ADVANCE STORAGE FEATURE

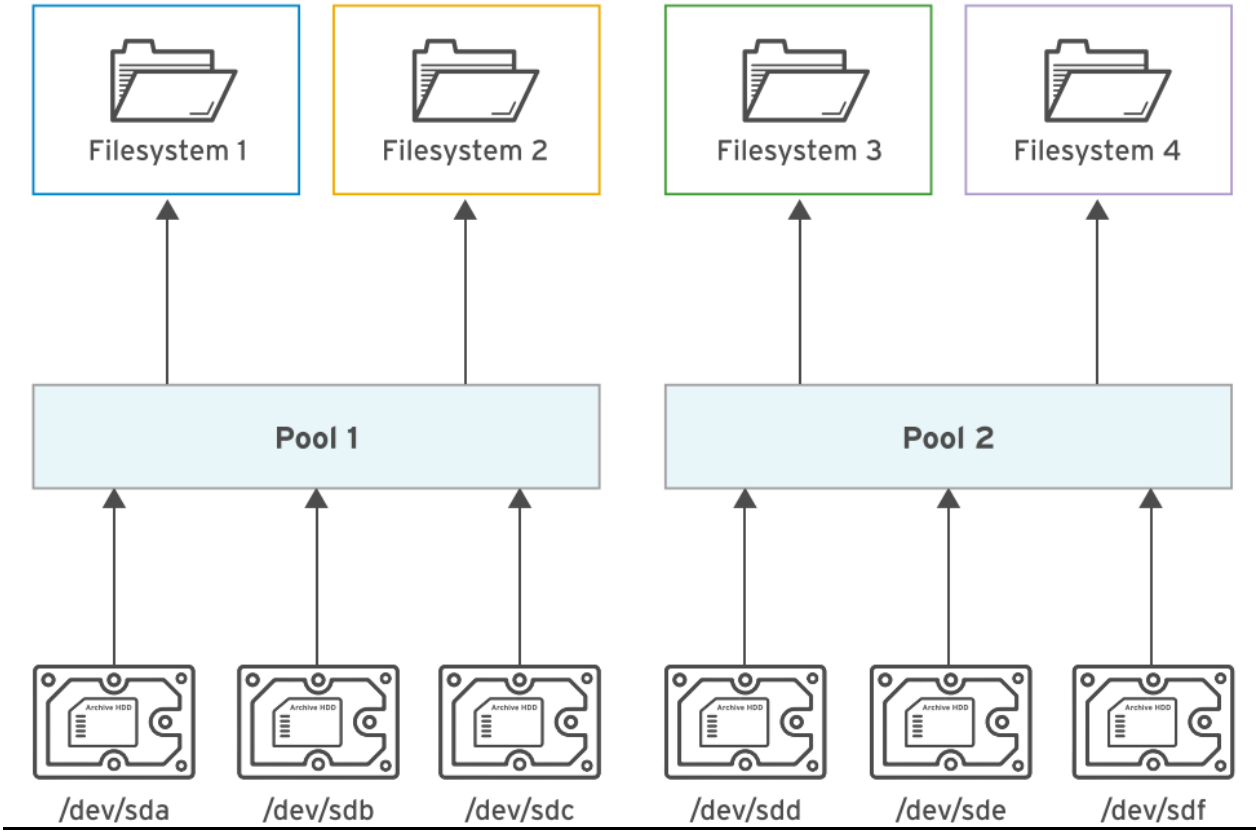
After completing this section, you should be able to manage multiple storage layers using Stratis local storage management.

DESCRIBING THE STRATIS ARCHITECTURE

The current local storage solution in Red Hat Enterprise Linux (RHEL) includes many stable and mature technologies, including the device mapper (dm), the logical volume manager (LVM) and the XFS file system Features provided by these components include massively scalable file systems, snapshots, redundant (RAID) logical devices, multipathing, thin provisioning, caching, deduplication, and support for virtual machines and containers

With RHEL 8, Red Hat introduces the Stratis storage management solution. Instead of developing from scratch, as other storage projects attempted, Stratis works with existing RHEL storage components.

Stratis runs as a service that manages pools of physical storage devices, and transparently creates and manages volumes for the file systems being created.
Because Stratis uses existing storage drivers and tools, all of the advanced storage features that you currently use in LVM, XFS, and the device mapper are also supported by Stratis.



```
[root@host ~]# yum install stratis-cli stratisd
[root@host ~]# systemctl enable --now stratisd
[root@host ~]# stratis pool create pool1 /dev/vdb
[root@host ~]# stratis pool list
[root@host ~]# stratis pool add-data pool1 /dev/vdc
[root@host ~]# stratis blockdev list pool1
[root@host ~]# stratis filesystem create pool1 filesystem1
[root@host ~]# stratis filesystem snapshot pool1 filesystem1 snapshot1
[root@host ~]# stratis filesystem list
```

in the /etc/fstab file

UUID=31b9...8c55 /dir1 xfs defaults,x-systemd.requires=stratisd.service 0 0

COMPRESSING AND DEDUPLICATING STORAGE WITH VDO

VDO: Virtual Data Optimizer

It Optimize data footprint on block device, minimize replication of data and increase data throughout.

Throughput (amount of data can be transferred from one location to another)

It include two Kernel Module
KVDO (helps in data compression)
UDS (helps in deduplication of data)

VDO has three phases:

1> **Zero-block Elimination:**
   It filters out all data, blocks that contain only zero size 0 and Eliminate.
   But records all info in metadata
   All non-zeros goes to next phase

2> **Deduplication Elimination:**
   When we have multiple copies of same data, **VDO** detects the duplicate data and block,

Update metadata to use that duplicate blocks as reference to original data, with out create redundant
It is managed by UDS(Universal Deduplicatation Services)

3> <u>Compression:</u>

KVDO kernel module compress data blocks using **Lz4,** and groups them in **4kb** blocks.

The devices which are created by VDO called **VDO volumes**
Similar to part^{n} we can format it as desired FS format.

Imp :

We will Specify the Logical size for VDO, It can be more than actual size 1:10 recommended

```
[root@host ~]# yum install vdo kmod-kvdo
[root@host ~]# vdo create --name=vdo1 --device=/dev/vdd --vdoLogicalSize=50G
[root@servera ~]# vdo list
[root@servera ~]# vdo status --name=vdo1
[root@servera ~]# vdostats --human-readable
[root@host ~]# vdo status --name=vdo1
```