

# Advanced Serverless Architectures with Microsoft Azure

## Course Description

Advanced Serverless Architectures with Microsoft Azure redefines your experience of designing serverless systems. It shows you how to tackle challenges of varying levels, not just the straightforward ones. You'll be learning how to deliver features quickly by building systems, which retain the scalability and benefits of serverless.

You'll begin your journey by learning how to build a simple, completely serverless application. Then, you'll build a highly scalable solution using a queue, load messages onto the queue, and read them asynchronously. To boost your knowledge further, the book also features durable functions and ways to use them to solve errors in a complex system. You'll then learn about security by building a security solution from serverless components. Next, you'll gain an understanding of observability and ways to leverage application insights to bring you performance benefits. As you approach the concluding chapters, you'll explore chaos engineering and the benefits of resilience, by actively switching off a few of the functions within a complex system, submitting a request, and observing the resulting behavior.

By the end of this book, you will have developed the skills you need to build and maintain increasingly complex systems that match evolving platform requirements.

## Course Length

Two days

## Target Audience

Advanced Serverless Architectures with Microsoft Azure is ideal if you want to build serverless systems with fewer outages and high performance using Azure. Familiarity with the C# syntax and Azure Functions and ARM

templates will help you to benefit more from this book. Prior knowledge of basic front-end development, HTML, JS, and CSS is beneficial but not essential. Some DevOps knowledge is also beneficial but not essential.

## Technical Requirements

### Hardware:

- .Processor: Intel Core i3 or equivalent
- .Memory: 4GB RAM
- .Storage: 1 GB available space

### Software:

- OS: Any desktop Linux version or macOS, or Windows 10.
- Browser: Use one of the latest browsers such as Firefox, Chrome, Safari, Edge, or IE11, for example.

## Course Outline

### **Lesson One: Complete Serverless Architectures**

- Function-as-a-Service with a Simple HTTP Trigger
- Serverless Database with Cosmos DB
- Serverless Websites with Azure Storage

### **Lesson Two: Microservices and Serverless Scaling Patterns**

- Microservices
- Serverless Queues
- Caching
- Asynchronous by Default

### **Lesson Three: Azure Durable Functions**

- Understanding Azure Durable Functions
- Interacting with Humans in Azure Durable Functions
- Error Handling with Durable Functions

### **Lesson Four: Security**

- Serverless Security
- Protecting Azure Functions with API Management
- Protecting Client Information with Azure Active Directory B2C

### **Lesson Five: Observability**

- Understanding Observability
- Structured Logging with Azure Application Insights
- Client Side Metrics with Azure Application Insights

### **Lesson Six: Chaos Engineering**

- Chaos Engineering
- Automation of Deployments with Azure DevOps
- Continuous Automated Chaos