



Networking in Google Cloud

Duration 2 day(s) (T-GCPNET-I-01)

Manage your network infrastructure in Google Cloud

Official Training



Description

Learn about the broad variety of networking options on Google Cloud. This course uses lectures, demos, and hands-on labs to help you explore and deploy Google Cloud networking technologies, including Virtual Private Cloud (VPC) networks, subnets, and firewalls; interconnection among networks; load balancing; Cloud DNS; Cloud CDN; and Cloud NAT. You'll also learn about common network design patterns and automated deployment using Cloud Deployment Manager or Terraform.

For each lab, Qwiklabs offers a free set of resources for a fixed amount of time and a clean environment with permissions.

Goals

- Configure Google VPC networks, subnets, and routers
- Control administrative access to VPC objects
- Control network access to endpoints in VPCs
- Interconnect networks among Google Cloud projects
- Interconnect networks among Google Cloud VPC networks and on-premises or other-cloud networks
- Choose among Google Cloud load balancer and proxy options and configure them
- Use Cloud CDN to reduce latency and save money
- Optimize network spend using Network Tiers
- Configure Cloud NAT or Private Google Access to provide instances without public IP addresses access to other services
- Deploy networks declaratively using Cloud Deployment Manager or Terraform
- Design networks to meet common customer requirements
- Configure monitoring and logging to troubleshoot networks problems

Public

- Network engineers and Admins who are either using Google Cloud or are planning to do so
- Individuals who want to be exposed to software-defined networking solutions in the cloud

Prerequisites

- Complete Google Cloud Fundamentals: Core Infrastructure or have equivalent experience
- Have prior understanding of the 7 layer OSI model
- Have prior understanding of IPv4 addressing
- Have prior experience with managing IPv4 routes

Structure

50% Theory, 50% Practice

Program

- Google Cloud VPC Networking Fundamentals
 - 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
- Controlling Access to VPC Networks
 - 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
- Sharing Networks Across Projects
 - 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
- Load Balancing
 - 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
- Hybrid Connectivity
 - 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
- Networking Pricing and Billing
 - 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
- Network Design and Deployment
 - 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
- Network Monitoring and Troubleshooting
 - Configure uptime checks, alerting policies and charts for your network services
 - Use VPC Flow Logs to log and analyze network traffic behavior