# Kubernetes
Volumes

Production-Grade Container Orchestration

Kubernetes-Volume Types

- Local node types – emptyDir,hostPath,local

- File Sharing types – nfs

- Storage types- fc,iscsi

- Special purpose types –secrets, git ,repo

- Cloud provider types –Vsphere, Cinder, awsEBS,azureDisk,gcepresisentDisk

- Distributed fileSystem Types-glusterfs, cephfs

- Special Types – persistent volume, persistent volume claims.

1. How to assign a single volume to specific container in a pod?
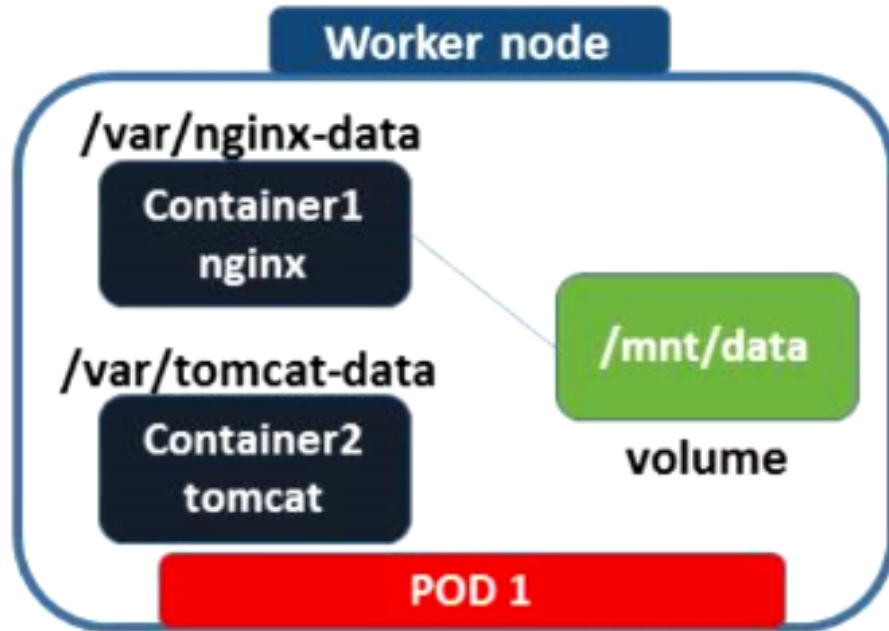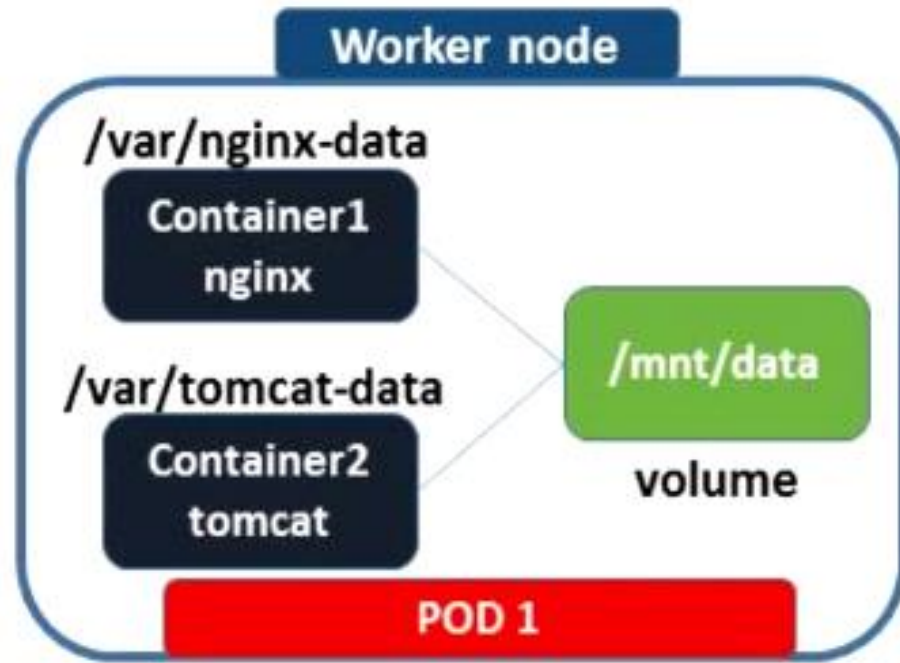


```
spec:
  volumes:
  - name: volume
    hostPath:
     path: /mnt/data

  containers:
  - name: container1-nginx
    image: nginx
    volumeMounts:
    - name: volume
      mountPath: "/var/nginx-data"


  - name: container2-tomcat
    image: tomcat
```

2. How to share a same volume to all containers within a pod?


```yaml
spec:
  volumes:
  - name: volume
    hostPath:
      path: /mnt/data

  containers:
  - name: container1-nginx
    image: nginx
    volumeMounts:
    - name: volume
      mountPath: "/var/nginx-data"

  - name: container2-tomcat
    image: tomcat
    volumeMounts:
    - name: volume
      mountPath: "/var/tomcat-data"
```

3. How to assign a dedicated volumes to each container in a pod?


```
spec:
  volumes:
  - name: volume1
    hostPath:
      path: /mnt/data1

  - name: volume2
    hostPath:
      path: /mnt/data2

  containers:
  - name: container1-nginx
    image: nginx
    volumeMounts:
    - name: volume1
      mountPath: "/var/nginx-data"

  - name: container2-tomcat
    image: tomcat
    volumeMounts:
    - name: volume2
      mountPath: "/var/tomcat-data"
```
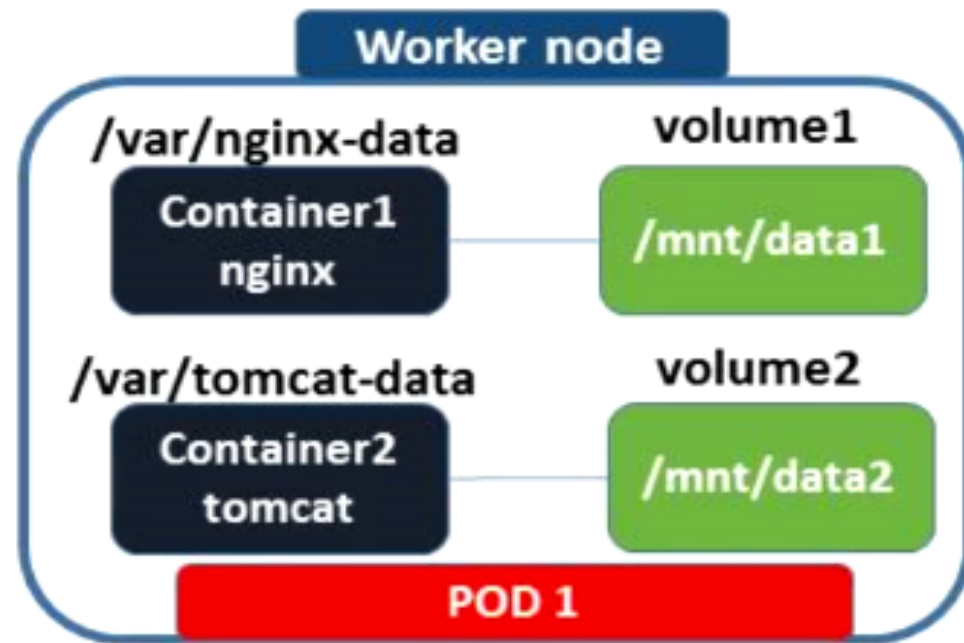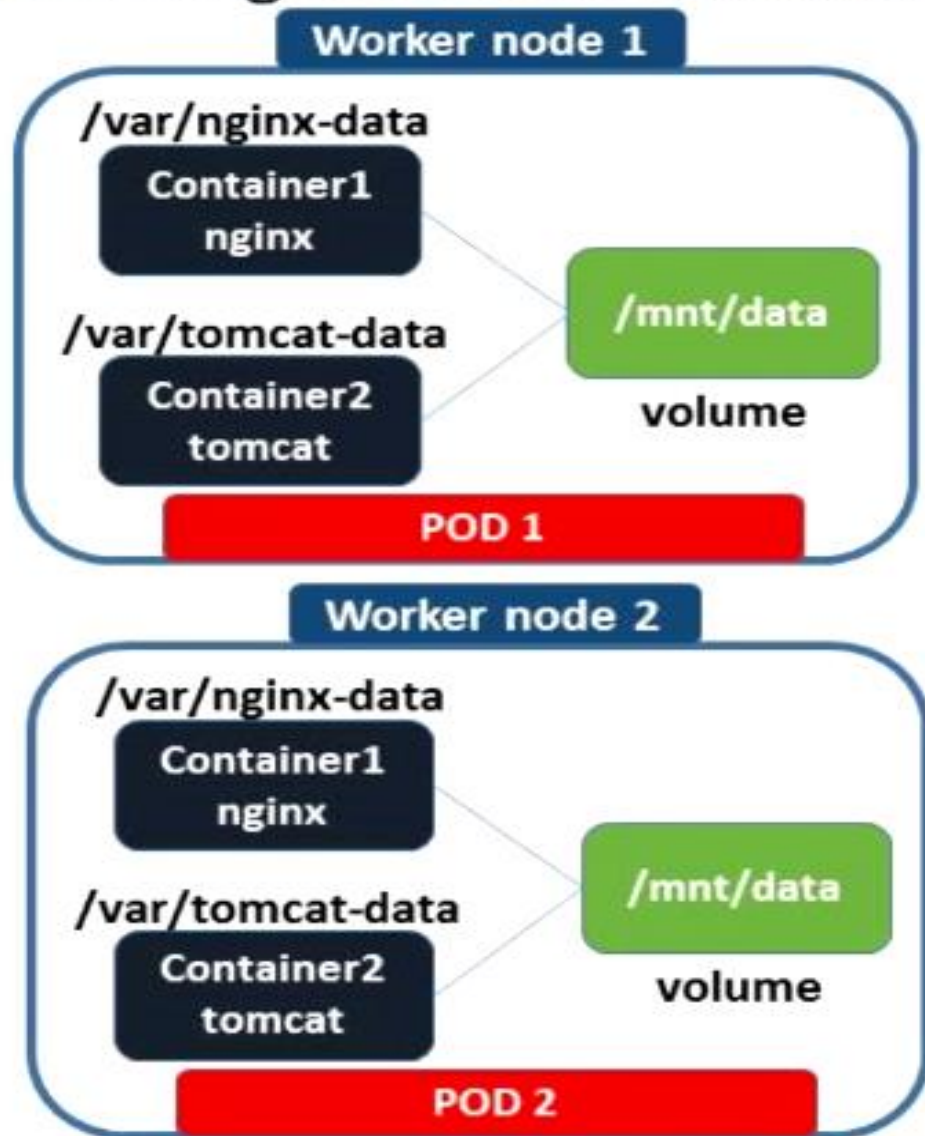
4. How to assign a shared volume across all pods running on different worker nodes?

Worker node 1

/var/nginx-data

Container1
nginx

/var/tomcat-data

Container2
tomcat

/mnt/data

volume

POD 1

Worker node 2

/var/nginx-data

Container1
nginx

/var/tomcat-data

Container2
tomcat

/mnt/data

volume

POD 2

```yaml
replicas: 2

spec:
    volumes:
    - name: volume
      hostPath:
        path: /mnt/data

    containers:
    - name: container1-nginx
      image: nginx
      volumeMounts:
      - name: volume
        mountPath: "/var/nginx-data"


    - name: container2-tomcat
      image: tomcat
      volumeMounts:
      - name: volume
        mountPath: "/var/tomcat-data"
```