GC-NGC

NETWORKING IN GOOGLE CLOUD

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
2 Days	Intermediate	Google Cloud	VILT & ILT	NA

INTRODUCTION

This two-day instructor-led course gives participants a broad study of networking options on Google Cloud.

The course builds on the networking concepts covered in the Architecting with Google Compute Engine course. Through presentations, demonstrations, and labs, participants explore and deploy Google Cloud networking technologies. These technologies include: Virtual Private Cloud (VPC) networks, subnets, and firewalls, Interconnection among networks, Load balancing, Cloud DNS, Cloud CDN, Cloud NAT. The course will also cover common network design patterns

AUDIENCE PROFILE

This course is intended for the following participants:

— Network engineers and administrators who use the Google Cloud console or are planning to do so.
— Individuals who want to be exposed to software-defined networking solutions in the cloud.

PREREQUISITES

— Completed Google Cloud Fundamentals: Core Infrastructure or have equivalent experience
— Having completed the Networking Fundamentals in Google Cloud quest or having equivalent experience.
— Clear understanding of the 7-layer OSI model.
— Clear understanding of IPv4 addressing.
— Prior experience with managing IPv4 routes.

COURSE OBJECTIVES

This course teaches participants the following skills:

— Configure VPC networks, subnets, and routers and control administrative access to VPC objects.
— Route traffic by using DNS traffic steering.
— Control access to VPC networks.
— Implement network connectivity between Google Cloud projects.
— Implement load balancing.
— Configure connectivity to Google Cloud VPC networks.
— Configure private connection options to provide access to external resources and services from internal networks."
— Identify the best Network Service Tier for your needs.

COURSE CONTENT

Lesson 1: VPC Networking Fundamentals
Objectives

— Recall that networks belong to projects.
— Explain the differences among default, auto, and custom networks.

— Create networks and subnets.
— Explain how IPv4 addresses are assigned to Compute Engine instances.
— Publish domain names using Google Cloud DNS.

— Create Compute Engine instances with IP aliases.
— Create Compute Engine instances with multiple virtual networks.
Activities

— Lab: Working with Multiple VPC Networks

- Lab: Traffic Steering using Geolocation Policy
- Quiz.

Lesson 2: Controlling Access to VPC Networks
Objectives
- Outline how IAM policies affect VPC networks
- Control access to network resources using service accounts.
- Control access to Compute Engine instances with tag-based firewall rules.

Activities
- Lab: Controlling Access to VPC Networks.

Lesson 3: Sharing Networks across Projects
Objectives
- Outline the overall workflow for configuring Shared VPC
- Differentiate between the IAM roles that allow network resources to be managed
- Configure peering between unrelated VPC Networks.
- Recall when to use Shared VPC and when to use VPC Network Peering.

Activities
- Lab: Configuring VPC Network Peering.
- Quiz.

Lesson 4: Load Balancing
Objectives
- Recall the various load balancing services.
- Configure Layer 7 HTTP(S) load balancing.
- Whitelist and blacklist IP traffic with Cloud Armor.
- Cache content with Cloud CDN.
- Explain Layer 4 TCP or SSL proxy load balancing.
- Explain regional network load balancing.
- Configure internal load balancing.

- Recall the choices for enabling IPv6 Internet connectivity for Google Cloud load balancers.
- Determine which Google Cloud load balancer to use In which situation.

Activities
- Lab: Configuring Traffic Management with a Load Balancer.
- Lab: Caching Cloud Storage with Cloud CD.
- Lab
- Quiz

Lesson 5: Hybrid Connectivity
Objectives
- Recall the Google Cloud interconnect and peering services available to connect your infrastructure to Google Cloud
- Explain Dedicated Interconnect and Partner Interconnect.
- Describe the workflow for configuring a Dedicated Interconnect.
- Build a connection over a VPN with Cloud Router.
- Determine which Google Cloud interconnect service to use in which situation.
- Explain Direct Peering and Partner Peering.
- Determine which Google Cloud peering service to use in which situation.

Activities
- Lab: Configuring Google Cloud HA VPN.
- Quiz

Lesson 6: Private Connection Options
Objectives
- Recognize how networking features are charged.
- Use Network Service Tiers to optimize spend.
- Determine which Network Service Tier to use in which situation.

- Recall that labels can be used to understand networking spend.

Activities
- Lab: Implement Private Google Access and Cloud NAT.
- Quiz.

Lesson 7: Network Billing and Pricing
Objectives
- Explain common network design patterns.
- Configure Private Google Access to allow access to certain Google Cloud services from VM instances with only internal IP addresses.
- Configure Cloud NAT to provide your instances without public IP addresses access to the internet.
- Automate the deployment of networks using Deployment Manager or Terraform.
- Launch networking solutions using Cloud Marketplace.

Activities
- Lab: Optimising Network spend with Network Tiers.
- Lab.
- Lab.
- Quiz.

Lesson 8: Network Monitoring and Troubleshooting
Objectives
- Configure uptime checks, alerting policies and charts for your network services.
- Use VPC Flow Logs to log and analyze network traffic behavior.

Activities
- Lab: Resource Monitoring.
- Lab.
- Quiz.

ASSOCIATED CERTIFICATIONS & EXAM

This course prepares you for the Google Cloud Certified: Professional Cloud Network Engineer, and the Google Cloud Certified: Professional Cloud Security Engineer certification exams.