K8s install guide

## Requirement

Install ubuntu 16.04 with vagrant

1. Install 2 node 1 master with ‘vagrant up’
2. Only use one netcard using bridge mode,delete useless file in /etc/network

The content show below

vagrant@k8s-master8:~/k8s-install/hpa-example$ cat /etc/network/interfaces

# This file describes the network interfaces available on your system

# and how to activate them. For more information, see interfaces(5).

# The loopback network interface

auto lo

iface lo inet loopback

# Source interfaces

# Please check /etc/network/interfaces.d before changing this file

# as interfaces may have been defined in /etc/network/interfaces.d

# See LP: #1262951

source /etc/network/interfaces.d/\*.cfg

#VAGRANT-BEGIN

# The contents below are automatically generated by Vagrant. Do not modify.

auto enp0s3

iface enp0s3 inet static

address 192.168.1.8

netmask 255.255.255.0

gateway 192.168.1.1

#VAGRANT-END

Install traceroute (sudo apt-get install traceroute),ping each node for testing networking

### Config dns for each vm

vagrant@ cat /etc/resolvconf/resolv.conf.d/base

search default.svc.cluster.local svc.cluster.local cluster.local

nameserver 202.96.199.133

nameserver 10.96.0.10 #kube-dns service clusterIp

options ndots:5

## Install with kubeadmin

Master: install.sh pre

Install.sh kubernetes-master

Node: install.sh pre

Install.sh kubernetes-node

use cmd to make master node as work node

**kubectl taint nodes --all node-role.kubernetes.io/master-**

Excute cmd to start kubectl proxy

**sudo kubectl proxy --address='192.168.1.8' --port=8080 --accept-hosts='^\*$' &**

<https://kubernetes.io/docs/setup/independent/create-cluster-kubeadm/>

**Kubeadm token usage: help to add new node to master**

**vagrant@k8s-master9:~$ sudo kubeadm token generate**

96f152.91fe7a8306790deb

**vagrant@k8s-master9:~$ sudo kubeadm token create 96f152.91fe7a8306790deb --print-join-command**

kubeadm join --token 96f152.91fe7a8306790deb 192.169.0.9:6443 --discovery-token-ca-cert-hash sha256:8ec598eeaf8bda93fa7ccd53a54186629878efa39174febed1bd652d47663c57

**vagrant@k8s-master9:~$ sudo kubeadm token list**

TOKEN TTL EXPIRES USAGES DESCRIPTION EXTRA GROUPS

96f152.91fe7a8306790deb 23h 2018-03-11T06:02:21Z authentication,signing <none> system:bootstrappers:kubeadm:default-node-token

vagrant@k8s-master9:~$

## Config Dns

cat /etc/resolvconf/resolv.conf.d/base

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nameserver 202.96.199.133

nameserver 10.96.0.10 #kube-dns service clusterIp

options ndots:5

## Install flannel

Change kube-flannel.yml with

command: [ "/opt/bin/flanneld", "--ip-masq", "--kube-subnet-mgr" ,"--iface=eth0"]

**Kubectl apply -f kube-flannel.yml**

## Install dashboard

Nav into dashboard folder

cp -r dashboard/cert /cert

Kubectl apply -f ./dashboard

Login in web console by <https://master-ip:32000>

Using cmd to get user token

**sudo kubectl -n kube-system describe secret $(sudo kubectl -n kube-system get secret | grep admin-user | awk '{print $1}')**

## Install heapster-1.5.0

**vagrant@k8s-master9:~/heapster-1.5.0/deploy/kube-config$ sudo kubectl apply -f rbac/**

clusterrolebinding "heapster" created

**vagrant@k8s-master9:~/heapster-1.5.0/deploy/kube-config$ sudo kubectl apply -f influxdb/**

deployment "monitoring-grafana" created

service "monitoring-grafana" created

serviceaccount "heapster" created

deployment "heapster" created

service "heapster" created

deployment "monitoring-influxdb" created

service "monitoring-influxdb" created

vagrant@k8s-master9:~/heapster-1.5.0/deploy/kube-config$ **sudo kubectl cluster-info**

Kubernetes master is running at https://192.169.0.9:6443

Heapster is running at https://192.169.0.9:6443/api/v1/namespaces/kube-system/services/heapster/proxy

KubeDNS is running at https://192.169.0.9:6443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

monitoring-grafana is running at https://192.169.0.9:6443/api/v1/namespaces/kube-system/services/monitoring-grafana/proxy

monitoring-influxdb is running at https://192.169.0.9:6443/api/v1/namespaces/kube-system/services/monitoring-influxdb/proxy

Access heapster using url

**http://192.168.0.9:8080//api/v1/namespaces/kube-system/services/monitoring-grafana/proxy**

## Install metrics-server-master

sudo kubectl apply -f 1.8+/

clusterrolebinding "metrics-server:system:auth-delegator" created

rolebinding "metrics-server-auth-reader" created

apiservice "v1beta1.metrics.k8s.io" created

serviceaccount "metrics-server" created

deployment "metrics-server" created

service "metrics-server" created

clusterrole "system:metrics-server" created

clusterrolebinding "system:metrics-server" created

## Install hpa Example

sudo kubectl create -f ../hpa-example/

horizontalpodautoscaler "php-apache" created

replicationcontroller "php-apache" created

service "php-apache" created

https://kubernetes.io/docs/tasks/run-application/horizontal-pod-autoscale-walkthrough/

**sudo kubectl run php-apache --image=registry.cn-hangzhou.aliyuncs.com/rainbow954/hpa-example:latest --requests=cpu=200m --expose --port=80**

**sudo kubectl autoscale deployment php-apache --cpu-percent=50 --min=1 --max=10**

sudo kubectl exec -i -t load-generator-68765bd9fb-pcgdn /bin/sh

**$ sudo kubectl run -i --tty load-generator --image=registry.cn-hangzhou.aliyuncs.com/busybox:latest /bin/sh**

**Hit enter for command prompt**

**$ while true; do wget -q -O- http://php-apache.default.svc.cluster.local; done**

**vagrant@k8s-master8:~$ sudo kubectl get deployment php-apache**

**NAME DESIRED CURRENT UP-TO-DATE AVAILABLE AGE**

**php-apache 2 2 2 1 11m**

**vagrant@k8s-master8:~$ sudo kubectl get deployment php-apache**

**NAME DESIRED CURRENT UP-TO-DATE AVAILABLE AGE**

**php-apache 2 2 2 1 11m**

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**NAME DESIRED CURRENT UP-TO-DATE AVAILABLE AGE**

**php-apache 4 4 4 4 15m**

**vagrant@k8s-master8:~$ sudo kubectl get deployment php-apache**

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**vagrant@k8s-master8:~$ sudo kubectl get hpa**

**NAME REFERENCE TARGETS MINPODS MAXPODS REPLICAS AGE**

**php-apache Deployment/php-apache 220% / 50% 1 10 4 15m**

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**vagrant@k8s-master8:~$**

curl http://192.168.1.3:8080/api/v1/model/namespaces/default/pods/php-apache-757bdf65d-248jv/metrics/cpu/usage