Lesson 03 Demo 05

Managing Static Pods

Objective: To create, manage, and delete static pods in Kubernetes, highlighting its operational independence from the control plane

Tools required: kubeadm, kubectl, kubelet, and containerd

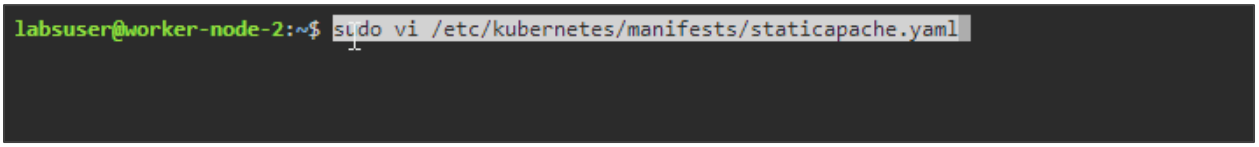
Prerequisites: A Kubernetes cluster (refer to Demo 01 from Lesson 01 for setting up a cluster)

Steps to be followed:

1. Create a static pod in the worker node
2. Try to delete the pod from the control plane
3. Delete the static pod in the worker node

Step 1: Create a static pod in the worker node

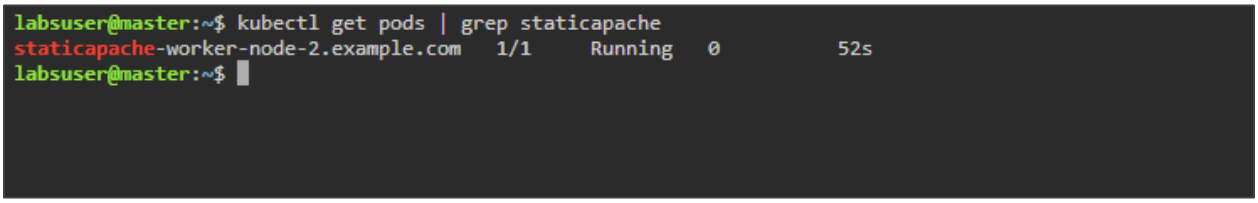
1.1 In **worker-node-2**, run the following command to create a YAML file that will define the static pod:
sudo vi /etc/kubernetes/manifests/staticapache.yaml



1.2 Write the following code inside the **staticapache.yaml** file:

```
apiVersion: v1
kind: Pod
metadata:
 name: staticapache
 labels:
  Type: static
spec:
 containers:
 - name: mycontainer
  image: docker.io/httpd
  ports:
  - containerPort: 80
```

1.3 Execute the following code to check the pod status in the control plane:
kubectl get pods | grep staticapache



Step 2: Try to delete the pod from the control plane

2.1 Execute the following command to delete the static pod from the control plane:
kubectl delete pod staticapache-worker-node-2.example.com

```
labsuser@master:~$ kubectl delete pod staticapache-worker-node-2.example.com
pod "staticapache-worker-node-2.example.com" deleted
```

> **Note:** When you try to delete the static pod from the control plane, it may show as deleted, but the pod is actually managed by the kubelet service running on worker-node-2. Because of this, the pod is automatically recreated. To verify this, run the command to check if the pod exists, and you'll see that it is recreated.

2.2 Run the following command to check the existence of the static pod:
kubectl get pods | grep staticapache

```
labsuser@master:~$ kubectl get pods | grep staticapache
staticapache-worker-node-2.example.com   1/1     Running   0          42s
labsuser@master:~$
```

The pod is created again.

Step 3: Delete the static pod in the worker node

3.1 In **worker-node-2**, execute the following command to delete the pod YAML file:
sudo rm /etc/kubernetes/manifests/staticapache.yaml

```
labsuser@worker-node-2:/$ sudo rm /etc/kubernetes/manifests/staticapache.yaml
labsuser@worker-node-2:/$
```

3.2 In the control plane, execute the following command to check whether the pod is removed:
kubectl get pods | grep staticapache

```
labsuser@master:~$ kubectl get pods | grep staticapache
No resources found in default namespace.
labsuser@master:~$
```

The pod **staticapache-worker-node-2.example.com** is not found as the kubelet service in **worker-node-2** is removed.

By following these steps, you have successfully demonstrated the creation, management, and deletion of static pods in Kubernetes, highlighting its operational independence from the control plane.