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VPC Networking

Task 1. Explore the default network

View the subnets

gcloud compute networks subnets list

View the routes

gcloud compute routes list

View the firewall rules

gcloud compute firewall-rules list

Delete the Firewall rules

gcloud compute firewall-rules delete

Delete the default network

gcloud compute networks delete default

Try to create a VM instance

gcloud compute instances create trial-vm

Task 2. Create an auto mode network

Create an auto mode VPC network with firewall rules

gcloud compute networks create mynetwork --subnet-mode=auto

gcloud compute firewall-rules create mynetwork-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=mynetwork --action=ALLOW --rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

Create a VM instance in us-central1

gcloud compute instances create mynet-us-vm --zone=us-central1-c --machine-type=n1-standard-1

Create a VM instance in europe-west1

gcloud compute instances create mynet-us-vm --zone=europe-west1-c --machine-type=n1-standard-1

Verify connectivity for the VM instances

gcloud compute ssh mynet-us-vm –zone europe-west1-c

ping -c 3 <mynet-eu-vm's internal IP>
OR
ping -c 3 mynet-eu-vm
OR
ping -c 3 <mynet-eu-vm's external IP>

Convert the network to a custom mode network

gcloud compute networks update mynetwork --switch-to-custom-subnet-mode

Task 3. Create custom mode networks

Create the managementnet network

gcloud compute networks create managementnet --subnet-mode=custom

gcloud compute firewall-rules create mynetwork-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=privatenet --action=ALLOW --rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

gcloud compute networks subnets create managementsubnet-us --network=managementnet --region=us-central1 --range=10.130.0.0/20

Create the privatenet network

gcloud compute networks create privatenet --subnet-mode=custom

gcloud compute networks subnets create privatesubnet-us --network=privatenet --region=us-central1 --range=172.16.0.0/24

gcloud compute networks subnets create privatesubnet-eu --network=privatenet --region=europe-west1 --range=172.20.0.0/20

Create the firewall rules for managementnet

gcloud compute firewall-rules create managementnet-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=managementnet --action=ALLOW rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

Create the firewall rules for privatenet

gcloud compute firewall-rules create privatenet-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=privatenet --action=ALLOW --rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

Create the managementnet-us-vm instance

gcloud compute instances create managementnet-us-vm --zone=us-central1-c --machine-type=f1-micro --subnet=managementsubnet-us

Create the privatenet-us-vm instance

gcloud compute instances create privatenet-us-vm --zone=us-central1-c --machine-type=f1-micro --subnet=privatesubnet-us

Task 4. Explore the connectivity across networks

Ping the external IP addresses

gcloud compute ssh mynet-us-vm –zone europe-west1-c

ping -c 3 <mynet-eu-vm's external IP>

ping -c 3 <managementnet-us-vm's external IP>

ping -c 3 <privatenet-us-vm's external IP>

Ping the internal IP addresses

ping -c 3 <mynet-eu-vm's internal IP>

ping -c 3 <managementnet-us-vm's internal IP>

Creating Virtual Machines

Task 1: Create a utility virtual machine

Create a VM

gcloud compute instances create utility-vm --zone=us-central1-c --machine-type=n1-standard-1 --no-address

Explore the VM details

gcloud compute instances list

Explore the VM logs

gcloud logging logs list

Task 2: Create a Windows virtual machine

Create a VM

gcloud compute instances create windows-vm --image-project windows-cloud --image-family windows-server-2016-datacenter-core --machine-type n1-standard-2 --boot-disk-size 100 --boot-disk-type SSD persistent disk

Set the password for the VM

gcloud compute reset-windows-password windows-vm

Task 3: Create a custom virtual machine

Create a VM

gcloud compute instances create custom-vm –zone=us-west1-b –machine-type=custom --custom-cpu=6 --custom-memory= 32 GB

Connect via SSH to your custom VM

gcloud compute ssh custom-vm –zone us-west1-b

free

sudo dmidecode -t 17

nproc

lscpu

exit