Microservices, ASP.NET Core, and Docker

The Case for Microservices

- Overview of Microservices
- Microservices vs. SOA
- Pros and Cons of Microservices
- Client-side vs. Server-side Routing
- Planning for Microservices
- Microservices Reference Application

Getting Started with Docker

- Application Deployment
- Shipping with Containers
- Getting Started with Docker
- Benefits to Developers and DevOps
- Overview of Images and Containers
- Layered File System
- Containers vs Virtual Machines
- Docker and Microservices

Docker Images and Containers

- Container Registries
- Working with Images
- Working with Containers
- Getting Started with a Custom Dockerfile
- Building an Image
- Updating an Image
- Pushing an Image to a Registry

Containers and Volumes

- Components Overview
- Source Code and Containers
- Introduction to Volumes
- Creating a Volume
- Inspecting Volumes
- Defining a volume in a Dockerfile
- Local Source Code and Containers

Orchestrating Containers with Docker Compose

- Container Orchestration
- Getting Started with Docker Compose
- The docker-compose.yml File
- Docker Compose Commands

Getting Started with ASP.NET Core

- Configuration and Middleware Pipeline
- Controllers and Views
- RESTful Services with Web API
- Data Access with Entity Framework Core
- OS X Cross Platform Development

ASP.NET Core and Docker

- ASP.NET Core Docker Images
- Creating ASP.NET Core Linux Images
- Creating ASP.NET Core Windows Images
- Visual Studio Docker Features
- "Containerizing" .NET Framework Applications
- Running and Debugging Containers

Monolithic to Microservices

- Monolithic Applications Review
- Microservices Review
- Communicating with Microservices
- Converting a Monolithic Feature to a Microservice
- Creating Dockerfiles and Images
- Communication with Microservices
- Fault Handling
- Health Checks

Microservices Orchestration and Monitoring

- Tools Overview
- Docker Swarm
- Kubernetes
- Marathon
- cAdvisor
- SysDig

Introduction to Kubernetes

- Why Kubernetes
- Kubernetes Overview
- The Master
- Nodes and Pods
- Services and Deployments
- Files and Commands