

Why Learn Create Microservices with .NET and ASP.NET Core?

Create independently deployable, highly scalable, and resilient services using the free and open-source .NET platform.

Audience Profile :

- None

Prerequisites:

- Familiarity with command-line based applications.
- Familiarity with basic Docker concepts.
- Experience writing C# at the beginner level



Course Overview:

- Microservice applications are composed of small, independently versioned, and scalable customer-focused services that communicate with each other over standard protocols with well-defined interfaces.
- Each microservice typically encapsulates simple business logic, which you can scale out or in, test, deploy, and manage independently. Smaller teams develop a microservice based on a customer scenario and use any technologies that they want to use. This module will teach you how to build your first microservice with .NET.

Create Microservices with .NET and ASP.NET Core Outline:

- Build your first microservice with .NET
- Introduction
- What are microservices?
- Exercise – Build a Docker file for your microservice
- Microservices orchestration
- Exercise – Create a Docker Compose file
- Deploy a .NET microservice to Kubernetes
- Introduction
- What are orchestrators?
- Exercise – Push a microservice image to Docker Hub
- Exercise – Deploy a microservice container to Kubernetes
- Exercise – Scale a container instance in Kubernetes
- Create and deploy a cloud-native ASP.NET Core microservice
- Introduction
- Exercise – Set up the environment
- Review the solution architecture
- Exercise – Review the code and verify deployment
- Review the coupon service design
- Exercise – Add the coupon service
- Exercise – Deploy changes to AKS
- Implement resiliency in a cloud-native ASP.NET Core microservice
- Introduction
- Exercise – Set up the environment
- Review resiliency concepts
- Exercise – Verify deployment and test the app
- Exercise – Implement code-based resiliency
- Exercise – Implement infrastructure-based resiliency
- Instrument a cloud-native ASP.NET Core microservice
- Implement feature flags in a cloud-native ASP.NET Core microservices app
- Use managed data stores in a cloud native ASP.NET Core microservices app
- Understand API gateways in a cloud-native ASP.NET Core microservices app
- Introduction
- Exercise – Set up the environment
- Exercise – Verify deployment and test the app
- Understand API gateways and Backends for Frontends
- Implement a new Backend for Frontend
- Understand Kubernetes ingress controller concepts
- Exercise – Implement a load balancer with Azure Application Gateway
- Deploy a cloud-native ASP.NET Core microservice with GitHub Actions
- Implement GitHub Actions to build a container image and deploy to Azure Kubernetes Service.
- Introduction
- Exercise – Set up the environment
- Exercise – Configure GitHub Action permissions and secrets
- Exercise – Create a GitHub Action to build a container image
- Exercise – Create a GitHub Action to deploy to AKS

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