Get the Docker gpg key:

curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -

Add the Docker repository:

sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu \

$(lsb\_release -cs) \

stable"

Get the Kubernetes gpg key:

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

Add the Kubernetes repository:

cat << EOF | sudo tee /etc/apt/sources.list.d/kubernetes.list

deb https://apt.kubernetes.io/ kubernetes-xenial main

EOF

Update your packages:

sudo apt-get update

Install Docker, kubelet, kubeadm, and kubectl:

sudo apt-get install -y docker-ce=5:19.03.12~3-0~ubuntu-bionic kubelet=1.17.8-00 kubeadm=1.17.8-00 kubectl=1.17.8-00

Hold them at the current version:

sudo apt-mark hold docker-ce kubelet kubeadm kubectl

Add the iptables rule to sysctl.conf:

echo "net.bridge.bridge-nf-call-iptables=1" | sudo tee -a /etc/sysctl.conf

Enable iptables immediately:

sudo sysctl -p

Initialize the cluster (run only on the master):

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

Set up local kubeconfig (run only on the master):

mkdir -p $HOME/.kube

sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config

sudo chown $(id -u):$(id -g) $HOME/.kube/config

Apply Calico CNI network overlay (run only on the master):

kubectl apply -f https://docs.projectcalico.org/v3.14/manifests/calico.yaml

Join the worker nodes to the cluster:

sudo kubeadm join [your unique string from the kubeadm init command]

Verify the worker nodes have joined the cluster successfully:

kubectl get nodes

Compare this result of the kubectl get nodes command:

NAME STATUS ROLES AGE VERSION

chadcrowell1c.mylabserver.com Ready master 4m18s v1.17.8

chadcrowell2c.mylabserver.com Ready none 82s v1.17.8

chadcrowell3c.mylabserver.com Ready none 69s v1.17.8