The LVM Logical Volume Manager

This chapter provides a high-level overview of the components of the Logical Volume Manager (LVM).

1. Logical Volumes

Volume management creates a layer of abstraction over physical storage, allowing you to create logical storage volumes. This provides much greater flexibility in a number of ways than using physical storage directly.

A logical volume provides storage virtualization. With a logical volume, you are not restricted to physical disk sizes. In addition, the hardware storage configuration is hidden from the software so it can be resized and moved without stopping applications or unmounting file systems. This can reduce operational costs.

Logical volumes provide the following advantages over using physical storage directly:

- Flexible capacity

  When using logical volumes, file systems can extend across multiple disks, since you can aggregate disks and partitions into a single logical volume.

- Resizeable storage pools

  You can extend logical volumes or reduce logical volumes in size with simple software commands, without reformatting and repartitioning the underlying disk devices.

- Online data relocation

  To deploy newer, faster, or more resilient storage subsystems, you can move data will your system is active. Data can be rearranged on disks while the disks are in use. For example, you can empty a hot-swappable disk before removing it.

- Convenient device naming

  Logical storage volumes can be managed in user-defined groups, which you can name according to your convenience.