[sfeir] Institute

Google Cloud, Google Cloud | GCP200AGCE

Architecting with Google Compute Engine

The best course to master the infrastructure and platform services provided by Google Cloud, with a focus on Compute Engine

3jours / 21h

Course overview

This three-day instructor-led class introduces participants to the comprehensive and flexible infrastructure and platform services provided by Google Cloud, with a focus on Compute Engine.

Through a combination of presentations, demos, and hands-on labs, participants explore and deploy solution elements, including infrastructure components such as networks, systems, and application services.

This course also covers deploying practical solutions including securely interconnecting networks, customer-supplied encryption keys, security and access management, quotas and billing, and resource monitoring.

Learning outcomes

- Configure VPC networks and virtual machines
- 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

Target audience

- Cloud Solutions Architects, DevOps Engineers
- Individuals using Google Cloud to create new solutions or to integrate existing systems, application environments, and infrastructure, with a focus on Compute Engine

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

Course Outline

Module 1: Introduction to Google Cloud

- List the different ways of interacting with Google Cloud
- Use the Cloud Console and Cloud Shell
- Create Cloud Storage buckets
- Use the Google Cloud Marketplace to deploy solutions

Module 2: Virtual Networks

- List the VPC objects in Google Cloud
- Differentiate between the different types of VPC networks
- Implement VPC networks and firewall rules
- Implement Private Google Access and Cloud NAT

Module 3: Virtual Machines

- Recall the CPU and memory options for virtual machines
- Describe the disk options for virtual machines
- Explain VM pricing and discounts
- Use Compute Engine to create and customize VM instances

Module 4: Cloud IAM

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

Module 5: Storage and Database Services

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

Module 6: Resource Management

- Describe the cloud resource manager hierarchy
- Recognize how quotas protect Google Cloud customers
- Use labels to organize resources
- Explain the behavior of budget alerts in Google Cloud
- Examine billing data with BigQuery

Module 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
- Use Cloud Debugger to identify and fix errors

Module 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 VPN gateways
- Recall when to use Shared VPC and when to use VPC Network Peering

Module 9: Load Balancing 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

Module 10: Infrastructure Automation

- Automate the deployment of Google Cloud services using Deployment Manager or Terraform
- Outline the Google Cloud Marketplace

Module 11: Managed Services

- Describe the managed services for data processing in Google Cloud