



Cloud Hero Infra II Skills

Course description

This advanced course is designed for cloud professionals seeking to deepen their expertise in designing, implementing, and managing highly available, scalable, and secure infrastructure in a cloud environment. Building upon foundational cloud knowledge, participants will explore complex networking topologies, advanced security controls, robust disaster recovery strategies, and sophisticated automation techniques. Through a blend of in-depth theoretical discussions and extensive hands-on labs, you will gain practical skills to tackle real-world challenges, optimize cloud resources, and drive operational excellence. By the end of this course, you will be equipped to lead infrastructure projects, troubleshoot intricate issues, and architect resilient cloud solutions.

- Course level: Advanced
- Duration: 3 days

Activities

This course includes presentations, hands-on labs, demonstrations, and group exercises.

Course objectives

In this course, you will learn to:

- Design and implement complex, multi-VPC cloud network architectures.

- Configure advanced security services and enforce compliance best practices.
- Develop and deploy highly available and fault-tolerant infrastructure solutions.
- Automate infrastructure provisioning and management using advanced Infrastructure as Code (IaC) techniques.
- Optimize cloud resource utilization for performance and cost efficiency.
- Implement comprehensive monitoring, logging, and alerting strategies for complex environments.
- Troubleshoot advanced infrastructure issues across various cloud services.
- Apply architectural patterns for robust database and containerized application deployments.

Intended audience

This course is intended for experienced cloud professionals who have a solid understanding of fundamental cloud concepts and wish to specialize in advanced infrastructure management:

- Cloud Engineers
- DevOps Engineers
- Cloud Architects
- System Administrators transitioning to cloud
- Infrastructure-as-Code Specialists
- Site Reliability Engineers (SREs)

Prerequisites

We recommend that attendees of this course have:

- Completion of "Cloud Hero Infra I" or equivalent foundational cloud infrastructure experience (e.g., managing VPCs, EC2, S3, IAM basics).
- Proficiency with cloud provider console and command-line interface (CLI).
- Basic understanding of scripting (e.g., Python, Bash) and version control (Git).
- Familiarity with Linux operating systems.

Course outline

Module 1: Advanced Cloud Networking

- Deep Dive into VPC Design and Segmentation
- Inter-VPC Connectivity: Peering, Transit Gateway, VPNs
- Hybrid Cloud Networking: Direct Connect and Site-to-Site VPN
- Advanced Load Balancing: Global Load Balancers, Layer 7 Rules, WAF Integration
- Network Security Groups and Network ACLs Best Practices
- Hands-on Lab: Designing and Implementing a Multi-VPC Architecture with Transit Gateway

Module 2: Scalable and Resilient Architectures

- Auto Scaling Advanced Configurations and Custom Metrics
- Disaster Recovery (DR) Strategies: RPO/RTO, Active-Passive, Active-Active Deployments
- Multi-Region and Multi-AZ Architectures for High Availability
- Implementing Serverless Compute for Scalability (Lambda, Fargate)
- Chaos Engineering Principles for Resilience Testing
- Hands-on Lab: Deploying a Highly Available, Auto-Scaling Web Application Across Multiple AZs

Module 3: Advanced Security and Compliance

- IAM Deep Dive: Policy Conditions, Roles for Cross-Account Access, Service Control Policies (SCPs)
- Centralized Security Management: Security Hub, GuardDuty, Macie
- Data Encryption at Rest and In Transit: KMS, Cloud HSM
- Compliance Frameworks in the Cloud: HIPAA, PCI-DSS, GDPR considerations
- Security Best Practices for Cloud Workloads and Data
- Hands-on Lab: Implementing Centralized Security Logging and Compliance Checks

Module 4: Infrastructure as Code (IaC) Deep Dive

- Advanced CloudFormation/Terraform: Modules, Stacks, State Management, Drift Detection
- Managing Complex Deployments with IaC: Blue/Green, Canary Deployments
- Integrating IaC with CI/CD Pipelines (e.g., Jenkins, GitLab CI, AWS CodePipeline)

- Secrets Management with IaC: Parameter Store, Secrets Manager Integration
- Policy as Code for Governance (e.g., AWS Config Rules, OPA)
- Hands-on Lab: Building a Reusable Infrastructure Module with Terraform/CloudFormation

Module 5: Monitoring, Logging, and Optimization

- Advanced Cloud Monitoring: Custom Metrics, Alarms, Dashboards
- Centralized Logging Solutions: ELK Stack, CloudWatch Logs Insights, Splunk Integration
- Distributed Tracing with X-Ray/OpenTelemetry
- Cost Optimization Strategies: Reserved Instances, Savings Plans, Spot Instances, Rightsizing
- Performance Optimization: Caching Strategies, Database Tuning, Network Performance
- Hands-on Lab: Setting Up Proactive Monitoring and Alerting for Performance and Cost

Module 6: Database and Data Storage Solutions

- Advanced Relational Database Management (RDS): Read Replicas, Multi-AZ, Performance Insights
- NoSQL Databases: DynamoDB Advanced Features, Global Tables, DAX
- Object Storage Deep Dive (S3): Lifecycle Policies, Versioning, Cross-Region Replication, Storage Classes
- Data Migration Strategies: Database Migration Service (DMS), Snowball
- Data Lake Concepts and Implementation Overview (S3, Glue, Athena)
- Hands-on Lab: Deploying a Highly Available Database with Read Replicas and Data Lifecycle Management

Module 7: Containerization and Orchestration Deep Dive

- Kubernetes (EKS/GKE/AKS) Advanced Concepts: Networking (CNI), Storage (CSI), DaemonSets, Operators
- Serverless Containers with Fargate: Best Practices and Cost Management
- Service Mesh Architectures: Istio, App Mesh
- Container Security: Image Scanning, Runtime Protection, Network Policies
- CI/CD for Containerized Applications

- Hands-on Lab: Deploying and Securing a Microservices Application on Kubernetes

Module 8: Troubleshooting and Operational Excellence

- Systematic Troubleshooting Methodologies for Complex Cloud Environments
- Network Troubleshooting Tools and Techniques (VPC Flow Logs, Reachability Analyzer)
- Application Performance Monitoring (APM) for Root Cause Analysis
- Post-Incident Review (PIR) and Continuous Improvement
- Implementing Operational Runbooks and Automation for Common Incidents
- Architectural Design Patterns for Resilience and Scalability Review
- Hands-on Lab: Diagnosing and Resolving a Complex Infrastructure Outage Scenario

Module 9: Course Wrap-up

- Review of key concepts and skills acquired
- Recommended next steps for continued learning and certifications
- Additional resources: documentation, community forums, advanced whitepapers
- Course summary and Q&A

Your course overview ends here.
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About CloudThat

Established in 2012, CloudThat is an award-winning company and the first in India to offer cloud training and consulting services for individuals and enterprises worldwide. Recently, it won Google Cloud's New Training Partner of the Year Award for 2025, becoming the first company in the world in 2025 to hold awards from all three major cloud giants: AWS, Microsoft, and Google. CloudThat notably won consecutive AWS Training Partner of the Year (APJ) awards in 2023 and 2024 and the Microsoft Training Services Partner of the Year Award in 2024, bringing its total award count to an impressive 12 awards in the last 8 years.

CloudThat specializes in Cloud Migration, Data Platforms, DevOps, IoT, and cutting-edge technologies like Gen AI & AI/ML. As a Microsoft Solutions Partner, AWS Premier Tier Training Partner, Google Cloud Platform Partner, and collaborator with leading organizations like HPE, Oracle, Nvidia and Databricks, CloudThat has trained over 850,000 professionals across 600+ cloud certifications, empowering students and professionals worldwide to advance their skills and careers.

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