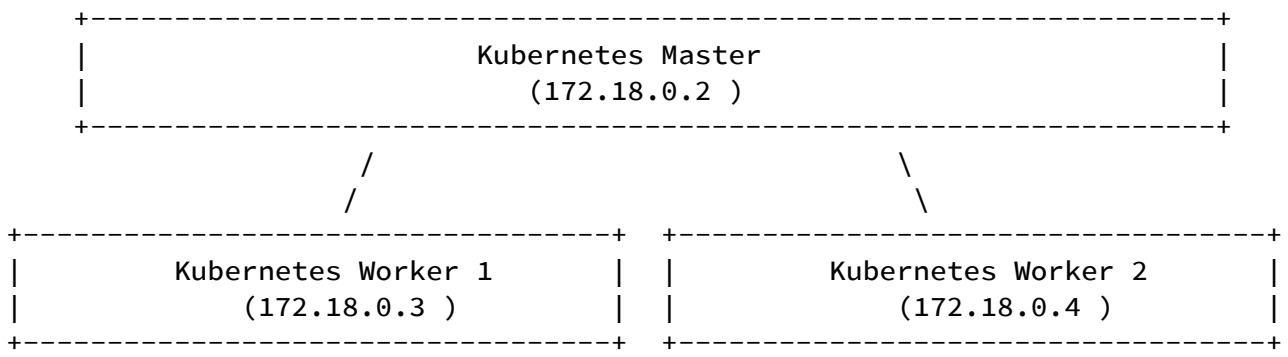
Theory: Overview of Kubernetes Cluster



In this architecture, there is one master node and two worker nodes. The master node is responsible for managing the Kubernetes cluster, while the worker nodes are responsible for running workloads. Cilium is used as the CNI plugin for networking. The master node is responsible for managing the Kubernetes cluster, while the worker nodes run workloads.

Continue Using The Same Terminal

```
cd course
kubectl get nodes -o wide
```

Note: Cluster IPs might be different for different clusters.

```
root@ip-10-0-0-134:/home/ubuntu/ workspace/course# kubectl get nodes -o wide
NAME                 STATUS   ROLES           AGE   VERSION   INTERNAL-IP   EXTERNAL-IP   OS-IMAGE             KERNEL-VERSION    CONTAINE
R-RUNTIME
kind-control-plane   Ready    control-plane   23h   v1.25.3   172.18.0.2    <none>        Ubuntu 22.04.1 LTS   5.15.0-1028-aws   containe
rd://1.6.9
kind-worker          Ready    <none>          23h   v1.25.3   172.18.0.3    <none>        Ubuntu 22.04.1 LTS   5.15.0-1028-aws   containe
rd://1.6.9
kind-worker2         Ready    <none>          23h   v1.25.3   172.18.0.4    <none>        Ubuntu 22.04.1 LTS   5.15.0-1028-aws   containe
rd://1.6.9
```

Kubernetes Cluster via Kind

```
kind: Cluster
apiVersion: kind.x-k8s.io/v1alpha4
nodes:
- role: control-plane
- role: worker
- role: worker
networking:
  disableDefaultCNI: true
```

- kind: Defines that the Kubernetes cluster configuration.
- apiVersion: kind.x-k8s.io/v1alpha4 specifies Kubernetes API version used by the kind.
- nodes: this specifies the configuration used for the nodes in the k8s cluster.
    - role: control-plane specifies that the first node is a control-plane node or master node, which is managing the cluster.
    - role: worker specifies that the second and third nodes are worker nodes, which will run the workloads.
- networking: the network configuration for the cluster.
- disableDefaultCNI: true, it disables the default CNI (Container Network Interface) plugin (`kindnetd`) used by Kubernetes and allows us to use Cilium instead.

Overall, this kind.yaml file defines a Kubernetes cluster with one control-plane node and two worker nodes, and it uses Cilium as the CNI plugin for networking.
