AWSC-5 - DEVELOPING ON AWS

Categoria: **Amazon Web Services**

INFORMAZIONI SUL CORSO

Durata:	Categoria:	Qualifica Istruttore:	Dedicato a:	Produttore:
3 Giorni	Amazon Web Services	Docente Senior (min. 5 anni)	Sviluppatore	PCSNET

OBIETTIVI

In this course, you will learn to:

- Build a simple end-to-end cloud application using AWS Software Development Kits (AWS SDKs), Command Line Interface (AWS CLI), and IDEs.
- Configure AWS Identity and Access Management (IAM) permissions to support a development environment.
- Use multiple programming patterns in your applications to access AWS services.
- Use AWS SDKs to perform CRUD (create, read, update, delete) operations on Amazon Simple Storage Service (Amazon S3) and Amazon DynamoDB resources.
- Build AWS Lambda functions with other service integrations for your web applications.
- Understand the benefits of microservices architectures and serverless applications to design.
- Develop API Gateway components and integrate with other AWS services.
- Explain how Amazon Cognito controls user access to AWS resources.
- Build a web application using Cognito to provide and control user access.
- Use DevOps methodology to reduce the risks associated with traditional application releases and identify AWS services that help in implementing DevOps practices.
- Use AWS Serverless Application Model (AWS SAM) to deploy an application.
- Observe your application build using Amazon X-Ray.

PREREQUISITI

We recommend that attendees of this course have:

- Attended AWS Technical Essentials
- Working knowledge of AWS core services
- Programming experience in any one of the following languages: Python, .NET, Java.

CONTENUTI

Module 1: Course Overview

- Logistics
- Student resources
- Agenda
- Introductions

Module 2: Building a Web Application on AWS

- -Discuss the architecture of the application you are going to build during this course
- -Explore the AWS services needed to build your web application
- -Discover how to store, manage, and host your web application

Module 3: Getting Started with Development on AWS

- -Describe how to access AWS services programmatically
- -List some programmatic patterns and how they provide efficiencies within AWS SDKs and AWS CLI
- -Explain the value of AWS Cloud9

Module 4: Getting Started with Permissions

- -Review AWS Identity and Access Management (IAM) features and components permissions to support a development environment
- -Demonstrate how to test AWS IAM permissions
- -Configure your IDEs and SDKs to support a development environment
- -Demonstrate accessing AWS services using SDKs and AWS Cloud9

Lab 1: Configure the Developer Environment

- -Connect to a developer environment
- -Verify that the IDE and the AWS CLI are installed and configured to use the application profile
- -Verify that the necessary permissions have been granted to run AWS CLI commands
- -Assign an AWS IAM policy to a role to delete an Amazon S3 bucket

Module 5: Getting Started with Storage

- -Describe the basic concepts of Amazon S3
- -List the options for securing data using Amazon S3
- -Define SDK dependencies for your code
- -Explain how to connect to the Amazon S3 service
- -Describe request and response objects

Module 6: Processing Your Storage Operations

- -Perform key bucket and object operations
- -Explain how to handle multiple and large objects
- -Create and configure an Amazon S3 bucket to host a static website
- -Grant temporary access to your objects
- -Demonstrate performing Amazon S3 operations using SDKs

Lab 2: Develop Solutions Using Amazon S3

- -Interact with Amazon S3 programmatically using AWS SDKs and the AWS CLI
- -Create a bucket using waiters and verify service exceptions codes
- -Build the needed requests to upload an Amazon S3 object with metadata attached
- -Build requests to download an object from the bucket, process data, and upload the object back to the bucket
- -Configure a bucket to host the website and sync the source files using the AWS CLI
- -Add IAM bucket policies to access the S3 website.

Module 7: Getting Started with Databases

- -Describe the key components of DynamoDB
- -Explain how to connect to DynamoDB

-Describe how to build a request object
-Explain how to read a response object
-List the most common troubleshooting exceptions

Module 8: Processing Your Database Operations

-Develop programs to interact with DynamoDB using AWS SDKs
-Perform CRUD operations to access tables, indexes, and data
-Describe developer best practices when accessing DynamoDB
-Review caching options for DynamoDB to improve performance
-Perform DynamoDB operations using SDK

Lab 3: Develop Solutions Using Amazon DynamoDB

-Interact with Amazon DynamoDB programmatically using low-level, document, and high-level APIs in your programs
-Retrieve items from a table using key attributes, filters, expressions, and paginations
-Load a table by reading JSON objects from a file
-Search items from a table based on key attributes, filters, expressions, and paginations
-Update items by adding new attributes and changing data conditionally
-Access DynamoDB data using PartiQL and object-persistence models where applicable

Module 9: Processing Your Application Logic

-Develop a Lambda function using SDKs
-Configure triggers and permissions for Lambda functions
-Test, deploy, and monitor Lambda functions

Lab 4: Develop Solutions Using AWS Lambda Functions

-Create AWS Lambda functions and interact programmatically using AWS SDKs and AWS CLI
-Configure AWS Lambda functions to use the environment variables and to integrate with other services
-Generate Amazon S3 pre-signed URLs using AWS SDKs and verify the access to bucket objects
-Deploy the AWS Lambda functions with .zip file archives through your IDE and test as needed
-Invoke AWS Lambda functions using the AWS Console and AWS CLI

Module 10: Managing the APIs

-Describe the key components of API Gateway
-Develop API Gateway resources to integrate with AWS services
-Configure API request and response calls for your application endpoints
-Test API resources and deploy your application API endpoint
-Demonstrate creating API Gateway resources to interact with your application APIs

Lab 5: Develop Solutions Using Amazon API Gateway

-Create RESTful API Gateway resources and configure CORS for your application
-Integrate API methods with AWS Lambda functions to process application data
-Configure mapping templates to transform the pass-through data during method integration
-Create a request model for API methods to ensure that the pass-through data format complies with application rules
-Deploy the API Gateway to a stage and validate the results using the API endpoint

Module 11: Building a Modern Application

-Describe the challenges with traditional architectures

-Describe the microservice architecture and benefits
-Explain various approaches for designing microservice applications
-Explain steps involved in decoupling monolithic applications
-Demonstrate the orchestration of Lambda Functions using AWS Step Functions

Module 12: Granting Access to Your Application Users

-Analyze the evolution of security protocols
-Explore the authentication process using Amazon Cognito
-Manage user access and authorize serverless APIs
-Observe best practices for implementing Amazon Cognito
-Demonstrate the integration of Amazon Cognito and review JWT tokens

Lab 6: Capstone – Complete the Application Build

-Create a Userpool and an Application Client for your web application using
-Add new users and confirm their ability to sign-in using the Amazon Cognito CLI
-Configure API Gateway methods to use Amazon Cognito as an authorizer
-Verify JWT authentication tokens are generated during API Gateway calls
-Develop API Gateway resources rapidly using a Swagger importing strategy
-Set up your web application frontend to use Amazon Cognito and API Gateway configurations and verify the entire application functionality

Module 13: Deploying Your Application

-Identify risks associated with traditional software development practices
-Understand DevOps methodology
-Configure an AWS SAM template to deploy a serverless application
-Describe various application deployment strategies
-Demonstrate deploying a serverless application using AWS SAM

Module 14: Observing Your Application

-Differentiate between monitoring and observability
-Evaluate why observability is necessary in modern development and key components
-Understand CloudWatch’s part in configuring the observability
-Demonstrate using CloudWatch Application Insights to monitor applications
-Demonstrate using X-Ray to debug your applications

Lab 7: Observe the Application Using AWS X-Ray

-Instrument your application code to use AWS X-Ray capabilities
-Enable your application deployment package to generate logs
-Understand the key components of an AWS SAM template and deploy your application
-Create AWS X-Ray service maps to observe end-to-end processing behavior of your application
-Analyze and debug application issues using AWS X-Ray traces and annotations

Module 15: Course Wrap-up

-Course overview
-AWS training courses
-Certifications
-Course feedback

INFO

Esame: DVA-C03 - AWS Certified Developer Associate
Materiale didattico: Materiale didattico in formato digitale
Costo materiale didattico: incluso nel prezzo del corso a Calendario
Natura del corso: Operativo (previsti lab su PC)