Multipath setup

Snapdrive for Unix

NetApp
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Multipath setup

Linux MPIO works if host setup is completed. The host setup is broadly classified as HBA setup, HBA driver parameter setup, Multipath setup, LVM setup, and SnapDrive for UNIX setup.

HBA setup

HBA Setup is the process of installing an appropriate HBA Card and the supported drivers on a Linux host.

Following are the HBA Cards that are supported for a Linux MPIO Configuration:

- QLOGIC
- EMULEX

These HBA cards are supported by FC Host Utilities Linux Attach Kit 3.0 and above with RHEL4 Update 6 and above.

Setting up HBA driver parameter

To set up HBA driver for Linux MPIO, the exact sequence of steps required depends on the operating system used. The setup also depends on the HBA card used.

The following steps are required to set up the HBA driver parameter for Linux MPIO:

Steps

1. Uninstall the built-in drivers.
2. Install the latest drivers from the vendor's web site.
3. Set the driver parameters using the vendor's CLI Configuration tool.
4. Edit the `/etc/modprobe.conf` file to set up default parameters for the HBA driver.
5. Regenerate the initrd (Ram Disk Image) with the HBA driver parameters.
6. Reboot the host for the new HBA Driver settings to be effective.

Related information

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Multipath configuration variables

You need to change few configuration variables in the `snapdrive.conf` file for MPIO to work with Linux.

After installing SnapDrive for UNIX on the host, edit the `/opt/Netapp/snapdrive/snapdrive.conf` file and change the following settings to the appropriate values:

```
enable-implicit-host-preparation=on  # Enable implicit host preparation
for LUN creation
  default-transport="FCP"  # Transport type to use for storage
provisioning, when a decision is needed
  multipathing-type= "nativempio"  # Multipathing software to use when
more than one multipathing solution is available
```

Restart the SnapDrive daemon for the `snapdrive.conf` file changes to take effect. After SnapDrive daemon restart, SnapDrive commands start using the DM-MP stack.

Setting up multipathing

You can configure multiple network paths between the host and storage system by setting up multipathing. SnapDrive for UNIX does support the use of aliases in multipath environments. You need to make sure that the proper alias name for the mapper devices is configured in the `/etc/multipath.conf` file.

Steps

1. After the host reboots, the multipath daemon should be running as shown in the following example:

```
root@lnx197-123 ~]# ps -ef | grep multipathd
root      5713     1  0 22:44 ?        00:00:00 /sbin/multipathd
root      5739  1783  0 22:44 pts/1    00:00:00 grep multipathd
```

If the multipath daemon is not running, ensure that you restart the daemon after the reboot. You can start the multipath daemon by running the following command:

```
[root@lnx197-123 ~]# chkconfig --level 345 multipathd on
```

The following table lists some of the SnapDrive operations which support the use of alias name in multipath environment.

Operation	Alias name support	Device type
Snap Create and Restore (SFSR and VBSR) from primary on primary host	Yes	Aliased devices
Cloning from primary or secondary	Yes	Un-aliased devices
Restore to alternate	Yes	Un-aliased devices

Operation	Alias name support	Device type
Restore from secondary	Yes	Un-aliased devices

- You do not have to set any values in the `/etc/multipath.conf` file if you are using either Red Hat Enterprise Linux (RHEL) 6.4 or later or Oracle Linux 6.4 or later.

  However, you must still maintain a dummy `/etc/multipath.conf` file, which can either be empty or containing the blacklisted information and alias names, if required.

- You do not have to maintain a `/etc/multipath.conf` file if you are using SUSE Linux Enterprise Server (SLES) 11 SP3 or later.

  However, you can have a `/etc/multipath.conf` file to contain the blacklisting information and alias names, if required.

2. Replace the string `HITACHI_HUS103073FL3800_V3WTL7XA` with the output of the command `scsi_id -gus /block/<LD>`, where `LD` is the local block device name.

   For some local block devices, the `scsi_id` command might not return any strings. In that case, the local block device must be blacklisted by using devnode directive.

3. Increase the number of file descriptors that a process can open in the host by appending the following lines in the `/etc/security/limits.conf` file:

```
soft nofile 4096
       hard nofile 4096
```

4. Ensure that the Linux SG Driver is always loaded after the system reboot by entering the following command:

```
echo "modprobe sg" >> /etc/rc.local
```

5. Reboot the host to ensure that settings are active.

   The lvm2-2.02.17-7.27.8 and the *`filter`* setting must be assigned as = `["r|/dev/.*/by-path/.*|", "r|/dev/.*/by-id/.*|", "r|/dev/cciss/.*|", "a/.*/"]` in the `lvm.conf` file in SLES10 SP2.

Related information

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