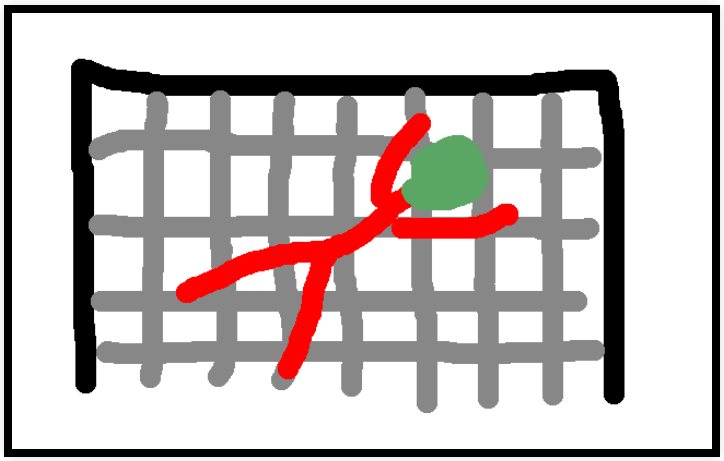
COMP 3430

Operating Systems

July 3rd, 2019

By the end of today's lecture, you should be able to:



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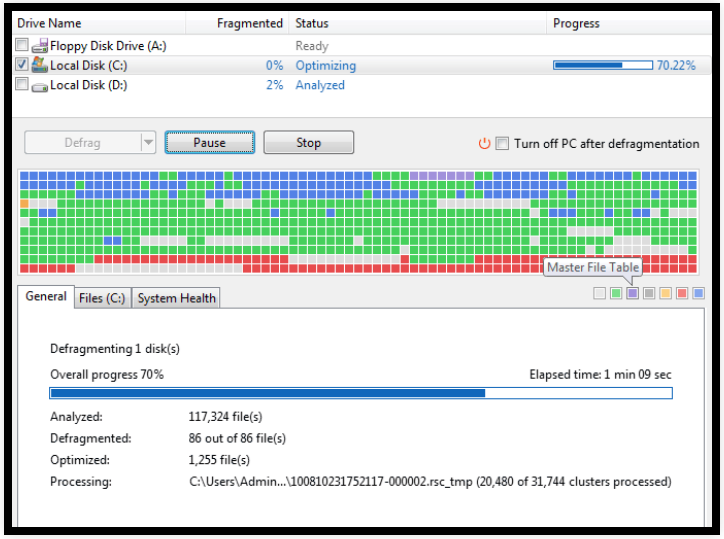
- Criticize a file system implementation (FAT32 whitepaper, in-class)
- Describe the concept of virtual memory (in-class, chapter 13)
- Compare and contrast methods for memory management (in-class, chapter 15, 16)
- Justify who or what is responsible for managing segments (in-class)
- Compare and contrast logical, relative, and physical addresses (chapter 15)
- Explain how an OS protects the memory belonging to a process (chapter 16)

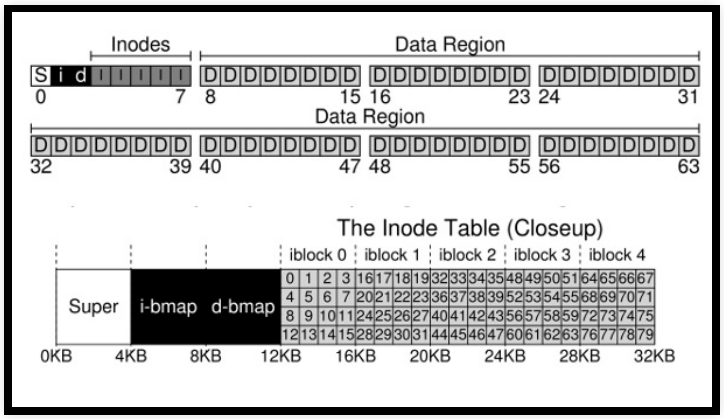
Assignment 4

Assignment 4 is posted. Let's take a look.



Looking at file systems

Let's remind ourselves of the details about vsfs/ext2 and FAT {12,16,32}.



Evaluating the file system

1. Flexibility/expandability (can this FS handle gigabyte size files and terabyte size disks?)
2. Wasted space (how many bits are *wasted* by the FS?)
   - What *is* waste ?
3. Efficiency (how *fast* can I access a file with this FS? Can this FS become *fragmented*?)
4. Data structures (how does this FS structure data on disk?)
5. Ease of implementation (can *I* write code to work with this FS?)
6. What other *features* does this FS have?

Think about it ⌛

After evaluating the two file systems, can we *objectively* say that one file system implementation is better than another?

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File systems

Summarizing file systems:

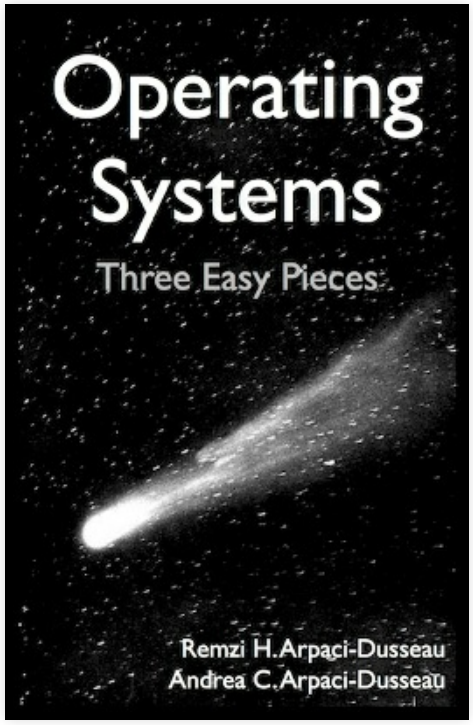
1. We've got to organize information on the disk *somehow*.
2. A file system defines the **structure** for the information.
3. All file systems have evolved over time (decades!) to include many features.
   - … but some file systems have evolved more than others.

OSTEP Q 'n A

Chapters for ~~this week~~ today:

- Chapter 13
- Chapter 15
- Chapter 16

Summary: "So *that's* what '`Segmentation fault`' means…"

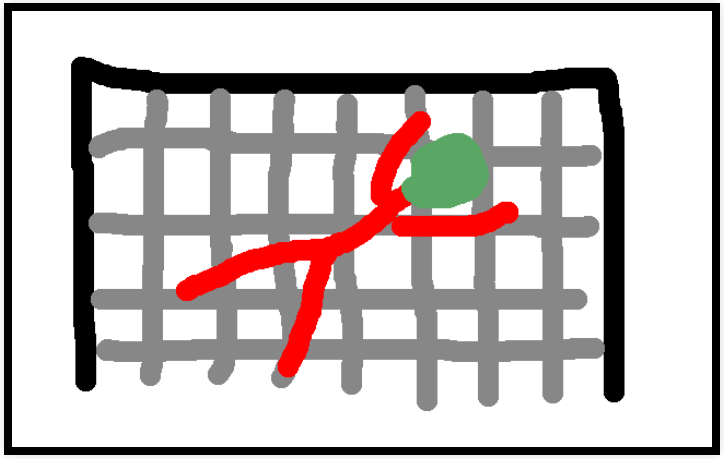


Virtual memory

- Our book refers to **two** methods (…so far) for managing physical → virtual memory
  1. Base and bounds registers
  2. Segments
- Take some time ⌛ and *remind* yourselves (or tell someone else) what each of these VM management techniques are and how they work (in theory).

¯_(ツ)_/¯

You should be able to:



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- ~~Justify who or what is responsible for managing segments (in-class)~~ (moved to week 10)
- Compare and contrast logical, relative, and physical addresses (chapter 15)
- Explain how an OS protects the memory belonging to a process (chapter 16)

pukicho

Pikachu chu train

chu chu train it's a chu chu train

pika chu chu train ! chu chuu !!!

starkologist

where's it going

pukicho

Straight to Hell