

Quiz 7, Q&A

Q. What are the advantages of segmentation with paging?

A. Advantages of Segments; Supports sparse address spaces. If segment is not used, no need for page table. Decreases memory required for page tables.

Advantages of Paging; Eliminate external fragmentation. Segments to grow without any reshuffling

Advantages of Both. Increases flexibility of sharing. Share at two levels: Page or segment (entire page table)

Q. What is the block device? Explain.

- Transfer is made by means of blocks
- Block devices include disk drive
- Commands include read, write, seek
- Raw I/O or file-system access
- File system maps location i onto block + offset
- Memory-mapped file access possible

Q. What are the disadvantages of segmentation with paging?

A. Internal fragmentation increases. Last page of every segment in every process Increases overhead of accessing memory. Large page tables.

- Do not want to allocate page tables contiguously
- More problematic with more logical address bits
- Two potential solutions: Page the user page tables (multilevel page table), Inverted page table

Q. What is the character device? Explain.

- Transfer is made by means of stream of characters
- Character devices include keyboard, mouse, serial port
- Commands include get, put
- Libraries layered on top allow line editing