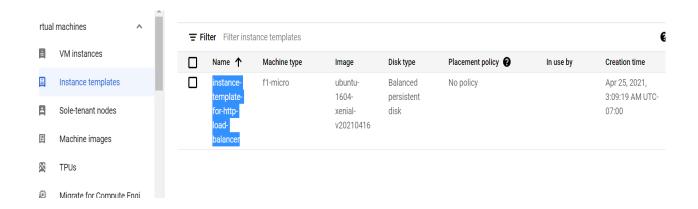
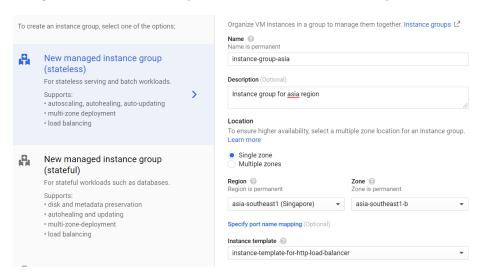
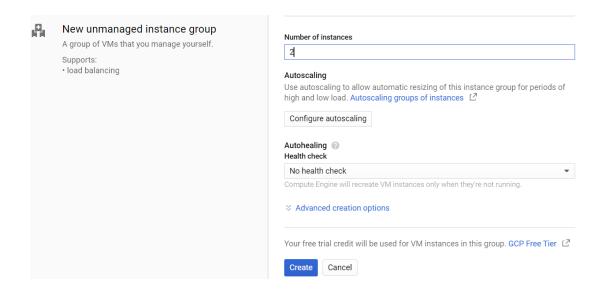
1)Create an instance template with N1, f1 micro and ubuntu 18.04 TLS.

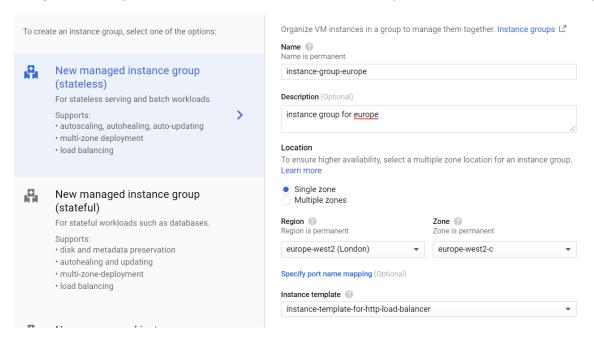


2)Create an instance group in region ASIA with number of instances as 1 .Delete the auto scale configuration. Select the template that we have created in step no 1.

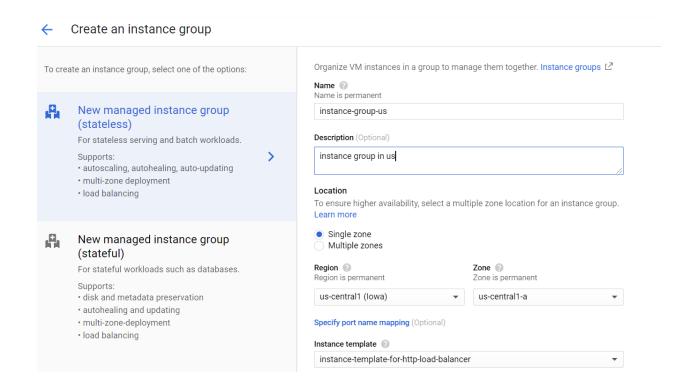




3)Create an instance group in region Europe with number of instances as 1. Delete the auto scale configuration and put number of instances as 1. Select the template that we have created in step no 1.



4)Create an instance group in region US with number of instance as 1.Delete the autoscale configuration to enter number of instances as 1.



5)At the end of step no 4 verify we shall have 6 virtual instances created. Login to each instance and verify that we have os installed is Ubuntu.

uname -a

6)On each instance do the following steps

Upload file my-web-app-load-balancer.py.

Run following command

sudo apt update

sudo apt install python3-pip

pip3 install flask

python3 my-web-app-load-balancer.py

Note :Step 6 need to be done on each instance.

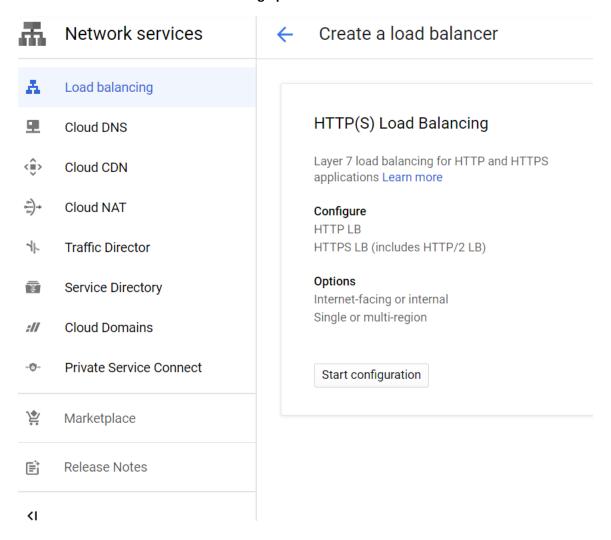
7)Take the external Ip of any machine as hit the url external_ip:3000/main for each machine. We shall not be able to access the url as we don't have a firewall access.

8)Add firewall access on port 3000. Choose tcp port as 3000. Source ip filter 0.0.0.0/0 and target is all instances in network.

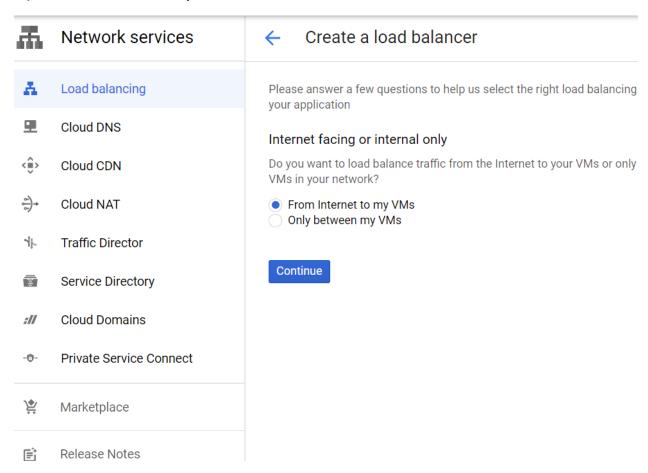
9) Verify that we are able to access the url external_ip:3000/main for each machine.

10)Configure a http load balancer to access these instances .

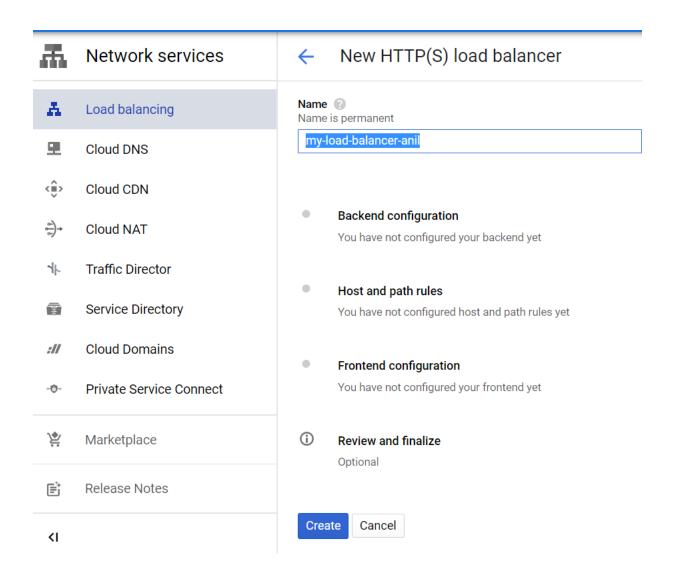
Go to Network-service - > Load balancing option



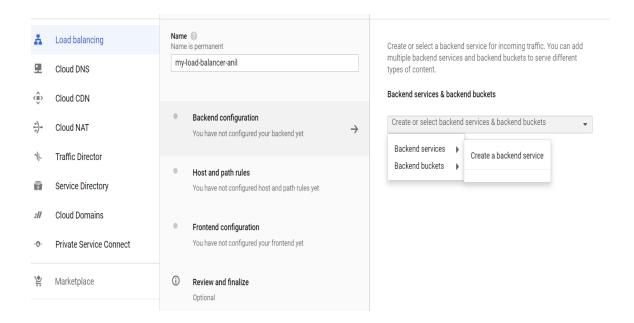
11)Select from external to my Vms



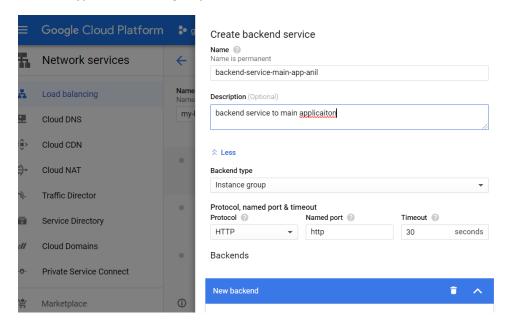
12)put name of load balancer as "my-load-balancer-anil". Note put your name instead of anil.



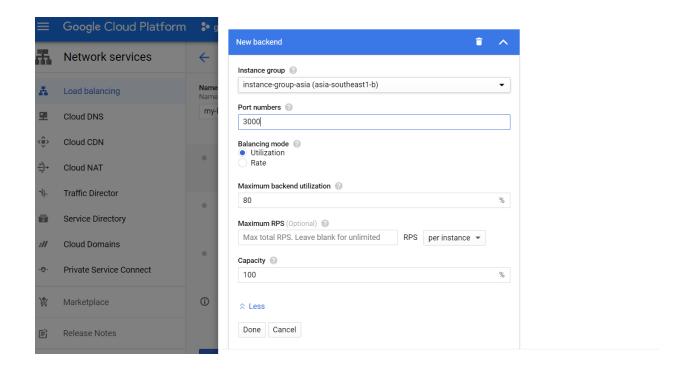
13)Click on back end configuration and then click on drop down then click on create a back end service.



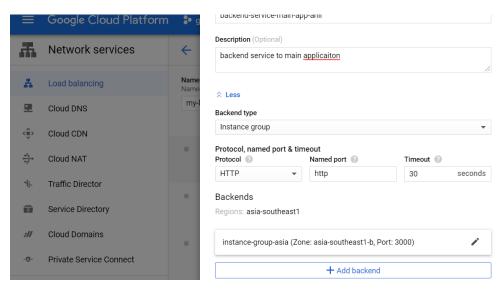
14) Give the name of backend-service as "backend-service-main-app-anil". Give description, select backend type as Instance group.



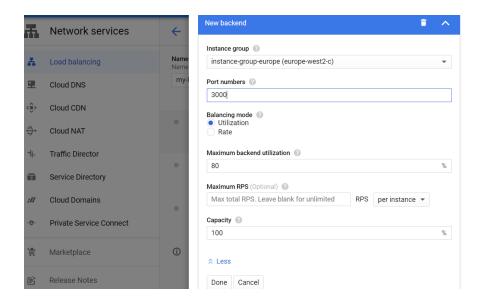
15)Select asia instance group and port number 3000. Keep rest of setting as it is in instance group. Click on done .



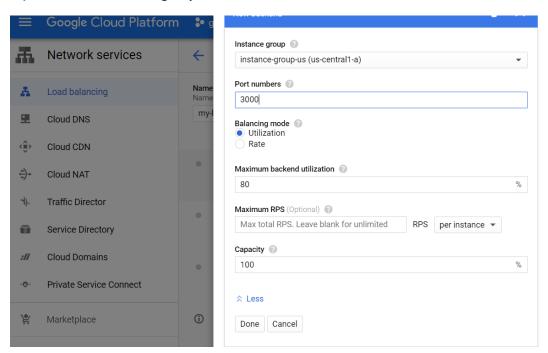
18)After adding the first instance group ,the Ui will look like below



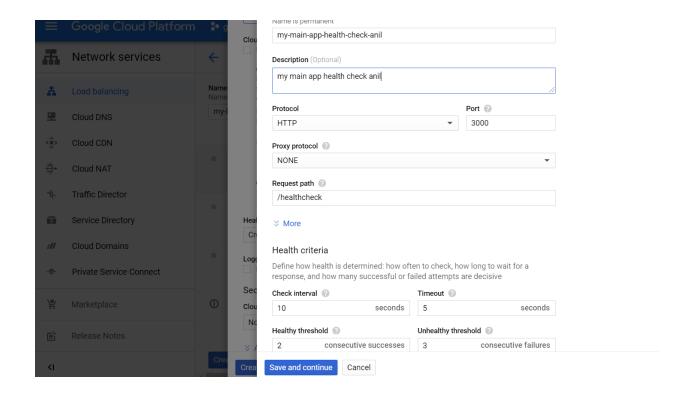
19)Click on Add backend to add instance group for Europe.



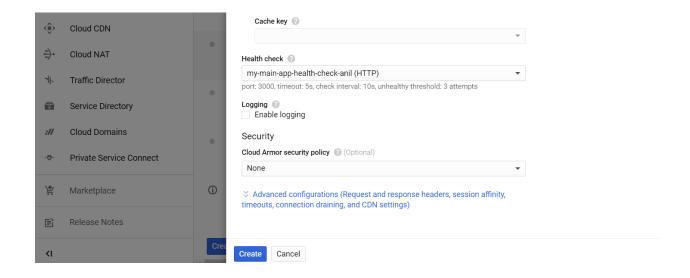
20)Add another instance group for US.



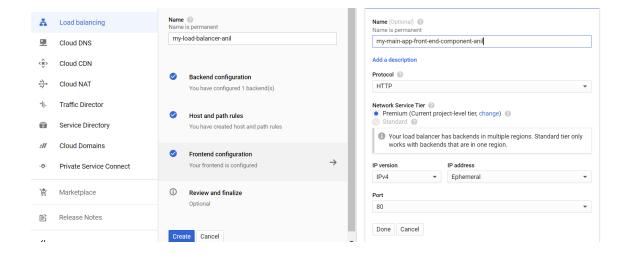
21)Click on create health check .Add following entry in the health check.Put your name instead of anil.



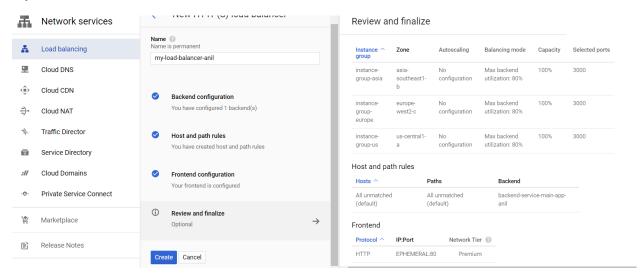
22)Click on create to create a backend service.



23)Don't do any changes in host and port rules ,Click on Front end configuration as below.



24)Click on review and finalize.IT shall look like below.



25)Click on create after verifying the above configuration. Wait for few mins to allow load balancer to work.

26) Verify on the server of each instance that we are getting a health check call back from load balancer as below.

GET /healthcheck HTTP/1.1" 200

27) Now check the Ip of the load balancer from hit the url from the browser.

http://34.98.77.175/main

where 34.98.77.175 represents the ip of the load balancer.

Observe the output given by different servers.