Architecting on AWS

Duration: 3 days
Audience: Professionnel TI

Who is this training for?

This course is intended for solution architects, solution design engineers, developers who want to understand AWS architecture, and individuals who want to become AWS Solutions Architect-Associate.

Training objectives

- Identify AWS architecture core practices.
- Explore the use of AWS management tools: the AWS console, the command line interface (CLI), and CloudFormation in the lab.
- Review account security enforcement using policies.
- Identify the components of an elastic and secure virtual network that includes private and public subnets.
- Practice building an AWS core network infrastructure.
- Define policies for a layered security approach for virtual private cloud (VPC) subnets.
- Identify strategies to select the appropriate compute resources according to practical cases in the company.
- Practice building a VPC and adding an Elastic Cloud Compute (EC2) instance in the lab.
- Practice installing an Amazon Relational Database Service (RDS) instance and an Application Load Balancer (ALB) in the pre-created VPC.
- Compare and contrast AWS storage products and services, based on business scenarios.
- Compare and contrast different types of AWS database services based on business needs.
- Practice building a highly available and auto-scaling database layer in the lab.
- Explore the business value of AWS monitoring solutions.
- Identify and discuss AWS automation tools that help build, maintain, and scale your infrastructure.
- Discuss network peering, VPC endpoints, gateway and routing solutions according to the use cases.
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Discuss hybrid network configurations to expand and secure your infrastructure.

- Discuss the benefits of microservices as an effective decoupling strategy for powering highly available applications at scale.
- Explore AWS container services for rapid implementation of a portable, infrastructure-agnostic application environment.
- Identify the business and security benefits of AWS serverless services based on business examples.
- Practice building a serverless infrastructure in the lab.
- Discuss how AWS Edge services address latency and security.
- Practice building a CloudFront deployment with an S3 backend in the lab.
- Explore AWS backup, recovery, and best practices solutions to ensure resiliency and business continuity.
- Build a highly available and secure cloud architecture based on a business problem, in an instructor-guided lab project.

Summary

This course demonstrates how to build IT infrastructure on AWS. Learn how to optimize the cloud using AWS services. Architecture on AWS is for solution architects, solution design engineers, and developers who want to understand AWS architecture. In this course, you will learn how to identify the services and capabilities to build resilient, secure, and highly available IT solutions on the AWS Cloud. Architecture solutions differ by industry, application types, and company size. AWS Certified Instructors review best practices using the AWS Well-Architected Framework, and guide you through the process of designing optimal IT solutions based on real-world scenarios. The modules focus on account security, networking, compute, storage, databases, monitoring, automation, containers, serverless architecture, endpoint services, and backup and recovery. At the end of the course, you will practice building a solution and apply what you have learned with confidence.

Course outline

Architecture Fundamentals Review

- AWS Services and Infrastructure
- Infrastructure Models
- AWS API Tools
- Securing Your Infrastructure
- AWS Well-Architected Framework
- Hands-on Lab: Exploring Using AWS API Tools to Deploy an EC2 Instance

Account Security

- Security Principles
- Identity- and Resource-Based Policies
- Account Federation
- Introduction to Multi-Account Management

Networking, Part 1

- IP Addressing
- Amazon Virtual Private Cloud (VPC), Templates and Quotas
- Routing
- Internet Access
- Network Access Control Lists (NACLs)
- Security Groups

Compute

- Amazon Elastic Cloud Compute (EC2)
- EC2 Instances and Instance Selection • High Performance Computing on AWS
- Lambda and EC2: When to Use One
- Hands-on Lab: Building Your Amazon VPC

Storage Infrastructure

- Shared File Systems
- Shared EBS Volumes
- Amazon S3, Security, Versioning, and Storage Classes
- Data Migration Tools

Database Services

- AWS Database Solutions
- Amazon Relational Database Services (RDS)
- DynamoDB, Features, and Use Cases
- Redshift, Features, Cases, and Comparison with RDS
- Scaling
- Data Caching and Migration
- Hands-on Lab: Building a Database Layer in Your Amazon VPC Infrastructure

Monitoring and Leveraging Scale

- Monitoring: CloudWatch, CloudTrail, and VPC Flow Logs
- Call Events
- Elastic Load Balancing
- Autoscaling Options and Cost Monitoring
- Lab Hands-on: Setting Up High Availability in Your Amazon VPC

Automation

- CloudFormation
- AWS Systems Manager

Containers

- Microservices
- Microservices Monitoring with X-Ray
- Containers

Networking, Part 2

- VPC Peering and Endpoints
- Networking Gateway Transit
- Hybrid Network
- Route 53

Serverless Architecture

- Amazon API Gateway
- Amazon SQS, Amazon SNS
- Amazon Kinesis Data Streams, and Kinesis Firehose
- Step Functions
- Compare Amazon SQS to Amazon MQ
- Hands-on Lab: Building a Serverless

Edge Services Architecture

- Amazon CloudFront
- Web Application Firewall (WAF), DDoS, and AWS Firewall Manager
- Compare AWS Global Accelerator and Amazon CloudFront
- AWS Highlights
- Hands-on Lab: Configure an Amazon CloudFront Distribution with an Amazon S3 Origin

Backup and Recovery

- Disaster Recovery Planning
- AWS Backup
- Recovery Strategies

Approach and methodology

This course includes case-based presentations, group discussions, demonstrations, assessments, and hands-on work.

Prerequisites

Have completed basic AWS training (e.g. AWS Cloud Practitioner Essentials) [afiexpertise.com]

Knowledge of distributed systems and cloud concepts Familiarity with networks (IP, general concepts)

Understanding of multi-tier architectures

Recommendations

- AWS Cloud Practitioner Essentials or equivalent content.
- Working knowledge of distributed systems.
- Familiarity with general networking concepts.
- Familiarity with IP addressing.
- Working knowledge of multi-story architectures.
- Familiarity with cloud computing concepts.