Storage Devices

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

1. Identify storage device technologies.

Exam Objective: 3.3 - Given a scenario, select and install storage devices.

Description: In this episode, we will discuss a variety of storage device technologies such as hard disk drives, solid-state drives, IDE, SATA, form-factors, M.2, NVMe, flash drives, optical drives, memory cards and RAID configurations.

- **Hard drives**
  - Magnetic media
  - Fixed media
  - **Speeds**
    - 5,400rpm
    - 7,200rpm
    - 10,000rpm
    - 15,000rpm
  - Communication interfaces
    - **IDE**
    - **SATA**

- - - SATA 1.0 = 150 MBps
    - SATA 2.0 = 300 MBps
    - SATA 3.0 = 600 MBPs
  - **SCSI**
- **SSDs**
  - Communications interfaces
    - Non-volatile Memory Express (**NVMe**)
      - Interface specification attached to the PCI Express interface
      - Uses up to 4 PCIe lanes
      - Replaces the SATA interface (originally designed for mechanical drives)
      - Uses a U.2 connector for solid state drives
    - SATA
- **Form factors**
  - M.2
    - Examples: 2280 (22mm wide, 80mm length)
  - mSATA
    - Common in portable devices
    - Largely being replaced by M.2
  - 2.5
  - 3.5
- **Removable storage**
  - Flash drives
    - 2 GBs up to 2 TBs
    - USB connector
    - Electrical non-volatile storage

- Memory cards
  - Electrical non-volatile storage
  - Commonly used in portable devices
- Optical drives
  - Older, almost legacy technology
  - Optically stored data via laser
  - SDcard
  - CompactFlash
  - MMC (Multi Media Card)
- Drive configurations
  - Redundant Array of Independent (or Inexpensive) Disks (**RAID**)
    - 0, 1, 5, 10