

Operating Systems

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L-25

1. Name 3 Types of delay when accessing hard drives?

Rotational Latency: The amount of time it takes for the platters of the disk's contents under the head to access the data at different rotational sectors

Seek Time: The amount of time it takes for the ReadWrite head to move between sectors on the disk. The Read Write head has to traverse the Disk.

Transfer Time: This is controlled by the manufacturer but this number is the sustained transfer rate and the transfer time depending on the block size.

2. List 3 file systems available in the Windows (old one OK)?

Windows currently supports three types of file systems. File systems are a structure for how the disk drive is organized. It specifically defines how data is stored on the drive and what types can be attached to files on the disk.

Windows supports NTFS, FAT32, exFAT

NTFS: is the most modern file system. Windows uses NTFS for its drives and most non-removable-drives.

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3. Disk scheduling algorithms, list one disadvantage for each.

Disadvantages:

FCFS: Doesn't optimize seektime, meaning larger files might get written first and occupy larger space on the processor stack.

SSTF: The Main disadvantage is the time needed to calculate the performance optimization by examining each of the sizes of the processes. This can also create starvation as some of the processes require large amounts of CPU processing.

SCAN: This method can create a long time for paths which need to be revisited for overwrites on the arm. Often the arm disk reader needs to scan multiple times in order to ensure accuracy before moving to another sector with the revision of the disk arm.

CSCAN: Could wait on Request times and cause zero or more processes to insert pending requests for back writing. Causing an unnecessary amount of arm rotations and increased rotational latency.

4. FCFS: Addresses are sent to the disk in the order they arrive in the system. Every request will get a fair chance to be written to the disk. Not operation is postponed
5. SSTF: Shortest Seek Time First. So the seek time of space is calculated making optimizations for scheduling by size more efficient by decreasing response time. This also allows for more steady processing throughput.
6. SCAN: adds as the arm of the disk drive traverses the harddrive. In other words it writes where it can first then moves on to the next operation when it can move to that step. Only focusing on the sectors it is around in the path of the disk.
7. C-SCAN: The advantages are very similar to but it flips the direction of the disk sectors. In other words after writing to the disk in one direction it will jump to the other end of the disk where services of writing are need before changing directions to the next sector.
8. C-LOOK: This process is very jumpy it moves the head of the read-write disk to the last request to be serviced from the in front of the head and then from there it moves the write point to the other end's last request.