Mount new logical volume to UIS Server

Network Topology

UIS normal networking environment

Problem Description

When the server adds new hardware disks, how can the operating system installed in the server recognize the new disks and write data on them?

Process Analysis

1. Find new logical volume
2. Add new partitions
3. Execution mkfs.ext4 / dev / sdb sdb disk format command to ext4 format.
4. Mount
5. Add Storage Pool
6. Add Template Pool(use another new lun,not the sameas Step5)
7. Permanently mounted hard drive

Solution

1.   Find new logical volume

Logical volume /dev/sda divided into 4 partitions, sdaa,sdab,sdac,sdad.

Logical volume /dev/sdad : Device Boot is empty.

[root@cvknode1 ~]# fdisk -l

Disk /dev/sda: 900.2 GB, 900151926784 bytes, 1758109232 sectors

Units = sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 262144 bytes / 262144 bytes

Disk label type: gpt

Disk identifier: D470558E-A734-4375-A65A-18B17479D1FB

#	Start	End	Size	Type	Name
1	2048	411647	200M	EFI System	EFI System Partition
2	411648	252069887	120G	Microsoft basic	
3	252069888	335955967	40G	Microsoft basic	
4	335955968	403064831	32G	Linux swap	
5	403064832	1758107647	646.1G	Microsoft basic	

WARNING: fdisk GPT support is currently new, and therefore in an experimental phase. Use at your own discretion.]#

Disk /dev/sdad: 107.4 GB, 107374182400 bytes, 209715200 sectors

Units = sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x8566ae4e

   Device Boot   Start   End   Blocks Id System

[root@cvknode1 ~]#

2.   Add new partitions

(1) start Partition

 [root@cvknode1 ~]# fdisk /dev/sdad

Welcome to fdisk (util-linux 2.23.2).

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help):

(2) ViewPartition Help

Command (m for help):m

Command action

   a   toggle a bootable flag

b　edit bsd disklabel

　　c　toggle the dos compatibility flag

　　d　delete a partition

　　g　create a new empty GPT partition table

　　G　create an IRIX (SGI) partition table

　　l　list known partition types

　　m　print this menu

　　n　add a new partition

　　o　create a new empty DOS partition table

　　p　print the partition table

　　q　quit without saving changes

　　s　create a new empty Sun disklabel

　　t　change a partition's system id

　　u　change display/entry units

　　v　verify the partition table

　　w　write table to disk and exit

　　x　extra functionality (experts only)

Command (m for help):

(3) Add new partitions

First patition

Command (m for help): n

Partition type:

　　p　primary (0 primary, 0 extended, 4 free)

　　e　extended

Select (default p): p

Partition number (1-4, default 1): 1

First sector (2048-209715199, default 2048): 2048

Last sector, +sectors or +size{K,M,G} (2048-209715199, default 209715199): +30G

Partition 1 of type Linux and of size 30 GiB is set

Command (m for help): p

Disk /dev/sdad: 107.4 GB, 107374182400 bytes, 209715200 sectors

Units = sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x8566ae4e

Device Boot	Start	End	Blocks	Id	System
/dev/sdad1	2048	62916607	31457280	83	Linux

Second patition:

Command (m for help): n

Partition type:

　　p　primary (1 primary, 0 extended, 3 free)

　　e　extended

Select (default p): p

Partition number (2-4, default 2): 2

First sector (62916608-209715199, default 62916608):

Using default value 62916608

Last sector, +sectors or +size{K,M,G} (62916608-209715199, default 209715199):

Using default value 209715199

Partition 2 of type Linux and of size 70 GiB is set

Command (m for help): p

Disk /dev/sdad: 107.4 GB, 107374182400 bytes, 209715200 sectors

Units = sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x8566ae4e

```
    Device Boot    Start      End    Blocks  Id  System
/dev/sdad1          2048   62916607   31457280  83  Linux
/dev/sdad2       62916608  209715199   73399296  83  Linux


(4) write table to disk and exit
Command (m for help):w
The partition table has been altered!
Calling ioctl() to re-read partition table.
Syncing disks.
[root@cvknode1 ~]#
(5) confirm disk partitions
[root@cvknode1 ~]# fdisk -l | grep sdad
Disk /dev/sdad: 107.4 GB, 107374182400 bytes, 209715200 sectors
/dev/sdad1          2048   62916607   31457280  83  Linux
/dev/sdad2       62916608  209715199   73399296  83  Linux
[root@cvknode1 ~]#
3.    Execution mkfs.ext4 / dev / sdb sdb disk format command to ext4 format.

 [root@cvknode1 ~]# mkfs.ext4 /dev/sdad1
mke2fs 1.42.9 (28-Dec-2013)
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
1966080 inodes, 7864320 blocks
393216 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2155872256
240 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
      32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
      4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

[root@cvknode1 ~]#
4. Mount
Execute mkdir /vms/templun command in a new directory  as the new hard disk mount point.
[root@cvknode1 ~]# mkdir /vms/templun
 [root@cvknode1 ~]# cd /vms
[root@cvknode1 vms]# ll
total 1676
drwxr-xr-x  2 root root    4096 Feb 28 00:05 cvmbackuptmp
drwxr-xr-x  5 root root    3896 Feb 28 12:53 defaultPool_ssd
drwxr-xr-x  3 root root    4096 Jan 21 09:52 images
drwxr-xr-x  4 root root    4096 Oct 26 05:04 isos
drwx------. 2 root root   16384 Oct 26 04:32 lost+found
drwxr-xr-x  2 root root    4096 Feb 28 12:53 templun
drwxr-xr-x  2 root root    4096 Dec 19 10:28 vmbackuptmp

[root@cvknode1 /]# mount /dev/sdad1 /vms/templun
[root@cvknode1 /]#
[root@cvknode1 /]# df -TH
Filesystem    Type    Size  Used Avail Use% Mounted on
devtmpfs      devtmpfs  68G    0  68G  0% /dev
tmpfs         tmpfs     68G 164k  68G  1% /dev/shm
tmpfs         tmpfs     68G 4.4G  64G  7% /run
```
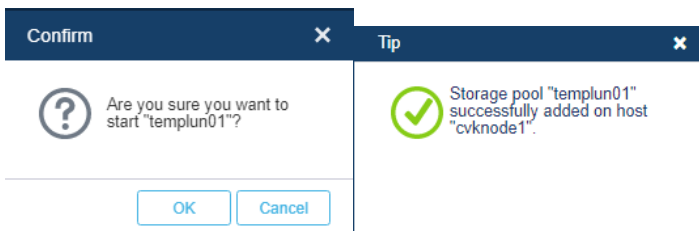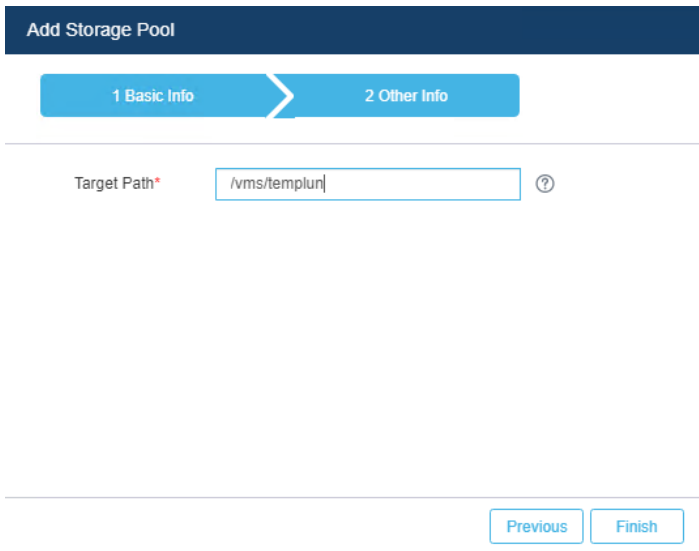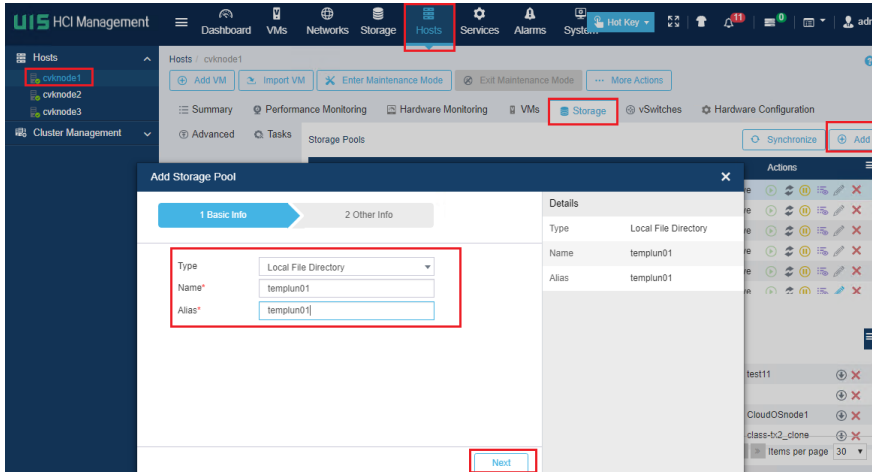
```
tmpfs        tmpfs     68G    0  68G  0% /sys/fs/cgroup
/dev/sda2    ext4     127G  20G 102G  16% /
/dev/sda1    vfat     210M  11M 200M  5% /boot/efi
/dev/sda3    ext4      43G 7.6G  33G  19% /var/log
/dev/sda5    ext4     683G 161G 488G  25% /vms
/dev/sdad1   ext4      32G  47M  30G  1% /vms/templun
[root@cvknode1 /]#
```
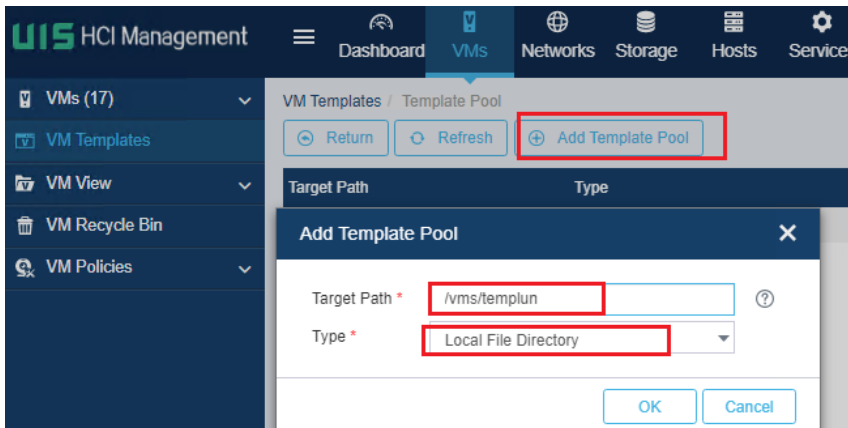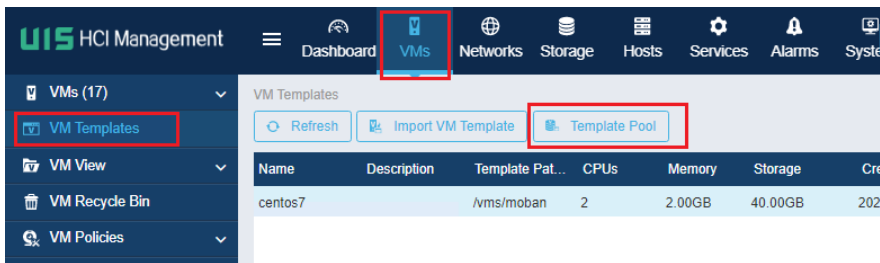
5. Add Storage Pool

6. Add Template Pool(use another new lun,not the sameas Step5)

7. Permanently mounted hard drive

With the above operation to mount the hard drive,we still need to congfigue Step1 to Step 6 after server's restart as this configuration will be lost after the restart. This only to be a temporary mount operation. If you want to permanently mount the hard drive, the fstab file needs to configured.

(1) Get disk's uuid by command blkid /dev/sdad1 .

 [root@cvknode1 ~]/# blkid /dev/sdad1

/dev/sdb: UU TYPE="ext4

(2) configure /etc/fstab

·   Entering vi / etc / fstab,

·   Type G to get to the file's last row

·   Type "i"to start edit the file

·   Enter UUID(You can copy uuid above by the ssh tool), the disk's mount point such as /vms/templun,Types of ext4, Options of "defaults", dump of 0, pass option of 2.

·   Press the ESC key and then type ": wq" to save and exit.

·   Entering cat /etc/fstab to confirm the configuration

 [root@cvknode1 ~]/# vi /etc/fstab

/etc/fstab: static file system information.

#

Use 'blkid' to print the universally unique identifier for a

device; this may be used with UUID= as a more robust way to name devices

that works even if disks are added and removed. See fstab(5).

#

<file system>   <mount point>   <type>   <options>

<dump>   <pass>

proc   /proc   proc

nodev,noexec,nosuid   0   0

/ was on /dev/sda2 during installation

UUID=d7f94577-db8d-4339-aG86-dcf752G0a7Oa   /   ext4   errors=remount-ro

        0   1

/boot/efi was on /dev/sdal during installation

UUID=4548-0F17   /boot/efi   vfat

  defaults   0   1

/var/log was on /dev/sda3 during installation

UUID=e3f39eb2-9975-4dc3-b7f0-6e25e98aad8c   /var/log   ext4

defaults   0   2

/vms was on /dev/sda5 during installation

UUID=06077d58-ebb7-4607-938c-09f5e9ada43e   /vms   ext4

defaults   0   2

# swap was on /dev/sda4 during installation
UUID=28b94350-36fa-442c-baad-lcl2605b8ed4   none   swap

sw   0   0

UUID=d8a248ea-3cd0-4fbc-a63c-d5f8dd39a09e /vms/templun   ext4

defaults   0   2

(3) After the completion of the implementation of the mount -a command, no error is proven configured correctly.Or you can also restart the server to see whether the configuration is lost after restarting the server.

```
root@cvknode1:/# vi /etc/fstab
root@cvknode1:/# mount -a
root@cvknode1:/#
root@cvknode1:/#
```

After the completion of the implementation of df -h command to view disk mount case and occupancy , sdb can see the disk has been successfully mounted to the next /vms/templun directory.