**OPTICAL STORAGE**

**Storage**

Storage is the palace where data is held in an electromagnetic or optical form for access by a computer processor.

**Optical storage**

Refers to any storage method in which data is written and read with a laser for archival or backup (retrieval) purposes. Typically, data is written to optical disk, such as CD, DVD and Blue ray

**Optical Disk**

Optical disk is forms of a portable storage media. There three types of Optical disc

* CD ( Compact Disc) are storage media that hold content in digital form and that are written and read by laser
* DVD ( Digital Video Disc or Digital Versatile disc) for video and audio
* Blue Ray use blue-violet laser and they have a tighter engineering tolerance to dramatically increase capacities

In the real world “optical” refers to vision, or the ability to see. In the computer world, however, “optical” refers to lasers, which can “see” and read data on optical discs.

**Optical Drive**

Is any drive that uses a lens to read and write data. Some common type of optical drives include CD-ROM, (read-only memory) CD-RW (rewritable), DVD-ROM (random access memory), DVD-RW (rewritable), and Blue-ray drives.

**How does it work?**

These discs are made up of millions of bumps and dips. Optical drives have lasers that read these bumps and dips as one and zeros, which the computer can understand. CD-R and DVD-R drive use a laser to both read and write data on the discs. The laser used for writing data is much more powerful than the laser that reads the data, as it “burns” the bumps and dips into disc. While optical drives can spin discs at very high speeds, they are still significantly slower than hard drives, which store data magnetically. However, because optical media is inexpensive and removable, it is the most common format used for distributing computer software.

**Advantages:**

* **Durability.** With proper care, optical media can last a long time, depending on what kind of optical media you choose.
* **Great for archiving.** Several forms of optical media are write-once read-many, which means that when data is written to them, they cannot be reused. This is excellent for archiving because data is preserved permanently with no possibility of being overwritten.
* **Transportability.** Optical media are widely used on other platforms, including the PC. For example, data written on a DVD-RAM can be read on a PC or any other system with an optical device and the same file system.
* **Random access.** Optical media provide the capability to pinpoint a particular piece of data stored on it, independent of the other data on the volume or the order in which that data was stored on the volume.
* **Huge Storage capacity.** These are both read-only optical storage discs. They are both 12cm in diameter. CD-ROMs can store about 700 MB while DVD-ROMs can store up to 17 GB and Blue-ray can store up to 50GB. They are able to store large amounts of text, images and audio
* **Used for software distribution.** Due to their low-cost replication capability, high capacity, robustness, and removability, optical CD-ROM systems have become competitive with magnetic floppy disks for applications such as software distribution and home multimedia applications. It is expected that CD systems will remain essential for the wide commercial acceptance of optical storage systems.

While optical has many advantages, there are also some disadvantages that you have to consider, as follows:

**Disadvantages:**

* **Reusable**. The write-once read-many (WORM) characteristic of some optical media makes it excellent for archiving, but it also prevents you from being able to use that media again.
* **Writing time**. The server uses software compression to write compressed data to your optical media. This process takes considerable processing unit resources and may increase the time needed to write and restore that data.
* **Require special drive.** Optical discs require special drives to read/write.
* **Data storage**. Optical storage does not provide enough data storage in comparison to other storage technologies
* **Compatibility**. Optical storage rewritable formats suffer from compatibility issues between drives.