

Lab-02

Disk Scheduling

FCFS

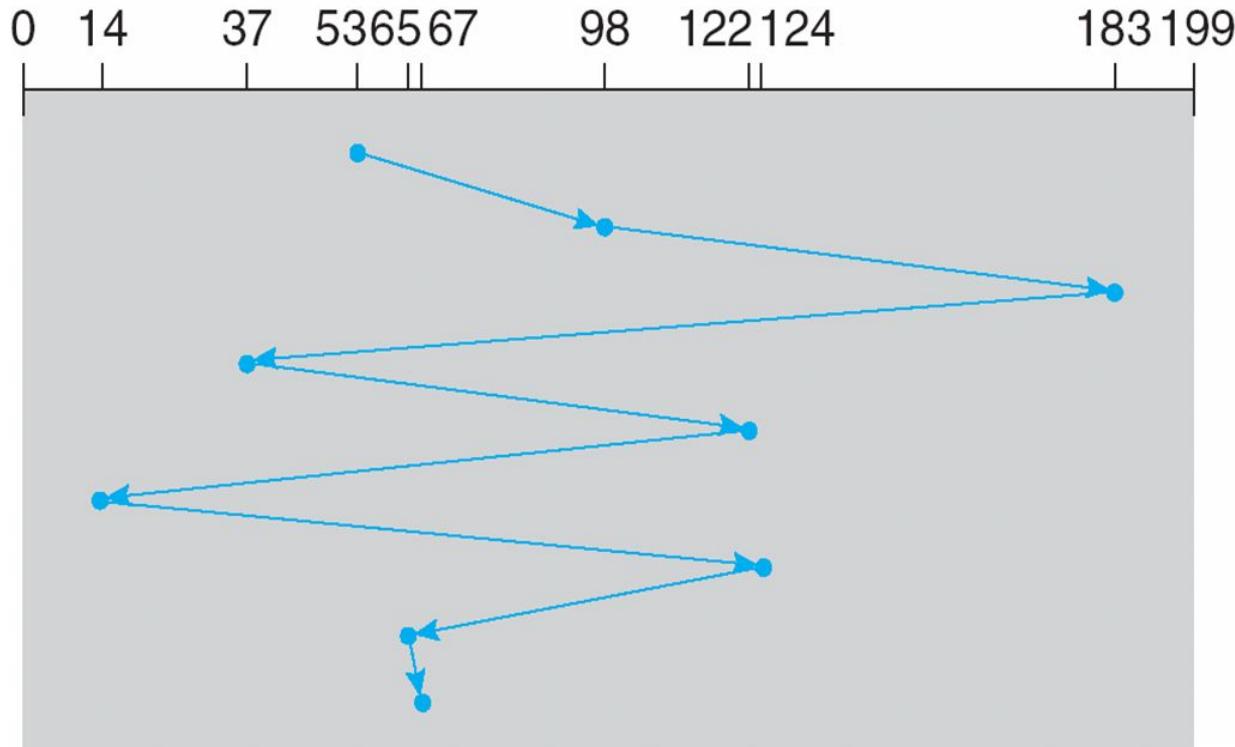
Total distance: $(98-53)+(183-98)+(183-37)+(122-37) + (122-14)+(124-14)+(124-65)+(67-65)$

Path: 53 98 183 37 122 14 124 65 67

Illustration shows total head movement of 640 cylinders

queue = 98, 183, 37, 122, 14, 124, 65, 67

head starts at 53



SSTF

- Selects the request with the minimum seek time from the current head position
- SSTF scheduling is a form of SJF scheduling; may cause starvation of some requests
- Illustration shows total head movement of 236 cylinders

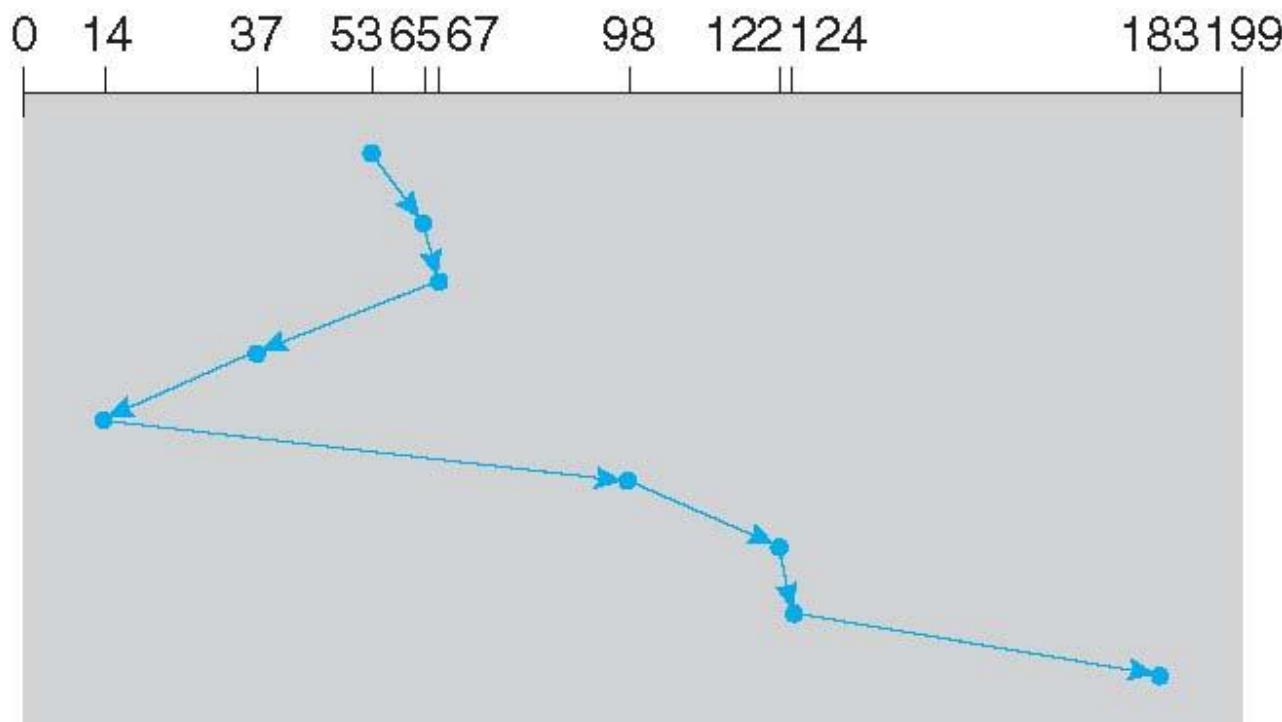
Total distance: $(65-53)+(67-65)+(67-37)+(37-14)+(98-14)+(122-98)+(124-122)+(183-124)$

path: 53 65 67 37 14 98 122 124 183

SSTF (Cont.)

queue = 98, 183, 37, 122, 14, 124, 65, 67

head starts at 53



53 65 67 37 14 98 122 124 183

SCAN

- The disk arm starts at one end of the disk, and moves toward the other end, servicing requests until it gets to the other end of the disk, where the head movement is reversed and servicing continues.
- **SCAN algorithm** sometimes called the **elevator algorithm**
- Illustration shows total head movement of 208 cylinders

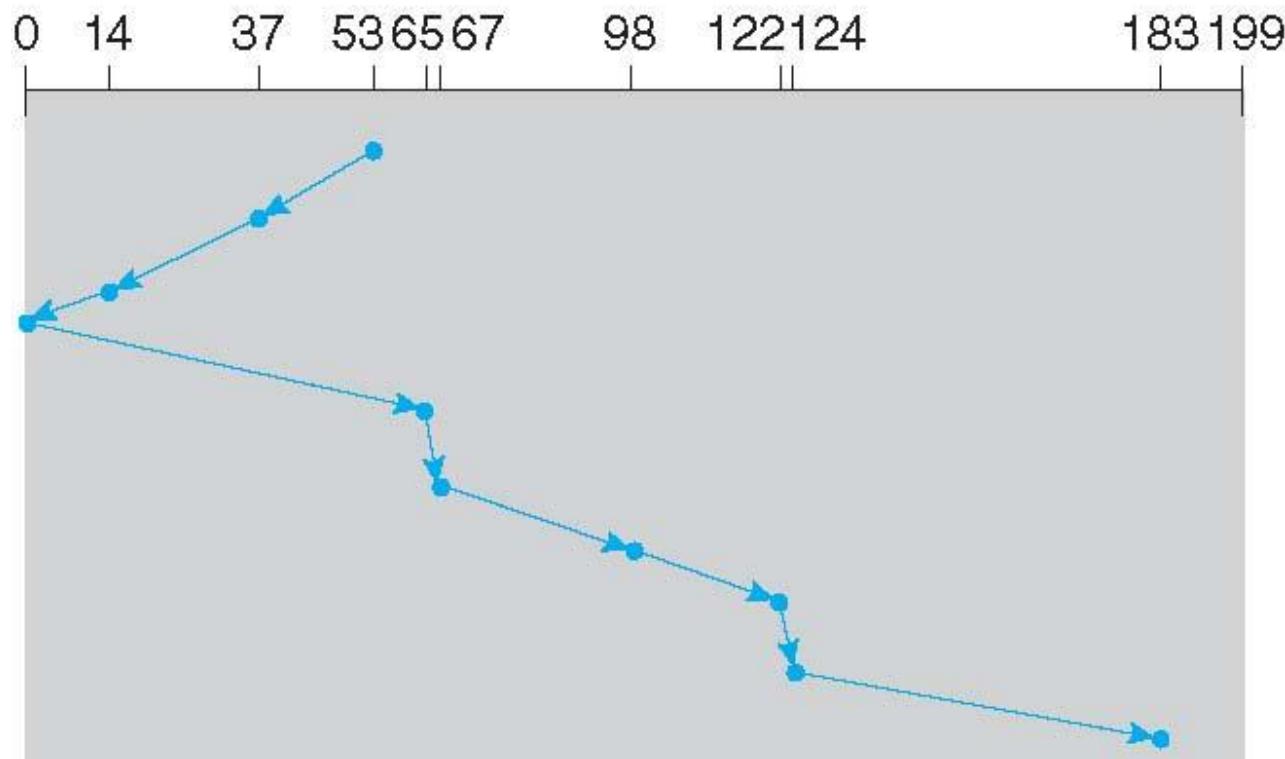
53 37 14 0 65 67 98 122 124 183

$$(53-37)+(37-14)+(14-0)+(65-0)+(67-65)+(98-67)+(122-98)+(124-122)+(183-124)$$

SCAN (Cont.)

queue = 98, 183, 37, 122, 14, 124, 65, 67

head starts at 53



C-SCAN

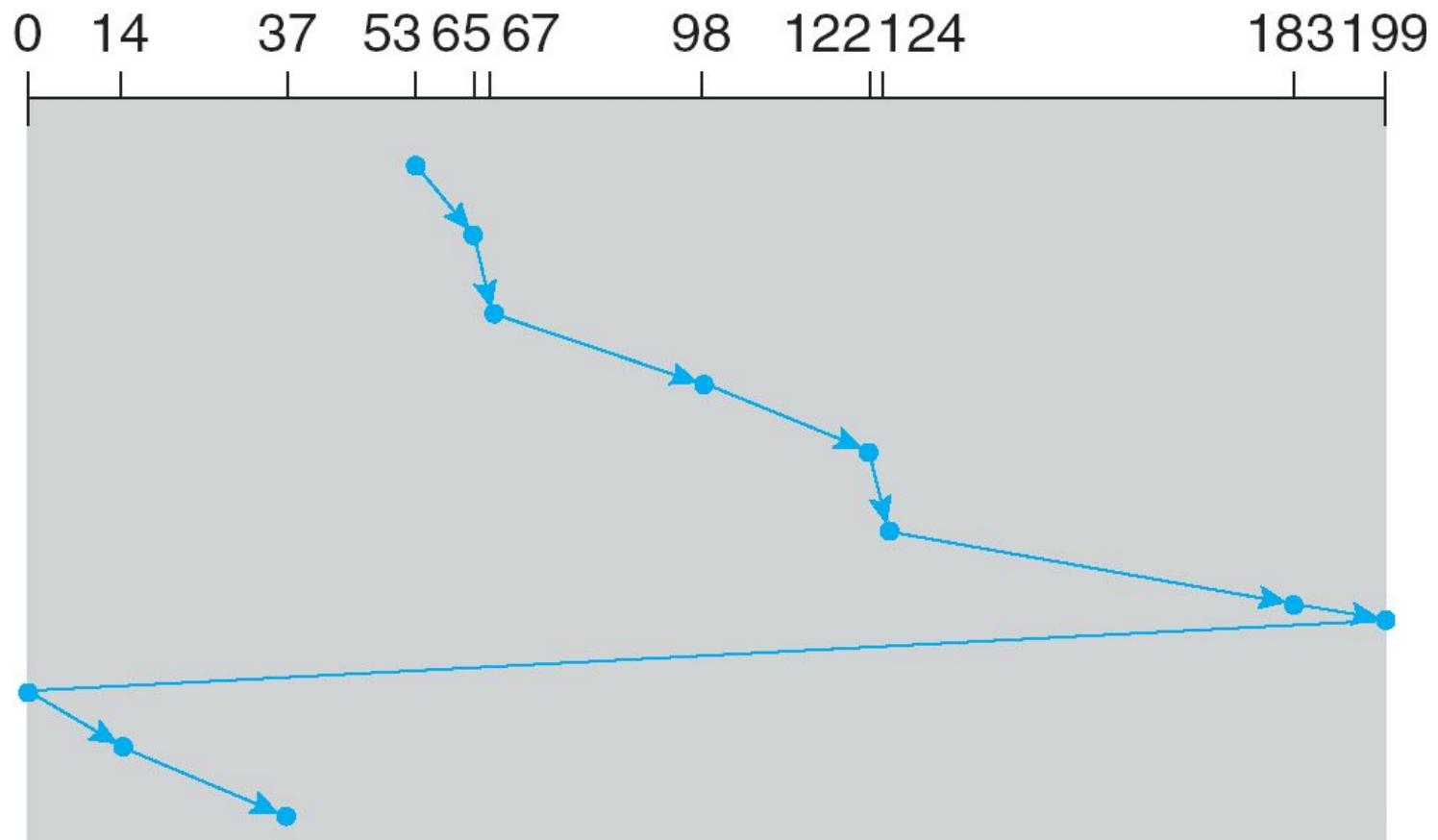
- Provides a more uniform wait time than SCAN
- The head moves from one end of the disk to the other, servicing requests as it goes
 - When it reaches the other end, however, it immediately returns to the beginning of the disk, without servicing any requests on the return trip
- Treats the cylinders as a circular list that wraps around from the last cylinder to the first one

53 65 67 98 122 124 183 199 0 14 37

C-SCAN (Cont.)

queue = 98, 183, 37, 122, 14, 124, 65, 67

head starts at 53



C-LOOK

- Version of C-SCAN
- Arm only goes as far as the last request in each direction, then reverses direction immediately, without first going all the way to the end of the disk

53 65 67 98 122 124 183 14 37

C-LOOK (Cont.)

queue = 98, 183, 37, 122, 14, 124, 65, 67

head starts at 53

