Systems Operations on AWS with AWS Jam

AWS Classroom Training

Course description

This course teaches systems operators and anyone performing system operations functions how to install, configure, automate, monitor, secure, maintain and troubleshoot the services, networks, and systems on AWS necessary to support business applications. The course also covers specific AWS features, tools, and best practices related to these functions.

The final day is an AWS Jam, a gamified event, with teams competing to score points by completing a series of challenges according to established best practices based on concepts covered in the course. You get to experience a wide range of AWS services in a series of real-world scenarios that represent common operational and troubleshooting tasks. The end result is developing, enhancing, and validating your skillsets in the AWS Cloud through real-world problem solving, exploring new services, features, and understanding how they interoperate.

- Course level: Intermediate
- Duration: 4 days

Activities

This course includes instructor presentation, hands-on labs, demonstrations, group knowledge checks, and team-based gamified challenge.

Course objectives

In this course, you will:

- Recognize the AWS services that support the different phases of Operational Excellence, a Well-Architected Framework pillar.
- Manage access to AWS resources using AWS Accounts and Organizations and AWS Identity and Access Management (IAM).
- Maintain an inventory of in-use AWS resources using AWS services such as AWS Systems Manager, AWS CloudTrail, and AWS Config.
- Develop a resource deployment strategy utilizing metadata tags, Amazon Machine Images, and Control tower to deploy and maintain an AWS cloud environment.
- Automate resource deployment using AWS services such as AWS CloudFormation and AWS Service Catalog.
- Use AWS services to manage AWS resources through SysOps lifecycle processes such as deployments and patches.
- Configure a highly available cloud environment that leverages AWS services such as Amazon Route 53 and Elastic Load Balancing to route traffic for optimal latency and performance.
- Configure AWS Auto Scaling and Amazon Elastic Compute Cloud auto scaling to scale your cloud environment based on demand.
- Use Amazon CloudWatch and associated features such as alarms, dashboards, and widgets to monitor your cloud environment.

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- Manage permissions and track activity in your cloud environment using AWS services such as AWS CloudTrail and AWS Config.
- Deploy your resources to an Amazon Virtual Private Cloud (Amazon VPC), establish necessary connectivity to your Amazon VPC, and protect your resources from disruptions of service.
- State the purpose, benefits, and appropriate use cases for mountable storage in your AWS cloud environment.
- Explain the operational characteristics of object storage in the AWS cloud, including Amazon Simple Storage Service (Amazon S3) and Amazon S3 Glacier.
- Build a comprehensive costing model to help gather, optimize, and predict your cloud costs using services such as AWS Cost Explorer and the AWS Cost & Usage Report.
- Work in a team environment to solve real AWS use-case challenges in an AWS Jam

Intended audience

This course is intended for:

- System administrators and operators who are operating in the AWS Cloud
- Informational technology workers who want to increase their system operations knowledge.

Prerequisites

We recommend that attendees of this course have:

- Successfully completed the AWS Technical Essentials course
- Background in either software development or systems administration
- Proficiency in maintaining operating systems at the command line, such as shell scripting in Linux environments or cmd/PowerShell in Windows
- Basic knowledge of networking protocols (TCP/IP, HTTP)

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Course outline

Day 1

Module 1: Introduction to System Operations on AWS

- Systems operations
- AWS Well-Architected Framework
- AWS Well-Architected Tool

Module 2a: Access Management

- Access management
- Resources, accounts, and AWS Organizations

Module 2b: System Discovery

- Methods to interact with AWS services
- Introduction to monitoring services
- Tools for automating resource discovery
- Inventory with AWS Systems Manager and AWS Config
- Troubleshooting scenario
- Hands-On Lab: Auditing AWS Resources with AWS Systems Manager and AWS Config

Module 3: Deploy and Update Resources

- Systems operations in deployments
- Tagging strategies
- Deployment using Amazon Machine Images (AMIs)
- Deployment using AWS Control Tower
- Troubleshooting scenario

Module 4: Automate Resource Deployment

- Deployment using AWS CloudFormation
- Deployment using AWS Service Catalog
- Troubleshooting scenario
- Hands-On Lab: Infrastructure as Code

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Day 2

Module 5: Manage Resources

- AWS Systems Manager
- Troubleshooting scenario
- Hands-On Lab: Operations as Code

Module 6a: Configure Highly Available Systems

- Distributing traffic with Elastic Load Balancing
- Amazon Route 53

Module 6b: Automate Scaling

- Scaling with AWS Auto Scaling
- Scaling with Spot Instances
- Managing licenses with AWS License Manager
- Troubleshooting scenario

Module 7: Monitor and Maintain System Health

- Monitoring and maintaining healthy workloads
- Monitoring distributed applications
- Monitoring AWS infrastructure
- Monitoring your AWS account
- Troubleshooting scenario
- Hands-On Lab: Monitoring Applications and Infrastructure

Module 8: Data Security and System Auditing

- Maintaining a strong identity and access foundation
- Implementing detection mechanisms
- Automating incident remediation
- Troubleshooting scenario
- Hands-On Lab: Implementing IAM permissions boundaries

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Day 3

Module 9: Operate Secure and Resilient Networks

- Building a secure Amazon Virtual Private Cloud (Amazon VPC)
- Networking beyond the VPC
- Troubleshooting scenario

Module 10a: Mountable Storage

- Configuring Amazon Elastic Block Storage (Amazon EBS)
- Sizing Amazon EBS volumes for performance
- Using Amazon EBS snapshots
- Using Amazon Data Lifecycle Manager to manage your AWS resources
- Creating backup and data recovery plans
- Configuring shared file system storage

Module 10b: Object Storage

- Deploying Amazon Simple Storage Service (Amazon S3) with Access Logs, Cross-Region Replication, and S3 Intelligent-Tiering
- Hands-On Lab: Automating with AWS Backup for Archiving and Recovery

Module 11: Cost Reporting, Alerts, and Optimization

- Gaining AWS cost awareness
- Using control mechanisms for cost management
- Optimizing your AWS spend and usage
- Hands-On Lab: Capstone lab for SysOps

Day 4

AWS Jam

- Participate in team based challenges in a real AWS environment
- Compete with your colleagues in a gamified, hands-on learning experience
- Apply your learning from the course on various AWS services