Google Cloud Fundamentals: Getting Started with Compute Engine

35 minutes   Free

Overview

In this lab, you will create virtual machines (VMs) and connect to them. You will also create connections between the instances.

Objectives

In this lab, you will learn how to perform the following tasks:

Create a Compute Engine virtual machine using the Google Cloud Platform (GCP) Console.

Create a Compute Engine virtual machine using the gcloud command-line interface.

Connect between the two instances.

Task 1: Sign in to the Google Cloud Platform (GCP)

For each lab, you get a new GCP project and set of resources for a fixed time at no cost.

1. Open your terminal and make sure you signed in:

```
gcloud auth login
```

2. List available projects and take a note of your project ID:

```
gcloud project list
```

3. Set the project ID:

```
gcloud config set project <PROJECT_ID>
```

Task 2: Create a virtual machine

1. View the compute instances

```
gcloud compute instances list
```

2. Create Compute Engine virtual machine instances

```
gcloud compute instances create example-instance
```

3. For **Region** and **Zone**, select the region and zone below

```
gcloud compute instances create example-instance --zone=us-central1-a
```

Task 3: Create a virtual machine using the gcloud command line

1. Launch the cloud shell:

```
gcloud alpha cloud-shell
```

2. To display a list of all the zones in the region to which Qwiklabs assigned you, enter this partial command `gcloud compute zones list | grep` followed by the region that Qwiklabs or your instructor assigned you to.

Your completed command will look like this:
```
gcloud compute zones list | grep us-central1
```

3. Choose a zone from that list other than the zone to which Qwiklabs assigned you. For example, if Qwiklabs assigned you to region `us-central1` and zone `us-central1-a` you might choose zone `us-central1-b`.

4. To set your default zone to the one you just chose, enter this partial command `gcloud config set compute/zone` followed by the zone you chose.
Your completed command will look like this:
```
gcloud config set compute/zone us-central1-b
```

5. To create a VM instance called **my-vm-2** in that zone, execute this command:

```
gcloud compute instances create "my-vm-2" \
--machine-type "n1-standard-1" \
```

```
--image-project "debian-cloud" \
--image "debian-9-stretch-v20190213" \
--subnet "default"
```

Note: The VM can take about two minutes to launch and be fully available for use.

To exit the Cloud Shell, execute the following command:
```
exit
```

Task 4: Connect between VM instances

1. View the compute instances
```
gcloud compute instances list
```

You will see the two VM instances you created, each in a different zone. Notice that the Internal IP addresses of these two instances share the first three bytes in common. They reside on the same subnet in their Google Cloud VPC even though they are in different zones.

2. To open a command prompt on the **my-vm-2** instance, click **SSH** in its row in the **VM instances** list.

3. Use the `ping` command to confirm that **my-vm-2** can reach **my-vm-1** over the network:
```
ping my-vm-1
```

Notice that the output of the `ping` command reveals that the complete hostname of **my-vm-1** is **my-vm-1.c.PROJECT_ID.internal**, where PROJECT_ID is the name of your Google Cloud Platform project. GCP automatically supplies Domain Name Service (DNS) resolution for the internal IP addresses of VM instances.

4. Press **Ctrl+C** to abort the ping command.

5. Use the **ssh** command to open a command prompt on **my-vm-1**:

```
ssh my-vm-1
```

If you are prompted about whether you want to continue connecting to a host with unknown authenticity, enter **yes** to confirm that you do.

6. At the command prompt on **my-vm-1**, install the Nginx web server:

```
sudo apt-get install nginx-light -y
```

7. Use the **nano** text editor to add a custom message to the home page of the web server:

```
sudo nano /var/www/html/index.nginx-debian.html
```

8. Use the arrow keys to move the cursor to the line just below the h1 header. Add text like this, and replace YOUR_NAME with your name:

```
Hi from YOUR_NAME
```

9. Press **Ctrl+O** and then press **Enter** to save your edited file, and then press **Ctrl+X** to exit the nano text editor.

10. Confirm that the web server is serving your new page. At the command prompt on **my-vm-1**, execute this command:

```
curl http://localhost/
```

The response will be the HTML source of the web server's home page, including your line of custom text.

11. To exit the command prompt on **my-vm-1**, execute this command:

```
exit
```

You will return to the command prompt on **my-vm-2**

12. To confirm that **my-vm-2** can reach the web server on **my-vm-1**, at the command prompt on **my-vm-2**, execute this command:

```
curl http://my-vm-1/
```

The response will again be the HTML source of the web server's home page, including your line of custom text.

View the VM instances

```
gcloud compute instances list
```

Copy the External IP address for **my-vm-1** and paste it into the address bar of a new browser tab. You will see your web server's home page, including your custom text.

If you forgot to click **Allow HTTP traffic** when you created the **my-vm-1** VM instance, your attempt to reach your web server's home page will fail. You can add a firewall rule to allow inbound traffic to your instances, although this topic is out of scope for this course.

Congratulations!

In this lab, you created virtual machine (VM) instances in two different zones and connected to them using ping, ssh, and HTTP.

End your lab

When you have completed your lab, click **End Lab**. Qwiklabs removes the resources you've used and cleans the account for you.

You will be given an opportunity to rate the lab experience. Select the applicable number of stars, type a comment, and then click **Submit**.

The number of stars indicates the following:

- 1 star = Very dissatisfied
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- 4 stars = Satisfied
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