AWS Solutions Architect and Cloud Cybersecurity Engineer

Cloud Practitioner(live)

Module 0: Introduction to Computer and Networking

- What is Computer
- Components of computer
- Computer hardwares
- Computer Software
- Computer Networking

Module 1: Introduction to Amazon Web Services

- Describe three cloud computing deployment models
- Describe six benefits of cloud computing

Module 2: Compute in the Cloud

- Amazon Elastic Compute Cloud (Amazon EC2)
- Amazon EC2 instance types
- Amazon EC2 pricing
- Amazon EC2 Auto Scaling
- Elastic Load Balancing
- AWS messaging services
- Serverless compute services
- AWS container services

Module 3: Global Infrastructure and Reliability

- Explore the AWS Global Infrastructure
- AWS Global Infrastructure
- Get closer to your customers
- AWS Outposts
- Interact with AWS services

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Module 4: Networking

- Amazon Virtual Private Cloud (Amazon VPC)
- Network access control lists and security groups
- Interact with the AWS global network

Module 5: Storage and Databases

- AWS storage
- AWS databases
- Additional database service

Module 6: Security
- Shared responsibility model
- AWS Identity and Access Management (IAM)
- AWS Organizations
- Compliance
- Application security
- Additional security services

Module 7: Monitoring and Analytics

- Amazon CloudWatch
- AWS CloudTrail
- AWS Trusted Advisor

Module 8: Pricing and Support

- AWS Pricing
- Explore AWS billing tools
- Consolidated billing
- AWS pricing tools
- AWS Support plans
- AWS Marketplace

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Module 9: Cloud Migration

- AWS Cloud Adoption Framework
- Migration strategies
- AWS Snow Family
- Innovation with AWS
- AWS Well-Architected Framework

AWS Solutions Architects(Live)

Module 0: Introduction
- Preparing for class and Guidance
- Course overview
- Introduction to Server
- Introduction to Server Room
- Introduction to Data Center
- Introduction to Cloud Computing

Module 1: Architecting Fundationals
- Explore AWS Services
- Describe the AWS Infrastructure
- Understand the importance of AWS Well- Architected Framework
- Explore and interact with the AWS Management Console and AWS Command Line Interface

Module 2: AWS Account Management and Security

- Review the Business Problem/Challenge
- Understand the Principles and identities on AWS
- Create Security policies using the principle of least privilege

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- Managing multiple accounts with AWS Organizations

Module 3: Basic Networking on AWS

- Introduction to Networking
- Understand OSI Model and IP Addressing
- VPC Traffic Security in AWS
- **Project: Build your First Custom Networking infrastructure on AWS(Part 1)**

Module 4: Compute on AWS

- Compute services on AWS
- EC2 instances
- Storage for EC2 instances
- Amazon EC2 pricing options
- AWS Lambda
- **Project: Architect 3 Tier Architecture for an E-Commerce Application on AWS(Part 2)**
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Module 5: Storage

- Storage services
- Amazon S3
- Shared file systems
- Data migration tools
- **Project 3: Design a Robust and Long-lasting Storage Solution for the E-Commerce Platform Utilizing AWS Services(Part 3)**

Module 6: Database Services on AWS

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- Introduction to Database services
- Amazon RDS
- Amazon DynamoDB
- Database caching on AWS
- Database migration tools on AWS
- **Project: Create a managed database for the ECommerce Application on AWS(Part 4)**
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Module 7: Automation

- Introduction to Infrastructure as a Code (IaC)
- AWS CloudFormation
- Introduction to Terraform
- Introduction to Python Boto3

Module 8: Containers

- Introduction to Monolithic
- Understanding the Challenge of Monolithic application
- Microservices
- Containers
- Container services

Module 9: Advance Networking

- VPC endpoints
- VPC peering
- Hybrid networking
- AWS Transit Gateway

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- **Project: Implementing a Scalable and Efficient Network Architecture with AWS Transit Gateway to Enhancing Connectivity and Management of Multiple AWS Accounts.**

Module 10: Serverless

- Understanding serverless computing?
- API Gateway
- Amazon SQS
- Amazon SNS
- Amazon Kinesis
- **Project: Implementing Serverless Architecture for Optimized Performance on AWS**

Module 11: Edge Services

- Introduction to Edge Services in AWS
- Amazon Route 53
- Amazon CloudFront
- DDoS protection
- AWS Outposts
- **Project: Establish a Connection Between Amazon CloudFront and an Amazon S3 Bucket for Content Distribution**

Module 13: Backup and Recovery

- Disaster planning
- AWS Backup
- Recovery strategies
- **Project: Implementing Robust Disaster Recovery Strategies with AWS Backup: Ensuring Business Continuity and Data Integrity**

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Module14: Migrating Workloads

- Migration process
- Migration tools
- Migrating databases
- **Project: Migrating an on-premises NFS share using AWS DataSync and Storage Gateway**

Module 15: Cost Optimization

- Cloud cost management
- Cost management tools
- Cost optimization

Module 16: Continuous Integration/Continuous Delivery (CI/CD)ConCI/CD

- Code services
- Deployment models
- AWS CloudFormation StackSets

Capstone Projects:

- Build an AWS Multi-Tier architecture.
- Deployment of a highly available and fault-tolerance architecture.

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AWS Cloud Cyber-Security Engineer(live)

Module 0: Course Overview(Demo Session)

- Introduction
- Prerequisite
- Learning Objectives
- Logistics
- How to Optimize your learning

Module 1: Security Overview

- Security Fundamental
- Security in the Cloud
- Share Responsibility Model
- Security in the Cloud Categorization
- Security Framework
    - Industry Framework and Security Standards
    - Understand Well Architected Framework

Module 2: Access and Authorizations on AWS

- Ways to Interact with AWS
- AWS Identity and Access Management Fundamentals
- Securing the Root User Account
- Implementing Multi-Factor Authentication(MFA)
- Understanding IAM Policies and Permission Boundaries
- Use IAM roles with temporary access credentials
- Use IAM roles for Cross-Account Access
- Analyze policies and use least privileges
- Delegating and Constraining Permissions
- Detecting Anomaly IAM entity behavior with Cloudtrail
- Develop Visibility for IAM Access

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Module 3: Account Management and Provisioning on AWS

- Managing Multiple AWS Accounts Individually
- Managing Multiple AWS Account with Organization
- Managing Multiple AWS Account with Landing Zone and Control Tower
- Managing users and Permission with Federated Identity and IAM Identity Centers
- Amazon Cognito and Web Identity Providers
- Implement identity providers and brokers to grant access to AWS services.
- Implement AWS IAM Identity Center (successor to AWS Single Sign-On) and AWS Directory Service.
- Managing Domain User Access with AWS Directory Service and Okta

Module 4: Managing Keys and Secrets on AWS

- Key Management on AWS Cloud
- Envelope encryption on AWS cloud
- Amazon EBS encryption with AWS KMS key
- Protecting Encryption Keys on AWS Cloud
- Import Key Material in AWS KMS
- Key Rotation, Multi-Region Keys and Multi-Factor Authentication
- CloudHSM
- AWS KMS custom Key stores with CloudHSM
- Custom Key Stores
- Protecting data in transit with certificate manager
- Understanding AWS Private Certificate Authority
- Understanding AWS Secret Manager

Module 5: Data Security

- Data Protection Strategies
- Data Protection in Amazon S3 and Amazon s3 security best practices
- Data Encryption for Amazon S3 and Access Control for Amazon S3

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- Detect unintended access with Access Analyzer for Amazon S3
- Data resiliency for Amazon S3
- Monitor Sensitive data with Amazon Macie
- Integrates Macie with AWS organizations and AWS Security Hub
- Protection of Data at rest and in transit on Amazon RDS Databases
- Use Network isolation technique Amazon RDS
- Control Access to Amazon RDS services
- Cross-Region replication of Amazon RDS data
- Protection of Data at rest and in transit on Amazon DynamoDB Databases
- Cross-Region replication of Amazon DynamoDB data
- Protecting Data on EBS Volumes
- Protecting Archival Data in Amazon S3 Glacier

Module 6: Infrastructure and Edge Protection
- Protecting Infrastructure inside the VPC
- Understand the different between security group and Network ACLs
- Understand the use of AWS Network Firewall
- Manage traffic flow in AWS
- Understand the use of AWS VPC endpoints
- Ensure reliability and availability of access to your resource
- Use cloudfront to prevent or restrict access to the origin source of your resources
- Connect request to your resources running on AWS with Route53
- Protect your resources on AWS from external threats with AWS WAF
- Setup AWS WAF rules and configures security groups across multiple accounts and resources
- Protect your resources against DDoS attacks

Module 7: Monitoring and Collecting Logs on AWS

- Importance of security monitoring
- Monitor your AWS resources and network to identify threats
- Creating a Baseline with Amazon Detective

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- Monitor misconfiguration and discover resources with AWS Config
- Building centralized logging strategy for AWS Cloud
- Understand the use of SIEM tools to get insight and analyze your security event logs
- Get more logs with VPC flow logs
- Capture details information about request sent to your Load Balancer with ELB Access Logs
- Tracking access to your s3 bucket with S3 Server access Logs
- Logging API activity with AWS CloudTrails
- Get visibility and alarms with AWS CloudWatch Logs
- Analyze the Logs capture with Amazon Kinesis
- Use Amazon Security Lake to centrally manage your security data from your entire organization.
- Get Insight into your data with Amazon Athena
- Introduction to Centralized Logging on AWS
- Send Traffic Networks to IDS and IPS with VPC Traffic Mirroring

Module 8: Responding to Threats

- What is the incident response?
- Common types of security incidents
- Foundation of incident response
- Incident response preparation
- Incident response in the cloud
- Incident indicators
- Incident response workflows
- AWS Support for Incident response
- Understand the Security Incident response Simulations(SIRS) in AWS
- Key Simulation Elements
- Why Perform SIRS?
- When to Contact AWS for Security Incidents response
- AWS Services that do not need Prior Approval for Penetration testings or scanning

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- Using AWS Security Hub to gather and prioritize incident information
- Automated responses with Amazon EventBridge
- Use AWS Guard Duty to detect threats in the cloud
- Use AWS Inspector to detect Vulnerabilities in the cloud
- Use AWS Detective to Investigate the threat detected in AWS Cloud
- Respond to incident in the:
    - Service Domain
    - Infrastructure Domain

Module 9: Wrap-Up
Revision of the Core Security Best Practices

Bash Script (Self Pace/Arrange Class)

1. Introduction to scripting
2. Types of Shell in Linux
3. Shell Script Commands
4. Execute Shell Script
5. System and User-created Variables in Bash Scripting
6. Shell Script Inbuilt Parameters
7. Shell Script Argument
8. Equality and Inequality Operation in Bash Scripting
9. Arithmetic Operation in Shell Script
10. Control Statements in Bash Scripting
11. Switch Script Case
12. Functions and Automation
13. Loops in Shell Scripting
14. Automate Task in Linux
15.

Terraform (Self Pace/Arrange Class)

1. Introduction to Terraform and its basic features
2. Terraform Installation and Environment set up
3. Providers and Resources
4. Terraform state management
5. Terraform Backend
6. Variables, Inputs, and Outputs
7. Modules and reusable code
8. Terraform Workspaces
9. Advanced Command in Terraform [join, functions, conditional Statement]

Python Class, Boto3 and Lambda(Arrange)