Swap Partitions

LPIC-2: Linux Engineer (201-450)

Objectives:

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

1. Describe the purpose and function of a swap partition.
2. Determine the appropriate size of a swap partition for a system.
3. Manually create and activate a swap partition from the Linux CLI.

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

- Swap
  - Not strictly necessary
  - Virtual memory used when we run out of physical memory
  - Can be a disk, volume, or file
- Monitoring memory
  - Swap is only needed when you run out of RAM
  - `free -h`
  - `swapon -s`
  - If you are low on memory you may need to
    1. Troubleshoot memory consumption
    2. Upgrade your RAM
    3. Add swap space
- Determining swap amount
  - Ubuntu SwapFaq (https://help.ubuntu.com/community/SwapFaq)
  - General rules
    - Minimum of 1GB of Swap
    - When in doubt, set your swap to match your RAM
  - Per Canonical
    - Minimum of round(sqrt(RAM))
    - Maximum of 2(RAM)
- Creating swap space
  - Disk based swap
    1. `sudo mkswap /dev/sda1`
  - File based swap
    1. `sudo dd if=/dev/zero of=/var/swap bs=1M count=2048`
    2. `sudo chmod 600 /var/swap`
    3. `sudo mkswap /var/swap`
- Activating Swap
  - `sudo swapon /var/swap`
  - `sudo swapon /dev/sda1`
- Adding swap to the filesystem table

1. `sudoedit /etc/fstab`
2. Add entries for each swap location
    - `/var/swap swap swap defaults 0 0`
    - `/dev/sda1 swap swap defaults 0 0`

- Changing swap
    - General steps
        1. Disable the swap
        2. Modify it
        3. Re-enable it
    - Caution
        - Running without swap may hang the system
        - Make sure you have secondary swap
- Multiple swap locations
    - Used in order of priority
        - `swapon -s`
    - Priority 0 through 32,767
        - Swap is used from highest to lowest
        - Simultaneous if priority is equal
    - Setting priority
        - `sudo swapon -p 10 /dev/sda1`
        - In `/etc/fstab` use the "pri=10" option