Kubernetes Volumes

Students, write your response!

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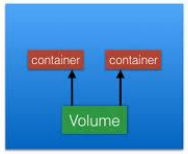
Volumes

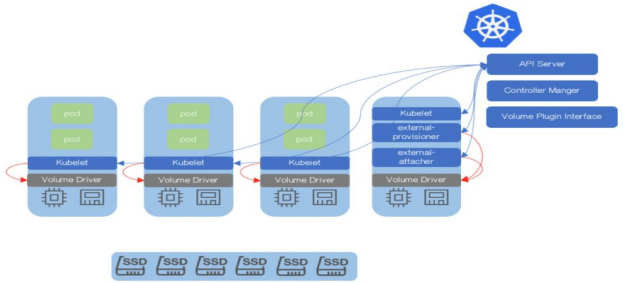


Pod

Volumes

- on-disk files in a Container are ephemeral. All data stored inside a container is deleted if the container crashes. When a Container crashes, kubelet will restart it, but the files will be lost which means that it will not have any of the old data.
- To overcome this problem, Kubernetes uses **Volumes**. A Volume is essentially a directory backed by a storage medium. The storage medium, content and access mode are determined by the Volume Type.

Volumes



A **volume** can be thought of as a directory which is accessible to the containers in a pod.

2

Volume Types

Volume Types

Kubernetes supports several types of Volumes.

- **emptyDir:** An emptyDir volume is first created when a Pod is assigned to a Node and exists as long as that Pod is running on that node. As the name says, it is initially empty. When a Pod is removed from a node for any reason, the data in the emptyDir is deleted forever.
- **hostPath:** A hostPath volume mounts a file or directory from the host node's filesystem into your Pod. If the Pod is terminated, the content of the Volume is still available on the host.

Volume Types

- **awsElasticBlockStore:** An awsElasticBlockStore volume mounts an Amazon Web Services (AWS) EBS Volume into your Pod.
- **azureDisk:** An azureDisk is used to mount a Microsoft Azure Data Disk into a Pod.
- **Secret:** A secret volume is used to pass sensitive information, such as passwords, to Pods.

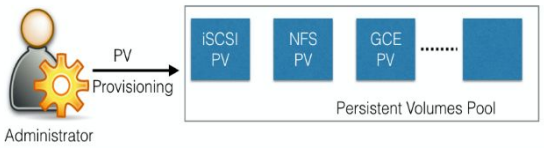
Volume Types

- **configMap:** The configMap resource provides a way to inject configuration data, or shell commands and arguments into a Pod.
- **persistentVolumeClaim:** A persistentVolumeClaim volume is used to mount a PersistentVolume into a Pod.

3 PersistentVolumes

PersistentVolumes

A **PersistentVolume (PV)** is a piece of storage in the cluster that has been provisioned by an administrator or dynamically provisioned using Storage Classes.



4 PersistentVolumeClaims

PersistentVolumeClaims

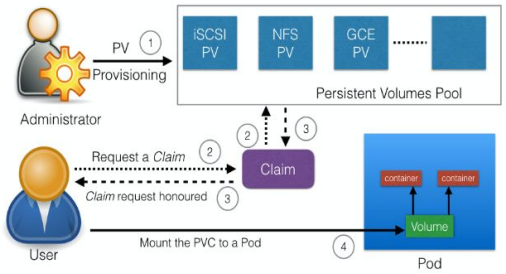
A **PersistentVolumeClaim (PVC)** is a request for storage by a user. Users request for PersistentVolume resources based on type, access mode, and size. There are three access modes:

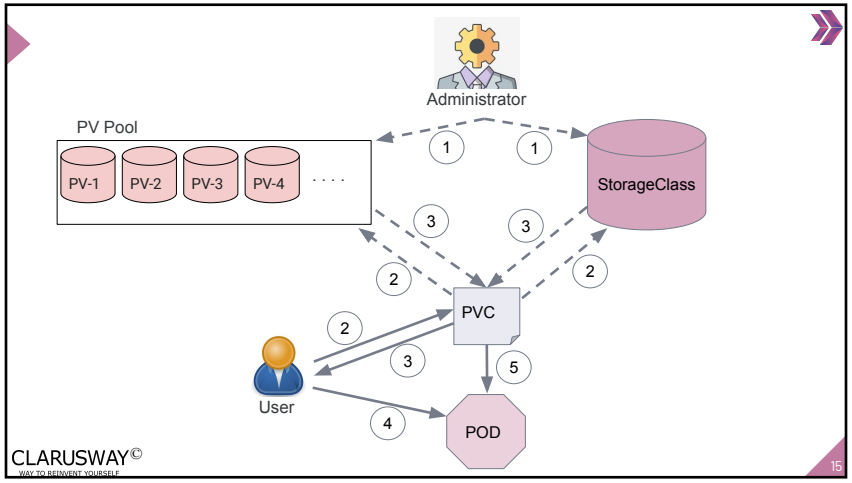
- ReadWriteOnce (read-write by a single node)
- ReadOnlyMany (read-only by many nodes)
- ReadWriteMany (read-write by many nodes).
- Once a suitable PersistentVolume is found, it is bound to a PersistentVolumeClaim.

PersistentVolumeClaims

Once a suitable PersistentVolume is found, it is bound to a PersistentVolumeClaim.

cluster administrator





THANKS!

Any questions?

You can find me at:

- james@clarusway.com