Volumes

A Kubernetes volume is essentially a directory accessible to all containers running in a pod. In contrast to the container-local filesystem, the data in volumes is preserved across container restarts. The medium backing a volume and its contents are determined by the volume type:

- node-local types such as `emptyDir` or `hostPath`
- file-sharing types such as `nfs`
- cloud provider-specific types like `awsElasticBlockStore`, `azureDisk`, or `gcePersistentDisk`
- distributed file system types, for example `glusterfs` or `cephfs`
- special-purpose types like `secret`, `gitRepo`

A special type of volume is `PersistentVolume`, which we will cover elsewhere.

Let's create a pod with two containers that use an `emptyDir` volume to exchange data:

```
cat << EOF > pod.yaml
apiVersion: v1
kind: Pod
metadata:
  name: sharevol
spec:
  containers:
  - name: c1
    image: centos:7
    command:
      - "bin/bash"
      - "-c"
      - "sleep 10000"
    volumeMounts:
      - name: xchange
        mountPath: "/tmp/xchange"
  - name: c2
    image: centos:7
    command:
      - "bin/bash"
      - "-c"
      - "sleep 10000"
    volumeMounts:
      - name: xchange
        mountPath: "/tmp/data"
  volumes:
  - name: xchange
    emptyDir: {}
EOF

kubectl create -f pod.yaml
pod "sharevol" created

kubectl get pods sharevol -o wide
NAME       READY     STATUS    RESTARTS   AGE       IP
NODE
sharevol   2/2       Running   0          18m       10.244.128.70
my-k8s-01
```

We first exec into one of the containers in the pod, `c1`, check the volume mount and generate some data

```
kubectl exec sharevol -c c1 -i -t -- bash
[root@sharevol /]#

mount | grep xchange
/dev/vda1 on /tmp/xchange type ext4 (rw,relatime,data=ordered)

echo 'some data' > /tmp/xchange/data
```

When we now exec into `c2`, the second container running in the pod, we can see the volume mounted at `/tmp/data` and are able to read the data created in the previous step

```
kubectl exec sharevol -c c2 -i -t -- bash
[root@sharevol /]#

mount | grep /tmp/data
/dev/vda1 on /tmp/data type ext4 (rw,relatime,data=ordered)
```

```
cat /tmp/data/data
some data
```