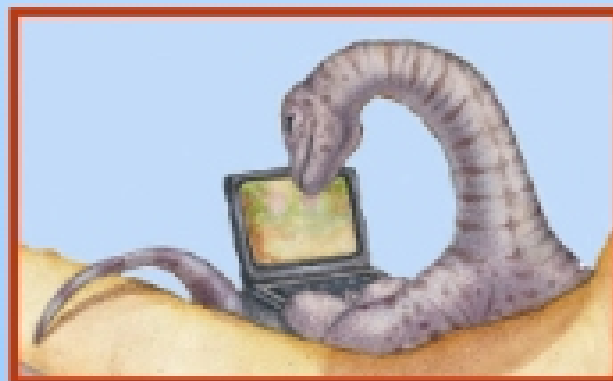
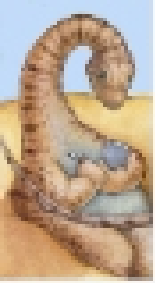


Chapter 12: Mass-Storage Systems



Adapted to COP4610 by Robert van Engelen



Overview of Mass Storage Structure: Tape

■ Magnetic tape

- Early secondary-storage medium
- Relatively permanent and holds large quantities of data
- Access time slow
- Random access ~1000 times slower than disk
- Mainly used for backup, storage of infrequently-used data, transfer medium between systems
- Kept in spool and wound or rewound past read-write head
- Once data under head, transfer rates comparable to disk
- 20-200GB typical storage
- Common technologies are 4mm, 8mm, 19mm, **LTO-2** and **SDLT**





Overview of Mass Storage Structure: Disk

- **Magnetic disks** provide bulk of secondary storage of modern computers
 - Drives rotate at 60 to 200 times per second
 - ▶ 3,600 -12,000 RPM
 - **Transfer rate** is the rate at which data flows between drive and computer
 - **Positioning time (random-access time)** is time to move disk arm to desired cylinder (**seek time**) and time for desired sector to rotate under the disk head (**rotational latency**)
 - **Head crash** results from disk head making contact with the disk surface
 - ▶ That's bad

