Volumes

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Docker volume

Where are docker images stored

`/var/lib/docker`

- It stores images (data) and metadata in different folder
- The content is depend on the storage driver
- Different OS different default storage driver
- You can change storage driver used by Docker daemon

Storage Drivers:

- aufs
- btrfs
- devicemapper
- vfs
- zfs
- overlay
- overlay2

Docker storage driver

Choose stable Storage Driver

The choices with the highest stability:

- **`overlay2`**
- **`aufs`**
- **`overlay`**, and
- **`devicemapper`**

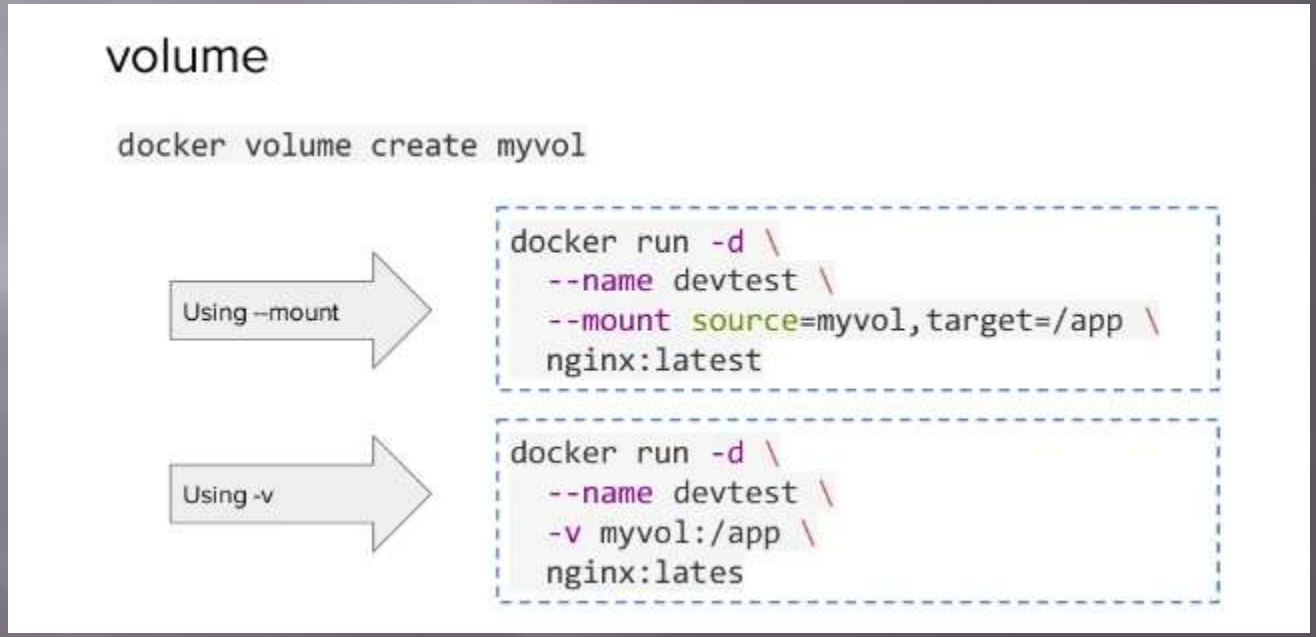
Storage data

Way to store data

Options for containers to store files in the host machine:

1. **volumes** (persisted on disk)
   stored in a part of the host filesystem which is managed by Docker (`/var/lib/docker/volumes/` on Linux)
2. **bind mounts** (persisted on disk)
   stored anywhere on the host system
3. **tmpfs mounts** (not persisted on disk & Linux only)

Docker volume create



Bind Mount

Binds mounts

Using --mount

```
docker run -d \
  -it \
  --name devtest \
  --mount type=bind,source="$(pwd)"/target,target=/app \
  nginx:latest
```

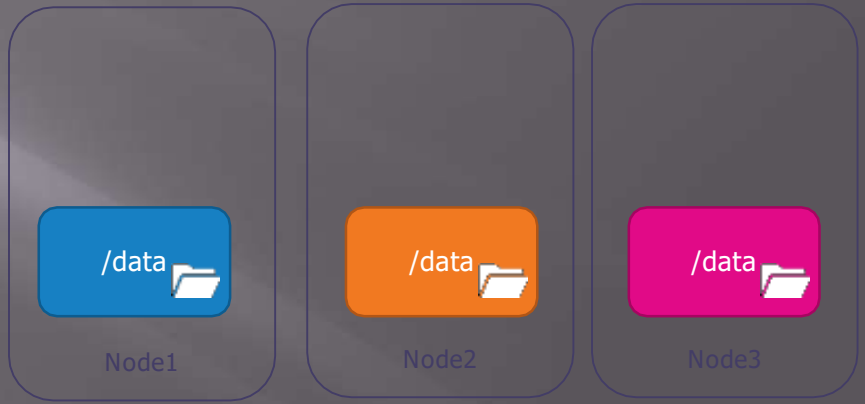
Using -v

```
docker run -d \
  -it \
  --name devtest \
  -v "$(pwd)"/target:/app \
  nginx:latest
```

Volume

```yaml
volumes:
- name: data-volume
  hostPath:
     path: /data
     type: Directory
```

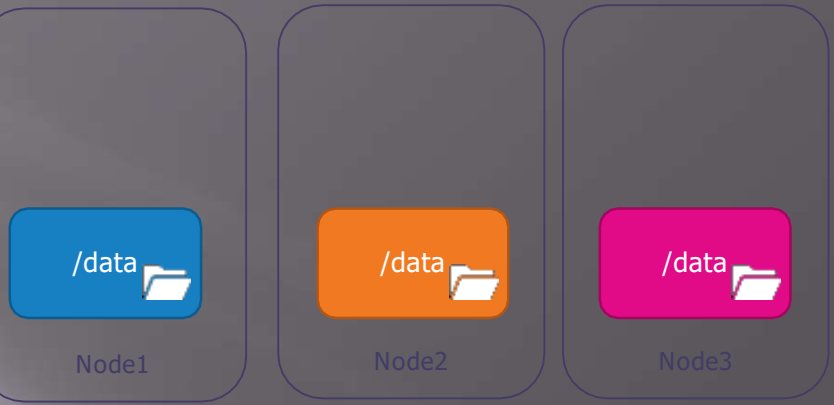
```yaml
volumes:
- name: data-volume
  hostPath:
    path: /data
    type: Directory
```



Volume Types

```
volumes:
- name: data-volume
  hostPath:
     path: /data
     type: Directory
```

data-volume



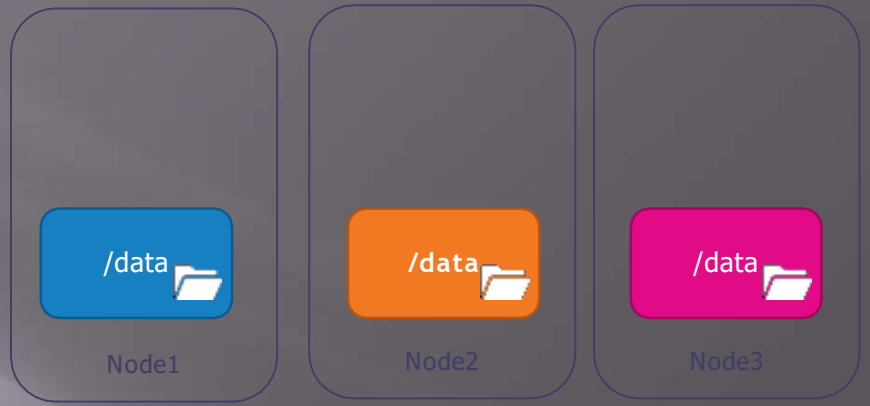
NFS

GlusterFS

ceph

SCALEIO

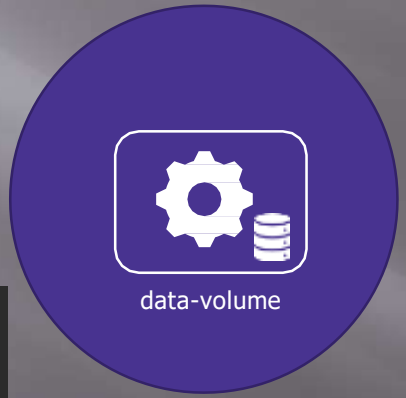
Volume Types



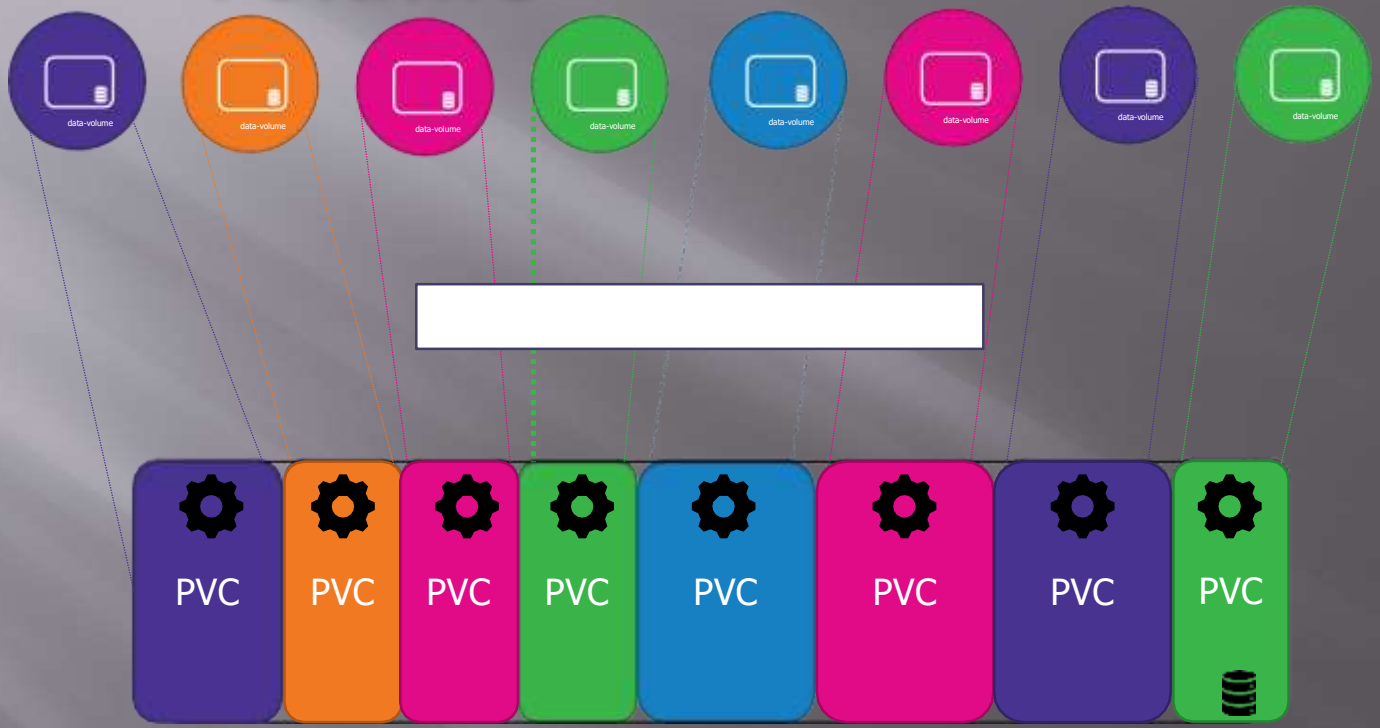

```
volumes:
- name: data-volume
  awsElasticBlockStore:
    volumeID: <volume-id>
    fsType: ext4
```

Persistent Volumes

```
volumes:
- name: data-volume
  awsElasticBlockStore:
    volumeID: <volume-id>
    fsType: ext4
```



Persistent Volume



Persistent Volumes (PVs)

Persistent Volume

pv-definition.yaml

```
...
...

spec:
  accessModes:
      - ReadWriteOnce
  capacity:
      storage: 1Gi

  awsElasticBlockStore:
    volumeID: <volume-id>
    fsType: ext4
```

- ReadOnlyMany
- ReadWriteOnce
- ReadWriteMany

Persistent Volume (PV)

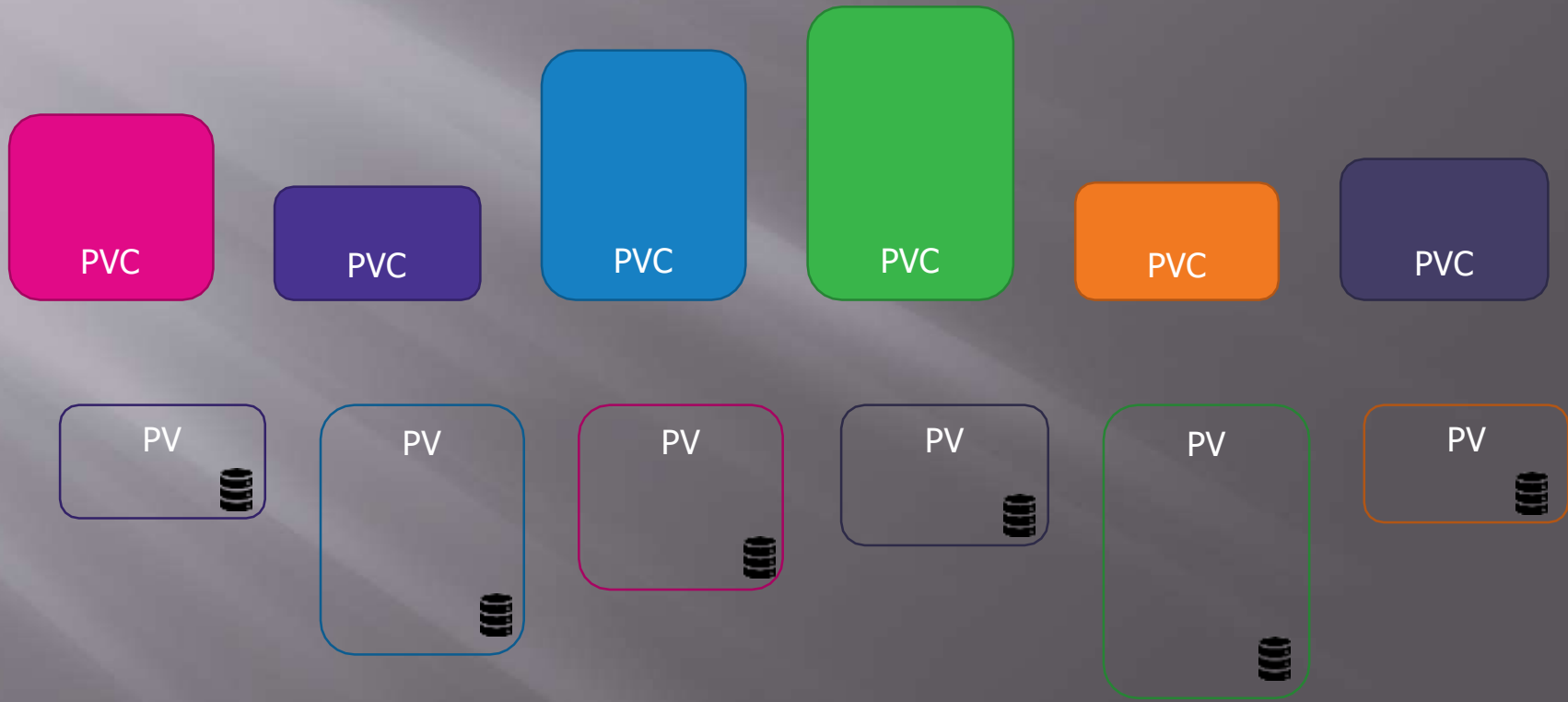
```
kubectl create -f pv-definition.yaml
```

```
kubectl get persistentvolume
```

NAME	CAPACITY	ACCESS MODES	RECLAIM POLICY	STATUS	CLAIM	STORAGECLASS	REASON	AGE
pv-vol1	1Gi	RWO	Retain	Available				3m

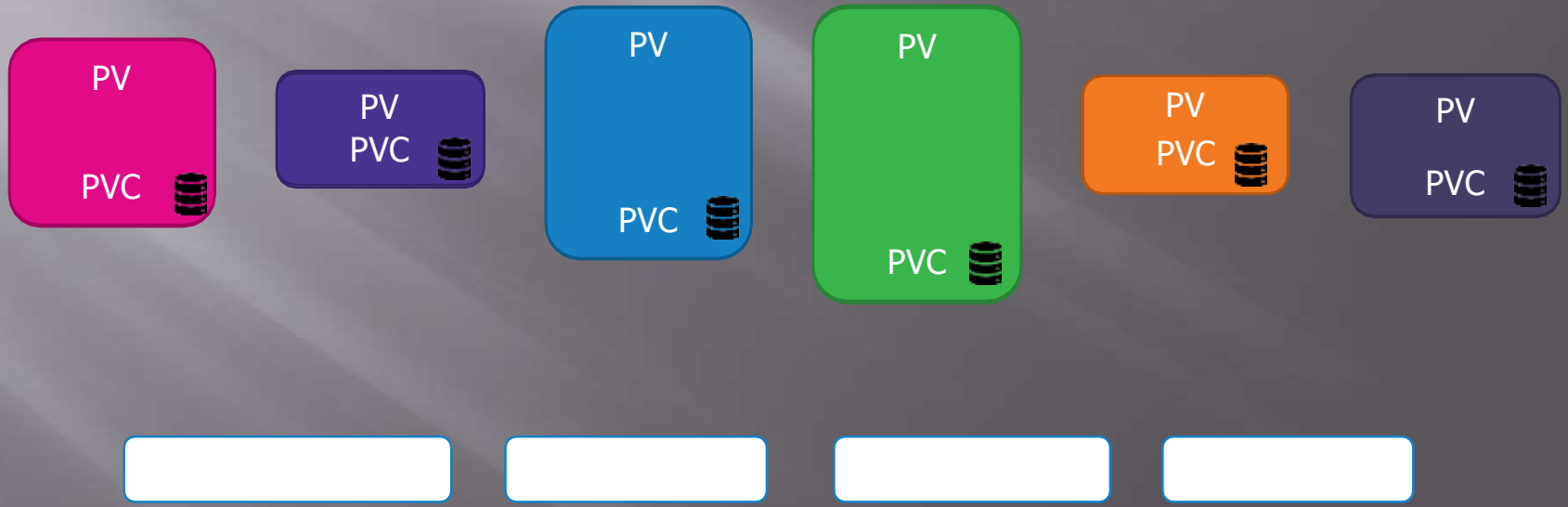
Persistent Volume Claims

Persistent Volume Claim



Binding

Binding



Binding

PVC

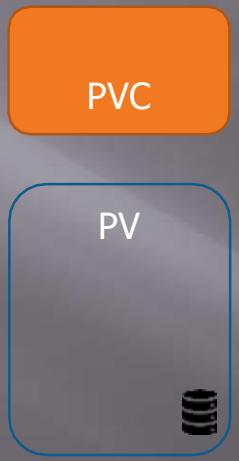
```
selector:
  matchLabels:
    name: my-pv
```

PV

```
labels:
  name: my-pv
```

PV

Binding



Pending