DevOps Lab

CLOUD COMPUTE - GCP

Compute: Virtual Machine creation

Home task

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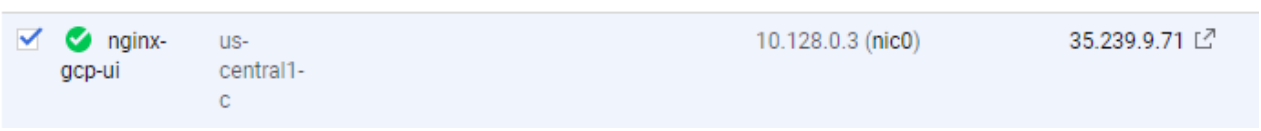
TASK 1

It's aiming to gain knowledge about the mechanisms of VMs creation in Google Cloud.

Create Virtual Machine in Google cloud by the following ways:

- gcp-ui (complete Lab: google codelabs: VM creation)




```
[root@nginx-gcp-ui ~]# ps aux | grep nginx
root      26299  0.0  0.0 120912  2092 ?        Ss   11:02   0:00 nginx: master p
rocess /usr/sbin/nginx
nginx     26300  0.0  0.0 121292  3500 ?        S    11:02   0:00 nginx: worker p
rocess
root      26311  0.0  0.0 112808   968 pts/0    S+   11:03   0:00 grep --color=au
to nginx
```

```
[root@nginx-gcp-ui ~]# curl -I http://35.239.9.71:80/
HTTP/1.1 200 OK
Server: nginx/1.16.1
```

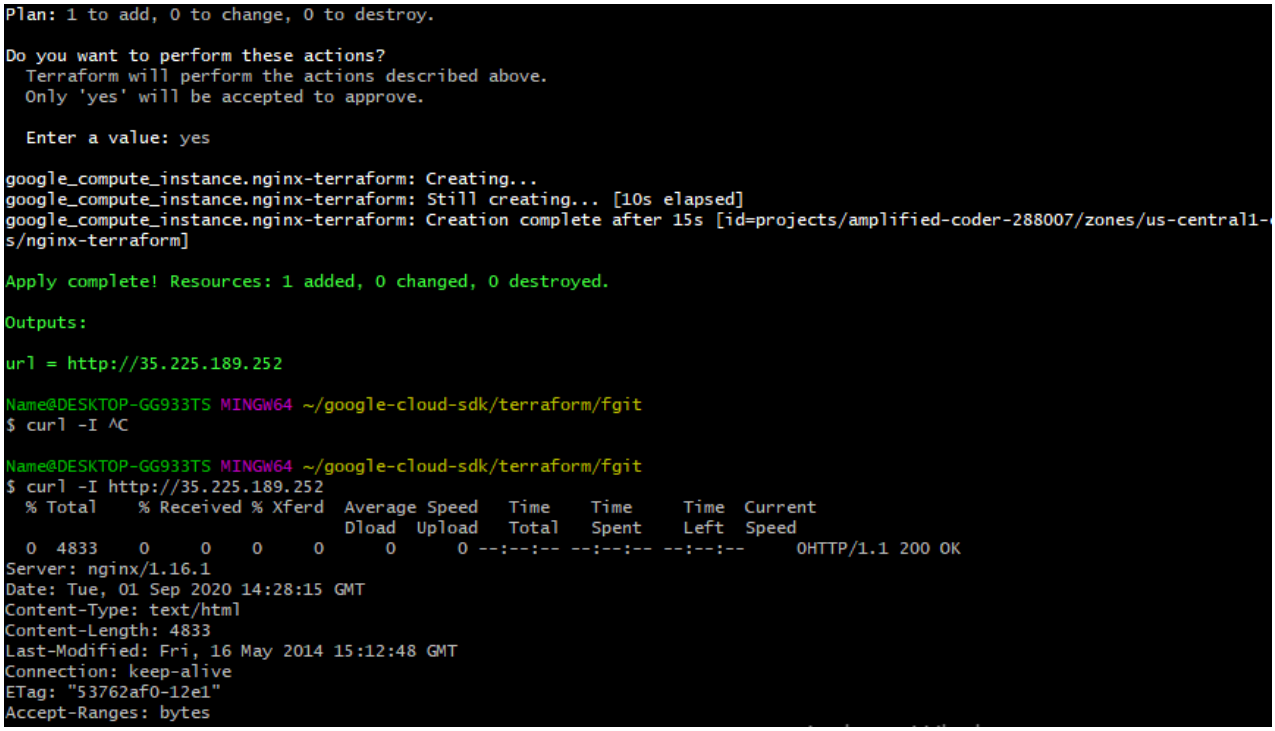
- gcloud

```
$ ./gcloud.sh
Created [https://www.googleapis.com/compute/v1/projects/amplified-coder-288007/zones/us-central1-c/instances/nginx-gcloud].
WARNING: Some requests generated warnings:
 - Disk size: '35 GB' is larger than image size: '20 GB'. You might need to resize the root repartition manually if the operating sys
tem does not support automatic resizing. See https://cloud.google.com/compute/docs/disks/add-persistent-disk#resize_pd for details.

NAME          ZONE           MACHINE_TYPE   PREEMPTIBLE  INTERNAL_IP  EXTERNAL_IP    STATUS
nginx-gcloud  us-central1-c  custom-1-4608               10.128.0.6   34.123.101.32  RUNNING

Name@DESKTOP-GG933TS MINGW64 ~/google-cloud-sdk/terraform/fgit
$ curl -I http://34.123.101.32/
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0  4833    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0HTTP/1.1 200 OK
Server: nginx/1.16.1
```

- terraform (all settings should be provided via variables (tfvars), add URL ("http://IP. Address/" to output)



Virtual Machine Properties:

- InstanceName : nginx-${creation-way}
- Region: us-central1
- Zone: us-central1-c
- Type: General Purpose, n1, 1CPU 4.5GB RAM, Disk SSD 35Gb;
- OS: Centos7
- Allow http,https traffic
- Labels:
    - ServerType=NginxServer
    - OSFamily=RedHat
    - WayOfInstallation=${creation-way}

- The instance should be protected for deletion.
- VM should have the up and running Nginx (automatically provisioned after VM is started via yum, default configuration)
- The instance is running in **default** network

P.S.:
For **gcp-ui** way please use the following guide for reference:
https://cloud.google.com/compute/docs/quickstart-linux

For **gcloud** way please use the following guide for reference:
https://cloud.google.com/ai-platform/deep-learning-vm/docs/quickstart-cli

For **terraform** way please use the following guide for reference:
https://www.terraform.io/docs/providers/google/guides/getting_started.html
https://cloud.google.com/community/tutorials/managing-gcp-projects-with-terraform

TASK 2

It's aiming to gain knowledge about the mechanisms of Persistent disk creation in Google Cloud.

Create Persistent Disk and attach it to one of existing Virtual machine (nginx-gcp-ui).

1) Complete Lab [goolge codelabs: persistent disk] with using your VM name

```
valentinratomskiy@cloudshell:~ (amplified-coder-288007)$ gcloud compute disks create mydisk --size=12GB --zone us-centra
l1-c
WARNING: You have selected a disk size of under [200GB]. This may result in poor I/O performance. For more information,
see: https://developers.google.com/compute/docs/disks#performance.
Created [https://www.googleapis.com/compute/v1/projects/amplified-coder-288007/zones/us-central1-c/disks/mydisk].
NAME    ZONE           SIZE_GB  TYPE         STATUS
mydisk  us-central1-c  12       pd-standard  READY

New disks are unformatted. You must format and mount a disk before it
can be used. You can find instructions on how to do this at:

https://cloud.google.com/compute/docs/disks/add-persistent-disk#formatting

valentinratomskiy@cloudshell:~ (amplified-coder-288007)$ gcloud compute instances attach-disk nginx-gcp-ui --disk mydisk
 --zone us-central1-c
Updated [https://www.googleapis.com/compute/v1/projects/amplified-coder-288007/zones/us-central1-c/instances/nginx-gcp-u
i].
valentinratomskiy@cloudshell:~ (amplified-coder-288007)$
```

```
[valentinratomskiy@nginx-gcp-ui ~]$ sudo mkdir /mnt/mydisk
[valentinratomskiy@nginx-gcp-ui ~]$ sudo mkfs.ext4 -F -E \
>   lazy_itable_init=0,lazy_journal_init=0,discard \
>   /dev/disk/by-id/scsi-0Google_PersistentDisk_persistent-disk-1
mke2fs 1.42.9 (28-Dec-2013)
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
786432 inodes, 3145728 blocks
157286 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2151677952
96 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
```

2) Create terraform configuration to do the same via terraform (use VM: nginx-gcp-terraform).

For reference:

- google_compute_disk
- google_compute_attached_disk

```
google_compute_disk.nginx-terraform: Creating...
google_compute_disk.nginx-terraform: Still creating... [10s elapsed]
google_compute_disk.nginx-terraform: Creation complete after 13s [id=projects/amplified-coder-288007/zones/us-central1-c/di
terraform-disk]
google_compute_attached_disk.nginx-terraform: Creating...
google_compute_attached_disk.nginx-terraform: Still creating... [10s elapsed]
google_compute_attached_disk.nginx-terraform: Creation complete after 12s [id=projects/amplified-coder-288007/zones/us-cent
tances/nginx-terraform/nginx-terraform-disk]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.
```

All **reports**/code please place into repository:
https://github.com/MNT-Lab/google-cloud-module into appropriate branches: *first char of name + surname*.

For example:
Student: Siarhei Ivanou
Branch Name: **sivanou**

Format depends on case: README.md/scripts/terraform files

Email pattern: [MNT-CD-8.2]-FirstName-LastName

Email should contain the link to personalized branch.