Task 2 - Setting up a VM

Hongyi Zhang <hongyiz@kth.se>   Lida Liu <lidal@kth.se>

I. Create a vm using the web consoles.

An instance is a virtual machine (VM) hosted on Google's infrastructure. Compute Engine instances can run the public images for Linux and Windows Server that Google provides as well as private custom images that we can create or import from our existing systems. We can also deploy Docker containers, which are automatically launched on instances running the Container-Optimized OS public image.

We can choose the machine properties of your instances, such as the number of virtual CPUs and the amount of memory, by using a set of predefined machine types or by creating your own custom machine types.

During the instance creation, you just need to select several properties your VM needs. The following figure shows some of the configurations.

Fig. 1. VM Instance Configuration

We just modified the VM Name, choose the boot disk to Ubuntu, select the CPU type, and select the service account which can allow us to have the access to our VM. Also we have selected the zone which our VM will be deployed. The most important thing is the SSH key pair generation. Once you have the ssh key pair, we only need to copy it into the metadata section of App engine. Then we can have the access to our VM from our own terminal.

Besides that, in the network configuration you can either choose a ephemeral external IP or reserve a static one, which can which can be used for global load balancers: HTTP(S), SSL proxy, and TCP proxy.

II. Remote creation of VMs

For the remote creation of VMs, GCP provides the gcloud tool and APIs for users not to login or open the web console. If a user wants to use the command-line, he should install the gcloud command-line tool and set a default region and zone before. If he wants to use the he should set up an API access. The following we ant to give some example commands to show those two processes.

- GCLOUD

The easiest way is to use the gcloud command in your own terminal. The sample command is:

$ gcloud compute instances create [INSTANCE_NAME]
–image-family [IMAGE_FAMILY]
–image-project [IMAGE_PROJECT]

while

[INSTANCE_NAME] is the name for the new instance.

[IMAGE_FAMILY] is one of the available image families.

[IMAGE_PROJECT] is the image project to which that image family belongs.

- Making the API request

If you use the API client library, you can start a new instance by directly calling the REST API or using the instances().insert.

In the API, construct a POST request to the instances URI with the same request body. You can create a VM instance by using the initializeParam property for each additional disk. Create additional disks with a public or a private image. Optionally, you can include the diskSizeGb and diskType properties.

You need include the initialParameters of name, machine type, network interface, disks in your request. And to start an instance in the API, you need to send a request with a:

Source image

Network interface

Machine type

If your VPC network is a custom mode VPC network, you must also specify the subnet where you want the instance to be created.

III. Access the VM

The code for this section is on Github https://github.com/Mr-Hongyi/ID2210-Cloud_Project.git. We have used two method to create the connection to the VM. One is using SSH and another is using netcat.

The following figure shows the SSH command connection, and the machine returned its network interface information.

Fig. 2.   Connection via SSH

Another connection is used Netcat. What we need to do is to install the Netcat command package on our VM by using apt-get. We are binding the port 6666 and port 9999 during the experiment. The following two figures show the results.

Fig. 3.   Connection via Netcat with port 6666

Fig. 4.   Connection via Netcat with port 6666

References

[1] Virtual Machine Instances, Google Cloud Platform Document [Online]. Available: *https://cloud.google.com/compute/docs/instances/*
[2] Creating and Starting a VM Instance, Google Cloud Platform Document [Online]. Available: *https://cloud.google.com/compute/docs/instances/create-start-instance*