# Google Cloud Infrastructure for AWS Professionals Training

Duration: **2 Day**

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**Google Cloud Infrastructure for AWS Professionals** is a specialized training program designed for cloud architects and engineers who already have experience with Amazon Web Services (AWS). The course helps learners transfer their AWS knowledge to Google Cloud Platform (GCP) by exploring the similarities and differences between the two cloud ecosystems while providing hands-on experience with Google Cloud resources and services.

Throughout the training, participants work with key Google Cloud technologies including**Google Cloud Resource Hierarchy**, **IAM**, **VPC Networking**, **Compute Engine**, **Cloud Storage**, **Google Kubernetes Engine (GKE)**, **Cloud Run**, **Load Balancing**, and **Cloud Monitoring**.

This course enables AWS professionals to expand their cloud expertise, support multi-cloud strategies, and confidently design and manage infrastructure on Google Cloud.

## Prerequisites

Participants are recommended to have:

- Familiarity with AWS services and concepts
- Basic cloud computing experience
- Understanding of networking concepts
- Experience managing Linux or Windows servers
- Basic knowledge of container technologies (recommended)

## Who Should Attend

This course is ideal for:

- **Cloud Architects**
- **Cloud Engineers**
- **AWS Administrators**
- **DevOps Engineers**
- **Solutions Architects**
- **Site Reliability Engineers (SREs)**
- System Administrators
- Multi-cloud infrastructure professionals
- AWS professionals transitioning to Google Cloud

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## What You Will Learn

By the end of this course, learners will be able to:

- Compare AWS and Google Cloud architectures and services.
- Implement resource management and access controls in Google Cloud.
- Configure **VPC**, **VPN**, and **Firewall** solutions.
- Deploy and manage virtual machines using **Compute Engine**.
- Configure load balancing and autoscaling solutions.
- Utilize Google Cloud storage services.
- Deploy applications using **Google Kubernetes Engine (GKE)**.
- Build containerized applications with **Cloud Run**.
- Monitor and optimize Google Cloud infrastructure.

## Training Outline

### Resource and Access Management

#### Google Cloud Resource Hierarchy

- **Google Cloud Resource Hierarchy**
- Organizations, folders, and projects
- Resource organization strategies
- Governance best practices

#### Identity and Access Management (IAM)

- **Google Cloud IAM**
- Role-based access control
- Permission management
- Secure identity governance

#### Service Accounts

- Service account management
- Authentication mechanisms
- API access and security

#### Interacting with Google Cloud

- Google Cloud Console
- Cloud Shell
- Command-line tools and administration

### Networking in Google Cloud

#### Comparing AWS and Google Cloud Networking

- Network architecture comparisons

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- Core networking concepts
- Design considerations

**Virtual Private Cloud (VPC)**

- **Google Cloud VPC**
- Differences from AWS VPC
- Subnet management
- Network segmentation

**Cloud Routing**

- Dynamic routing
- Traffic management
- Route configuration

**Interconnecting Networks**

- Connectivity options
- Network peering
- Hybrid cloud connectivity

**Private Google Access and Cloud NAT**

- **Private Google Access**
- **Cloud NAT**
- Secure internet access
- Private networking solutions

## Virtual Machines with Compute Engine

**Google Compute Engine**

- **Google Compute Engine**
- Virtual machine deployment
- Infrastructure management

**Machine Types and Images**

- CPU, GPU, and memory options
- Image management
- Custom machine configurations

**Spot VMs**

- **Spot Virtual Machines**
- Cost optimization strategies
- Temporary and batch workloads

## Load Balancing and Autoscaling

**Cloud Load Balancing**

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- **Google Cloud Load Balancing**
- Load balancing architectures
- Global traffic distribution
- Application scalability

#### Managed Instance Groups

- **Managed Instance Groups**
- Autoscaling policies
- High availability architectures
- Self-healing infrastructure

### Storage and Database Services

#### Storage Services

- **Google Cloud Storage**
- Object storage solutions
- Data lifecycle management

#### Managed Database Services

- **Cloud SQL**
- **Cloud Spanner**
- Fully managed databases

#### Data Lake Solutions

- Big data architectures
- Analytics storage
- Data lake strategies

#### Cloud Bigtable

- **Cloud Bigtable**
- Large-scale NoSQL solutions
- High-performance data processing

### Containers and Kubernetes

#### Containers on Google Cloud

- Container technologies
- Docker-based deployments
- Container management

#### Google Kubernetes Engine (GKE)

- **Google Kubernetes Engine**
- Kubernetes cluster administration
- Container orchestration

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#### Kubernetes Concepts

- Kubernetes architecture
- Pods, Deployments, and Services
- Networking and workload management

#### Hybrid and Multi-Cloud Solutions

- **GKE Enterprise**
- Hybrid cloud architectures
- Multi-cloud strategies

### Application Development Services

#### Cloud Run Functions

- Serverless functions
- Event-driven computing
- Microservices architectures

#### Cloud Run

- **Google Cloud Run**
- Container deployment
- Serverless applications
- Scalable service hosting

### Monitoring and Operations

#### Cloud Operations Suite

- **Google Cloud Operations**
- Monitoring and logging
- Operational visibility

#### Cloud Monitoring

- Dashboards and alerts
- Uptime monitoring
- Infrastructure performance tracking

#### Monitoring GKE Clusters

- Kubernetes observability
- Cluster performance monitoring
- Resource optimization

#### Ops Agent

- Metrics collection
- System monitoring
- Operational insights

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