Summary

This document guides you to setup a bare metal Kubernetes cluster using Kubespray.

Nodes Setup

1. Prepare 2 NUC kit or VMs as nodes. Both nodes need have the following criteria.
   1. Able to ping each other.
   2. Using the same username and password.
   3. Running on Ubuntu 22.04.
2. Enable password less SSH for each node.
   1. Enable root SSH login for each node.

sudo -i passwd root

sudo sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/' /etc/ssh/sshd\_config

sudo systemctl restart ssh

* 1. Generate SSH key and copy it over to each node.

ssh-keygen -t rsa

ssh-copy-id -i /home/<username>/.ssh/id\_rsa.pub <username>@<node IP address>

* 1. Generate SSH key and copy it over to each node for root as well.

sudo -i

ssh-keygen -t rsa

ssh-copy-id -f <node IP address>

Deploy Cluster

1. Install requirements.

cd kubespray

sudo pip install -r requirements.txt

1. Setup cluster to be deployed.
   1. Copy new inventory from sample.

cp -rfp inventory/sample inventory/mycluster

* 1. Configure nodes to be used.

declare -a IPS=(<node IP address> <another node IP address>)

CONFIG\_FILE=inventory/mycluster/hosts.yml python3 contrib/inventory\_builder/inventory.py ${IPS[@]}

* 1. Edit the node roles and IP address if required.

nano inventory/mycluster/hosts.yml

* 1. Check if setup is working by ping to each node.

ansible all -i inventory/mycluster/hosts.yml -m ping

* 1. Change CNI to calico and enable plugin

nano +67 ./inventory/mycluster/group\_vars/k8s\_cluster/k8s-cluster.yml

nano +70 ./inventory/mycluster/group\_vars/k8s\_cluster/k8s-cluster.yml

1. Create cluster.

ansible-playbook -i inventory/mycluster/hosts.yml --become --become-user=root cluster.yml -K

1. Enable kubectl.
   1. Install kubectl

sudo snap install kubectl –classic

* 1. Setup server for Kubectl

cd /etc/kubernetes

sudo cp admin.conf ~/config

sudo chmod +r ~/config

cd ~

mkdir .kube

mv config .kube

* 1. Change server to node IP, server: https://< current node IP >:6443

nano .kube/config

* 1. Check kubectl version

kubectl version --short