Setup a multi-node Arktos cluster using Ubuntu or custom image on GCE

Prerequisites:

User will need to run following steps on workstation machine (the recommended instance size should be atleast 16 CPU and 32GB RAM and the storage size should be 150GB or more).

User will need a GCP account, and [gcloud](#) configured in your bash profile.

Installation steps:

1. ### *Install gcloud*

Command:

echo "deb [signed-by=/usr/share/keyrings/cloud.google.gpg] https://packages.cloud.google.com/apt cloud-sdk main" | sudo tee -a /etc/apt/sources.list.d/google-cloud-sdk.list

Output:

Command:

sudo apt-get install apt-transport-https ca-certificates gnupg -y -q

Output:

Command:

```
curl https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key --keyring
/usr/share/keyrings/cloud.google.gpg add -
```

Output:

```
root@amittestubuntu1804:~# curl https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key --keyring /usr/share/keyrings/cloud.google.gpg add -
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  2537  100  2537    0     0  90607      0 --:--:-- --:--:-- --:--:-- 90607
OK
```

Command:

```
sudo apt-get update -y && sudo apt-get install make google-cloud-sdk -y
```

Output:

```
Get:19 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [4588 B]
Get:20 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [1904 kB]
Get:21 https://packages.cloud.google.com/apt cloud-sdk/main amd64 Packages [191 kB]
Get:22 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [345 kB]
Get:23 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [468 kB]
Get:24 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [63.0 kB]
Get:25 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1140 kB]
Get:26 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [260 kB]
Get:27 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [20.9 kB]
Get:28 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [4732 B]
Fetched 23.3 MB in 4s (5352 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  libnuma1
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  python3-crcmod
Suggested packages:
  google-cloud-sdk-app-engine-java google-cloud-sdk-app-engine-python google-cloud-sdk-pubsub-emulator google-cloud-sdk-bigtable-emulator
  google-cloud-sdk-datastore-emulator kubectl make-doc
The following NEW packages will be installed:
  google-cloud-sdk make python3-crcmod
0 upgraded, 3 newly installed, 0 to remove and 8 not upgraded.
Need to get 75.9 MB of archives.
After this operation, 479 MB of additional disk space will be used.
Get:1 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic/universe amd64 python3-crcmod amd64 1.7-2build4 [18.4 kB]
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic/main amd64 make amd64 4.1-9.1ubuntu1 [154 kB]
Get:3 https://packages.cloud.google.com/apt cloud-sdk/main amd64 google-cloud-sdk all 360.0.0-0 [75.8 MB]
Fetched 75.9 MB in 1s (67.1 MB/s)
Selecting previously unselected package python3-crcmod.
(Reading database ... 65612 files and directories currently installed.)
Preparing to unpack .../python3-crcmod_1.7-2build4_amd64.deb ...
Unpacking python3-crcmod (1.7-2build4) ...
Selecting previously unselected package google-cloud-sdk.
Preparing to unpack .../google-cloud-sdk_360.0.0-0_all.deb ...
Unpacking google-cloud-sdk (360.0.0-0) ...
Selecting previously unselected package make.
Preparing to unpack .../make_4.1-9.1ubuntu1_amd64.deb ...
Unpacking make (4.1-9.1ubuntu1) ...
Setting up make (4.1-9.1ubuntu1) ...
Setting up python3-crcmod (1.7-2build4) ...
Setting up google-cloud-sdk (360.0.0-0) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
```

Command:

```
gcloud init
```

Output:

```
to switch accounts if necessary.

Your credentials may be visible to others with access to this
virtual machine. Are you sure you want to authenticate with
your personal account?

Do you want to continue (Y/n)?  y

Go to the following link in your browser:

    https://accounts.google.com/o/oauth2/auth?response_type=code&client_id=32555940559.apps.googleusercontent.com&redirect_uri=urn%3Aietf%3Awg%3Aoauth%3A2.0%3Aoob&sco
pe=openid+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform+https%3A%2F%2Fwww.googleapis.com%2Fauth%2F
appengine.admin+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcompute+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Faccounts.reauth&state=FtCpvaYfpyuPf9FKzd4TvlyE0fJXaV&promp
t=consent&access_type=offline&code_challenge=ln6T5yElXTSOAQST7dgjI1erjGtZwB97AjXlADIPdH8&code_challenge_method=S256

Enter verification code: 4/1AX4XfWg8ROi88K5Aw4_lq5fdDLdbhiT5p7dVGgT7vF71h4J1qomUSBiXZVc
You are logged in as: [c2c-gce@click2cloud.net].

Pick cloud project to use:
 [1] click2cloud
 [2] eternal-argon-327706
 [3] festive-ray-320412
 [4] Create a new project
Please enter numeric choice or text value (must exactly match list
item):  1

Your current project has been set to: [click2cloud].

Do you want to configure a default Compute Region and Zone? (Y/n)?  n

Created a default .boto configuration file at [/root/.boto]. See this file and
[https://cloud.google.com/storage/docs/gsutil/commands/config] for more
information about configuring Google Cloud Storage.
Your Google Cloud SDK is configured and ready to use!

* Commands that require authentication will use c2c-gce@click2cloud.net by default
* Commands will reference project `click2cloud` by default
Run `gcloud help config` to learn how to change individual settings

This gcloud configuration is called [default]. You can create additional configurations if you work with multiple accounts and/or projects.
Run `gcloud topic configurations` to learn more.

Some things to try next:

* Run `gcloud --help` to see the Cloud Platform services you can interact with. And run `gcloud help COMMAND` to get help on any gcloud command.
* Run `gcloud topic --help` to learn about advanced features of the SDK like arg files and output formatting
root@amittestubuntu1804:~#
```

2. User will need docker and golang to create binaries and docker images

Install Docker

Command:

```
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o
/usr/share/keyrings/docker-archive-keyring.gpg
echo \
  "deb [arch=amd64 signed-by=/usr/share/keyrings/docker-archive-keyring.gpg]
https://download.docker.com/linux/ubuntu \
  $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list >
/dev/null
```

Output:

Command:

```
sudo apt-get update -y
```

Output:

```
root@amittestubuntu1804:~# sudo apt-get update -y
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:4 https://packages.cloud.google.com/apt cloud-sdk InRelease
Hit:5 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:6 https://download.docker.com/linux/ubuntu bionic InRelease [64.4 kB]
Get:7 https://download.docker.com/linux/ubuntu bionic/stable amd64 Packages [20.5 kB]
Fetched 85.0 kB in 1s (145 kB/s)
Reading package lists... Done
```

Command:

sudo apt-get install docker-ce docker-ce-cli containerd.io -y

Output:

```
After this operation, 403 MB of additional disk space will be used.
Get:1 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic/universe amd64 pigz amd64 2.4-1 [57.4 kB]
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu bionic/main amd64 libltdl7 amd64 2.4.6-2 [38.8 kB]
Get:3 https://download.docker.com/linux/ubuntu bionic/stable amd64 containerd.io amd64 1.4.11-1 [23.7 MB]
Get:4 https://download.docker.com/linux/ubuntu bionic/stable amd64 docker-ce-cli amd64 5:20.10.9~3-0~ubuntu-bionic [38.8 MB]
Get:5 https://download.docker.com/linux/ubuntu bionic/stable amd64 docker-ce amd64 5:20.10.9~3-0~ubuntu-bionic [21.3 MB]
Get:6 https://download.docker.com/linux/ubuntu bionic/stable amd64 docker-ce-rootless-extras amd64 5:20.10.9~3-0~ubuntu-bionic [7911 kB]
Get:7 https://download.docker.com/linux/ubuntu bionic/stable amd64 docker-scan-plugin amd64 0.8.0~ubuntu-bionic [3888 kB]
Fetched 95.7 MB in 2s (52.6 MB/s)
Selecting previously unselected package pigz.
(Reading database ... 95834 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../1-containerd.io_1.4.11-1_amd64.deb ...
Unpacking containerd.io (1.4.11-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../2-docker-ce-cli_5%3a20.10.9~3-0~ubuntu-bionic_amd64.deb ...
Unpacking docker-ce-cli (5:20.10.9~3-0~ubuntu-bionic) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../3-docker-ce_5%3a20.10.9~3-0~ubuntu-bionic_amd64.deb ...
Unpacking docker-ce (5:20.10.9~3-0~ubuntu-bionic) ...
Selecting previously unselected package docker-ce-rootless-extras.
Preparing to unpack .../4-docker-ce-rootless-extras_5%3a20.10.9~3-0~ubuntu-bionic_amd64.deb ...
Unpacking docker-ce-rootless-extras (5:20.10.9~3-0~ubuntu-bionic) ...
Selecting previously unselected package docker-scan-plugin.
Preparing to unpack .../5-docker-scan-plugin_0.8.0~ubuntu-bionic_amd64.deb ...
Unpacking docker-scan-plugin (0.8.0~ubuntu-bionic) ...
Selecting previously unselected package libltdl7:amd64.
Preparing to unpack .../6-libltdl7_2.4.6-2_amd64.deb ...
Unpacking libltdl7:amd64 (2.4.6-2) ...
Setting up containerd.io (1.4.11-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up docker-ce-rootless-extras (5:20.10.9~3-0~ubuntu-bionic) ...
Setting up docker-scan-plugin (0.8.0~ubuntu-bionic) ...
Setting up libltdl7:amd64 (2.4.6-2) ...
Setting up docker-ce-cli (5:20.10.9~3-0~ubuntu-bionic) ...
Setting up pigz (2.4-1) ...
Setting up docker-ce (5:20.10.9~3-0~ubuntu-bionic) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for libc-bin (2.27-3ubuntu1.4) ...
Processing triggers for systemd (237-3ubuntu10.52) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
```

Install Golang

Command:

wget https://storage.googleapis.com/golang/go1.15.4.linux-amd64.tar.gz

Output:

```
root@amittestubuntu1804:~# wget https://storage.googleapis.com/golang/go1.15.4.linux-amd64.tar.gz
--2021-10-06 05:44:37--  https://storage.googleapis.com/golang/go1.15.4.linux-amd64.tar.gz
Resolving storage.googleapis.com (storage.googleapis.com)... 173.194.192.128, 209.85.145.128, 209.85.147.128, ...
Connecting to storage.googleapis.com (storage.googleapis.com)|173.194.192.128|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 120906247 (115M) [application/octet-stream]
Saving to: 'go1.15.4.linux-amd64.tar.gz'

go1.15.4.linux-amd64.tar.gz     100%[===================================================================>] 115.30M  134MB/s   in 0.9s

2021-10-06 05:44:38 (134 MB/s) - 'go1.15.4.linux-amd64.tar.gz' saved [120906247/120906247]
```

Command:

sudo tar -C /usr/local -xzf go1.15.4.linux-amd64.tar.gz

sudo echo 'export PATH=$PATH:/usr/local/go/bin' >> $HOME/.profile

sudo echo 'export GOPATH=$HOME/gopath' >> $HOME/.profile

source $HOME/.profile

Output:

```
root@amittestubuntu1804:~# sudo tar -C /usr/local -xzf go1.15.4.linux-amd64.tar.gz
root@amittestubuntu1804:~# sudo echo 'export PATH=$PATH:/usr/local/go/bin' >> $HOME/.profile
root@amittestubuntu1804:~# sudo echo 'export GOPATH=$HOME/gopath' >> $HOME/.profile
root@amittestubuntu1804:~# source $HOME/.profile
```

Deploy Arktos cluster

Clone arktos repository

Command:

mkdir -p $HOME/go/src/k8s.io

cd $HOME/go/src/k8s.io

git clone -b ubuntu-image-fix https://github.com/Click2Cloud-Centaurus/arktos.git

Output:

```
root@amittestubuntu1804:~# source $HOME/.profile
root@amittestubuntu1804:~# mkdir -p $HOME/go/src/k8s.io
root@amittestubuntu1804:~# cd $HOME/go/src/k8s.io
root@amittestubuntu1804:~/go/src/k8s.io# git clone -b  ubuntu-image-fix https://github.com/Click2Cloud-Centaurus/arktos.git
Cloning into 'arktos'...
remote: Enumerating objects: 104527, done.
remote: Counting objects: 100% (1189/1189), done.
remote: Compressing objects: 100% (725/725), done.
remote: Total 104527 (delta 600), reused 646 (delta 447), pack-reused 103338
Receiving objects: 100% (104527/104527), 333.33 MiB | 32.69 MiB/s, done.
Resolving deltas: 100% (63266/63266), done.
Checking out files: 100% (20761/20761), done.
```

Build the Arktos release binaries from a bash terminal from your Arktos source root directory

:

cd $HOME/go/src/k8s.io/arktos

sudo make clean

sudo make quick-release

:

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos# sudo make clean
+++ [1006 06:09:04] Verifying Prerequisites....
root@amittestubuntu1804:~/go/src/k8s.io/arktos# sudo make quick-release
+++ [1006 06:09:40] Verifying Prerequisites....
+++ [1006 06:09:40] Building Docker image kube-build:build-847a262cf0-5-v1.13.9-2
+++ [1006 06:11:16] Creating data container kube-build-data-847a262cf0-5-v1.13.9-2
+++ [1006 06:11:36] Syncing sources to container
+++ [1006 06:11:46] Running build command...
+++ [1006 06:11:54] Building go targets for linux/amd64:
    ./vendor/k8s.io/code-generator/cmd/deepcopy-gen
+++ [1006 06:12:02] Building go targets for linux/amd64:
    ./vendor/k8s.io/code-generator/cmd/defaulter-gen
+++ [1006 06:12:09] Building go targets for linux/amd64:
    ./vendor/k8s.io/code-generator/cmd/conversion-gen
+++ [1006 06:12:20] Building go targets for linux/amd64:
    ./vendor/k8s.io/kube-openapi/cmd/openapi-gen
+++ [1006 06:12:31] Building go targets for linux/amd64:
    ./vendor/github.com/go-bindata/go-bindata/go-bindata
WARN: Skipping copyright check for in-container build as git repo is not available
+++ [1006 06:12:32] Building go targets for linux/amd64:
    cmd/kube-proxy
    cmd/kube-apiserver
    cmd/kube-controller-manager
    cmd/cloud-controller-manager
    cmd/workload-controller-manager
    cmd/kubelet
    cmd/kubeadm
    cmd/hyperkube
    cmd/kube-scheduler
    vendor/k8s.io/apiextensions-apiserver
    cluster/gce/gci/mounter
WARN: Skipping copyright check for in-container build as git repo is not available
WARN: Skipping copyright check for in-container build as git repo is not available
+++ [1006 06:15:40] Building go targets for linux/amd64:
    cmd/kube-proxy
    cmd/kubeadm
    cmd/kubelet
WARN: Skipping copyright check for in-container build as git repo is not available
WARN: Skipping copyright check for in-container build as git repo is not available
+++ [1006 06:16:24] Building go targets for linux/amd64:
    cmd/kubectl
WARN: Skipping copyright check for in-container build as git repo is not available
WARN: Skipping copyright check for in-container build as git repo is not available
+++ [1006 06:16:40] Building go targets for linux/amd64:
    cmd/gendocs
    cmd/genkubedocs
    cmd/genman
```

```
+++ [1006 06:18:15] Building go targets for linux/amd64:
    cmd/kubemark
    vendor/github.com/onsi/ginkgo/ginkgo
    test/e2e_node/e2e_node.test
WARN: Skipping copyright check for in-container build as git repo is not available
+++ [1006 06:19:21] Syncing out of container
+++ [1006 06:19:59] Building tarball: src
+++ [1006 06:19:59] Building tarball: manifests
+++ [1006 06:19:59] Starting tarball: client linux-amd64
+++ [1006 06:19:59] Waiting on tarballs
+++ [1006 06:20:08] Building tarball: node linux-amd64
+++ [1006 06:20:08] Building images: linux-amd64
+++ [1006 06:20:09] Starting docker build for image: cloud-controller-manager-amd64
+++ [1006 06:20:09] Starting docker build for image: kube-apiserver-amd64
+++ [1006 06:20:09] Starting docker build for image: kube-controller-manager-amd64
+++ [1006 06:20:09] Starting docker build for image: workload-controller-manager-amd64
+++ [1006 06:20:09] Starting docker build for image: kube-scheduler-amd64
+++ [1006 06:20:09] Starting docker build for image: kube-proxy-amd64
+++ [1006 06:20:09] Building hyperkube image for arch: amd64
+++ [1006 06:20:09] Building conformance image for arch: amd64
+++ [1006 06:22:40] Deleting docker image k8s.gcr.io/workload-controller-manager:v0.9.0
+++ [1006 06:22:40] Deleting docker image k8s.gcr.io/kube-proxy:v0.9.0
+++ [1006 06:22:40] Deleting docker image k8s.gcr.io/kube-scheduler:v0.9.0
+++ [1006 06:22:40] Deleting docker image k8s.gcr.io/cloud-controller-manager:v0.9.0
+++ [1006 06:22:40] Deleting docker image k8s.gcr.io/kube-controller-manager:v0.9.0
+++ [1006 06:22:40] Deleting docker image k8s.gcr.io/kube-apiserver:v0.9.0
+++ [1006 06:22:40] Deleting hyperkube image k8s.gcr.io/hyperkube-amd64:v0.9.0
+++ [1006 06:23:22] Deleting conformance image k8s.gcr.io/conformance-amd64:v0.9.0
+++ [1006 06:23:22] Docker builds done
+++ [1006 06:23:22] Building tarball: server linux-amd64
+++ [1006 06:25:16] Building tarball: final
+++ [1006 06:25:16] Waiting on test tarballs
+++ [1006 06:25:16] Starting tarball: test linux-amd64
+++ [1006 06:26:06] Building tarball: test portable
+++ [1006 06:26:06] Building tarball: test mondo (deprecated by KEP sig-testing/20190118-breaking-apart-the-kubernetes-test-tarball)
Running copyright check for repo: /root/go/src/k8s.io/arktos, logging to _output/ArktosCopyrightTool.log
~/go/src/k8s.io/arktos ~/go/src/k8s.io/arktos
warning: inexact rename detection was skipped due to too many files.
warning: you may want to set your diff.renameLimit variable to at least 3062 and retry the command.
~/go/src/k8s.io/arktos
~/go/src/k8s.io/arktos ~/go/src/k8s.io/arktos
warning: inexact rename detection was skipped due to too many files.
warning: you may want to set your diff.renameLimit variable to at least 3062 and retry the command.
~/go/src/k8s.io/arktos
Inspecting copyright files, writing logs to _output/ArktosCopyrightTool.log
Done.
root@amittestubuntu1804:~/go/src/k8s.io/arktos#
```

Scenario 1:

Scenario	KUBE_GCI_VERSION	KUBE_GCE_MASTER_PROJECT	KUBE_GCE_NODE_PROJECT
Scenario-1	cos-85-13310-1308-1	cos-cloud	cos-cloud

Modify `cluster/gce/config-default.sh` **to change configurations**

To deploy the arktos cluster on GCE, run kube-up script as follows:

Command:

sudo ./cluster/kube-up.sh

Output:

```
Kubernetes cluster is running.  The master is running at:

  https://35.223.221.146

The user name and password to use is located in /root/.kube/config.

... calling validate-cluster
Validating gce cluster, MULTIZONE=
Project: click2cloud
Network Project: click2cloud
Zone: us-central1-b
TOTALSERVER_EXTRA_NUM: 0, EXPECTED_NUM_NODES:4, ALLOWED_NOTREADY_NODES:0
No resources found.
Waiting for 4 ready nodes. 0 ready nodes, 0 registered. Retrying.
No resources found.
Waiting for 4 ready nodes. 0 ready nodes, 0 registered. Retrying.
Found 4 node(s).
NAME                            STATUS                  ROLES    AGE   VERSION
kubernetes-master               Ready,SchedulingDisabled <none>   7s    v0.9.0
kubernetes-minion-group-f606    Ready                   <none>   5s    v0.9.0
kubernetes-minion-group-g3cr    Ready                   <none>   4s    v0.9.0
kubernetes-minion-group-n4st    Ready                   <none>   5s    v0.9.0
Validate output:
NAME                 STATUS    MESSAGE              ERROR
controller-manager   Healthy   ok
scheduler            Healthy   ok
etcd-0               Healthy   {"health":"true"}
etcd-1               Healthy   {"health":"true"}
Cluster validation succeeded

Done, listing cluster services:

Kubernetes master is running at https://35.223.221.146
GLBCDefaultBackend is running at https://35.223.221.146/api/v1/tenants/system/namespaces/kube-system/services/default-http-backend:http/proxy
Heapster is running at https://35.223.221.146/api/v1/tenants/system/namespaces/kube-system/services/heapster/proxy
kubernetes-dashboard is running at https://35.223.221.146/api/v1/tenants/system/namespaces/kube-system/services/https:kubernetes-dashboard:/proxy
Metrics-server is running at https://35.223.221.146/api/v1/tenants/system/namespaces/kube-system/services/https:metrics-server:/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
```

Check Nodes:

Command:

```
./kubectl.sh get nodes
```

Output:

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kubectl.sh get nodes
NAME                            STATUS                  ROLES    AGE   VERSION
kubernetes-master               Ready,SchedulingDisabled <none>   22m   v0.9.0
kubernetes-minion-group-f606    Ready                   <none>   22m   v0.9.0
kubernetes-minion-group-g3cr    Ready                   <none>   22m   v0.9.0
kubernetes-minion-group-n4st    Ready                   <none>   22m   v0.9.0
```

Check Pods:

Command:

```
./kubectl.sh get pods -A
```

Output:

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kubectl.sh get pods -A
NAMESPACE     NAME                                         HASHKEY               READY   STATUS    RESTARTS   AGE
kube-system   coredns-7778f74bb8-nmhxq                     191870671390932619    0/1     Pending   0          32m
kube-system   etcd-empty-dir-cleanup-kubernetes-master     2852408672556892420   1/1     Running   0          31m
kube-system   etcd-server-events-kubernetes-master         6018870288059715222   1/1     Running   0          31m
kube-system   etcd-server-kubernetes-master                7660251543480869998   1/1     Running   0          31m
kube-system   event-exporter-v0.2.5-868dff6494-8p82c       1571634046121721762   0/1     Pending   0          32m
kube-system   fluentd-gcp-scaler-74b46b8776-rpzmm          437014078511354338    0/1     Pending   0          32m
kube-system   fluentd-gcp-v3.2.0-c57xb                     7552693265242870184   0/1     Pending   0          31m
kube-system   fluentd-gcp-v3.2.0-gjpg5                     4839253697730685587   0/1     Pending   0          31m
kube-system   fluentd-gcp-v3.2.0-rrwtz                     7096966233348961890   0/1     Pending   0          31m
kube-system   fluentd-gcp-v3.2.0-zznd8                     2470750933297887099   0/1     Pending   0          31m
kube-system   heapster-v1.6.0-beta.1-fdfc69c86-cnjtl       420273089604313399    0/2     Pending   0          32m
kube-system   kube-addon-manager-kubernetes-master         5014754618061431440   1/1     Running   0          30m
kube-system   kube-apiserver-kubernetes-master             5313268434624570340   1/1     Running   0          31m
kube-system   kube-controller-manager-kubernetes-master    4555544611573728811   1/1     Running   0          30m
kube-system   kube-dns-autoscaler-748b78969c-csrbf         4528526902148716915   0/1     Pending   0          31m
kube-system   kube-flannel-ds-8kdqs                        4982678883633728025   0/1     Pending   0          31m
kube-system   kube-flannel-ds-tcx56                        163120172151088438    0/1     Pending   0          31m
kube-system   kube-flannel-ds-tpnqq                        3870071713649678998   0/1     Pending   0          31m
kube-system   kube-flannel-ds-xnjzk                        7815649071238272011   0/1     Pending   0          31m
kube-system   kube-proxy-kubernetes-minion-group-f606      9133671967908790497   1/1     Running   0          31m
kube-system   kube-proxy-kubernetes-minion-group-g3cr      9133671967908790497   1/1     Running   0          31m
kube-system   kube-proxy-kubernetes-minion-group-n4st      9133671967908790497   1/1     Running   0          31m
kube-system   kube-scheduler-kubernetes-master             173618816442430928    1/1     Running   1          30m
kube-system   kubernetes-dashboard-848965699-psg8p         5594332003740051283   0/1     Pending   0          32m
kube-system   l7-default-backend-6497bc5bf6-xx7gw          1168947487809383026   0/1     Pending   0          32m
kube-system   l7-lb-controller-v1.2.3-kubernetes-master    5013348416365870850   1/1     Running   0          30m
kube-system   metrics-server-v0.3.3-5f994fcb77-vfk87       2399421669311870059   0/2     Pending   0          32m
```

Arktos cluster tear-down:

To terminate arktos cluster, run the following:

Command:

```
./kube-down.sh
```

Output:

```
Removing etcd replica, name: kubernetes-master, port: 4002, result: 255
Updated [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instances/kubernetes-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instances/kubernetes-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-master-https].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-minion-all].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-master-etcd].
Deleting master's reserved IP
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/regions/us-central1/addresses/kubernetes-master-ip].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/regions/us-central1/addresses/kubernetes-master-internalip].
Deleting routes kubernetes-a0b3c5ce-5cd7-42aa-b2f2-3b1df422372a
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/routes/kubernetes-a0b3c5ce-5cd7-42aa-b2f2-3b1df422372a].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-default-internal-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-default-internal-node].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/default-default-ssh].
Property "current-context" unset.
Property "clusters.click2cloud_kubernetes" unset.
Property "users.click2cloud_kubernetes" unset.
Property "users.click2cloud_kubernetes-basic-auth" unset.
Property "contexts.click2cloud_kubernetes" unset.
Cleared config for click2cloud_kubernetes from /root/.kube/config
Done
```

PASSED

Scenario 2:

Scenario-2	ubuntu-1804-bionic-v20210928	ubuntu-os-cloud	ubuntu-os-cloud

Modify `cluster/gce/config-default.sh` ***to change configurations***

- `KUBE_GCI_VERSION` : provide image name (For eg. `ubuntu-1804-bionic-v20210928`)
- `KUBE_GCE_MASTER_PROJECT`: provide project name(for ubuntu image use `ubuntu-os-cloud`)
- `KUBE_GCE_NODE_PROJECT`: provide project name(for ubuntu image use `ubuntu-os-cloud`)
- ENABLE_KCM_LEADER_ELECT=${ENABLE_KCM_LEADER_ELECT:-false}
- ENABLE_SCHEDULER_LEADER_ELECT=${ENABLE_SCHEDULER_LEADER_ELECT:-false}

After modification, To deploy the arktos cluster on GCE, run kube-up script as follows:

Command:

sudo ./cluster/kube-up.sh

Output:

```
Kubernetes cluster is running.  The master is running at:

  https://34.121.109.120

The user name and password to use is located in /root/.kube/config.

... calling validate-cluster
Validating gce cluster, MULTIZONE=
Project: click2cloud
Network Project: click2cloud
Zone: us-central1-b
TOTALSERVER_EXTRA_NUM: 0, EXPECTED_NUM_NODES:4, ALLOWED_NOTREADY_NODES:0
No resources found.
Waiting for 4 ready nodes. 0 ready nodes, 0 registered. Retrying.
No resources found.
Waiting for 4 ready nodes. 0 ready nodes, 0 registered. Retrying.
Waiting for 4 ready nodes. 1 ready nodes, 3 registered. Retrying.
Found 4 node(s).
NAME                            STATUS                   ROLES    AGE   VERSION
kubernetes-master               Ready,SchedulingDisabled <none>   20s   v0.9.0
kubernetes-minion-group-8h0h    Ready                    <none>   16s   v0.9.0
kubernetes-minion-group-9qxf    Ready                    <none>   16s   v0.9.0
kubernetes-minion-group-dp14    Ready                    <none>   15s   v0.9.0
Validate output:
NAME                 STATUS    MESSAGE              ERROR
etcd-1               Healthy   {"health":"true"}
controller-manager   Healthy   ok
scheduler            Healthy   ok
etcd-0               Healthy   {"health":"true"}
Cluster validation succeeded

Done, listing cluster services:

Kubernetes master is running at https://34.121.109.120
GLBCDefaultBackend is running at https://34.121.109.120/api/v1/tenants/system/namespaces/kube-system/services/default-http-backend:http/proxy
Heapster is running at https://34.121.109.120/api/v1/tenants/system/namespaces/kube-system/services/heapster/proxy
kubernetes-dashboard is running at https://34.121.109.120/api/v1/tenants/system/namespaces/kube-system/services/https:kubernetes-dashboard:/proxy
Metrics-server is running at https://34.121.109.120/api/v1/tenants/system/namespaces/kube-system/services/https:metrics-server:/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
```

Check Pods:

Command:

./kubectl.sh get pods -A

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos# cd cluster
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kubectl.sh get pods -A
NAMESPACE     NAME                                        HASHKEY               READY   STATUS             RESTARTS   AGE
kube-system   coredns-7778f74bb8-cp24r                    2923960598644151037   0/1     CrashLoopBackOff   5          4m40s
kube-system   etcd-empty-dir-cleanup-kubernetes-master    2852408672556892420   1/1     Running            0          3m46s
kube-system   etcd-server-events-kubernetes-master        8608811511198570648   1/1     Running            0          2m52s
kube-system   etcd-server-kubernetes-master               4558344842026511261   1/1     Running            0          2m48s
kube-system   event-exporter-v0.2.5-868dff6494-jcr92      7967356340644346694   1/1     Running            0          4m40s
kube-system   fluentd-gcp-scaler-74b46b8776-hzx8p         3690851632134436713   1/1     Running            0          4m36s
kube-system   fluentd-gcp-v3.2.0-4j6zl                     8997560893453989357   1/1     Running            0          4m27s
kube-system   fluentd-gcp-v3.2.0-626xw                     4753828147169573562   1/1     Running            0          4m31s
kube-system   fluentd-gcp-v3.2.0-hhm72                     7206763480049852311   1/1     Running            0          4m26s
kube-system   fluentd-gcp-v3.2.0-kz2mh                     1272320914066358578   1/1     Running            0          4m27s
kube-system   heapster-v1.6.0-beta.1-7666446c7b-sv7z8     5485560369950076002   2/2     Running            0          3m6s
kube-system   kube-addon-manager-kubernetes-master        5014754618061431440   1/1     Running            0          3m32s
kube-system   kube-apiserver-kubernetes-master            5625384641275093699   1/1     Running            0          2m39s
kube-system   kube-controller-manager-kubernetes-master   640543109047290527    1/1     Running            0          3m1s
kube-system   kube-dns-autoscaler-748b78969c-tlpz4        3981538841132716186   1/1     Running            0          4m34s
kube-system   kube-flannel-ds-74h6p                       9116217899861598364   1/1     Running            0          4m27s
kube-system   kube-flannel-ds-bh4qb                       2700324847170979306   1/1     Running            0          4m27s
kube-system   kube-flannel-ds-ddw2l                       8552054385485000449   0/1     CrashLoopBackOff   4          4m31s
kube-system   kube-flannel-ds-nbxwp                       704187614365952368    1/1     Running            0          4m26s
kube-system   kube-proxy-kubernetes-minion-group-8h0h     5611632910230394651   1/1     Running            0          4m25s
kube-system   kube-proxy-kubernetes-minion-group-9qxf     5611632910230394651   1/1     Running            0          4m26s
kube-system   kube-proxy-kubernetes-minion-group-dp14     5611632910230394651   1/1     Running            0          4m26s
kube-system   kube-scheduler-kubernetes-master            8852526237821125528   1/1     Running            1          2m54s
kube-system   kubernetes-dashboard-848965699-kj8hm        3932974633441770045   1/1     Running            4          4m36s
kube-system   l7-default-backend-6497bc5bf6-498s8         1279221054318489066   1/1     Running            0          4m40s
kube-system   l7-lb-controller-v1.2.3-kubernetes-master   5013348416365870850   1/1     Running            0          3m35s
kube-system   metrics-server-v0.3.3-8654645975-6tp5d      3104321065339601404   2/2     Running            0          3m47s
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster#
```

Check Nodes:

./kubectl.sh get nodes

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kubectl.sh get nodes
NAME                              STATUS                   ROLES     AGE    VERSION
kubernetes-master                 Ready,SchedulingDisabled  <none>   7m8s   v0.9.0
kubernetes-minion-group-8h0h      Ready                     <none>   7m4s   v0.9.0
kubernetes-minion-group-9qxf      Ready                     <none>   7m4s   v0.9.0
kubernetes-minion-group-dp14      Ready                     <none>   7m3s   v0.9.0
```

Arktos cluster tear-down:

To terminate arktos cluster, run the following:

`./kube-down.sh`

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kube-down.sh
Bringing down cluster using provider: gce
... calling verify-prereqs
... calling verify-kube-binaries
... calling kube-down
Project: click2cloud
Network Project: click2cloud
Zone: us-central1-b
INSTANCE_GROUPS=kubernetes-minion-group
NODE_NAMES=kubernetes-minion-group-8h0h kubernetes-minion-group-9qxf kubernetes-minion-group-dp14
Bringing down cluster
Deleting Managed Instance Group...
..Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instanceGroupManagers/kubernetes-minion-group].
done.
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/instanceTemplates/kubernetes-minion-template].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/instanceTemplates/kubernetes-windows-node-template].
teardown total extra server num: 0
Warning: Permanently added 'compute.2451671166611414357' (ECDSA) to the list of known hosts.
Enter passphrase for key '/root/.ssh/google_compute_engine':
Removing etcd replica, name: kubernetes-master, port: 2379, result: 52
Enter passphrase for key '/root/.ssh/google_compute_engine':
404 page not found
Removing etcd replica, name: kubernetes-master, port: 4002, result: 0
Updated [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instances/kubernetes-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instances/kubernetes-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-master-https].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-minion-all].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-master-etcd].
Deleting master's reserved IP
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/regions/us-central1/addresses/kubernetes-master-ip].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/regions/us-central1/addresses/kubernetes-master-internalip].
Deleting routes kubernetes-5b8dc71b-f108-4323-b209-b9dd82ab3b57
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/routes/kubernetes-5b8dc71b-f108-4323-b209-b9dd82ab3b57].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-default-internal-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-default-internal-node].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/default-default-ssh].
Property "current-context" unset.
Property "clusters.click2cloud_kubernetes" unset.
Property "users.click2cloud_kubernetes" unset.
Property "users.click2cloud_kubernetes-basic-auth" unset.
Property "contexts.click2cloud_kubernetes" unset.
Cleared config for click2cloud_kubernetes from /root/.kube/config
Done
```

PASSED

Scenario 3:

Scenario-3	image-1	click2cloud	click2cloud

Modify `cluster/gce/config-default.sh` *to change configurations*
To use ubuntu image user will need to change following parameters:

- `KUBE_GCI_VERSION` : provide image name (image-1)
- `KUBE_GCE_MASTER_PROJECT`: provide project name(click2cloud)
- `KUBE_GCE_NODE_PROJECT`: provide project name(click2cloud)
- ENABLE_KCM_LEADER_ELECT=${ENABLE_KCM_LEADER_ELECT:-false}
- ENABLE_SCHEDULER_LEADER_ELECT=${ENABLE_SCHEDULER_LEADER_ELECT:-false}

After Modifications

To deploy the arktos cluster on GCE, run kube-up script as follows:

Command:

```
sudo ./cluster/kube-up.sh
```

:

```
Kubernetes cluster is running.  The master is running at:

  https://35.239.252.222

The user name and password to use is located in /root/.kube/config.

... calling validate-cluster
Validating gce cluster, MULTIZONE=
Project: click2cloud
Network Project: click2cloud
Zone: us-central1-b
TOTALSERVER_EXTRA_NUM: 0, EXPECTED_NUM_NODES:4, ALLOWED_NOTREADY_NODES:0
No resources found.
Waiting for 4 ready nodes. 0 ready nodes, 0 registered. Retrying.
No resources found.
Waiting for 4 ready nodes. 0 ready nodes, 0 registered. Retrying.
Found 4 node(s).
NAME                          STATUS                 ROLES    AGE   VERSION
kubernetes-master             Ready,SchedulingDisabled   <none>   9s    v0.9.0
kubernetes-minion-group-52k3  Ready                  <none>   10s   v0.9.0
kubernetes-minion-group-fmkx  Ready                  <none>   9s    v0.9.0
kubernetes-minion-group-vplv  Ready                  <none>   8s    v0.9.0
Cluster not working yet.
Validate output:
NAME                STATUS    MESSAGE             ERROR
etcd-1              Healthy   {"health":"true"}
scheduler           Healthy   ok
controller-manager  Healthy   ok
etcd-0              Healthy   {"health":"true"}
Cluster validation succeeded

Done, listing cluster services:

Kubernetes master is running at https://35.239.252.222
GLBCDefaultBackend is running at https://35.239.252.222/api/v1/tenants/system/namespaces/kube-system/services/default-http-backend:http/proxy
Heapster is running at https://35.239.252.222/api/v1/tenants/system/namespaces/kube-system/services/heapster/proxy
kubernetes-dashboard is running at https://35.239.252.222/api/v1/tenants/system/namespaces/kube-system/services/https:kubernetes-dashboard:/proxy
Metrics-server is running at https://35.239.252.222/api/v1/tenants/system/namespaces/kube-system/services/https:metrics-server:/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
```

Check Nodes:

:

./kubectl.sh get nodes

:

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kubectl.sh get nodes
NAME                          STATUS                 ROLES    AGE      VERSION
kubernetes-master             Ready,SchedulingDisabled   <none>   3m57s    v0.9.0
kubernetes-minion-group-52k3  Ready                  <none>   3m58s    v0.9.0
kubernetes-minion-group-fmkx  Ready                  <none>   3m57s    v0.9.0
kubernetes-minion-group-vplv  Ready                  <none>   3m56s    v0.9.0
```

Check Pods:

:

./kubectl.sh get pods -A

:

```
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# ./kubectl.sh get pods -A
NAMESPACE     NAME                                              HASHKEY               READY   STATUS            RESTARTS   AGE
kube-system   coredns-7778f74bb8-d62nc                          7224272642135311185   0/1     CrashLoopBackOff  5          5m31s
kube-system   etcd-empty-dir-cleanup-kubernetes-master          2852408672556892420   1/1     Running           0          4m45s
kube-system   etcd-server-events-kubernetes-master              6015921702467554292   1/1     Running           0          4m34s
kube-system   etcd-server-kubernetes-master                     5780124490511818730   1/1     Running           0          4m37s
kube-system   event-exporter-v0.2.5-868dff6494-thtvw            4936690182305494176   1/1     Running           0          5m30s
kube-system   fluentd-gcp-scaler-74b46b8776-bk94n               4537845164718774108   1/1     Running           0          5m26s
kube-system   fluentd-gcp-v3.2.0-9xxlk                           844299950329289820   1/1     Running           0          5m26s
kube-system   fluentd-gcp-v3.2.0-hnbrh                          3991594930021419812   1/1     Running           0          5m25s
kube-system   fluentd-gcp-v3.2.0-kqtwc                          8697475112192174937   1/1     Running           0          5m24s
kube-system   fluentd-gcp-v3.2.0-z244p                          8169703531899074305   1/1     Running           0          5m24s
kube-system   heapster-v1.6.0-beta.1-7666446c7b-lrslz           104862614482103694   2/2     Running           0          3m40s
kube-system   kube-addon-manager-kubernetes-master             5014754618061431440   1/1     Running           0          4m9s
kube-system   kube-apiserver-kubernetes-master                 2408562062108585483   1/1     Running           0          4m41s
kube-system   kube-controller-manager-kubernetes-master        640543109047290527   1/1     Running           1          4m31s
kube-system   kube-dns-autoscaler-748b78969c-qdvdq            1084185074485501508   1/1     Running           0          5m25s
kube-system   kube-flannel-ds-2jkgs                            2031391563453583312   0/1     CrashLoopBackOff  4          5m25s
kube-system   kube-flannel-ds-hmqsh                            2564263493823150332   1/1     Running           0          5m26s
kube-system   kube-flannel-ds-jlfdc                            7502890805164238381   1/1     Running           0          5m24s
kube-system   kube-flannel-ds-tt5zq                            4503763493916876695   1/1     Running           0          5m24s
kube-system   kube-proxy-kubernetes-minion-group-52k3          3853131175447062746   1/1     Running           0          5m25s
kube-system   kube-proxy-kubernetes-minion-group-fmkx          3853131175447062746   1/1     Running           0          5m24s
kube-system   kube-proxy-kubernetes-minion-group-vplv          3853131175447062746   1/1     Running           0          5m24s
kube-system   kube-scheduler-kubernetes-master                 8852526237821125528   1/1     Running           2          3m35s
kube-system   kubernetes-dashboard-848965699-nqg2v             2690586753918960554   1/1     Running           0          5m27s
kube-system   l7-default-backend-6497bc5bf6-m6m8x              5201402005334501195   1/1     Running           0          5m30s
kube-system   l7-lb-controller-v1.2.3-kubernetes-master        5013348416365870850   1/1     Running           0          4m24s
kube-system   metrics-server-v0.3.3-8654645975-tmxw2           8552167693458814396   2/2     Running           1          4m57s
```

Arktos cluster tear-down

To terminate arktos cluster, run the following:

sudo ./cluster/kube-down.sh

:

```
kube-system   l7-default-backend-6497bc5bf6-m6m8x              5201402005334501195   1/1   Running   0   5m30s
kube-system   l7-lb-controller-v1.2.3-kubernetes-master        5013348416365870850   1/1   Running   0   4m24s
kube-system   metrics-server-v0.3.3-8654645975-tmxw2           8552167693458814396   2/2   Running   1   4m57s
root@amittestubuntu1804:~/go/src/k8s.io/arktos/cluster# cd ..
root@amittestubuntu1804:~/go/src/k8s.io/arktos# ./cluster/kube-down.sh
Bringing down cluster using provider: gce
... calling verify-prereqs
... calling verify-kube-binaries
... calling kube-down
Project: click2cloud
Network Project: click2cloud
Zone: us-central1-b
INSTANCE_GROUPS=kubernetes-minion-group
NODE_NAMES=kubernetes-minion-group-52k3 kubernetes-minion-group-fmkx kubernetes-minion-group-vplv
Bringing down cluster
Deleting Managed Instance Group...
..Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instanceGroupManagers/kubernetes-minion-group].
done.
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/instanceTemplates/kubernetes-minion-template].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/instanceTemplates/kubernetes-windows-node-template].
teardown total extra server num: 0
Warning: Permanently added 'compute.7553429742539560326' (ECDSA) to the list of known hosts.
Enter passphrase for key '/root/.ssh/google_compute_engine':
Removing etcd replica, name: kubernetes-master, port: 2379, result: 52
Enter passphrase for key '/root/.ssh/google_compute_engine':
404 page not found
Removing etcd replica, name: kubernetes-master, port: 4002, result: 0
Updated [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instances/kubernetes-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/zones/us-central1-b/instances/kubernetes-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-master-https].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-minion-all].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-master-etcd].
Deleting master's reserved IP
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/regions/us-central1/addresses/kubernetes-master-ip].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/regions/us-central1/addresses/kubernetes-master-internalip].
Deleting routes kubernetes-36690a1a-8d72-448a-b442-db4ddf71ca63
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/routes/kubernetes-36690a1a-8d72-448a-b442-db4ddf71ca63].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-default-internal-master].
Deleted [https://www.googleapis.com/compute/v1/projects/click2cloud/global/firewalls/kubernetes-default-internal-node].
Property "current-context" unset.
Property "clusters.click2cloud_kubernetes" unset.
Property "users.click2cloud_kubernetes" unset.
Property "users.click2cloud_kubernetes-basic-auth" unset.
Property "contexts.click2cloud_kubernetes" unset.
Cleared config for click2cloud_kubernetes from /root/.kube/config
Done
```

PASSED