

# NIELIT GORAKHPUR

**Course Name:** O Level (2nd Sem)  
**Topic:** Backup and Restore (Part 2)

**Subject:** Introduction to ICT Resources  
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## Backup and Restore

### Data Backup Medium

#### 1. Magnetic Tape

Magnetic tape has long been the most commonly used medium for bulk data storage, backup, archiving and interchange. Tape has typically had an order of magnitude, better capacity/price ratio when compared to hard disks, but recently the ratio for tape and hard disk has come closer. There are myriad formats, many of which are proprietary or specific to certain markets like mainframes or a particular brand of personal computer. Tape is a sequential access medium, so even though access times may be poor the rate of continuously writing or reading data can actually be very fast. Some new tape drives are even faster than modern hard disks.

#### 2. Hard Disk

The capacity/price ratio of hard disk has been rapidly improving for many years. This is making it more competitive with magnetic tape as a bulk storage medium. The main advantages of hard disk storage are low access time, availability, capacity and ease of use. External disks can be connected via local interfaces like SCSI, USB or FireWire, or via longer distance technologies like Ethernet, SCSI, or Fiber Channel. Some disk based backup systems, such as Virtual Tape Libraries, support data de-duplication which can dramatically reduce the amount of disk storage capacity consumed by daily and weekly backup data.

#### 3. Optical Disc

A recordable CD can be used as a backup device. One advantage of CDs is that they can hold 650 MB of data on a 12 cm (4.75") reflective optical disc.- They can also be restored on any machine with a CD-ROM drive. Recordable CDs are relatively cheap. Another common format is recordable DVD. Many optical disk formats are WORM type, which makes them useful for archival purposes since the data cannot be changed. Other rewritable formats can also be utilized such as CDRW or DVD-RAM. The newer HD-DVDs and BluRay Discs dramatically increase the amount of data possible to store on a single optical storage disk, though, as yet, the hardware may be costly prohibitive for many people.

#### 4. Solid State Storage

Also known as flash memory, thumb drive, USB flash drive, Compact Flash, Smart Media, Memory Stick, Secure Digital cards, etc., these devices are relatively costly for their low capacity, but excellent portability and ease of use.

#### 5. Remote/ Network - Online Storage Service

With the widespread of broadband internet access, remote backup services are gaining popularity. Backing up via the internet to a remote location can protect against some worse case scenarios, such as fire, flood or earthquake, destroying any backups

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along with everything else. A drawback to a remote backup service is that an internet connection is usually substantially slower than the speed of local data storage devices, so this can be a problem for people with large amounts of data. It also has the risk associated with putting control of personal or sensitive data in the hands of a third party.

Online backup storage is typically the most accessible type of data storage, which can begin restore in milliseconds time. A good example is an internal hard disk or a disk array (maybe connected to SAN). This type of storage is very convenient and speedy, but is relatively expensive. Online storage is vulnerable to being deleted or overwritten, either by accident, or in the work of a data deleting virus payload.

### **Exercise:**

- 1: How many types of backup media?**
- 2: Write comparison between Hard disk and Optical Disc.**
- 3: What are the advantages of Online Backup?**