Volumes

- A volume is just a directory, possibly with some data in it, which is accessible to the containers in a pod.
- The content is determined by the particular volume type used.

Volumes - types

- **Host-based**
  - EmptyDir
  - HostPath
- **Block Storage**
  - Amazon EBS
  - GCE Persistent Disk
  - Azure Disk
  - vSphere Volume
  - ...
- **Distributed File System**
  - NFS
  - Ceph
  - Gluster
  - Amazon EFS
  - Azure File System
  - ...
- **Other**
  - Flocker
  - iScsi
  - Git Repo
  - Quobyte
  - ...

Volumes

- Volumes bring persistence to Pods
- Kubernetes volumes are similar to Docker volumes, but managed differently
- All containers in a Pod can access the volume
- Volumes are associated with the lifecycle of Pod
- Directories in the host are exposed as volumes
- Volumes may be based on a variety of storage backends

Persistent volume

PersistentVolume (PV)

- Networked storage in the cluster pre-provisioned by an administrator.

PersistentVolumeClaim (PVC)

- Storage resource requested by a user.

Persistent volume

The Minikube VM boots into a tmpfs, so most directories will not be persisted across reboots (minikube stop). However, Minikube is configured to persist files stored under the following directories in the minikube VM:

- /data
- /var/lib/localkube
- /var/lib/docker
- /tmp/hostpath_pv
- /tmp/hostpath-provisioner

```yaml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: pv0001
spec:
  accessModes:
    - ReadWriteOnce
  capacity:
    storage: 5Gi
  hostPath:
    path: /data/pv0001/
```