Supporting Btrfs

LPIC-2: Linux Engineer (201-450)

Objectives:

At the end of this episode, I will be able to:

1. Describe the primary features of the Btrfs file system.
2. Format and mount storage with Btrfs.
3. Implement RAID, subvolumes, and snapshots with Btrfs.

> Additional resources used during the episode can be obtained using the download link on the overview episode.

- Btrfs
  - Designed by Oracle
  - Not an acronym
    - B-Tree File System
  - Designed with features in mind, not bolt-ons
    - Copy on Write (COW)
    - RAID
    - LVM
    - Snapshots
- Formatting a disk with Btrfs
  - `sudo apt install btrfs-progs`
  - `sudo mkfs.btrfs /dev/sdd1`
  - `lsblk -f`
  - `sudo btrfs filesystem show`
- Building a RAID1 Mirror
  - `sudo mkfs.btrfs -m raid1 -d raid1 /dev/sda /dev/sdb`
    - `-m` Metadata
    - `-d` Data
  - The mount either one of the drives as normal
  - Btrfs manages the mirror
- Subvolumes
  - Designed to facilitate backups
  - Useful for setting snapshot policies
  - Similar to a partition
  - A divided piece of the file system
  - Looks like a subdirectory
  - Mounted similar to a disk, but is a logical construct
  - Can be mounted independently and moved about
- Creating a subvolume
  - Mount the parent volume
    - `sudo mount /dev/sda /mnt/database`
  - Create subvolumes

        - `sudo btrfs subvolume create /mnt/database/db`
        - `sudo btrfs subvolume create /mnt/database/tl`
    - List subvolumes
        - `ls -la /mnt/database`
        - `sudo btrfs subvolume list -t /mnt/database`
            - `-t` Display as table
- Snapshots
    - Snapshots are subvolumes
    - Contain a point-in-time replica of data
- Creating a snapshot
    - `sudo mkdir /mnt/data/snapshots`
    - `sudo btrfs subvolume snapshot /mnt/database/db /mnt/database/snapshots/db20210614`