line long monolithic applications, we are now seeing the benefits of smaller self-contained services. Rather than heavy-weight, hard to change Service Oriented Architectures, we are now seeing systems consisting of collaborating microservices. Easier to change, deploy, and if required retire, organizations which are in the right position to take advantage of them are yielding significant benefits. This book takes an holistic view of the things you need to be cognizant of in order to pull this off. It covers just enough understanding of

technology, architecture, operations and organization to show you how to move towards finer-grained systems.

Your one-stop guide to the common patterns and practices, showing you how to apply these using the Go programming language

About This Book This short, concise, and practical guide is packed with real-world examples of building microservices with Go It is easy to read and will benefit smaller teams who want to extend the functionality of their existing systems Using this practical approach will save your money in terms of maintaining a monolithic architecture and demonstrate capabilities in ease of use

Who This Book Is For You should have a working knowledge of programming in Go, including writing and compiling basic applications. However, no knowledge of RESTful architecture, microservices, or web services is expected. If you are looking to apply techniques to your own projects, taking your first steps into microservice architecture, this book is for you.

What You Will Learn Plan a microservice architecture and design a microservice Write a microservice with a RESTful API and a database Understand the common idioms and common patterns in microservices architecture Leverage tools and automation that helps microservices become horizontally scalable Get a grounding in containerization with Docker and Docker-Compose, which will greatly accelerate your

development lifecycle Manage and secure
Microservices at scale with monitoring, logging,
service discovery, and automation Test
microservices and integrate API tests in Go In Detail
Microservice architecture is sweeping the world as
the de facto pattern to build web-based applications.
Golang is a language particularly well suited to
building them. Its strong community, encouragement
of idiomatic style, and statically-linked binary artifacts
make integrating it with other technologies and
managing microservices at scale consistent and
intuitive. This book will teach you the common
patterns and practices, showing you how to apply
these using the Go programming language. It will
teach you the fundamental concepts of architectural
design and RESTful communication, and show you
patterns that provide manageable code that is
supportable in development and at scale in
production. We will provide you with examples on
how to put these concepts and patterns into practice
with Go. Whether you are planning a new application
or working in an existing monolith, this book will
explain and illustrate with practical examples how
teams of all sizes can start solving problems with
microservices. It will help you understand Docker
and Docker-Compose and how it can be used to
isolate microservice dependencies and build
environments. We finish off by showing you various
techniques to monitor, test, and secure your

microservices. By the end, you will know the benefits of system resilience of a microservice and the advantages of Go stack. Style and approach The step-by-step tutorial focuses on building microservices. Each chapter expands upon the previous one, teaching you the main skills and techniques required to be a successful microservice practitioner.

44 reusable patterns to develop and deploy reliable production-quality microservices-based applications, with worked examples in Java Key Features 44 design patterns for building and deploying microservices applications Drawing on decades of unique experience from author and microservice architecture pioneer Chris Richardson A pragmatic approach to the benefits and the drawbacks of microservices architecture Solve service decomposition, transaction management, and inter-service communication Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About The Book Microservices Patterns teaches you 44 reusable patterns to reliably develop and deploy production-quality microservices-based applications. This invaluable set of design patterns builds on decades of distributed system experience, adding new patterns for composing services into systems that scale and perform under real-world conditions. More than just a patterns catalog, this practical guide with

worked examples offers industry-tested advice to help you design, implement, test, and deploy your microservices-based application. What You Will Learn How (and why!) to use microservices architecture Service decomposition strategies Transaction management and querying patterns Effective testing strategies Deployment patterns This Book Is Written For Written for enterprise developers familiar with standard enterprise application architecture. Examples are in Java. About The Author Chris Richardson is a Java Champion, a JavaOne rock star, author of Manning's POJOs in Action, and creator of the original CloudFoundry.com. Table of Contents Escaping monolithic hell Decomposition strategies Interprocess communication in a microservice architecture Managing transactions with sagas Designing business logic in a microservice architecture Developing business logic with event sourcing Implementing queries in a microservice architecture External API patterns Testing microservices: part 1 Testing microservices: part 2 Developing production-ready services Deploying microservices Refactoring to microservices Building 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.

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6. Communication Patterns and Service Discovery 7.

Collaborating between Microservices 8. Distributed

Monitoring 9. Security 10. Continuous Integration

and Deployment 11. AWS Best Practices

ASP.NET Core in Action, Second Edition is a

comprehensive guide to creating web applications

with ASP.NET Core 5.0. Go from basic HTTP

concepts to advanced framework customization.

Summary Fully updated to ASP.NET 5.0, ASP.NET

Core in Action, Second Edition is a hands-on primer

to building cross-platform web applications with your

C# and .NET skills. Even if you've never worked with

ASP.NET you'll start creating productive cross-

platform web apps fast. And don't worry about late-

breaking changes to ASP.NET Core. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Build full-stack web applications that run anywhere. Developers love ASP.NET Core for its libraries and pre-built components that maximize productivity. Version 5.0 offers new features for server-side apps, as well as background services for cross-platform development. About the book ASP.NET Core in Action, Second Edition is a comprehensive guide to creating web applications with ASP.NET Core 5.0. Go from basic HTTP concepts to advanced framework customization. Illustrations and annotated code make learning visual and easy. Master logins, dependency injection, security, and more. This updated edition covers the latest features, including Razor Pages and the new hosting paradigm. What's inside Developing apps for Windows and non-Windows servers Configuring applications Building custom components Logging, testing, and security About the reader For intermediate C# developers. About the author Andrew Lock is a Microsoft MVP who has worked with ASP.NET Core since before its first release. Table of Contents PART 1 - GETTING STARTED WITH ASP.NET CORE 1 Getting started with ASP.NET Core 2 Your first application 3 Handling requests with the middleware pipeline 4 Creating a website with Razor Pages 5 Mapping

URLs to Razor Pages using routing 6 The binding model: Retrieving and validating user input 7 Rendering HTML using Razor views 8 Building forms with Tag Helpers 9 Creating a Web API for mobile and client applications using MVC PART 2 - BUILDING COMPLETE APPLICATIONS 10 Service configuration with dependency injection 11 Configuring an ASP.NET Core application 12 Saving data with Entity Framework Core 13 The MVC and Razor Pages filter pipeline 14 Authentication: Adding users to your application with Identity 15 Authorization: Securing your application 16 Publishing and deploying your application PART 3 - EXTENDING YOUR APPLICATIONS 17 Monitoring and troubleshooting errors with logging 18 Improving your application's security 19 Building custom components 20 Building custom MVC and Razor Pages components 21 Calling remote APIs with IHttpConnectionFactory 22 Building background tasks and services 23 Testing your application

At a time when nearly every vertical, regardless of domain, seems to need software running in the cloud to make money, microservices provide the agility and drastically reduced time to market you require. This hands-on guide shows you how to create, test, compile, and deploy microservices, using the ASP.NET Core free and open-source framework. Along the way, you'll pick up good, practical habits for building powerful and robust services. Building

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microservices isn't about learning a specific framework or programming language; it's about building applications that thrive in elastically scaling environments that don't have host affinity, and that can start and stop at a moment's notice. This practical book guides you through the process. Learn test-driven and API-first development concepts Communicate with other services by creating and consuming backing services such as databases and queues Build a microservice that depends on an external data source Learn about event sourcing, the event-centric approach to persistence Use ASP.NET Core to build web applications designed to thrive in the cloud Build a service that consumes, or is consumed by, other services Create services and applications that accept external configuration Explore ways to secure ASP.NET Core microservices and applications Get up to speed with the latest features of C# 8, ASP.NET Core 3 and .NET Core 3.1 LTS to create robust and maintainable web services Key Features Apply design patterns and techniques to achieve a reactive, scalable web service Document your web services using the OpenAPI standard and test them using Postman Explore mechanisms to implement a secure web service using client-side SSL and token authentication Book Description In recent times, web services have evolved to play a prominent role in web development. Applications are now designed to be compatible with any device and platform, and web services help us keep their logic and UI separate. Given its simplicity and effectiveness in creating web services, the RESTful

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approach has gained popularity, and this book will help you build RESTful web services using ASP.NET Core. This REST book begins by introducing you to the basics of the REST philosophy, where you'll study the different stages of designing and implementing enterprise-grade RESTful web services. You'll also gain a thorough understanding of ASP.NET Core's middleware approach and learn how to customize it. The book will later guide you through improving API resilience, securing your service, and applying different design patterns and techniques to achieve a scalable web service. In addition to this, you'll learn advanced techniques for caching, monitoring, and logging, along with implementing unit and integration testing strategies. In later chapters, you will deploy your REST web services on Azure and document APIs using Swagger and external tools such as Postman. By the end of this book, you will have learned how to design RESTful web services confidently using ASP.NET Core with a focus on code testability and maintainability. What you will learn

- Gain a comprehensive working knowledge of ASP.NET Core
- Integrate third-party tools and frameworks to build maintainable and efficient services
- Implement patterns using dependency injection to reduce boilerplate code and improve flexibility
- Use ASP.NET Core's out-of-the-box tools to test your applications
- Use Docker to run your ASP.NET Core web service in an isolated and self-contained environment
- Secure your information using HTTPS and token-based authentication
- Integrate multiple web services using resiliency patterns and messaging techniques

Who this book is for This book is for anyone who wants to learn how to build RESTful web services with the ASP.NET Core framework to improve the scalability and performance of their applications. Basic knowledge of C# and .NET Core will help you make the best use of the code samples included in the book.

Use ASP.NET Core 2 to create durable and cross-platform

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web APIs through a series of applied, practical scenarios. Examples in this book help you build APIs that are fast and scalable. You'll progress from the basics of the framework through to solving the complex problems encountered in implementing secure RESTful services. The book is packed full of examples showing how Microsoft's ground-up rewrite of ASP.NET Core 2 enables native cross-platform applications that are fast and modular, allowing your cloud-ready server applications to scale as your business grows. Major topics covered in the book include the fundamentals and core concepts of ASP.NET Core 2. You'll learn about building RESTful APIs with the MVC pattern using proven best practices and following the six principles of REST. Examples in the book help in learning to develop world-class web APIs and applications that can run on any platform, including Windows, Linux, and MacOS. You can even deploy to Microsoft Azure and automate your delivery by implementing Continuous Integration and Continuous Deployment pipelines. What You Will Learn Incorporate automated API tooling such as Swagger from the OpenAPI specification Standardize query and response formats using Facebook's GraphQL query language Implement security by applying authentication and authorization using ASP.NET Identity Ensure the safe storage of sensitive data using the data protection stack Create unit and integration tests to guarantee code quality Who This Book Is For Developers who build server applications such as web sites and web APIs that need to run fast and cross platform; programmers who want to implement practical solutions for real-world problems; those who want in-depth knowledge of the latest bits of ASP.NET Core 2.0

The book covers the best practices and approaches for software architects to follow when developing .NET and C# solutions, along with the most up to date cloud environments

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and tools to enable effective app development, delivery, and deployment.

This book is a practical guide to .NET 5 for experienced developers and software architects, featuring step-by-step explanations of essential concepts and practical examples. You'll also explore a comparison of .NET 5 with legacy technologies, why it is beneficial, and how the platform can be leveraged in real-world scenarios.

Microservices in .NET, Second Edition teaches you to build and deploy microservices using ASP.NET and Azure services. Summary In Microservices in .NET, Second Edition you will learn how to: Build scalable microservices that are reliable in production Optimize microservices for continuous delivery Design event-based collaboration between microservices Deploy microservices to Kubernetes Set up Kubernetes in Azure Microservices in .NET, Second Edition is a comprehensive guide to building microservice applications using the .NET stack. After a crystal-clear introduction to the microservices architectural style, it teaches you practical microservices development skills using ASP.NET. This second edition of the bestselling original has been revised with up-to-date tools for the .NET ecosystem, and more new coverage of scoping microservices and deploying to Kubernetes. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Microservice architectures connect independent components that must work together as a system. Integrating new technologies like Docker and Kubernetes with Microsoft's familiar ASP.NET framework and Azure cloud platform enables .NET developers to create and manage microservices efficiently. About the book Microservices in .NET, Second Edition teaches you to build and deploy microservices using ASP.NET and Azure services. It lays out microservice architecture simply, and

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then guides you through several real-world projects, such as building an ecommerce shopping cart. In this fully revised edition, you'll learn about scoping microservices, deploying to Kubernetes, and operations concerns like monitoring, logging, and security. What's inside Optimize microservices for continuous delivery Design event-based collaboration between microservices Deploy microservices to Kubernetes Set up Kubernetes in Azure About the reader For C# developers. No experience with microservices required.

About the author Christian Horsdal is an independent consultant with more than 20 years of experience building projects from large-scale microservice systems to tiny embedded systems.

Table of Contents PART 1 GETTING STARTED WITH MICROSERVICES 1 Microservices at a glance 2 A basic shopping cart microservice 3 Deploying a microservice to Kubernetes PART 2 BUILDING

MICROSERVICES 4 Identifying and scoping microservices 5 Microservice collaboration 6 Data ownership and data storage

7 Designing for robustness 8 Writing tests for microservices PART 3 HANDLING CROSS-CUTTING CONCERNS:

BUILDING A REUSABLE MICROSERVICE PLATFORM 9 Cross-cutting concerns: Monitoring and logging 10 Securing microservice-to-microservice communication 11 Building a reusable microservice platform PART 4 BUILDING

APPLICATIONS 12 Creating applications over microservices 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

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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

Build web applications in Microsoft .NET that run in any modern browser, helping you to transfer your .NET experience and skills to a new environment and build browser-based applications using a robust and type-safe language and runtime. Developing a web site with rich client-side behavior means most developers need to learn a transpiled language like JavaScript or TypeScript. But today you can also develop rich browser applications using the .NET runtime and C# using Blazor. With Blazor you can use all that experience you have amassed over the years, and can use thousands of already existing libraries, right in the browser. Blazor Revealed will allow you to create a rich web site experience in no time. You will learn how to build user interfaces, and present data to a user for display and modification, capturing the user's changes via data binding. The book shows you how to access a rich library of .NET functionality such as a component model for building a composable user interface, including how to develop reusable components that can be used across many pages and web

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sites. Also covered is data exchange with a server, giving you access to microservices and database services. Blazor provides a fresh take on web development by eliminating the need for you to learn different languages and frameworks for client- and server-side development. Blazor allows C# and .NET to be used on all sides, providing a robust feature set that is well suited toward scalable, enterprise-level applications. Blazor Revealed gets you started in using this important new toolkit for web application development. What You'll Learn Build user interfaces and display data for users to edit Capture the user's changes via data binding Transfer data back and forth between server and client Communicate with microservices and database services Develop reusable components and assemble them into bigger components Use routing to build single page applications (SPAs) Build Blazor libraries that are reusable across applications Who This Book Is For Experienced .NET developers who want to apply their existing skills to building professional quality, client-side web applications that run in any browser. The book is for web developers who want to step away from JavaScript and its complexities, and instead use a proven technology (.NET) that is robust toward creating enterprise-quality applications that scale and are reliable and that provide good user experience. The book is for intermediate to advanced .NET web developers with no experience using Blazor.

Summary .NET Core in Action shows .NET developers how to build professional software applications with .NET Core. Learn how to convert existing .NET code to work on multiple platforms or how to start new projects with knowledge of the tools and capabilities of .NET Core. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology .NET Core is an open source framework that lets you write and run .NET applications on Linux and Mac, without giving up on

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Windows. Built for everything from lightweight web apps to industrial-strength distributed systems, it's perfect for deploying .NET servers to any cloud platform, including AWS and GCP. About the Book .NET Core in Action introduces you to cross-platform development with .NET Core. This hands-on guide concentrates on new Core features as you walk through familiar tasks like testing, logging, data access, and networking. As you go, you'll explore modern architectures like microservices and cloud data storage, along with practical matters like performance profiling, localization, and signing assemblies. What's Inside Choosing the right tools Testing, profiling, and debugging Interacting with web services Converting existing projects to .NET Core Creating and using NuGet packages About the Reader All examples are in C#. About the Author Dustin Metzgar is a seasoned developer and architect involved in numerous .NET Core projects. Dustin works for Microsoft. Table of Contents Why .NET Core? Building your first .NET Core applications How to build with .NET Core Unit testing with xUnit Working with relational databases Simplify data access with object-relational mappers Creating a microservice Debugging Performance and profiling Building world-ready applications Multiple frameworks and runtimes Preparing for release appendix A - Frameworks and runtimes appendix B - xUnit command-line options appendix C - What's in the .NET Standard Library? appendix D - NuGet cache locations This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Through four complete sprints, this book takes you through every step needed to build brand new cross-platform web apps with ASP.NET

Core, and make them available on the Internet. You won't just master Microsoft's revolutionary open source ASP.NET Core technology: you'll learn how to integrate the immense power of MVC, Docker, Azure Web Apps, Visual Studio and Visual Studio Code, C#, JavaScript, TypeScript, and Entity Framework. Working through the authors' carefully designed sprints, you'll start with a blank canvas, move through software architecture and design, adjusting to user feedback, recovering from mistakes, builds, testing, deployment, maintenance, refactoring, and more. Along the way, you'll learn techniques for delivering state-of-the-art software to users more rapidly and repeatably than ever before. Microservices are responsible for very tightly focused capabilities that are part of a more complex server-side software system. Microservices, when done well, are malleable, scalable, resilient, and allow a short lead time from start of implementation to deployment to production. When using microservices, the need for the technology to be lightweight and low ceremony grows, because creating new microservices needs to be quick and easy. OWIN is great for reuse of plumbing code and a lightweight web framework, like Nancy, is ideal. Microservices in .NET Core teaches readers how to build and deploy secure and operations-friendly microservices using Nancy. The book starts with an introduction to the microservices architectural style.

Next, readers learn important practical aspects of developing microservices from simple core concepts to more sophisticated. Throughout the book, readers will see many code examples implementing it with lightweight '.NET technologies' most prominently Nancy. By the end, they'll be able to quickly and easily build reliable and operations-friendly microservices using Nancy, OWIN and other open technologies. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Build cross-platform solutions with .NET Core 2.0 through real-life scenarios
Key Features
Bridges the gap between learning and doing and improves your software development skills
Covers the best practices of .NET development to improve your productivity
Example-based approach to get you started quickly with software programming
Book Description
With the rise in the number of tools and technologies available today, developers and architects are always exploring ways to create better and smarter solutions. Before, the differences between target platforms was a major roadblock, but that's not the case now. .NET Core 2.0 By Example will take you on an exciting journey to building better software. This book provides fresh and relevant content to .NET Core 2.0 in a succinct format that's enjoyable to read. It also delivers concepts, along with the implications, design decisions, and potential

pitfalls you might face when targeting Linux and Windows systems, in a logical and simple way. With the .NET framework at its center, the book comprises of five varied projects: a multiplayer Tic-tac-toe game; a real-time chat application, Let'sChat; a chatbot; a microservice-based buying-selling application; and a movie booking application. You will start each chapter with a high-level overview of the content, followed by the above example applications described in detail. By the end of each chapter, you will not only be proficient with the concepts, but you'll also have created a tangible component in the application. By the end of the book, you will have built five solid projects using all the tools and support provided by the .NET Core 2.0 framework. What you will learn

- Build cross-platform applications with ASP.NET Core 2.0 and its tools
- Integrate, host, and deploy web apps with the cloud (Microsoft Azure)
- Leverage the ncurses native library to extend console capabilities in .NET Core on Linux and interop with native code
- .NET Core on Linux and learn how to interop with existing native code
- Reuse existing .NET Framework and Mono assemblies from .NET Core 2.0 applications
- Develop real-time web applications using ASP.NET Core
- Learn the differences between SOA and microservices and get started with microservice development using ASP.NET Core 2.0
- Walk through functional programming with F# and .NET Core from

scratch Who this book is for If you are a developer or architect and want to learn how to build cross-platform solutions using Microsoft .NET Core, this book is for you. It is assumed that you have some knowledge of the .NET Framework, OOP, and C# (or a similar programming language).

Microservices is an architectural style that promotes the development of complex applications as a suite of small services based on business capabilities.

This book will help you identify the appropriate service boundaries within the business domain to ensure high cohesion and to define the correct service interfaces to promote loose coupling.

You're a developer who knows nothing to Microservices. Which is fine, except that you need to start coding your next Microservices-based application using ASP.NET Core and Docker. Don't worry: I have you covered. I've been training hundreds of developers like you during 16 years, and converted my experience into this book. I know from experience teaching what takes more time to learn in Microservices, and will spend time only where appropriate. Plus this book is packed with exercises which build up into a full project: you develop two interdependent Microservices, each exposing a CRUD JSON API. You publish them in a Docker repository and run them in Docker. Read this book, and you can code your Microservices within a week.

This book predominately covers Microservices architecture with real-world example which can help professionals with ease of adoption of this technology. Following the trend of modularity in real world, the idea behind Microservice by Examples is to allow developers to build their applications from various independent components which can be easily changed, removed or upgraded. Also, it is relevant now because of enterprises are moving towards DevOps/ Modernization, this book will emphasize on containers and Dockers as well. How do you detangle a monolithic system and migrate it to a microservice architecture? How do you do it while maintaining business-as-usual? As a companion to Sam Newman's extremely popular Building Microservices, this new book details a proven method for transitioning an existing monolithic system to a microservice architecture. With many illustrative examples, insightful migration patterns, and a bevy of practical advice to transition your monolith enterprise into a microservice operation, this practical guide covers multiple scenarios and strategies for a successful migration, from initial planning all the way through application and database decomposition. You'll learn several tried and tested patterns and techniques that you can use as you migrate your existing architecture. Ideal for organizations looking to transition to microservices, rather than rebuild Helps companies

determine whether to migrate, when to migrate, and where to begin Addresses communication, integration, and the migration of legacy systems Discusses multiple migration patterns and where they apply Provides database migration examples, along with synchronization strategies Explores application decomposition, including several architectural refactoring patterns Delves into details of database decomposition, including the impact of breaking referential and transactional integrity, new failure modes, and more

Learn how web applications can be built efficiently using ASP.NET Core 2.0 and related frameworks

About This Book Get to grips with the new features and APIs introduced in ASP.NET Core 2.0 Leverage the MVC framework and Entity Framework Core 2 to build efficient applications Learn to deploy your web applications in new environments such as the cloud and Docker Who This Book Is For This book is for

developers who would like to build modern web applications with ASP.NET Core 2.0. No prior knowledge of ASP.NET or .NET Core is required.

However, basic programming knowledge is assumed. Additionally, previous Visual Studio experience will be helpful but is not required, since detailed instructions will guide through the samples of the book. This book can also help people, who work in infrastructure engineering and operations, to monitor and diagnose problems during the runtime of

ASP.NET Core 2.0 web applications. What You Will Learn Set up your development environment using Visual Studio 2017 and Visual Studio Code Create a fully automated continuous delivery pipeline using Visual Studio Team Services Get to know the basic and advanced concepts of ASP.NET Core 2.0 with detailed examples Build an MVC web application and use Entity Framework Core 2 to access data Add Web APIs to your web applications using RPC, REST, and HATEOAS Authenticate and authorize users with built-in ASP.NET Core 2.0 features Use Azure, Amazon Web Services, and Docker to deploy and monitor your applications In Detail The ability to develop web applications that are highly efficient but also easy to maintain has become imperative to many businesses. ASP.NET Core 2.0 is an open source framework from Microsoft, which makes it easy to build cross-platform web applications that are modern and dynamic. This book will take you through all of the essential concepts in ASP.NET Core 2.0, so you can learn how to build powerful web applications. The book starts with a brief introduction to the ASP.NET Core framework and the improvements made in the latest release, ASP.NET Core 2.0. You will then build, test, and debug your first web application very quickly. Once you understand the basic structure of ASP.NET Core 2.0 web applications, you'll dive deeper into more complex concepts and scenarios. Moving on, we'll

explain how to take advantage of widely used frameworks such as Model View Controller and Entity Framework Core 2 and you'll learn how to secure your applications. Finally, we'll show you how to deploy and monitor your applications using Azure, AWS, and Docker. After reading the book, you'll be able to develop efficient and robust web applications in ASP.NET Core 2.0 that have high levels of customer satisfaction and adoption. Style and approach Start an exciting journey to building high performance web applications using ASP.NET Core 2.0 and MVC

A handbook to get familiar with the Microservices concept and developing microservices using ASP.NET Core. This is a small book to cover the topic of microservices using a practical approach. Section 1, The Concept, makes you familiar with the concept of the Microservices. This section explains what are microservices, the architecture of microservices, the difference between monolithic and microservices. This section builds a deep understanding of microservices concept and architecture which is very important before you start development on microservices. Section 2, Docker section three of the book demonstrates the development of microservices and running microservices in separate instances at the same time. One of the instances would be running in a docker container. This section demonstrates the pre-

requisites of having the microservice running in Docker and Docker installation. Section 3, Microservice using ASP.NET Core, this section will train you on how to create a microservice using ASP.NET Core. This section is a step by step guide to create a microservice using ASP.Net Core and Entity Framework Core and deploy and run the microservice.

Get the definitive guide on designing applications on the Microsoft application platform—straight from the Microsoft patterns & practices team. Learn how to choose the most appropriate architecture and the best implementation technologies that the Microsoft application platform offers applications developers. Get critical design recommendations and guidelines organized by application type—from Web, mobile, and rich Internet applications to Office Business Applications. You™ also get links to additional technical resources that can help with your application development.

Developing Microservices Architecture on Azure with Open Source Technologies is a complete, step-by-step guide to building flexible microservices architectures by leveraging services provided by the Microsoft Azure cloud platform, and key open-source technologies such as Java, Node.JS, .NET Core and Angular. Expert Microsoft consultants Ovais Mehboob and Arvind Chandaka guide students step-by-step through a realistic case study project that

illuminates key technical implementation tasks for establishing end to end infrastructure, developing cloud-native applications, automating deployment, and realizing value.

Get up to speed with using C# 8 and .NET Core 3.0 features to build real-world .NET Core applications

Key Features

Learn the core concepts of web applications, serverless computing, and microservices

Create an ASP.NET Core MVC application

using controllers, routing, middleware and authentication

Build modern applications using cutting-edge services from Microsoft Azure

Book Description .NET Core is a general-purpose, modular, cross-platform, and opensource implementation of .NET. The latest release of .NET Core 3 comes with improved performance and security features, along with support for desktop applications. .NET Core 3 is not only useful for new developers looking to start learning the framework, but also for legacy developers interested in migrating their apps. Updated with the latest features and enhancements, this updated second edition is a step-by-step, project-based guide. The book starts with a brief introduction to the key features of C# 8 and .NET Core 3. You'll learn to work with relational data using Entity Framework Core 3, before understanding how to use ASP.NET Core. As you progress, you'll discover how you can use .NET Core to create cross-platform applications. Later, the

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book will show you how to upgrade your old WinForms apps to .NET Core 3. The concluding chapters will then help you use SignalR effectively to add real-time functionality to your applications, before demonstrating how to implement MongoDB in your apps. Finally, you'll delve into serverless computing and how to build microservices using Docker and Kubernetes. By the end of this book, you'll be proficient in developing applications using .NET Core 3. What you will learn

- Understand how to incorporate the Entity Framework Core 3 to build ASP.NET Core MVC applications
- Create a real-time chat application using Azure's SignalR service
- Gain hands-on experience of working with Cosmos DB
- Develop an Azure Function and interface it with an Azure Logic App
- Explore user authentication with Identity Server and OAuth2
- Understand how to use Azure Cognitive Services to add advanced functionalities with minimal code
- Get to grips with running a .NET Core application with Kubernetes

Who this book is for This book is for developers and programmers of all levels who want to build real-world projects and explore the new features of .NET Core 3. Developers working on legacy desktop software who are looking to migrate to .NET Core 3 will also find this book useful. Basic knowledge of .NET Core and C# is assumed.

Practical Software Architecture Solutions from the Legendary Robert C. Martin ("Uncle Bob") By

applying universal rules of software architecture, you can dramatically improve developer productivity throughout the life of any software system. Now, building upon the success of his best-selling books *Clean Code* and *The Clean Coder*, legendary software craftsman Robert C. Martin (“Uncle Bob”) reveals those rules and helps you apply them. Martin’s *Clean Architecture* doesn’t merely present options. Drawing on over a half-century of experience in software environments of every imaginable type, Martin tells you what choices to make and why they are critical to your success. As you’ve come to expect from Uncle Bob, this book is packed with direct, no-nonsense solutions for the real challenges you’ll face—the ones that will make or break your projects. Learn what software architects need to achieve—and core disciplines and practices for achieving it Master essential software design principles for addressing function, component separation, and data management See how programming paradigms impose discipline by restricting what developers can do Understand what’s critically important and what’s merely a “detail” Implement optimal, high-level structures for web, database, thick-client, console, and embedded applications Define appropriate boundaries and layers, and organize components and services See why designs and architectures go wrong, and how to prevent (or fix) these failures *Clean Architecture* is

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essential reading for every current or aspiring software architect, systems analyst, system designer, and software manager—and for every programmer who must execute someone else’s designs. Register your product for convenient access to downloads, updates, and/or corrections as they become available.

Discover the powerful capabilities of Dapr by implementing a sample application with microservices leveraging the actor model to foster its strengths. Find out how Dapr helps you simplify the creation of resilient and portable microservices with this book.

Learn the essential concepts, techniques, and design patterns that will help you build scalable and maintainable distributed systems

Key Features

Learn to design, implement, test, and deploy your microservices Understand the challenges and complexities of testing and monitoring distributed services

Build modular and robust microservice architectures with the latest features of C# 8 and .NET Core 3.1

Book Description

The microservice architectural style promotes the development of complex applications as a suite of small services based on specific business capabilities. With this book, you'll take a hands-on approach to build microservices and deploy them using ASP .NET Core and Microsoft Azure. You'll start by understanding the concept of microservices and their

fundamental characteristics. This microservices book will then introduce a real-world app built as a monolith, currently struggling under increased demand and complexity, and guide you in its transition to microservices using the latest features of C# 8 and .NET Core 3. You'll identify service boundaries, split the application into multiple microservices, and define service contracts. You'll also explore how to configure, deploy, and monitor microservices using Docker and Kubernetes, and implement autoscaling in a microservices architecture for enhanced productivity. Once you've got to grips with reactive microservices, you'll discover how keeping your code base simple enables you to focus on what's important rather than on messy asynchronous calls. Finally, you'll delve into various design patterns and best practices for creating enterprise-ready microservice applications. By the end of this book, you'll be able to deconstruct a monolith successfully to create well-defined microservices. What you will learn Package, deploy, and manage microservices and containers with Azure Service Fabric Use REST APIs to integrate services using a synchronous approach Protect public APIs using Azure Active Directory and OAuth 2.0 Understand the operation and scaling of microservices using Docker and Kubernetes Implement reactive microservices with Reactive Extensions Discover design patterns and best

practices for building enterprise-ready apps Who this book is for This book is for C# and .NET Core developers who want to understand microservices architecture and implement it in their .NET Core applications. If you're new to building microservices or have theoretical knowledge of the architectural approach, this book will help you gain a practical perspective to manage application complexity efficiently.

Develop native applications for multiple mobile and desktop platforms including but not limited to iOS, Android, and UWP with the Xamarin framework and Xamarin.Forms Key Features Understand .NET Core and its cross-platform development philosophy Build Android, iOS, and Windows mobile applications with C#, .NET Core, and Azure Cloud Services Bring Artificial Intelligence capabilities into your mobile applications with Azure AI Book Description .NET Core is the general umbrella term used for Microsoft's cross-platform toolset. Xamarin used for developing mobile applications, is one of the app model implementations for .NET Core infrastructure. In this book, you will learn how to design, architect, and develop highly attractive, maintainable, efficient, and robust mobile applications for multiple platforms, including iOS, Android, and UWP, with the toolset provided by Microsoft using Xamarin, .NET Core, and Azure Cloud Services. This book will take you through

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various phases of application development with Xamarin, from environment setup, design, and architecture to publishing, using real-world scenarios. Throughout the book, you will learn how to develop mobile apps using Xamarin, Xamarin.Forms and .NET Standard; implement a webbased backend composed of microservices with .NET Core using various Azure services including but not limited to Azure App Services, Azure Active Directory, Notification Hub, Logic Apps, and Azure Functions, Cognitive Services; create data stores using popular database technologies such as Cosmos DB, SQL and Realm. Towards the end, the book will help developers to set up an efficient and maintainable development pipeline to manage the application life cycle using Visual Studio App Center and Visual Studio Services. What you will learn

- Implement native applications for multiple mobile and desktop platforms
- Understand and use various Azure Services with .NET Core
- Make use of architectural patterns designed for mobile and web applications
- Understand the basic Cosmos DB concepts
- Understand how different app models can be used to create an app service
- Explore the Xamarin and Xamarin.Forms UI suite with .NET Core for building mobile applications

Who this book is for This book is for mobile developers who wish to develop cross-platform mobile applications. Programming experience with C# is required. Some

knowledge and understanding of core elements and cross-platform application development with .NET is required.

Building Microservices with .NET CorePackt Publishing Ltd
Guide to designing and developing cloud native applications
in Azure Key Featuresa- Basics of Cloud Native Applications
a- Designing Microservicesa- Different cloud native options
for developing Cloud Native Applications in Azurea- BOTs,
Web Apps, Mobile Apps, Logic Apps, Service Bus, Azure
Functionsa- Azure IOT Applicationsa- Azure Machine
Learning Basicsa- Enterprise Digital JourneysDescriptionThe
mainstreaming of the cloud-native architecture as an
enterprise discipline is well underway. According to the
Forbes report, in January 2018, 83% of enterprise workloads
will be in the cloud by 2020, 41% of enterprise workloads will
run on public cloud platforms while another 22% will be
running on hybrid cloud platforms. Customers are embarking
on enterprise digital transformation journeys. Adopting cloud,
cloud-native architectures, and microservices is an important
aspect of the journey.This book starts with a brief introduction
to the basics of cloud-native applications and cloud-native
application patterns. It covers cloud-native options available
in Azure. The objective of the book is to provide practical
guidelines to an architect/designer/consultant/developer who
is part of the Cloud application definition team. The book
articulates a methodology that the implementation team
needs to follow in a systematic manner and adapt them to
fulfill the requirements for enabling the cloud-native
application. It emphasizes on the interpersonal skills and
techniques for organizing and directing the cloud-native
definition, leadership buy-in, and leading the transition from
planning to implementation. It also highlights steps to be
followed and the patterns for developing cloud-native

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applications, cloud-native options available in Azure, developing BOT, and microservices based on Azure. It also covers how to develop simple IoT applications, Machine learning-based applications, and the serverless architecture using Azure with a practical and pragmatic approach. This book embraces a structured approach around the following key themes that represent the typical phases an enterprise traverses during its cloud-native application journey. What will you learn This book aims to:

- a- Demonstrate the importance of cloud-native applications in elevating the effectiveness of organizational transformation programs and digital enterprise journeys using MS Azure.
- a- Disseminate current advancements and thought leadership in the area of cloud-native architecture in the context of digital enterprises.
- a- Provide initiatives with evidence-based, credible, field-tested and practical guidance in designing their respective architectures.

Who this book is for The book is intended for anyone looking for a career in Cloud technology, especially all aspiring Cloud Architects who want to learn cloud-native architectures, Microservices, IoT, BOT and Microsoft Azure platform.

Table of Contents

1. Basics of Cloud Native Applications
2. Cloud Native Application Patterns
3. Cloud Native Options available in Azure - BOTs, Logic Apps, Service Bus, Azure Microservices, ML services
4. Developing a Simple BOT using .NET Core
5. Developing Cloud Native applications leveraging Microservices and Azure API Gateway
6. Developing Integration capabilities using serverless architecture
7. Developing a simple IoT application
8. Developing a simple ML based application
9. Different enterprise use cases which enable digital transformation using Cloud Native Applications

In this book, we will show you how to report and reclaim memory, how to send and receive messages, and how to report and monitor the health of your entire microservice

ecosystem. By the end of this book, you will be confident enough to develop a sturdy microservice architecture that works in a production setting—all by using the efficiency of C#. Hands-On Design Patterns with C# and .NET Core covers all the essential design patterns that help .NET developers build effective applications. The book will add to your skills by showing you how these patterns can be implemented easily in everyday programming, enabling you to develop robust applications with optimal performance.

C# is undeniably one of the most versatile programming languages available to engineers today. With this comprehensive guide, you'll learn just how powerful the combination of C# and .NET can be. Author Ian Griffiths guides you through C# 8.0 fundamentals and techniques for building cloud, web, and desktop applications. Designed for experienced programmers, this book provides many code examples to help you work with the nuts and bolts of C#, such as generics, LINQ, and asynchronous programming features. You'll get up to speed on .NET Core and the latest C# 8.0 additions, including asynchronous streams, nullable references, pattern matching, default interface implementation, ranges and new indexing syntax, and changes in the .NET tool chain. Discover how C# supports fundamental coding features, such as classes, other custom types, collections, and error handling Learn how to write high-performance memory-efficient code with .NET Core's Span and Memory types Query and process diverse data sources, such as in-memory object models, databases, data streams, and XML documents with LINQ Use .NET's multithreading features to exploit your computer's parallel processing capabilities Learn how asynchronous language features can help improve application responsiveness and scalability Architect your .NET applications by breaking them into really small pieces—microservices—using this practical, example-

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based guide About This Book Start your microservices journey and understand a broader perspective of microservices development Build, deploy, and test microservices using ASP.Net MVC, Web API, and Microsoft Azure Cloud Get started with reactive microservices and understand the fundamentals behind it Who This Book Is For This book is for .NET Core developers who want to learn and understand microservices architecture and implement it in their .NET Core applications. It's ideal for developers who are completely new to microservices or have just a theoretical understanding of this architectural approach and want to gain a practical perspective in order to better manage application complexity. What You Will Learn Compare microservices with monolithic applications and SOA Identify the appropriate service boundaries by mapping them to the relevant bounded contexts Define the service interface and implement the APIs using ASP.NET Web API Integrate the services via synchronous and asynchronous mechanisms Implement microservices security using Azure Active Directory, OpenID Connect, and OAuth 2.0 Understand the operations and scaling of microservices in .NET Core Understand the testing pyramid and implement consumer-driven contract using pact net core Understand what the key features of reactive microservices are and implement them using reactive extension In Detail Microservices is an architectural style that promotes the development of complex applications as a suite of small services based on business capabilities. This book will help you identify the appropriate service boundaries within the business. We'll start by looking at what microservices are, and what the main characteristics are. Moving forward, you will be introduced to real-life application scenarios, and after assessing the current issues, we will begin the journey of transforming this application by splitting it into a suite of microservices. You will identify the service boundaries, split

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the application into multiple microservices, and define the service contracts. You will find out how to configure, deploy, and monitor microservices, and configure scaling to allow the application to quickly adapt to increased demand in the future. With an introduction to the reactive microservices, you strategically gain further value to keep your code base simple, focusing on what is more important rather than the messy asynchronous calls. Style and approach This guide serves as a stepping stone that helps .NET Core developers in their microservices architecture. This book provides just enough theory to understand the concepts and apply the examples. REST is an architectural style that tackles the challenges of building scalable web services. In today's connected world, APIs have taken a central role on the web. APIs provide the fabric through which systems interact, and REST has become synonymous with APIs. The depth, breadth, and ease of use of ASP.NET Core, makes it a breeze for ...

Architect your .NET applications by breaking them into really small pieces-microservices-using this practical, example-based guide About This Book* This book will show you the basics of microservices and when you should consider this architectural style* This book will help you understand how to implement separate services using the C#, ASP.NET MVC/Web API, and more* You'll learn to integrate services using ASP.NET Web API and Azure Service Bus Who This Book Is For This book is for NET developers who are familiar with .NET framework and now want to learn how to implement microservices architecture in their .NET applications. It's ideal for developers who are completely new to Microservices or have just a theoretical understanding of this architectural approach and want to gain a practical perspective in order to better manage application complexity What You Will Learn* Compare microservices with Monolithic and SOA* Identify the appropriate service

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boundaries by mapping them to the relevant Bounded Contexts* Define the service interface and implement the APIs using ASP.NET Web API* Integrate the services via synchronous and asynchronous mechanisms* Implement service security policies using Azure Active Directory, OpenId Connect, and OAuth* Configure Azure Diagnostics and automatic scaling policies in AzureIn DetailMicroservices is an architectural style that promotes the development of complex applications as a suite of small services based on business capabilities. This book will help you identify the appropriate service boundaries within the business domain to ensure high cohesion and to define the correct service interfaces to promote loose coupling. We'll start by looking at what microservices are, what the main characteristics are, and how they compare with Monolithic and SOA approaches. Next, we'll briefly go through the benefits of using this style, the challenges to consider, and the prerequisites to succeed when engaging in this approach. Moving forward, you'll be introduced to a real-life application, implemented initially as a Monolith that is currently struggling to cope with increasing user demand and complexity. After assessing the current issues, we will begin the journey of transforming this application by splitting it into a suite of microservices. You'll identify the business domain boundaries as a reference for our service boundaries, split the application into multiple services, and define the service contracts. You'll be able to choose the appropriate integration techniques, set up an automated infrastructure to handle testing and deployment, and implement appropriate security policies to keep our services safe from unauthorized access. You'll find out how to configure and implement monitoring to ensure the health of our services, and configuring scaling to allow our application to quickly adapt to increased demand in the future.

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