

Lab #6 : Networking and Load Balancing in GCP

Exercise 1: Multiple VPC Networks.

Lab report screen-shot #1:

The screenshot shows the Qwiklabs interface for the 'Multiple VPC Networks' lab. At the top, there's a red 'End Lab' button and a timer showing '01:09:51'. Below the timer, it says 'Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.' A 'Learn more' link is provided. On the left, there are fields for 'Username' (student-03-3ba50c7870e4@qwiklabs.net), 'Password' (St545C3Mh6Y), and 'GCP Project ID' (qwiklabs-gcp-03-e268a631035e). In the center, the title 'Multiple VPC Networks' is displayed above a 'GSP211' section. To the right, a user profile for 'Nalongsone Danddank' is shown with an email address (nalongsone.danddank@my.metrostate.edu) and 885 credits. A 'Sign Out' button is at the bottom. At the bottom of the main area, there's an 'Overview' section with a network diagram showing two regions: 'Region us-central1' and 'Region europe-west1'. The diagram illustrates a VPC network with subnets and routes.

Lab report screen-shot #2:

```
gcloud compute networks create managementnet --project=qwiklabs-gcp-03-e268a631035e --subnet-mode=custom  
--mtu=1460 --bgp-routing-mode=regional && gcloud compute networks subnets create managementsubnet-us  
--project=qwiklabs-gcp-03-e268a631035e --range=10.130.0.0/20 --network=managementnet --region=us-central1
```

The screenshot shows the Google Cloud Platform Cloud Shell interface. The sidebar on the left lists various VPC-related options like 'VPC networks', 'External IP addresses', etc. The main area has a modal window titled 'Create a VPC network' with 'Subnet creation mode' set to 'gcloud command line'. Inside the modal, the following gcloud commands are displayed:

```
gcloud compute networks create managementnet --project=qwiklabs-gcp-03-e268a631035e --subnet-mode=custom --mtu=1460 --bgp-routing-mode=regional  
gcloud compute networks subnets create managementsubnet-us --project=qwiklabs-gcp-03-e268a631035e --range=10.130.0.0/20 --network=managementnet --region=us-central1
```

Below the modal, there's a 'Line wrapping' checkbox. At the bottom of the screen, there's a terminal window showing the configuration of the active account:

```
ACTIVE: *  
ACCOUNT: student-03-3ba50c7870e4@qwiklabs.net  
To set the active account, run:  
$ gcloud config set account 'ACCOUNT'  
student-03_3ba50c7870e4@cloudshell:~$ gcloud config list project  
(core)  
project (unset)  
Your active configuration is: [cloudshell-18391]  
student-03_3ba50c7870e4@cloudshell:~$
```

Lab report screen-shot #3:

The screenshot shows a browser window for [qwiklabs.com](#) with the title "Multiple VPC Networks". A red box highlights the "End Lab" button at the top left. The main area displays a "Test Completed Task" message: "Create the managementnet network" with a green checkmark, "Check my progress" button, and "Assessment Completed!" message. To the right, a sidebar for "GSP211" shows a progress bar at 10/100, sections for Overview, Setup and Requirements, and a list of tasks: "Create custom mode VPC networks with firewall rules", "Create VM instances", "Explore the connectivity between VM instances", "Create a VM instance with multiple network interfaces", and "Congratulations!". A yellow box highlights the "Assessment Completed!" message.

Lab report screen-shot #4:

The screenshot shows a browser window for [console.cloud.google.com](#) with the title "Google Cloud Platform". The left sidebar shows "VPC network" options like External IP addresses, Bring your own IP, Firewall, Routes, VPC network peering, Shared VPC, and Cloud Shell. The main area shows "VPC networks" with a "CREATE VPC NETWORK" button and a "REFRESH" link. A modal window titled "Get real-time analytics with Network Intelligence Center" lists benefits: "Visualize your network resources", "Diagnose and prevent connectivity issues", "View packet loss and latency metrics", and "Keep your firewall rules strict and efficient". Buttons for "GO TO NETWORK INTELLIGENCE CENTER" and "REMIND ME LATER" are shown. Below the modal, a terminal window in the Cloud Shell shows the execution of gcloud commands to create a VPC network named "privatenet". The terminal output includes creating the network, setting subnet mode to custom, defining routes, and creating subnets in us-central1 and europe-west4 regions.

Lab report screen-shot #5:

End Lab 00:54:06

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Google Console](#)

Username: student-03-3ba50c71 Copied! [Copy](#)

Password: St94sCX3Wh6Y Copied! [Copy](#)

GCP Project ID: qwiklabs-gcp-03-e2i Copied! [Copy](#)

gcloud compute networks subnets create privatesubnet-eu --network=privatenet --region=europe-west4 --range=172.20.0.0/20

Test Completed Task

Click [Check my progress](#) to verify your performed task. If you have successfully created a privatenet network, you will see an assessment score.

Create the privatenet network [Check my progress](#) **Assessment Completed!**

4. Run the following command to list the available VPC networks:

gcloud compute networks list

The output should look like this (do not copy; this is example output):

NAME	SUBNET_MODE	BGP_ROUTING_MODE	IPV4_RANGE
default	AUTO	REGIONAL	

GSP211 50/100

Overview
Setup and Requirements
Create custom mode VPC networks with firewall rules
Create VM instances
Explore the connectivity between VM instances
Create a VM instance with multiple network interfaces
Congratulations!

Lab report screen-shot #6:

Google Cloud Platform console.cloud.google.com

VPC network VPC networks CREATE VPC NETWORK REFRESH

VPC networks

- External IP addresses
- Bring your own IP
- Firewall

CLOUD SHELL Terminal (qwiklabs-gcp-03-e268a631035e) + v

Get real-time analytics with Network Intelligence Center

Use Network Intelligence Center for comprehensive monitoring and troubleshooting. [Learn more](#)

- Visualize your network resources
- Diagnose and prevent connectivity issues
- View packet loss and latency metrics
- Keep your firewall rules strict and efficient

```

REGION: northamerica-northeast2
NETWORK: mynetwork
RANGE: 10.188.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE:
IPV6_CIDR_RANGE:
EXTERNAL_IPV6_CIDR_RANGE:

NAME: mynetwork
REGION: asia-south2
NETWORK: mynetwork
RANGE: 10.190.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE:
IPV6_CIDR_RANGE:
EXTERNAL_IPV6_CIDR_RANGE:

NAME: mynetwork
REGION: us-southeast2
NETWORK: mynetwork
RANGE: 10.192.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE:
IPV6_CIDR_RANGE:
EXTERNAL_IPV6_CIDR_RANGE:

NAME: privatesubnet-us
REGION: us-central1
NETWORK: privatenet
RANGE: 172.20.0.0/24
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE:
IPV6_CIDR_RANGE:
EXTERNAL_IPV6_CIDR_RANGE:

NAME: privatesubnet-eu
REGION: europe-west4
NETWORK: privatenet
RANGE: 172.20.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE:
IPV6_CIDR_RANGE:
EXTERNAL_IPV6_CIDR_RANGE:
student_03_3ba50c7870e4@cloudshell:~ (qwiklabs-gcp-03-e268a631035e) $ 

```

```

NAME: managementnet-us
REGION: us-central1
NETWORK: managementnet
RANGE: 10.130.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE:
IPV6_CIDR_RANGE:
EXTERNAL_IPV4_CIDR_RANGE;

NAME: mynetwork
REGION: us-central1
NETWORK: mynetwork
RANGE: 10.128.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE;
IPV6_CIDR_RANGE;
EXTERNAL_IPV4_CIDR_RANGE;

NAME: mynetwork
REGION: us-west1
NETWORK: mynetwork
RANGE: 10.138.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE;
IPV6_CIDR_RANGE;
EXTERNAL_IPV4_CIDR_RANGE;

NAME: mynetwork
REGION: asia-east1
NETWORK: mynetwork
RANGE: 10.140.0.0/20
STACK_TYPE: IPV4_ONLY
IPV6_ACCESS_TYPE;
IPV6_CIDR_RANGE;
EXTERNAL_IPV4_CIDR_RANGE;

```

Lab report screen-shot #7:

```

gcloud compute --project=qwiklabs-gcp-03-e268a631035e firewall-rules create managementnet-allow-icmp-ssh-rdp
--direction=INGRESS --priority=1000 --network=managementnet --action=ALLOW --rules=PROTOCOL:PORT,....
--source-ranges=0.0.0.0/0

```

The screenshot shows the 'Create a firewall rule' dialog box. The 'Source filter' dropdown is set to 'IP ranges'. The 'Protocol' dropdown is set to 'All'. The 'Ports' dropdown is set to 'All'. The 'Action' dropdown is set to 'Allow'. The 'Priority' input field is set to '1000'. The 'Network' dropdown is set to 'managementnet'. The 'Direction' dropdown is set to 'Ingress'. The 'Source ranges' input field is set to '0.0.0.0/0'. The 'Target tags' input field is empty. The 'Labels' input field is empty. The 'Description' input field is empty. The 'Line wrapping' checkbox is checked.

gcloud command line

This is the gcloud command line with the parameters you have selected. [gcloud reference](#)

```

gcloud compute --project=qwiklabs-gcp-03-e268a631035e firewall-rules create managementnet-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=managementnet --action=ALLOW --rules=PROTOCOL:PORT,... --source-ranges=0.0.0.0/0

```

Lab report screen-shot #8:

End Lab 00:43:44

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Console

Username: student-03-3ba50c7i Copied!

Password: St94sCX3Wh6Y Copied!

GCP Project ID: quiklabs-gcp-03-e2i Copied!

5. Click Close.

6. Click Create.

Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully created firewall rules for managementnet network, you will see an assessment score.

Create the firewall rules for managementnet

Check my progress

Assessment Completed!

Create the firewall rules for privatenet

Create the firewall rules for **privatenet** network using the Cloud Shell command line.

1. In Cloud Shell, run the following command to create the **privatenet-allow-icmp-ssh-rdp** firewall rule:

```
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
```

GSP211 Overview Setup and Requirements Create custom mode VPC networks with firewall rules Create VM instances Explore the connectivity between VM instances Create a VM instance with multiple network interfaces Congratulations!

Lab report screen-shot #9:

End Lab 00:41:59

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Console

Username: student-03-3ba50c7i Copied!

Password: St94sCX3Wh6Y Copied!

GCP Project ID: quiklabs-gcp-03-e2i Copied!

PRIORITY	ALLOW	DENY	NETWORK	DIRECTION	INGRESS
	privatenet-allow-icmp-ssh-rdp	privatenet	INGRESS	1000	
	icmp,tcp:22,tcp:3389				

Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully created firewall rules for privatenet network, you will see an assessment score.

Create the firewall rules for privatenet

Check my progress

Assessment Completed!

2. Run the following command to list all the firewall rules (sorted by VPC network):

```
gcloud compute firewall-rules list --sort-by=NETWORK
```

The output should look like this (**do not copy; this is example output**):

NAME	PRIORITY	ALLOW	NETWORK	DIRECTION
default-allow-icmp	65534	icmp	default	INGRESS
default-allow-internal			default	INGRESS

GSP211 Overview Setup and Requirements Create custom mode VPC networks with firewall rules Create VM instances Explore the connectivity between VM instances Create a VM instance with multiple network interfaces Congratulations!

Lab report screen-shot #10:

```

        Firewall   CREATE FIREWALL RULE  REFRESH  CONFIGURE LOGS  DELETE
        to view the firewall policies inherited by this project.

        Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. Learn more

        Note: App Engine firewalls are managed in the App Engine Firewall rules section.

        Filter Enter property name or value
        Name Type Targets Filters Protocol / ports Action Priority Network Logs
        default-allow-icmp Ingress Apply to all IP ranges: 0.0.0.0/0 icmp Allow 65534 default Off
        default-allow-internal Ingress Apply to all IP ranges: 10.0.0.0/8 tcp:0-65535 Allow 65534 default Off
        default-allow-rdp Ingress Apply to all IP ranges: 0.0.0.0/0 tcp:3389 Allow 65534 default Off

        CLOUD SHELL Terminal (qwiklabs-gcp-03-e268a631035e) X + ··· Open Editor
        DIRECTION: INGRESS
        PRIORITY: 1000
        ALLOW: icmp
        DENY:
        DISABLED: False

        NAME: synnetwork-allow-rdp
        NETWORK: synnetwork
        DIRECTION: INGRESS
        PRIORITY: 1000
        ALLOW: tcp:3389
        DENY:
        DISABLED: False

        NAME: synnetwork-allow-ssh
        NETWORK: synnetwork
        DIRECTION: INGRESS
        PRIORITY: 1000
        ALLOW: tcp:22
        DENY:
        DISABLED: False

        NAME: privatenet-allow-icmp-ssh-rdp
        NETWORK: privatenet
        DIRECTION: INGRESS
        PRIORITY: 1000
        ALLOW: icmp,tcp:22,tcp:3389
        DENY:
        DISABLED: False

        To show all fields of the firewall, please show in JSON format: --format=json
        To show all fields in table format, please see the examples in --help.

        student_03_3ba50c7870e4@cloudshell:~ (qwiklabs-gcp-03-e268a631035e)$
    
```

Lab report screen-shot #11:

```

gcloud compute instances create managementnet-us-vm --project=qwiklabs-gcp-03-e268a631035e --zone=us-central1-f
--machine-type=f1-micro --network-interface=network-tier=PREMIUM,subnet=managementsubnet-us
--maintenance-policy=MIGRATE --service-account=330874370077-compute@developer.gserviceaccount.com
--scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append
--create-disk=auto-delete=yes,boot=yes,device-name=managementnet-us-vm,image=projects/debian-cloud/global/images/debian-10-buster-v20210916,mode=rw,size=10,type=projects/qwiklabs-gcp-03-e268a631035e/zones/us-central1-f/diskTypes/pd-balanced --no-shielded-secure-boot --shielded-vtpm --shielded-integrity-monitoring --reservation-affinity=any
    
```

To create a VM instance, select one of the options:

- New VM instance Deploy a container image to this VM instance
- New VM instance from template Create a single VM instance from an existing template
- New VM instance from machine image Create a single VM instance from an existing machine image
- Marketplace Deploy a ready-to-go solution onto a VM

Container

Deploy a container image to this VM instance

Monthly estimate \$4.88 That's about \$0.01 hourly Pay for what you use. No upfront costs and per second billing

gcloud command line

This is the gcloud command line with the parameters you have selected. [gcloud reference](#)

```

gcloud compute instances create managementnet1-us-vm --project=qwiklabs-gcp-03-e268a631035e --zone=us-central1-f --machine-type=f1-micro --network-interface=network-tier=PREMIUM,subnet=managementsubnet-us --maintenance-policy=MIGRATE --service-account=330874370077-compute@developer.gserviceaccount.com --scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append --create-disk=auto-delete=yes,boot=yes,device-name=managementnet-us-vm,image=projects/debian-cloud/global/images/debian-10-buster-v20210916,mode=rw,size=10,type=projects/qwiklabs-gcp-03-e268a631035e/zones/us-central1-f/diskTypes/pd-balanced --no-shielded-secure-boot --shielded-vtpm --shielded-integrity-monitoring --reservation-affinity=any
    
```

Line wrapping

COPY TO CLIPBOARD RUN IN CLOUD SHELL CLOSE

NETWORKING, DISKS, SECURITY, MANAGEMENT, SOLE-TENANCY

You will be billed for this instance. [Compute Engine pricing](#)

CREATE CANCEL EQUIVALENT COMMAND LINE

Lab report screen-shot #12:

The screenshot shows a Qwiklabs lab titled "Multiple VPC Networks". The task list includes steps 8 and 9. Step 8 says "Click Done." and step 9 says "Click EQUIVALENT COMMAND LINE." A note states: "This illustrate that VM instances can also be created using the Cloud Shell command line. You will create the **privatenet-us-vm** instance using these commands with similar parameters." Step 0 says "Click Close." Step 1 says "Click Create." Below this is a "Test Completed Task" section with a note: "Click Check my progress to verify your performed task. If you have successfully created VM instance in managementnet network, you will see an assessment score." At the bottom, there's a button to "Create the managementnet-us-vm instance" and a link to "Check my progress". A message says "Assessment Completed!". On the right sidebar, under "GSP211", it shows an "Overview" with a score of 85/100, "Setup and Requirements", "Create custom mode VPC networks with firewall rules", and "Create VM instances" which is currently selected. It also includes "Explore the connectivity between VM instances", "Create a VM instance with multiple network interfaces", and "Congratulations!".

Lab report screen-shot #13:

The screenshot shows a Qwiklabs lab titled "Multiple VPC Networks". The task list includes step 1: "In Cloud Shell, run the following command to create the **privatenet-us-vm** instance:" followed by a command line snippet: `gcloud compute instances create privatenet-us-vm --zone=us-central1-f --machine-type=n1-standard-1 --subnet=privatesubnet-us`. Below this, it says "The output should look like this (do not copy, this is example output):" and shows a table of instance details:

NAME	ZONE	MACHINE_TYPE	PREEMPTIBLE
privatenet-us-vm	us-central1-f	n1-standard-1	
172.16.0.2	35.184.221.40	RUNNING	

. Below this is a "Test Completed Task" section with a note: "Click Check my progress to verify your performed task. If you have successfully created VM instance in privatenet network, you will see an assessment score." At the bottom, there's a button to "Create the privatenet-us-vm instance" and a link to "Check my progress". A message says "Assessment Completed!". On the right sidebar, under "GSP211", it shows an "Overview" with a score of 90/100, "Setup and Requirements", "Create custom mode VPC networks with firewall rules", and "Create VM instances" which is currently selected. It also includes "Explore the connectivity between VM instances", "Create a VM instance with multiple network interfaces", and "Congratulations!".

Lab report screen-shot #14:

The screenshot shows the Google Cloud Platform Compute Engine interface. The left sidebar is collapsed. The main area displays the 'VM instances' section under 'Virtual machines'. There are four VM instances listed:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
Running	managementnet-us-vm	us-central1-f			10.130.0.2 (nic0)	104.198.153.61	SSH
Running	mynet-eu-vm	europe-west4-c			10.164.0.2 (nic0)	34.90.56.8	SSH
Running	mynet-us-vm	us-central1-f			10.128.0.2 (nic0)	35.224.229.75	SSH
Running	privatenet-us-vm	us-central1-f			172.16.0.2 (nic0)	35.225.197.180	SSH

A terminal window at the bottom shows the status of each VM instance.

```

PREEMPTIBLE:
INTERNAL_IP: 10.164.0.2
EXTERNAL_IP: 34.90.56.8
STATUS: RUNNING

NAME: managementnet-us-vm
ZONE: us-central1-f
MACHINE_TYPE: f1-micro
PREEMPTIBLE:
INTERNAL_IP: 10.130.0.2
EXTERNAL_IP: 104.198.153.61
STATUS: RUNNING

NAME: mynet-eu-vm
ZONE: europe-west4-c
MACHINE_TYPE: nl-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.128.0.2
EXTERNAL_IP: 35.224.229.75
STATUS: RUNNING

NAME: mynet-us-vm
ZONE: us-central1-f
MACHINE_TYPE: nl-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.128.0.2
EXTERNAL_IP: 35.224.229.75
STATUS: RUNNING

NAME: privatenet-us-vm
ZONE: us-central1-f
MACHINE_TYPE: nl-standard-1
PREEMPTIBLE:
  
```

Lab report screen-shot #15:

The screenshot shows the Google Cloud Platform Compute Engine interface. The left sidebar is expanded, showing categories like Virtual machines, Storage, Instance groups, VM Manager, and Settings. The 'Virtual machines' section is selected, displaying the 'VM instances' tab. There are five VM instances listed:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
Running	managementnet-us-vm	us-central1-f			10.130.0.2 (nic0)	104.198.153.61	SSH
Running	mynet-eu-vm	europe-west4-c			10.164.0.2 (nic0)	34.90.56.8	SSH
Running	mynet-us-vm	us-central1-f			10.128.0.2 (nic0)	35.224.229.75	SSH
Running	privatenet-us-vm	us-central1-f			172.16.0.2 (nic0)	35.225.197.180	SSH
Running	test-vm	us-central1-f			10.130.0.3 (nic0)	35.225.197.181	SSH

Lab report screen-shot #16:

```
Connected, host fingerprint: ssh-rsa 0 A:B:F3:CA:9B:5E:F8:D3:5A:B4:4A:45:6A:D6:B1
19598:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00
Linux mynet-us-vm 4.9.0-16-amd64 #1 SMP Debian 4.9.272-2 (2021-07-19) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

Creating directory '/home/student-03-3ba50c7870e4@mynet-us-vm'.
student-03-3ba50c7870e4@mynet-us-vm:~$ ping -c 3 35.224.229.75
PING 35.224.229.75 (35.224.229.75) 56(84) bytes of data.
64 bytes from 35.224.229.75: icmp_seq=1 ttl=61 time=1.04 ms
64 bytes from 35.224.229.75: icmp_seq=2 ttl=61 time=0.378 ms
64 bytes from 35.224.229.75: icmp_seq=3 ttl=61 time=0.491 ms

--- 35.224.229.75 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2029ms
rtt min/avg/max/mdev = 0.378/0.636/1.040/0.289 ms
student-03-3ba50c7870e4@mynet-us-vm:~$ ping -c 3 104.198.153.61
PING 104.198.153.61 (104.198.153.61) 56(84) bytes of data.
64 bytes from 104.198.153.61: icmp_seq=1 ttl=61 time=2.67 ms
64 bytes from 104.198.153.61: icmp_seq=2 ttl=61 time=1.70 ms
64 bytes from 104.198.153.61: icmp_seq=3 ttl=61 time=1.88 ms

--- 104.198.153.61 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 1.762/1.899/2.011/0.114 ms
student-03-3ba50c7870e4@mynet-us-vm:~$ ping -c 3 35.225.197.180
PING 35.225.197.180 (35.225.197.180) 56(84) bytes of data.
64 bytes from 35.225.197.180: icmp_seq=1 ttl=61 time=2.01 ms
64 bytes from 35.225.197.180: icmp_seq=2 ttl=61 time=1.76 ms
64 bytes from 35.225.197.180: icmp_seq=3 ttl=61 time=1.92 ms

--- 35.225.197.180 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 1.762/1.899/2.011/0.114 ms
student-03-3ba50c7870e4@mynet-us-vm:~$
```

Lab report screen-shot #17:

```
Connected, host fingerprint: ssh-rsa 0 A:B:F3:CA:9B:5E:F8:D3:5A:B4:4A:45:6A:D6:B1
19598:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00
Linux mynet-us-vm 4.9.0-16-amd64 #1 SMP Debian 4.9.272-2 (2021-07-19) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

Creating directory '/home/student-03-3ba50c7870e4@mynet-us-vm'.
student-03-3ba50c7870e4@mynet-us-vm:~$ ping -c 3 10.164.0.2
PING 10.164.0.2 (10.164.0.2) 56(84) bytes of data.
64 bytes from 10.164.0.2: icmp_seq=1 ttl=64 time=110 ms
64 bytes from 10.164.0.2: icmp_seq=2 ttl=64 time=108 ms
64 bytes from 10.164.0.2: icmp_seq=3 ttl=64 time=108 ms

--- 10.164.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 108.67/109.268/110.252/0.746 ms
student-03-3ba50c7870e4@mynet-us-vm:~$ ping -c 3 10.130.0.2
PING 10.130.0.2 (10.130.0.2) 56(84) bytes of data.

--- 10.130.0.2 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 2028ms
student-03-3ba50c7870e4@mynet-us-vm:~$ ping -c 3 172.16.0.2
PING 172.16.0.2 (172.16.0.2) 56(84) bytes of data.

--- 172.16.0.2 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 2034ms
student-03-3ba50c7870e4@mynet-us-vm:~$
```

Lab report screen-shot #18:

The screenshot shows a Qwiklabs lab interface. At the top, there's a red "End Lab" button and a timer showing 00:13:30. Below the timer, a "Caution" message states: "When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked." A "Learn more" link is provided. There are three text input fields for "Username" (student-03-3ba50c7i Copied!), "Password" (St94sCX3Wh6Y Copied!), and "GCP Project ID" (qwiklabs-gcp-03-e2r Copied!). To the right, a terminal window shows the command "ping -c 3 <Enter privatenet-us-vm's internal IP here>". A pink callout box contains the text: "This should not work either as indicated by a 100% packet loss! You are unable to ping the internal IP address of managementnet-us-vm and privatenet-us-vm because they are in separate VPC networks from the source of the ping (mynet-us-vm), even though they are all in the same zone us-central1." Below this, a note says: "VPC networks are by default isolated private networking domains. However, no internal IP address communication is allowed between networks, unless you set up mechanisms such as VPC peering or VPN." On the right side, a sidebar titled "GSP211" shows a progress bar at 90/100 with sections for Overview, Setup and Requirements, Create VM instances, Explore the connectivity between VM instances, Create a VM instance with multiple network interfaces, and Congratulations!

Lab report screen-shot #19:

The screenshot shows the Google Cloud Platform Compute Engine VM instances page. The left sidebar includes sections for Virtual machines (VM instances, Instance templates, Sole-tenant nodes, Machine images, TPUs, Committed use discounts, Migrate for Compute Engine...), Storage (Disks, Snapshots, Images), Instance groups (Instance groups, Health checks), VM Manager (OS patch management, OS configuration management...), and Settings (Marketplace, Release Notes). The main content area shows a table of VM instances:

	Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Netw	Connect
<input type="checkbox"/>	✓	managementnet-us-vm	us-central1-f			10.130.0.2 (nic0)	104.198.153.61	man	SSH
<input type="checkbox"/>	✓	mynet-eu-vm	europe-west4-c			10.164.0.2 (nic0)	34.90.56.8	myn	SSH
<input type="checkbox"/>	✓	mynet-us-vm	us-central1-f			10.128.0.2 (nic0)	35.224.229.75	myn	SSH
<input type="checkbox"/>	✓	privatenet-us-vm	us-central1-f			172.16.0.2 (nic0)	35.225.197.180	priv	SSH
<input type="checkbox"/>	✓	vm-appliance	us-central1-f			172.16.0.3 (nic0)	34.68.13.132	priv	SSH

Lab report screen-shot #20:

Multiple VPC Networks

Network	mynetwork
Subnetwork	mynetwork

4. Click Done.
5. Click Create.

Test Completed Task

Click Check my progress to verify your performed task. If you have successfully created VM instance with multiple network interfaces, you will see an assessment score.

Create a VM instance with multiple network interfaces

Check my progress

Assessment Completed!

GSP211
Overview
Setup and Requirements
Create custom mode VPC networks with firewall rules
Create VM instances
Explore the connectivity between VM instances
Create a VM instance with multiple network interfaces
Congratulations!

Explore the network interface details

Explore the network interface details of **vm-appliance** within the Cloud Console and within the VM's terminal.

1. In the Cloud Console, navigate to **Navigation menu** (≡) > **Compute Engine** > **VM instances**.

Lab report screen-shot #21:

```

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        inet 127.0.0.1 prefixlen 128 scopeid 0x10<host>
            loop txqueuelen 1000 (Local Loopback)
            RX packets 36 bytes 5796 (5.6 KiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 36 bytes 5796 (5.6 KiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 172.16.0.2
PING 172.16.0.2 (172.16.0.2) 56(84) bytes of data.
64 bytes from 172.16.0.2: icmp_seq=1 ttl=64 time=0.244 ms
64 bytes from 172.16.0.2: icmp_seq=2 ttl=64 time=0.225 ms
64 bytes from 172.16.0.2: icmp_seq=3 ttl=64 time=0.225 ms

--- 172.16.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 9ms
rtt min/avg/max/mdev = 0.225/0.568/1.236/0.472 ms

student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 privatenet-us-vm
PING privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2) 56(84) bytes of data.
64 bytes from privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2): icmp_seq=1 ttl=64 time=1.04 ms
64 bytes from privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2): icmp_seq=2 ttl=64 time=0.215 ms
64 bytes from privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2): icmp_seq=3 ttl=64 time=0.210 ms

--- privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 27ms
rtt min/avg/max/mdev = 0.210/0.489/1.044/0.392 ms

student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 10.130.0.2
PING 10.130.0.2 (10.130.0.2) 56(84) bytes of data.
64 bytes from 10.130.0.2: icmp_seq=1 ttl=64 time=1.20 ms
64 bytes from 10.130.0.2: icmp_seq=2 ttl=64 time=0.238 ms
64 bytes from 10.130.0.2: icmp_seq=3 ttl=64 time=0.253 ms

--- 10.130.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 13ms
rtt min/avg/max/mdev = 0.238/0.562/1.195/0.447 ms

student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 10.128.0.2
PING 10.128.0.2 (10.128.0.2) 56(84) bytes of data.
64 bytes from 10.128.0.2: icmp_seq=1 ttl=64 time=1.69 ms
64 bytes from 10.128.0.2: icmp_seq=2 ttl=64 time=0.230 ms
64 bytes from 10.128.0.2: icmp_seq=3 ttl=64 time=0.204 ms

--- 10.128.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 27ms
rtt min/avg/max/mdev = 0.204/0.706/1.686/0.693 ms

student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 10.164.0.2
PING 10.164.0.2 (10.164.0.2) 56(84) bytes of data.

--- 10.164.0.2 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 31ms

student-03-3ba50c7870e4@vm-appliance:~$ 

```

Lab report screen-shot #22:

```

student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 172.16.0.2
PING 172.16.0.2 (172.16.0.2) 56(84) bytes of data.
64 bytes from 172.16.0.2: icmp_seq=1 ttl=64 time=1.24 ms
64 bytes from 172.16.0.2: icmp_seq=2 ttl=64 time=0.244 ms
64 bytes from 172.16.0.2: icmp_seq=3 ttl=64 time=0.225 ms

--- 172.16.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 9ms
rtt min/avg/max/mdev = 0.225/0.568/1.236/0.472 ms
student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 privatenet-us-vm
PING privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2) 56(84) bytes of data.
64 bytes from privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2): icmp_seq=1 ttl=64 time=1.04 ms
64 bytes from privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2): icmp_seq=2 ttl=64 time=0.215 ms
64 bytes from privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal (172.16.0.2): icmp_seq=3 ttl=64 time=0.210 ms

--- privatenet-us-vm.us-central1-f.c.qwiklabs-gcp-03-e268a631035e.internal ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 27ms
rtt min/avg/max/mdev = 0.210/0.489/1.044/0.392 ms
student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 10.130.0.2
PING 10.130.0.2 (10.130.0.2) 56(84) bytes of data.
64 bytes from 10.130.0.2: icmp_seq=1 ttl=64 time=1.20 ms
64 bytes from 10.130.0.2: icmp_seq=2 ttl=64 time=0.238 ms
64 bytes from 10.130.0.2: icmp_seq=3 ttl=64 time=0.253 ms

--- 10.130.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 13ms
rtt min/avg/max/mdev = 0.238/0.562/1.195/0.447 ms
student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 10.128.0.2
PING 10.128.0.2 (10.128.0.2) 56(84) bytes of data.
64 bytes from 10.128.0.2: icmp_seq=1 ttl=64 time=1.69 ms
64 bytes from 10.128.0.2: icmp_seq=2 ttl=64 time=0.230 ms
64 bytes from 10.128.0.2: icmp_seq=3 ttl=64 time=0.204 ms

--- 10.128.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 27ms
rtt min/avg/max/mdev = 0.204/0.706/1.686/0.693 ms
student-03-3ba50c7870e4@vm-appliance:~$ ping -c 3 10.164.0.2
PING 10.164.0.2 (10.164.0.2) 56(84) bytes of data.

--- 10.164.0.2 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 31ms

student-03-3ba50c7870e4@vm-appliance:~$ ip route
default via 172.16.0.1 dev ens4
10.128.0.0/20 via 10.128.0.1 dev ens5
10.128.0.1 dev ens5 scope link
10.130.0.0/20 via 10.130.0.1 dev ens5
10.130.0.1 dev ens5 scope link
172.16.0.0/24 via 172.16.0.1 dev ens4
172.16.0.1 dev ens4 scope link
student-03-3ba50c7870e4@vm-appliance:~$ 
```

Lab report screen-shot #23:

Multiple VPC Networks

End Lab 00:01:23

Congratulations!

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.

Learn more.

Open Google Console

Username: student-03-3ba50c71 Copied!

Password: St94sCX3WhsY Copied!

GCP Project ID: qwiklabs-gcp-03-e21 Copied!

GSP211 100/100

Overview

Setup and Requirements

Create custom mode VPC networks with firewall rules

Create VM instances

Explore the connectivity between VM instances

Create a VM instance with multiple network interfaces

Congratulations!

Finish your Quest

Exercise 2: Load Balancing.

Lab report screen-shot #24:

Create an Internal Load Balancer

End Lab 00:49:53

Configure HTTP and health check firewall rules

Configure firewall rules to allow HTTP traffic to the backends and TCP traffic from the Google Cloud health checker.

Explore the my-internal-app network

The network **my-internal-app** with subnet-a and subnet-b along with firewall rules for RDP, SSH, and ICMP traffic have been configured for you.

- In the Console, navigate to **Navigation menu > VPC network > VPC networks**.

2. Scroll down and notice the **my-internal-app** network with its subnets: **subnet-a** and **subnet-b**

Lab report screen-shot #25:

Firewall - VPC network - qwik

console.cloud.google.com/networking/firewalls/list?authuser=0&project=qwiklabs-gcp-01-06cf5c745c9a

Google Cloud Platform qwiklabs-gcp-01-06cf5c745c9a

VPC network Firewall + CREATE FIREWALL RULE REFRESH CONFIGURE LOGS DELETE

Firewall

Name	Type	Targets	Filters	Protocols / ports	Action	Priority	Network	Logs	Hit count
default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default	Off	▼
default-allow-internal	Ingress	Apply to all	IP ranges: 10.0.0.0/16	tcp:0-65535 udp:0-65535	Allow	65534	default	Off	▼
default-allow-rdp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:3389	Allow	65534	default	Off	▼
app-allow-ssh	Ingress	lb-backend	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	my-internal-app	Off	▼
app-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	1000	my-internal-app	Off	▼
app-allow-ssh-rdp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22, 80, 3389	Allow	1000	my-internal-app	Off	▼

CLOUD SHELL Terminal (qwiklabs-gcp-01-06cf5c745c9a) Open Editor

Lab report screen-shot #26:

The screenshot shows the Google Cloud Platform interface for managing VPC networks. The left sidebar lists various network-related options like VPC networks, External IP addresses, Bring your own IP, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, and Packet mirroring. The main content area is titled 'Firewall' and contains a table of existing rules. A filter bar at the top of the table allows searching by property name or value. The table columns include Name, Type, Targets, Filters, Protocols / ports, Action, Priority, Network, Logs, and Hit count. Several rules are listed, including ones for app-allow-health-check, default-allow-icmp, default-allow-internal, default-allow-rdp, default-allow-ssh, app-allow-https, app-allow-icmp, and app-allow-ssh-rdp. The 'app-allow-https' rule is highlighted with a blue checkmark.

Lab report screen-shot #27:

This screenshot shows a QwikLab session titled 'Create an Internal Load Balancer'. The top navigation bar includes links for 'Create an Internal Load Balancer', 'run.qwiklabs.com/focuses/1250?catalog_rank=%7B"rank"%3A2%2C"num_filters"%3A0%', and a search bar. The main content area displays a step-by-step guide. Step 3, 'Click Create.', is highlighted with a red box. Below it, a message says 'Click Check my progress to verify the objective.' A green checkmark icon and a button labeled 'Check my progress' are visible. To the right, a sidebar titled 'GSP216' shows a progress bar at 40/100 and a list of objectives: 'Configure HTTP and health check firewall rules', 'Configure instance templates and create instance groups', 'Configure the Internal Load Balancer', and 'Test the Internal Load Balancer'. The bottom section contains a heading 'Configure instance templates and create instance groups' and a descriptive text about managed instance groups.

Lab report screen-shot #28:

Lab report screen-shot #29:

Lab report screen-shot #30:

Lab report screen-shot #31:

Create an Internal Load Balancer

End Lab 00:20:46

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Google Console](#)

Username: student-03-96d6cd3dbc58#

Password: JKB94hbm5Z6

GCP Project ID: qwiklabs-gcp-01-06cf5c74

+ Add network interface

You will be billed for this instance. [Learn more](#)

[Create](#) [Cancel](#)

Equivalent REST or command line

Click [Check my progress](#) to verify the objective.

Configure instance templates and create instance groups

[Check my progress](#)

Assessment Completed!

10. Note that the internal IP addresses for the backends are 10.10.20.2 and 10.10.30.2.

If these IP addresses are different, replace them in the two curl commands below.

GSP216 60/100

Overview
Setup and requirements
Configure HTTP and health check firewall rules
Configure instance templates and create instance groups
Configure the Internal Load Balancer
Test the Internal Load Balancer
Congratulations!

Lab report screen-shot #32:

```
student-03-96d6cd3dbc58@utility-vm: ~
ssh.cloud.google.com/projects/qwiklabs-gcp-01-06cf5c745c9a/zones/us-central1-f/instances/utility-vm?authuser=0...
Connected, host fingerprint: ssh-rsa 0 66:DB:63:8B:86:EA:BF:34:7B:9B:98:BC:0E:36
17:05:4C:39:59:86:E5:5C:53:11:95:EA:1F:3B:47:8E:B9:23
utility-vm 4.19.0-17-cloud-amd64 #1 SMP Debian 4.19.194-3 (2021-07-18) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Creating directory '/home/student-03-96d6cd3dbc58'.
@student-03-96d6cd3dbc58@utility-vm: $ curl 10.10.20.2
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname: instance-group-2-q5wp<h2>Server Location</h2>Region and Zone: us-central1-b@student-03-96d6cd3dbc5
@student-03-96d6cd3dbc58@utility-vm: $ curl 10.10.30.2
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname: instance-group-2-js7x<h2>Server Location</h2>Region and Zone: us-central1-b@student-03-96d6cd3dbc5
@student-03-96d6cd3dbc58@utility-vm: ~$
```

Lab report screen-shot #33:

Create an Internal Load Balancer

End Lab 00:17:24

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Google Console](#)

Username: student-03-96d6cd3dbc58#

Password: JKB94hbm5Z6

GCP Project ID: qwiklabs-gcp-01-06cf5c74

<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname: instance-group-2-q5wp<h2>Server Location</h2>Region and Zone: us-central1-b

Which of these fields identify the location of the backend?

Server Hostname Client IP Server Location

[Submit](#)

The curl commands demonstrate that each VM instance lists the Client IP and its own name and location. This will be useful when verifying that the Internal Load Balancer sends traffic to both backends.

GSP216 70/100

Overview
Setup and requirements
Configure HTTP and health check firewall rules
Configure instance templates and create instance groups
Configure the Internal Load Balancer
Test the Internal Load Balancer
Congratulations!

Lab report screen-shot #34:

Backend configuration

Backend service

Backend

Health check

Session affinity

ADVANCED CONFIGURATIONS

Lab report screen-shot #35:

Protocol	Scope	Subnetwork	IP:Ports	Service label
TCP	us-central1	subnet-b (10.10.30.0/24)	10.10.30.5:80	my-ilb

Region	Network	Endpoint protocol	Session affinity	Health check
us-central1	my-internal-app	TCP	None	my-ilb-health-check

Instance group	Zone	Autoscaling	Use as failover group
instance-group-1	us-central1-a	On: Target CPU utilization 80%	No
instance-group-2	us-central1-b	On: Target CPU utilization 80%	No

Lab report screen-shot #36:

Run Qwiklabs.com / Focuses / 1250?catalog_rank=%7B"rank"%3A2%2C"num_filters"%3A0%... / Create an Internal Load Balancer

← Create an Internal Load Balancer

00:06:33

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Google Console](#)

Username: student-03-96d6cd3dbc58#

Password: JKB94hbm5Z6

GCP Project ID: qwiklabs-gcp-01-06cf5c74

Configure the Internal Load Balancer

[Check my progress](#)

Assessment Completed!

GSP216 70/100

Overview

Setup and requirements

Configure HTTP and health check firewall rules

Configure instance templates and create instance groups

Configure the Internal Load Balancer

Test the Internal Load Balancer

Congratulations!

Test the Internal Load Balancer

Verify that the `my-ilb` IP address forwards traffic to `instance-group-1` in us-central1-a and `instance-group-2` in us-central1-b.

Lab report screen-shot #37:

```
student-03-96d6cd3dbc58@utility-vm: ~
ssh.cloud.google.com/projects/qwiklabs-gcp-01-06cf5c74c9a/zones/us-central1-f/instances/utility-vm?authuser=0&hl=en_U...
Connected, host fingerprint: ssh-rsa 0 66:0B:63:8E:F6:AA:B9:34:7B:9B:98:BC:0E:36
:27:06:4C:39:59:86:E5:C5:31:11:95:EA:1F:3B:47:8E:B9:23
Linux utility-vm 4.19.0-17-cloud-amd64 #1 SMP Debian 4.19.194-3 (2021-07-18) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Fri Oct 15 08:06:35 2021 from 35.235.240.4
student-03-96d6cd3dbc58@utility-vm:~$ curl 10.10.30.5
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname
: instance-group-2-j87x<h2>Server Location</h2>Region and Zone: us-central1-bstudent-03-96d6cd3dbc58@utility-vm:~$ curl 10.10.30.5
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname
: instance-group-2-j87x<h2>Server Location</h2>Region and Zone: us-central1-bstudent-03-96d6cd3dbc58@utility-vm:~$ curl 10.10.30.5
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname
: instance-group-2-j87x<h2>Server Location</h2>Region and Zone: us-central1-bstudent-03-96d6cd3dbc58@utility-vm:~$ curl 10.10.30.5
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname
: instance-group-1-4gxg<h2>Server Location</h2>Region and Zone: us-central1-astudent-03-96d6cd3dbc58@utility-vm:~$ curl 10.10.30.5
<h1>Internal Load Balancing Lab</h1><h2>Client IP</h2>Your IP address : 10.10.20.50<h2>Hostname</h2>Server Hostname
: instance-group-1-4gxg<h2>Server Location</h2>Region and Zone: us-central1-astudent-03-96d6cd3dbc58@utility-vm:~$
```

Lab report screen-shot #38:

Run Qwiklabs.com / Focuses / 1250?catalog_rank=%7B"rank"%3A2%2C"num_filters"%3A0%... / Create an Internal Load Balancer

← Create an Internal Load Balancer

00:04:20

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Google Console](#)

Username: student-03-96d6cd3dbc58#

Password: JKB94hbm5Z6

GCP Project ID: qwiklabs-gcp-01-06cf5c74

Congratulations!

In this lab you created two managed instance groups in the us-central1 region, along with firewall rules to allow HTTP traffic to those instances and TCP traffic from the Google Cloud health checker. Then, you configured and tested an Internal Load Balancer for those instance groups.



Finish Your Quest

This self-paced lab is part of the Qwiklabs Quest, [Networking in the Google Cloud](#). A Quest is a series of related labs that form a learning path. Completing this Quest earns you the badge above to recognize your achievement. You can make your badge (or badges) public and link to them in your online resume or social media account. [Email in this Quest](#) and get immediate completion credit if