DS561-HW8

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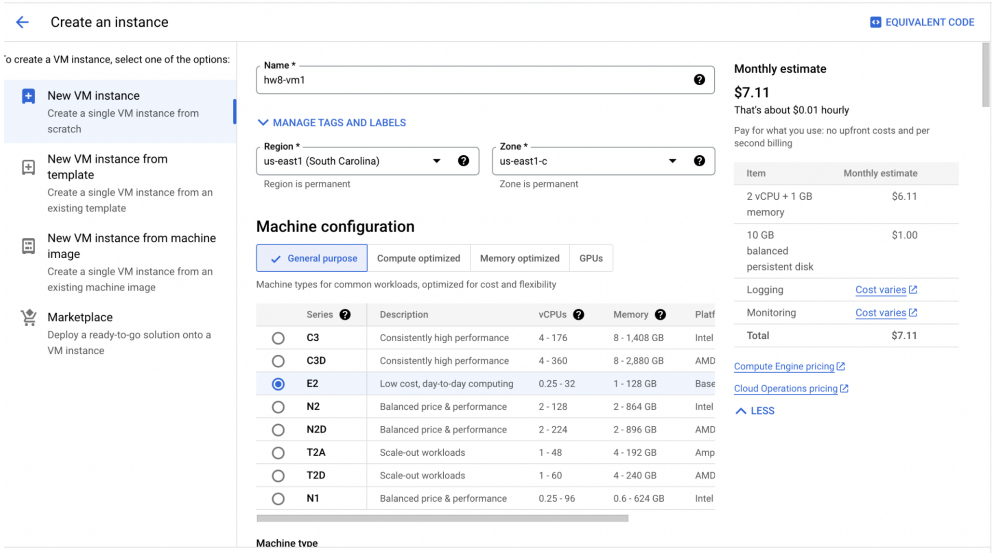
Github Link:

https://github.com/tigeryi1998/ds561-tigeryi/tree/main/hw8

git clone git@github.com:tigeryi1998/ds561-tigeryi.git

Create 2 VMs



Create VM hw8-vm1 in the zone us-east1-c

Network Tag:
network-hw8

Startup script:

#! /bin/bash
sudo apt-get update
sudo apt-get install apache2 -y
sudo service apache2 restart

echo '<!doctype html><html><body><h1>www1</h1></body></html>' | tee /var/www/html/index.html

Create VM hw8-vm2 in the zone us-east1-d

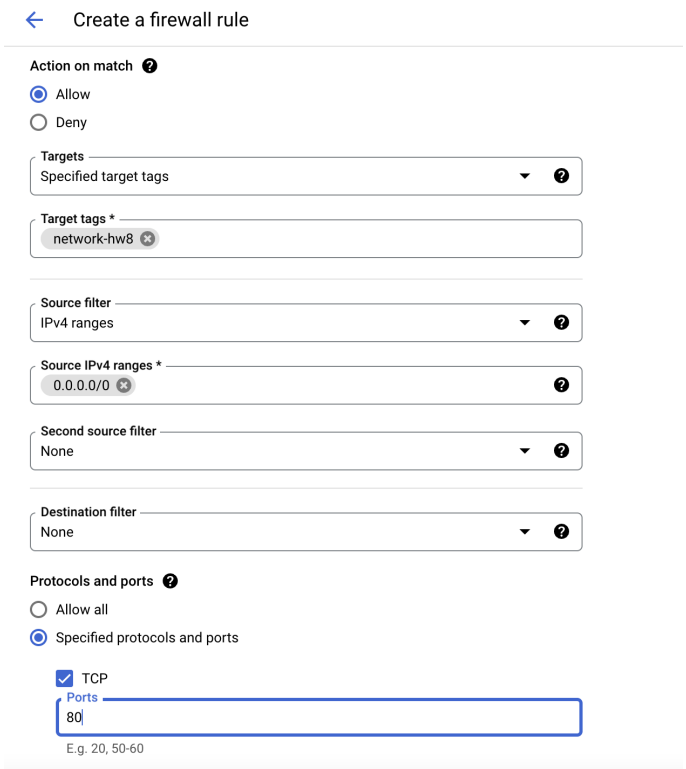
Network Tag:
network-hw8

Startup script:

#! /bin/bash
sudo apt-get update
sudo apt-get install apache2 -y
sudo service apache2 restart
echo '<!doctype html><html><body><h1>ww2</h1></body></html>' | tee /var/www/html/index.html

Add Firewall Rule

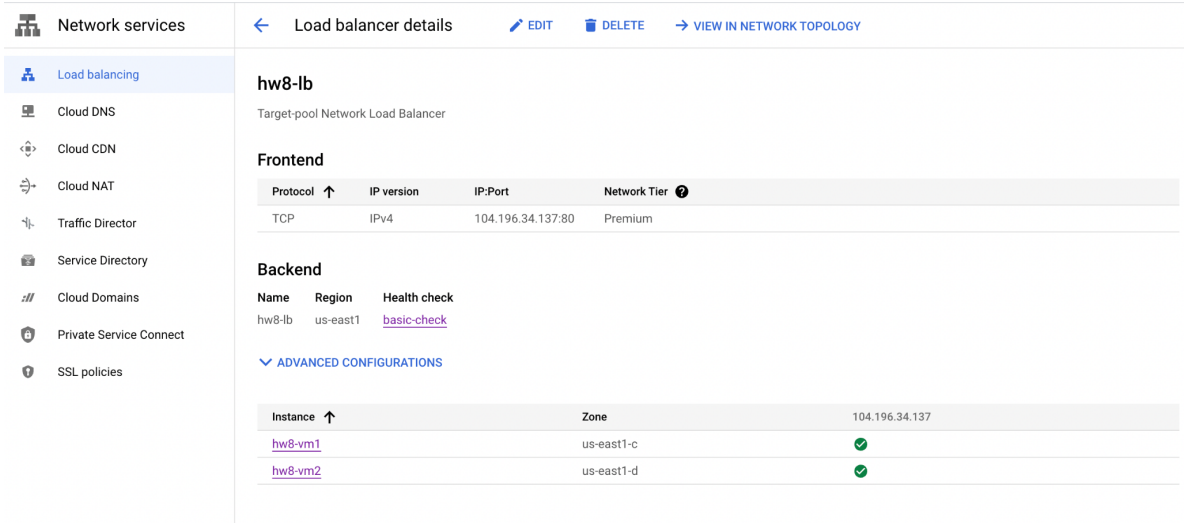
firewall-hw8, target tag: network-hw8



Network Load Balancer

Create the Load Balancer for VM1 and VM2

Health Check is healthy for both VM1 and VM2



Response Header

On VM, do a curl command to get the zone of the current VM:

curl -s "http://metadata.google.internal/computeMetadata/v1/instance/zone" -H "Metadata-Flavor: Google"

projects/946005535036/zones/us-east1-c

In the HTTP Web Server VM to add the following line to get the Zone of VM:
VM1 in zone: us-east1-c
VM2 in zone: us-east1-d

```
import requests

GCP_ZONE = requests.get(
   "http://metadata/computeMetadata/v1/instance/zone",
   headers={'Metadata-Flavor': 'Google'}).text

# hw8-vm1
GCP_ZONE = "projects/946005535036/zones/us-east1-c"

# hw8-vm2
GCP_ZONE = "projects/946005535036/zones/us-east1-d"

# response header
self.zone = GCP_ZONE
self.wfile.write(bytes("Response header ", "utf-8"))
self.wfile.write(bytes('zone: {}\n'.format(self.zone), "utf-8"))
```

In the terminal, run the following code to start the web server on VM1
The HTTP GET method will generate a 200 OK response.
-z tag from arg parser is to distinguish between zones of VM1 and VM2

$python3 http-server+sql.py -l -z projects/946005535036/zones/us-east1-c
"GET /files/5010.html HTTP/1.1" 200 -

On the VM2, also start the web server by running the following code in the terminal.

$python3 http-server+sql.py -l -z projects/946005535036/zones/us-east1-d
"GET /files/5010.html HTTP/1.1" 200 -

Client Extract Response Header

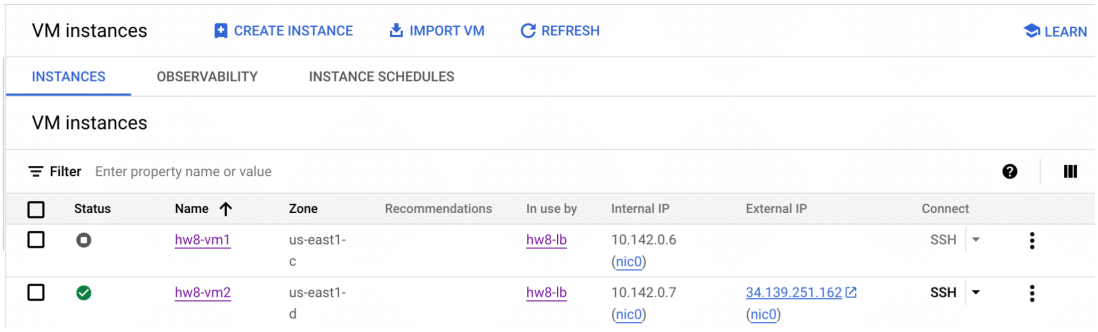
```
conn.request("GET", filename, headers=headers)
   res = conn.getresponse()
   data = res.read()
   if verbose:
       print(res.status, res.reason)
       print(res.msg)
       print(data)

Response header
projects/946005535036/zones/us-east1-c
```

In the terminal, run the following code to start the client requesting html file from VM1
So I've shown that the client can extract and print response header from the web server.
I call the "-v" in the arg parser to explicitly show the verbose response from the web server.

$python3 http-client.py -d localhost -b 'none' -w files -i 10000 -n 1 -p 8080 -r 0 -v
Requesting /files/5010.html
200 OK
Server: BaseHTTP/0.6 Python/3.8.8
Date: Tue, 21 Nov 2023 03:01:25 GMT
Content-type: text/html
…
Response header zone: projects/946005535036/zones/us-east1-c
…

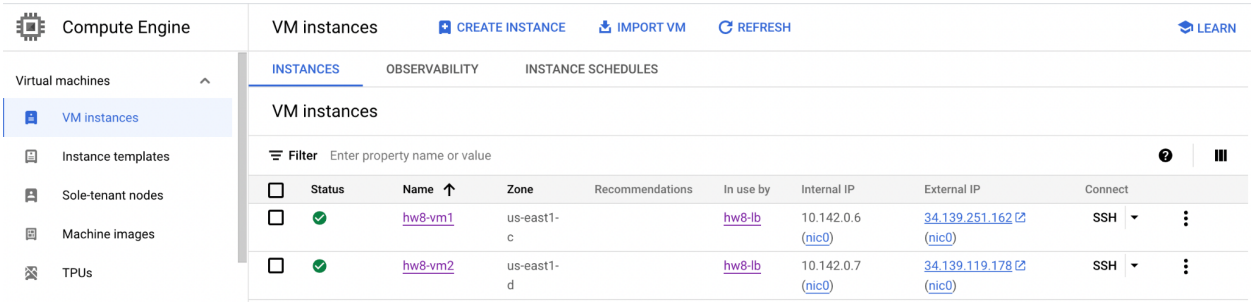
Kill the web server on VM1



It takes about 15-20s for the load balancer to reroute the client request from web server VM1 all to VM2 to serve the GET requests. The only verbose response from the client is in the zone d

…
Response header zone: projects/946005535036/zones/us-east1-d

Restart the web server on VM1



Restart VM1, load balancer takes 15-20s to notice VM1 is back and some of the requests are routed back to VM1, so the response header from VM1 is again shown.

…
Response header zone: projects/946005535036/zones/us-east1-c