Architecting with Google Compute Engine (GCE)

Duration: 3 Days Course Code: GO5973

Overview:

Develop essential skills for managing and administering solutions in Google Cloud.

This course will familiarize you with Google Cloud's flexible infrastructure and platform services, with a specific focus on Compute Engine. This course uses a combination of lectures, demos, and hands-on labs to explore and deploy solution elements, including infrastructure components like networks, systems, and application services.
You'll also learn how to deploy practical solutions such as hybrid networking, customer-supplied encryption keys, security and access management, quotas and billing, and resource monitoring.

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Target Audience:

Experienced developers who are responsible for managing big data transformations including: Cloud Solutions Architects, DevOps Engineers. IT specialists using Google Cloud to create new solutions or to integrate existing systems, application environments, and infrastructure, with a focus on Compute Engine

Objectives:

- **After this course participants should be able to:**
- Interact with the Google Cloud console and Cloud Shell
- Deploy solutions using Google Cloud Marketplace
- Implement VPC networks and firewall rules
- Create and customize VM instances using Compute Engine
- Administer Identity and Access Management for resources
- Implement data storage services in Google Cloud
- Manage and examine billing of Google Cloud resources
- Monitor resources using Google Cloud services
- Connect your infrastructure to Google Cloud
- Configure load balancers and autoscaling for VM instances
- Automate the deployment of Google Cloud infrastructure services
- Leverage managed services in Google Cloud

Prerequisites:

- Have completed Google Cloud Fundamentals: Core Infrastructure or have equivalent experience
- Have basic proficiency with command-line tools and Linux operating system environments
- Have systems operations experience, including deploying and managing applications, either on-premises or in a public cloud environment

Testing and Certification

This course is part of the Learning path towards Certification: Google Cloud Certified – Associate Cloud Engineer

Follow-on-Courses:

- GO6591 Getting Started with Google Kubernetes Engine
- GO6494 Architecting with Google Kubernetes Engine

Content:

1. Introduction to Google Cloud

- List the different ways of interacting with Google Cloud
- Interact with the Google Cloud console and Cloud Shell
- Create Cloud Storage buckets
- Deploy solutions using Google Cloud Marketplace
- Lab: Console and Cloud Shell
- Lab: Infrastructure Preview

2. Virtual Networks

- List the VPC objects in Google Cloud
- Explore VPC Networking
- Implement Private Google Access and Cloud NAT
- Lab: VPC Networking
- Lab: Implement Private Google Access and Cloud NAT

3. Virtual Machines

- Recall the CPU and memory options for virtual machines
- Describe the disk options for virtual machines
- Explain VM pricing and discounts
- Create and customize VM instances using Compute Engine
- Lab: Creating Virtual Machines
- Lab: Working with Virtual Machines

4. Identity and Access Management (IAM)

- Describe the IAM resource hierarchy
- Explain the different types of IAM roles
- Recall the different types of IAM members
- Implement access control for resources using IAM
- Lab: Cloud IAM

5. Storage and Database services

- Differentiate between Cloud Storage, Cloud SQL, Cloud Spanner, Firestore and Cloud Bigtable
- Choose a data storage service based on your requirements
- Implement data storage services
- Lab: Cloud Storage
- Lab: Implementing Cloud SQL

6. Resource Management

- Describe the cloud resource manager hierarchy
- Recognize how quotas protect Google Cloud customers
- Organize resources using labels
- Explain the behavior of budget alerts in Google Cloud
- Examine billing data with BigQuery
- Lab: Examining Billing Data with BigQuery

7. Resource Monitoring

- Describe the services for monitoring, logging, error reporting, tracing, and debugging
- Create charts, alerts, and uptime checks for resources with Cloud Monitoring
- Identify and fix errors using Cloud Debugger
- Lab: Resource Monitoring
- Lab: Error Reporting and Debugging

8. Interconnecting Networks

- Recall the Google Cloud interconnect and peering services available to connect your infrastructure to Google Cloud
- Determine which Google Cloud interconnect or peering service to use in specific circumstances
- Create and configure Google Cloud HA VPN
- Recall when to use Shared VPC and when to use VPC Network Peering
- Lab: Virtual Private Networks (VPN)

9. Load balacing and Autoscaling

- Recall the various load balancing services
- Determine which Google Cloud load balancer to use in specific circumstances
- Describe autoscaling behavior
- Configure load balancers and autoscaling
- Lab: ILT Configure an HTTP Load Balancer with Autoscaling
- Lab: Configuring an Internal Load Balancer

10. Infrastructure Automation

- Automate the deployment of Google Cloud services using Terraform
- Outline the Google Cloud Marketplace
- Lab: Automating the Deployment of Infrastructure Using Terraform

11. Managed Services

- Describe the managed services for data processing in Google Cloud

Additional Information:

Official course book provided to participants.

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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