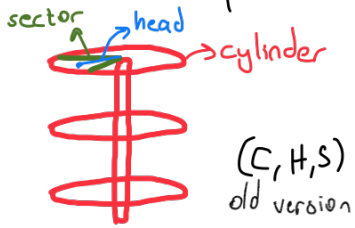
disks

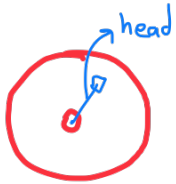
storage characteristics

↳ non-volatile & slow (ms) (compared to RAM (µs))

↳ block oriented = time to fetch 1 byte = time to fetch 1 block

hard drive = information is written and read from platters with head





- time it takes is in ms → huge

Solid state disks (SSD) = no moving parts, NOR, NAND flash (faster and more expensive than disks)

↳ NAND flash = multiple blocks, each block includes pages (ex: 8 pages)

- to write into 8 pages, copy whole block into memory (RAM), update it here, delete the contents of whole block in the disk, then write from memory (RAM) to disk
- read is faster than write, with each write the is "erase" → damages the block

hot spot wear = since it is likely the update same blocks in the memory, frequently updated blocks "hot spot"s get damaged, while not updated ones not.

wear leveling = trying to update all blocks equal number of times, with writing to different block after updating instead of its own block