

Developing Serverless Solutions on AWS

Duration: 3 days

Audience: Professionnel TI

Who is this training for?

Individuals developing applications with some familiarity with serverless solutions and experience developing in the AWS Cloud

Training objectives

- Apply event-driven best practices in designing a serverless application using the appropriate AWS services
- Identify the challenges and trade-offs of transitioning to serverless development, and make recommendations tailored to your organization and development environment
- Build serverless applications using templates that connect AWS-managed services, Considering the characteristics of the services, including quotas, available integrations, invocation patterns, error handling, and type of event source loads
- Compare and differentiate the options available for writing infrastructure as code, including AWS CloudFormation, AWS Amplify, AWS Serverless Application Model (AWS SAM), and AWS Cloud Development Kit (AWS CDK)
- Apply best practices for writing Lambda functions including error handling, logging, environment reuse, layering, statelessness, idempotency, and concurrency and memory configuration
- Integrate observability and monitoring best practices into your serverless application
- Apply security practices to your serverless applications
- Identify key scalability considerations in a serverless application and associate each consideration of methods, tools, or best practices to manage them
- Use AWS SAM, AWS CDK, and AWS Developer Tools to set up a CI/CD flow and automate the deployment of a serverless application
- Create and maintain a list of serverless resources that will help you in your ongoing development and engagement with the serverless community

Summary

This course provides an introduction and practice of best practices for building serverless applications using AWS Lambda and other AWS serverless platform services. Through hands-on labs, you'll use AWS frameworks to deploy a serverless application by addressing topics of increasing complexity. AWS documentation will be used throughout the course to develop learning and problem-solving methods that can be applied outside of the classroom.

Course outline

Introduction to Serverless Architectures

Principles and Use Cases for Serverless Solutions

Basic AWS Serverless Services: An overview of services such as AWS Lambda, API Gateway, and DynamoDB

Implementing Lambda Functions: Creating and Deploying Lambda Functions for Serverless Applications

Managing and Orchestrating Workflows: Using Step Functions and SQS to Orchestrate Services

Designing RESTful APIs with API Gateway: Building and Securing REST APIs with Amazon API Gateway

Serverless Data Storage with DynamoDB: Data Modeling and Management with DynamoDB

Deployment and CI/CD for Serverless Applications: Automation with AWS SAM, CodePipeline, and CodeDeploy

Monitoring and Optimizing Performance

Tools and Best Practices for CloudWatch and X-Ray

Security in Serverless Architectures: Security Best Practices for Serverless Applications

Cost Management and Resource Optimization: Techniques for Managing and Optimizing Costs in AWS Serverless »

Approach and methodology

Practical and structured approach combining focused theory and guided workshops. Participants progressively develop serverless solutions on AWS through real-world exercises inspired by professional scenarios, promoting immediate application of learnings. They learn how to design serverless architectures, deploy AWS Lambda functions, integrate managed services, and orchestrate scalable and resilient application workflows. Led by a certified trainer, the training focuses on interactivity and the development of directly transferable technical skills to design and operate modern cloud solutions in a professional context.

Prerequisites

- Familiarity with the basics of AWS cloud architecture
- An understanding of developing applications on AWS, equivalent to that obtained by taking the Develop in an AWS Environment course or equivalent content
- Knowledge equivalent to the following digital courses: AWS Lambda and Amazon API Gateway Fundamentals for Serverless Applications

Recommendations

- Programming basics (Python, Node.js or equivalent)
- Understanding of cloud concepts and distributed architectures
- Knowledge of basic AWS services (S3, IAM, API Gateway, Lambda – asset)
- Knowledge of API development and service integration
- Awareness of DevOps concepts (CI/CD, automation)