BLACKBIRD FOR TRAINING

Serverless Computing: AWS Lambda and Azure Functions

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Dubai (UAE)



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Introduction

In today's rapidly evolving digital landscape, organizations are increasingly seeking faster, more efficient, and cost-effective ways to develop and deploy applications. Serverless computing has emerged as a transformative model that eliminates the need to manage or provision servers manually.

This approach allows developers to focus solely on writing and optimizing code, while cloud providers handle the infrastructure automatically — scaling resources on demand and ensuring high availability.

This course explores the principles and practical applications of serverless computing through AWS Lambda and Azure Functions, two of the most powerful platforms enabling automation, scalability, and efficiency in modern cloud environments. Participants will gain hands-on knowledge in designing, deploying, and managing serverless applications that deliver reliability, performance, and cost optimization.

Course Objectives

- Understand the fundamental principles of serverless computing and its business value.
- Learn how AWS Lambda and Azure Functions operate and differ in implementation.
- Build and deploy serverless applications using event-driven architecture.
- Integrate serverless functions with databases, APIs, and external services.
- Apply best practices for monitoring, scaling, and optimizing performance.
- Strengthen security through access control and data protection mechanisms.
- Reduce operational costs through automation and resource efficiency.
- Develop the ability to design multi-cloud serverless solutions for complex systems.

Course Outlines

Day 1: Introduction to Serverless Architecture

- Overview of traditional vs. serverless computing models.
- The evolution of cloud computing and the rise of serverless frameworks.
- Core characteristics of serverless applications.
- Advantages and limitations of the serverless approach.
- Understanding event-driven execution and its practical implications.
- Real-world examples of successful serverless adoption.



Day 2: Exploring AWS Lambda

- Architecture and core concepts of AWS Lambda.
- Creating, configuring, and deploying Lambda functions.
- Triggers and event sources: API Gateway, S3, DynamoDB, and more.
- Managing function versions and environment variables.
- Integrating Lambda with other AWS services for end-to-end workflows.
- Practical lab: developing and testing a complete serverless application.

Day 3: Working with Azure Functions

- Key features and capabilities of Azure Functions.
- Setting up a serverless environment in Microsoft Azure.
- Using bindings and triggers to automate workflows.
- Managing function lifecycles and configurations.
- Monitoring and troubleshooting Azure Functions.
- Practical exercise: creating an automated cloud service using Azure Functions.

Day 4: Multi-Cloud Integration and Orchestration

- Designing hybrid solutions across AWS and Azure platforms.
- Integrating APIs and data flows between cloud environments.
- Synchronizing serverless workloads for cross-platform scalability.
- Security considerations in multi-cloud serverless setups.
- Using orchestration tools for seamless deployment.
- Case study: building a multi-cloud serverless architecture.

Day 5: Security, Optimization, and Continuous Improvement

- Applying security best practices in serverless environments.
- Managing authentication and authorization securely.
- Optimizing resource usage and execution costs.
- Monitoring function performance with cloud-native tools.
- Implementing continuous integration and continuous deployment pipelines.
- Final workshop: full implementation and performance review.



Why Attend this Course: Wins & Losses!

- Gain a deep understanding of serverless computing concepts and tools.
- Build and deploy fully functional applications without managing servers.
- Enhance development speed and agility through automation.
- Reduce infrastructure costs while maintaining scalability and reliability.
- Strengthen security and compliance in cloud-native environments.
- Learn to integrate serverless services across multiple cloud providers.
- Boost collaboration between development and operations teams.
- Prepare your organization for future-ready, cloud-driven transformation.

Conclusion

Serverless computing represents a major leap forward in how organizations build, deploy, and manage applications. By leveraging AWS Lambda and Azure Functions, teams can create scalable, secure, and efficient systems without the overhead of traditional infrastructure management.

This course equips professionals with the technical and strategic skills necessary to harness the full potential of serverless technology — enabling innovation, reducing operational complexity, and accelerating digital transformation.

