Installation of Docker & Kubernetes in a single node Ubuntu 20.04 Server

Pre-requisites:

1. Install Docker

2. Install Calico

Docker installation on Ubuntu

1. sudo apt-get update

$ sudo apt-get install \

apt-transport-https \

ca-certificates \

curl \

gnupg \

lsb-release

2. Add the docker official GPG key

curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg

3. Setup stable repository

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

4. Install Docker Engine

sudo apt-get update

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

5. List out specific versions for your repo

apt-cache madison docker-ce

docker-ce | 5:18.09.1~3-0~ubuntu-xenial | https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages

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docker-ce | 18.06.1~ce~3-0~ubuntu | https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages

6. Install a specific version of the docker CE

sudo apt-get install docker ce=5:19.14.3~3-0~ubuntu-focal ce-cli= 5:19.14.3~3-0~ubuntu-focal containerd.io

7. Verify docker is running successfully

sudo docker run hello-world

8. Installation of Kubernetes in Single node cluster

9. update the packages

sudo apt-get update

sudo apt-get upgrade

10. Add the kubernetes package key distribution

sudo curl -s <https://packages.cloud.google.com/apt/doc/apt-key.gpg> | apt-key add

11. Check the following commands exists or not in the following file

sudo vim /etc/apt/sources.list.d/kubernetes.list

Add the below line if not present

deb <http://apt.kubernetes.io/> kubernetes-xenial main

12. Update the kubernetes package list

sudo apt-get update  
sudo apt-get install -y kubelet kubeadm kubectl kubernetes-cni

Initialize the network plugin

13. Set **/proc/sys/net/bridge/bridge-nf-call-iptables** to **1 by** running the following commands

sysctl net.bridge.bridge-nf-call-iptables=1

14. Specify the Pod network with kubeadm init

kubeadm init –pod-network-cidr=10.244.0.0/16

15. Execute the following commands one by one

mkdir -p $HOME/.kube  
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config  
sudo chown $(id -u):$(id -g) $HOME/.kube/config

16. Apply funnel to cluster

kubectl apply -f <https://raw.githubusercontent.com/coreos/flannel/bc79dd1505b0c8681ece4de4c0d86c5cd2643275/Documentation/kube-flannel.yml>

17. Check the kubectl health status

kubectl get pods –all-namespaces

For CoreDNS pods in pending state issue, please execute the Weavenet network policy command

kubectl apply -f "https://cloud.weave.works/k8s/net?k8s-version=$(kubectl version | base64 | tr -d '\n')"