At some point, your apps requires storage where the data is stored and accessed

How does this storage volumes are handled inside the Kubernetes cluster?

How can data persist beyond pod life?

How do these containers share data among them?

Storage Volumes

Concept

Objectives

Concept

a. Why we need?
b. Volumes
c. Volume Categories
d. Volume Types
e. emptyDir
f. hostPath
g. gcePersistentDisk

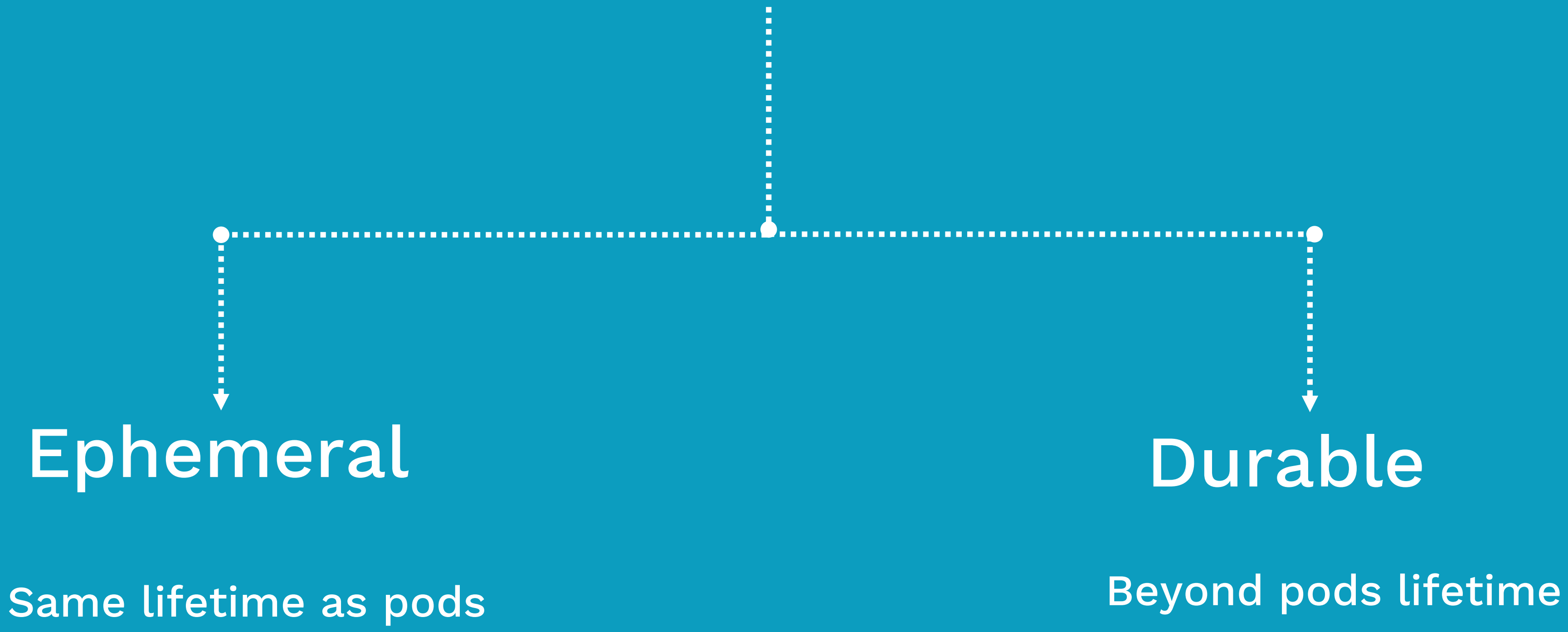
Think time…

- How can data persist through-out lifecycle of Pod ?
- How can data persist beyond lifecycle of Pod ?
- How can containers share files between containers in pod?

Volumes - Overview

- Pods are ephemeral and stateless
- Volumes bring persistence to pods
- Adv of Kubernetes volumes vs. Docker volumes
    - Container(s) has access to volume
    - Volumes are associated with Lifecyle of pod
    - Supports many types of volumes

Volumes Types



Ephemeral

Same lifetime as pods

Durable

Beyond pods lifetime

Volume Types

awsElasticBlockStore

azureDisk

azureFile

cephfs

configMap

csi

downwardAPI

emptyDir

vsphereVolume

fc (fibre channel)

flocker

gcePersistentDisk

gitRepo (deprecated)

glusterfs

hostPath

iscsi

local

storageos

nfs

persistentVolumeClaim

projected

portworxVolume

quobyte

rbd

scaleIO

secret

Above includes host based, block, distributed file systems and others.

emptyDir

- Creates empty directory first created when a Pod is assigned to a Node,
- Stays as long as pod is running
- Once pod is removed from a node, emptyDir is deleted forever

Use cases:

  - Temporary space

hostPath

- mounts a file or directory from the host node’s filesystem into your Pod
- Remains even after the pod is terminated
- Similar to docker volume
- Use cautiously when required
- Host issues might cause problem to hostPath

gcePersistentDisk

- Volume mounts a Google Compute Engine (GCE) Persistent Disk into Pod
- Volume data is persisted pods termination
- Read-Write only on one node and Read-Write on many nodes

Restrictions:

- You must create a PD using gcloud or the GCE API or UI before you can use it
- the nodes on which Pods are running must be GCE VMs
- those VMs need to be in the same GCE project and zone as the PD

Summary

Concept

a. Why we need?

b. Volumes

c. Volume Categories

d. Volume Types

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emptyDir