

ITIM

PRACTICAL - 15

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Tasks :

Question: Use stratis to create file systems from pools of storage provided by physical storage devices.

So for that you need to perform the below mention tasks:

- Create a thin-provisioned file system using Stratis storage management solution.
- Verify that the Stratis volumes grow dynamically to support real-time data growth.
- Access data from the snapshot of a thin-provisioned file system.

1) Start the `advstorage-stratis` Lab

```
[student@workstation ~]$ lab advstorage-stratis start
Starting lab.
Preparing servera for lab exercise work:
  · Ensuring stratis-filesystem1-snap does not exist on servera.      SUCCESS
  · Ensuring stratis-filesystem1 does not exist on servera.....    SUCCESS
  · Ensuring stratispool1 does not exist on servera.....           SUCCESS
  · Ensuring /stratisvol does not exist on servera.....             SUCCESS
  · Ensuring /stratisvol-snap does not exist on servera.....        SUCCESS
  · Ensuring clean additional disks on servera.....                 SUCCESS
```

2) open an SSH session to `servera` as `student`.

```
[student@workstation ~]$ ssh student@servera
Activate the web console with: systemctl enable --now cockpit.socket

This system is not registered to Red Hat Insights. See https://cloud.redhat.com/
To register this system, run: insights-client --register

Last login: Sun Apr  7 22:27:30 2024 from 172.25.250.9
[student@servera ~]$
```

3) Install the `stratisd` and `stratis-cli` packages using the `yum` command.

```

root@servera:~
File Edit View Search Terminal Help
To register this system, run: insights-client --register
Last login: Sun Apr 7 22:27:30 2024 from 172.25.250.9
[student@servera ~]$ sudo -i
[sudo] password for student:
[root@servera ~]# yum install stratisd stratis-cli
Last metadata expiration check: 1 day, 4:13:59 ago on Sun 07 Apr 2024 10:27:48 P
M EDT.
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
stratis-cli noarch 2.0.0-1.el8 rhel-8.2-for-x86_64-appstream-rpms 60 k
stratisd x86_64 2.0.0-4.el8 rhel-8.2-for-x86_64-appstream-rpms 1.2 M
Installing dependencies:
python3-dbus-client-gen noarch 0.4-1.el8 rhel-8.2-for-x86_64-appstream-rpms 26 k
python3-dbus-python-client-gen noarch 0.7-3.el8 rhel-8.2-for-x86_64-appstream-rpms 28 k
python3-dbus-signature-pyparsing noarch 0.03-2.el8 rhel-8.2-for-x86_64-appstream-rpms 19 k
python3-into-dbus-python noarch 0.06-2.el8 rhel-8.2-for-x86_64-appstream-rpms 27 k
=====

```

4) Activate the `stratisd` service using the `systemctl` command.

Create a Stratis pool named `stratispool1` using the `stratis pool create` command.

Verify the availability of `stratispool1` using the `stratis pool list` command.

```

root@servera:~
File Edit View Search Terminal Help
python3-dbus-signature-pyparsing-0.03-2.el8.noarch
python3-into-dbus-python-0.06-2.el8.noarch
python3-justbytes-0.9-6.el8.noarch
python3-justbytes-0.11-2.el8.noarch
python3-pyparsing-2.1.10-7.el8.noarch
stratis-cli-2.0.0-1.el8.noarch
stratisd-2.0.0-4.el8.x86_64

Complete!
[root@servera ~]# systemctl enable --now stratisd
[root@servera ~]# lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
vda 252:0 0 10G 0 disk
├─vda1 252:1 0 1M 0 part
├─vda2 252:2 0 100M 0 part /boot/efi
├─vda3 252:3 0 9.9G 0 part /
vdb 252:16 0 5G 0 disk
vdc 252:32 0 5G 0 disk
vdd 252:48 0 5G 0 disk
[root@servera ~]# stratis pool create stratispool1 /dev/vdb
[root@servera ~]# stratis pool list
Name Total Physical
stratispool1 5 GiB / 37.63 MiB / 4.96 GiB
[root@servera ~]#

```

5) Add the block device `/dev/vdc` to `stratispool1` using the `stratis pool add-data` command.

Verify the size of `stratispool1` using the `stratis pool list` command.

Verify the block devices that are currently members of `stratispool1` using the `stratis blockdev list` command.

```

File Edit View Search Terminal Help
Complete!
[root@servera ~]# systemctl enable --now stratisd
[root@servera ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
vda         252:0    0   10G  0 disk
├─vda1      252:1    0    1M  0 part
├─vda2      252:2    0  100M  0 part /boot/efi
└─vda3      252:3    0   9.9G  0 part /
vdb         252:16   0    5G  0 disk
vdc         252:32   0    5G  0 disk
vdd         252:48   0    5G  0 disk
[root@servera ~]# stratis pool create stratispool1 /dev/vdb
[root@servera ~]# stratis pool list
Name                Total Physical
stratispool1        5 GiB / 37.63 MiB / 4.96 GiB
[root@servera ~]# stratis pool add-data stratispool1 /dev/vdc
[root@servera ~]# stratis pool list
Name                Total Physical
stratispool1        10 GiB / 41.63 MiB / 9.96 GiB
[root@servera ~]# stratis blockdev list stratispool1
Pool Name          Device Node      Physical Size  Tier
stratispool1       /dev/vdb         5 GiB        Data
stratispool1       /dev/vdc         5 GiB        Data
[root@servera ~]#

```

6)

Create the thin-provisioned file system `stratis-filesystem1` on `stratispool1` using the `stratis filesystem create` command. It may take up to a minute for the command to complete.

Verify the availability of `stratis-filesystem1` using the `stratis filesystem list` command

Create a directory named `/stratisvol` using the `mkdir` command.

Mount `stratis-filesystem1` on `/stratisvol` using the `mount` command.

Verify that the `stratis-filesystem1` volume is mounted on `/stratisvol` using the `mount` command.

```

root@servera:~
File Edit View Search Terminal Help
stratispool1 /dev/vdb 5 GiB Data
stratispool1 /dev/vdc 5 GiB Data
[root@servera ~]# stratis filesystem create stratispool1 stratis-filesystem1
[root@servera ~]# stratis filesystem list
Pool Name      Name      UUID      Used      Created      Device
stratispool1   stratis-filesystem1 546 MiB   Apr 09 2024 02:49 /stratis/stratispool1/stratis-filesystem1
ooll/stratis-filesystem1 a24eff198cb4a7ba606f78c520ae25f
[root@servera ~]# mkdir /stratisvol
[root@servera ~]# mount /stratis/stratispool1/stratis-filesystem1/ /stratisvol
mount: /stratisvol: special device /stratis/stratispool1/stratis-filesystem1/ does not exist (a path prefix is not a directory).
[root@servera ~]# ls /stratis
stratispool1
[root@servera ~]# ls /stratis/stratispool1
stratis-filesystem1
[root@servera ~]# mount /stratis/stratispool1/stratis-filesystem1 /stratisvol
[root@servera ~]# mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime,seclabel)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
devtmpfs on /dev type devtmpfs (rw,nosuid,seclabel,size=907716k,nr_inodes=226929,mode=755)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)

```

Create the text file `/stratisvol/file1` using the `echo` command.

```

[root@servera ~]# echo "Hello World" > /stratisvol/file1
[root@servera ~]#

```

7) Verify that the thin-provisioned file system `stratis-filesystem1` dynamically grows as the data on the file system grows.

Create a 2 GiB file on `stratis-filesystem1` using the `dd` command. It may take up to a minute for the command to complete.

View the current usage of `stratis-filesystem1` using the `stratis filesystem list` command.

```
[root@servera ~]# stratis filesystem list
Pool Name      Name                Used      Created      Device
               UUID
stratispool1   stratis-filesystem1 546 MiB   Apr 09 2024 02:49 /stratis/stratispool1/stratis-filesystem1
a24eff1928cb4a7ba606f78c520ae25f
[root@servera ~]# dd if=/dev/urandom of=/stratisvol/file2 bs=1M count=2048
2048+0 records in
2048+0 records out
2147483648 bytes (2.1 GB, 2.0 GiB) copied, 12.4536 s, 172 MB/s
[root@servera ~]# stratis filesystem list
Pool Name      Name                Used      Created      Device
               UUID
stratispool1   stratis-filesystem1 2.53 GiB  Apr 09 2024 02:49 /stratis/stratispool1/stratis-filesystem1
a24eff1928cb4a7ba606f78c520ae25f
[root@servera ~]#
```

8) Create a snapshot of `stratis-filesystem1` named `stratis-filesystem1-snap`.

The snapshot will provide you with access to any file that is deleted from

`stratis-filesystem1`. Create a snapshot of `stratis-filesystem1` using the `stratis filesystem snapshot` command.

```
[root@servera ~]# stratis filesystem snapshot stratispool1 stratis-filesystem1 stratis-filesystem1-snap
[root@servera ~]# stratis filesystem list
Pool Name      Name                Used      Created      Device
               UUID
stratispool1   stratis-filesystem1 2.53 GiB  Apr 09 2024 02:49 /stratis/stratispool1/stratis-filesystem1
a24eff1928cb4a7ba606f78c520ae25f
stratispool1   stratis-filesystem1-snap 2.53 GiB  Apr 09 2024 03:00 /stratis/stratispool1/stratis-filesystem1-snap
6c26fcc237bc4c9e9e1136616c409fc4
[root@servera ~]# rm /stratisvol/file1
rm: remove regular file '/stratisvol/file1'? y
[root@servera ~]# mkdir /stratisvol-snap
[root@servera ~]# mount /stratis/stratispool1/stratis-filesystem1-snap /stratisvol-snap
[root@servera ~]# cat /stratisvol-snap/file1
Hello World
[root@servera ~]#
```

9) Unmount `/stratisvol` and `/stratisvol-snap` using the `umount` command.

```
[root@servera ~]# umount /stratisvol-snap
[root@servera ~]# umount /stratisvol
[root@servera ~]#
```

10) Remove the thin-provisioned file system `stratis-filesystem1` and its snapshot `stratis-filesystem1-snap` from the system.

Destroy `stratis-filesystem1-snap` using the `stratis filesystem destroy` command.

Destroy `stratis-filesystem1` using the `stratis filesystem destroy` command.

```
[root@servera ~]# stratis filesystem destroy stratispool1 stratis-filesystem1-snap
[root@servera ~]# stratis filesystem destroy stratispool1 stratis-filesystem1
[root@servera ~]#
```

Finish the lab

```
[root@servera ~]# exit
logout
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$ lab advstorage-stratis finish

Completing the lab on servera:

  · Removing stratis-filesystem1-snap from on servera..... SUCCESS
  · Removing stratis-filesystem1 from servera..... SUCCESS
  · Removing stratispool1 from servera..... SUCCESS
  · Removing /stratisvol from servera..... SUCCESS
  · Removing /stratisvol-snap from servera..... SUCCESS
  · Ensuring clean additional disks on servera..... SUCCESS

Lab finished.
[student@workstation ~]$
```

