Lesson 06 Demo 02

Mounting Pod Files to Host with hostPath

Objective: To create a hostPath volume to mount files from a pod onto the file system of the host node

Tools required: kubeadm, kubectl, kubelet, and containerd

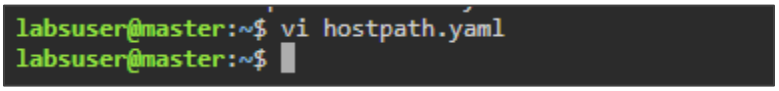
Prerequisites: A Kubernetes cluster should already be set up (refer to the steps in Lesson 01, Demo 01 for guidance).

Steps to be followed:

1. Create a pod using hostPath
2. Create files within the pod
3. Access files on other nodes

Step 1: Create a pod using hostPath

1.1 Create a YAML file using the following code:
vi hostpath.yaml



1.2 Create a hostPath volume using the following YAML code:

```
apiVersion: v1
kind: Pod
metadata:
 name: httpd-vol
spec:
 containers:
 - image: docker.io/httpd
  name: httpd-container
  volumeMounts:
   - mountPath: /data
     name: httpd-volume
 volumes:
 - name: httpd-volume
  hostPath:
   path: /tmp/data
```

```
apiVersion: v1
kind: Pod
metadata:
  name: httpd-vol
spec:
  containers:
  - image: docker.io/httpd
    name: httpd-container
    volumeMounts:
      - mountPath: /data
        name: httpd-volume
  volumes:
  - name: httpd-volume
    hostPath:
      path: /tmp/data



~
~
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~
~
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:wq
```

1.3 Create a pod with the hostPath using the following code:

```
kubectl apply -f hostpath.yaml
```

```
labsuser@master:~$ kubectl apply -f hostpath.yaml
pod/httpd-vol created
```

A pod with hostPath volume is created.

Step 2: Create files within the pod

2.1 Start a shell session inside the **httpd-vol** pod using the following command:
kubectl exec -it httpd-vol -- bash

```
labsuser@master:~$ kubectl exec -it httpd-vol -- bash
root@httpd-vol:/usr/local/apache2#
```

> **Note:** You are now inside the **httpd-vol** pod.

2.2 Create a directory inside the container and add multiple files to it using the following commands:
cd /data/
touch file{1..10}.txt

```
labsuser@master:~$ kubectl exec -it httpd-vol -- bash
root@httpd-vol:/usr/local/apache2# cd /data/
root@httpd-vol:/data# touch file{1..10}.txt
root@httpd-vol:/data#
```

2.3 List the files in the **/data** directory using:
ls

```
root@httpd-vol:/data# touch file{1..10}.txt
root@httpd-vol:/data# ls
file1.txt  file10.txt  file2.txt  file3.txt  file4.txt  file5.txt  file6.txt  file7.txt  file8.txt  file9.txt
root@httpd-vol:/data#
```

```
root@httpd-vol:/data# ls
file1.txt  file10.txt  file2.txt  file3.txt  file4.txt  file5.txt  file6.txt  file7.txt  file8.txt  file9.txt
root@httpd-vol:/data# exit
exit
labsuser@master:~$
```

> **Note:** Exit the shell using the **exit** command

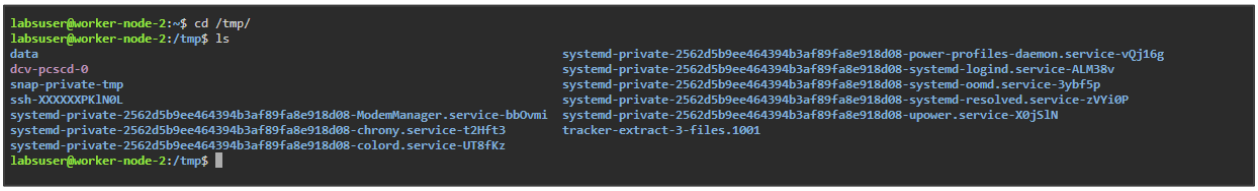
Step 3: Access files on other nodes

3.1 To determine on which node a pod is running, use the following command:
kubectl get pods -o wide

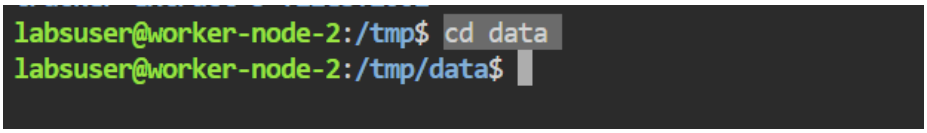
```
labsuser@master:~$ kubectl get pods -o wide
NAME        READY   STATUS    RESTARTS   AGE     IP              NODE                       NOMINATED NODE   READINESS GATES
httpd-vol   1/1     Running   0          6m34s   192.168.232.193   worker-node-2.example.com   <none>           <none>
labsuser@master:~$
```

If, for instance, the **httpd-vol** pod is running on **worker-node-2**, switch to the terminal of **worker-node-2**.

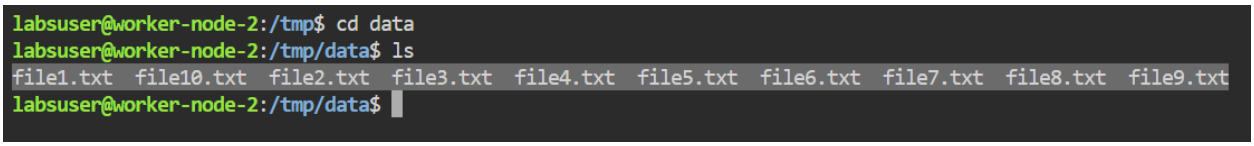
3.2 Navigate to the **/tmp/** directory and list all its files using the following commands:
cd /tmp/
ls



3.3 Navigate to the data directory using the following command:
cd data



3.4 Confirm the files created in the previous step are present on **worker-node-2**:
ls



Due to the utilization of the hostPath volume, all the files can now be accessed on **worker-node-2**.

By following these steps, you have successfully demonstrated how to use a hostPath volume to mount files from a pod to the host node's file system.