COURSE OUTLINE

GC-NGC - Networking in Google Cloud

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
3 days	200 - Intermediate	Google Cloud	VILT / ILT	N/A

INTRODUCTION

This course builds on Google Cloud networking fundamentals. Through presentations, demonstrations, and labs, participants explore and deploy VPC networks, subnets, firewalls, connectivity, load balancing, Cloud DNS, Cloud CDN, Cloud NAT, and common network design patterns.

AUDIENCE PROFILE

Network engineers and administrators who use or plan to use the Google Cloud console, and individuals seeking exposure to software-defined networking in the cloud.

PRODUCTS

- Cloud CDN
- Cloud NAT
- Secure Web Proxy
- Cloud VPN
- DNS Armor
- Google Cloud Armor Enterprise
- Cloud Firewall Standard
- Cloud Next Generation Firewall
- Cloud IDS
- Advanced Networking
- Application Load Balancer
- Network Connectivity Gateway
- Cross-Cloud Interconnect
- VPC networks
- Load balancers
- Cloud DNS
- Packet Mirroring
- Network Connectivity Center
- Cloud Interconnect

COURSE OUTLINE

PREREQUISITES

- Google Cloud Fundamentals: Core Infrastructure or equivalent experience.
- Understanding of the seven-layer OSI model.
- Understanding of IPv4 addressing and route management.

COURSE OBJECTIVES

- Configure VPC networks, subnets, and routers.
- Control administrative and network access.
- Interconnect networks and projects.
- Implement load balancing and traffic management.
- Use Cloud CDN and Network Service Tiers.
- Configure private, hybrid, and multi-cloud connectivity.
- Monitor and secure network resources.

COURSE CONTENT

Module 01 | VPC Networking Fundamentals

Topics

- VPC networks
- Multiple network interfaces
- Network Service Tiers

Objectives

Create multi-NIC VMs and use standard and premium tiers.

Activities

Quiz

Module 02 | Sharing VPC Networks

Topics

- Shared VPC
- VPC Network Peering
- Migrating VMs

Objectives

Select and configure VPC sharing methods.

Activities

Lab /Quiz

COURSE OUTLINE

Module 03 | Network Monitoring and Logging

Topics
- Monitoring
- Logging

Objectives
Configure checks, alerts, charts, and VPC Flow Logs.

Activities
- 2 labs
- Quiz

Module 04 | Network Routing and Addressing

Topics
- VPC routing
- IPv6
- BYOIP
- Cloud DNS

Objectives
Configure routing, addressing, DNS, and NAT rules.

Activities
- Lab
- Quiz

Module 05 | Private Connection Options

Topics
- Private Google Access
- Private Services Access
- Private Service Connect
- Cloud NAT

Objectives
- Differentiate and implement private connectivity options.

Activities
- Lab
- Quiz

COURSE OUTLINE

Module 06 | Introduction to Network Architecture

Topics

- Architecture overview
- Key considerations

Objectives

Describe architecture components and design considerations.

Activities

Quiz

Module 07 | Network Topologies

Topics

- Hub and spoke
- Other topologies
- Topology data
- Best practices

Objectives

Select, assess, and implement network topologies.

Activities

- Lab
- Quiz

Module 08 | DDoS Protection

Topics

- DDoS attacks
- Google Cloud mitigations
- Partner products

Objectives

Identify mitigation layers and use Google Cloud Armor.

Activities

- Lab
- Quiz

COURSE OUTLINE

Module 09 | Controlling Access to VPC Networks

Topics

- IAM
- Cloud Firewall
- Cloud IDS
- Secure Web Proxy

Objectives

Apply IAM, firewall policies, IDS, proxy, and security best practices.

Activities

- 2 labs
- Quiz

Module 10 | Advanced Security Monitoring and Analysis

Topics

- Packet Mirroring
- Network security best practices

Objectives

Use Packet Mirroring and apply security best practices.

Activities

- Lab
- Quiz

Module 11 | Hybrid Load Balancing and Traffic Management

Topics

- Hybrid load balancing
- Traffic management

Objectives

Configure hybrid load balancing and traffic management.

Activities

- Lab
- Quiz

COURSE OUTLINE

Module 12 | Caching and Optimizing Load Balancing

Topics

- Internal load balancers as next hops
- Cloud CDN
- Cloud Armor
- Optimization

Objectives

Optimize delivery and protect content.

Activities

- Lab
- Quiz

Module 13 | Connectivity Options

Topics

- Network Connectivity Center
- Cloud VPN
- Dedicated, Partner, and Cross-Cloud Interconnect

Objectives

Differentiate hybrid and multi-cloud connectivity options.

Activities

Quiz

Module 14 | Cloud VPN

Topics

- HA VPN topologies
- HA VPN over Interconnect
- Best-path selection

Objectives

Implement highly available VPN connectivity.

Activities

- Lab
- Quiz