Lesson 07 Demo 04

Troubleshooting Node Readiness

Objective: To diagnose and troubleshoot the issue of a worker node transitioning from the status of Not Ready to Ready

Tools required: kubeadm, kubectl, kubelet, and containerd

Prerequisites: A Kubernetes cluster (refer to Demo 01 from Lesson 01 for setting up a cluster)

Steps to be followed:

1. Check the node status on the master node
2. Disable worker-node-2 and troubleshoot the issue
3. Fix worker-node-2

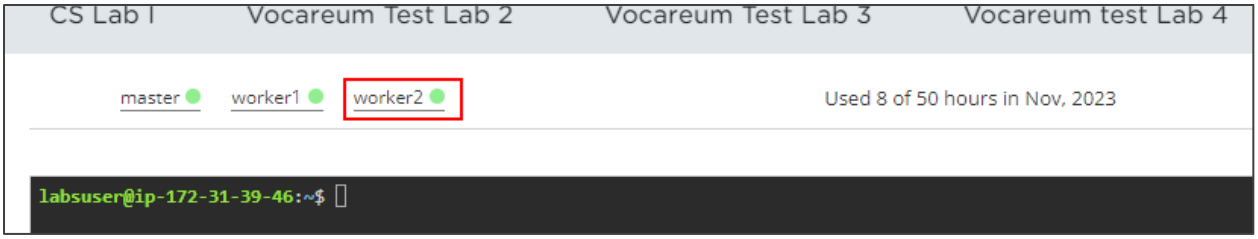
Step 1: Check the node status on the master node

1.1 Check the node status on the master node using the following command:

kubectl get nodes

```
labsuser@master:~$ kubectl get nodes
NAME                       STATUS   ROLES           AGE   VERSION
master.example.com         Ready    control-plane   19h   v1.30.4
worker-node-1.example.com  Ready    <none>          19h   v1.30.4
worker-node-2.example.com  Ready    <none>          19h   v1.30.4
labsuser@master:~$
```

1.2 Navigate to worker-node-2 in the LMS dashboard

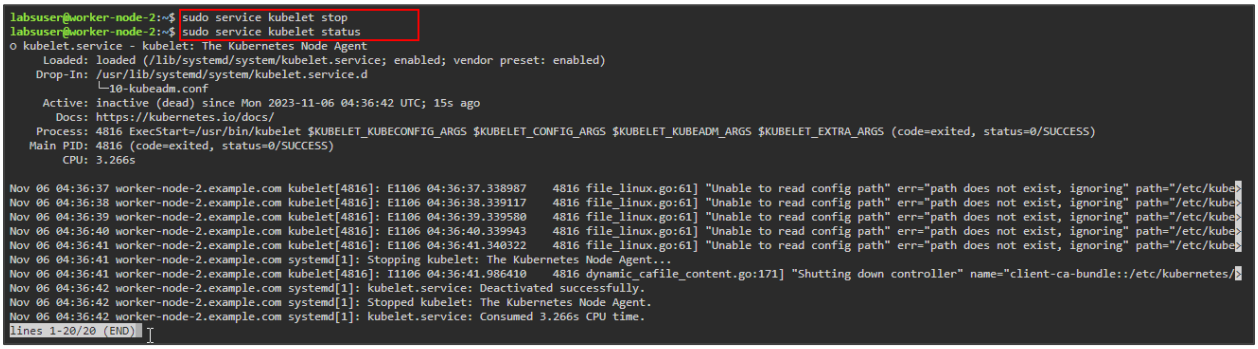


Step 2: Disable worker-node-2 and troubleshoot the issue

2.1 Execute the following commands to stop and check the kubelet service:

sudo service kubelet stop

sudo service kubelet status



Press **q** to exit

2.2 After a few minutes, check the status of **worker-node-2** in the master node using the following command:
kubectl get nodes

```
labsuser@master:~$ kubectl get nodes
NAME                       STATUS     ROLES           AGE   VERSION
master.example.com         Ready      control-plane   8d    v1.30.5
worker-node-1.example.com  Ready      <none>          8d    v1.30.4
worker-node-2.example.com  NotReady   <none>          8d    v1.30.4
labsuser@master:~$
```

The status of **worker-node-2** is **NotReady**.

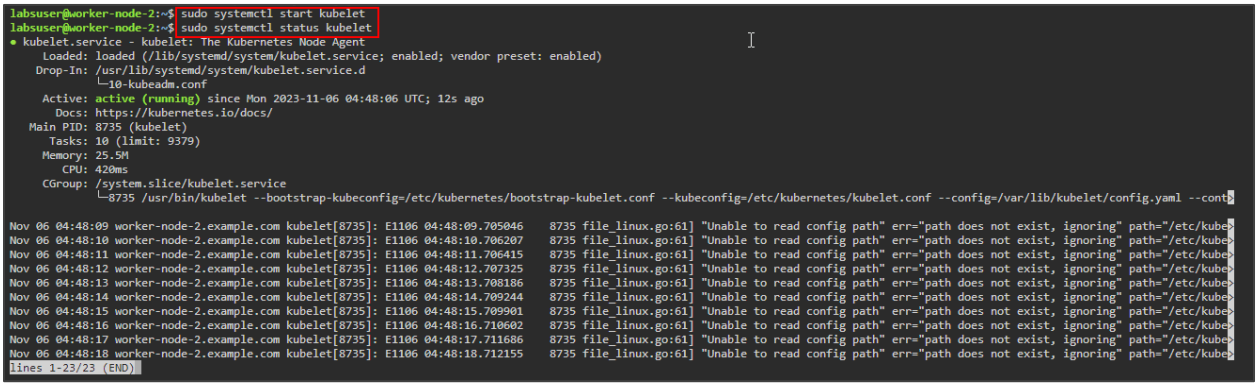
2.3 Execute the following command to check the node:
kubectl describe node worker-node-2.example.com

```
labsuser@master:~$ kubectl describe node worker-node-2.example.com
Name:               worker-node-2.example.com
Roles:              <none>
Labels:             beta.kubernetes.io/arch=amd64
                    beta.kubernetes.io/os=linux
                    kubernetes.io/arch=amd64
                    kubernetes.io/hostname=worker-node-2.example.com
                    kubernetes.io/os=linux
Annotations:        kubeadm.alpha.kubernetes.io/cri-socket: unix:///var/run/containerd/containerd.sock
                    node.alpha.kubernetes.io/ttl: 0
                    projectcalico.org/IPv4Address: 172.31.20.246/20
                    projectcalico.org/IPv4IPIPTunnelAddr: 192.168.232.192
                    volumes.kubernetes.io/controller-managed-attach-detach: true
CreationTimestamp:  Mon, 06 Nov 2023 04:33:28 +0000
Taints:             node.kubernetes.io/unreachable:NoExecute
                    node.kubernetes.io/unreachable:NoSchedule
Unschedulable:      false
Lease:
  HolderIdentity:  worker-node-2.example.com
  AcquireTime:     <unset>
  RenewTime:       Mon, 06 Nov 2023 04:36:32 +0000
Conditions:
  Type                 Status    LastHeartbeatTime                 LastTransitionTime                Reason              Message
  ----                 ------    -----------------                 ------------------                ------              -------
  NetworkUnavailable   False     Mon, 06 Nov 2023 04:34:23 +0000   Mon, 06 Nov 2023 04:34:23 +0000   CalicoIsUp          Calico is running on this node
  MemoryPressure       Unknown   Mon, 06 Nov 2023 04:33:58 +0000   Mon, 06 Nov 2023 04:37:16 +0000   NodeStatusUnknown   Kubelet stopped posting node status.
  DiskPressure         Unknown   Mon, 06 Nov 2023 04:33:58 +0000   Mon, 06 Nov 2023 04:37:16 +0000   NodeStatusUnknown   Kubelet stopped posting node status.
  PIDPressure          Unknown   Mon, 06 Nov 2023 04:33:58 +0000   Mon, 06 Nov 2023 04:37:16 +0000   NodeStatusUnknown   Kubelet stopped posting node status.
  Ready                Unknown   Mon, 06 Nov 2023 04:33:58 +0000   Mon, 06 Nov 2023 04:37:16 +0000   NodeStatusUnknown   Kubelet stopped posting node status.
```

The command helps diagnose and troubleshoot the node status.

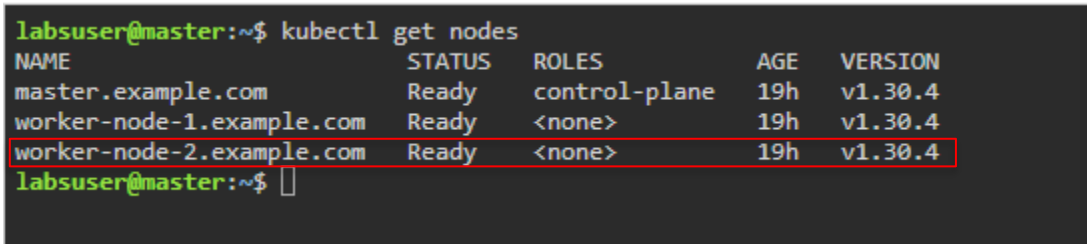
Step 3: Fix worker-node-2

3.1 In **worker-node-2**, start the kubelet service and check its status using the following commands:
sudo systemctl start kubelet
sudo systemctl status kubelet



Press **q** to exit

3.2 After a few minutes, check the node status on the master node using the following command:
kubectl get nodes



By following these steps, you have successfully diagnosed and troubleshot the issues that caused a worker node to transition from the status of Not Ready to Ready.