COMP 310

Simple File System (SFS)

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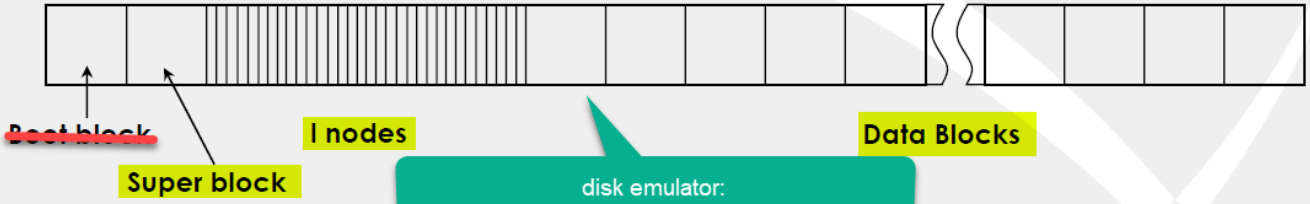
An example: UNIX file system

Disk (partition) layout in traditional UNIX systems



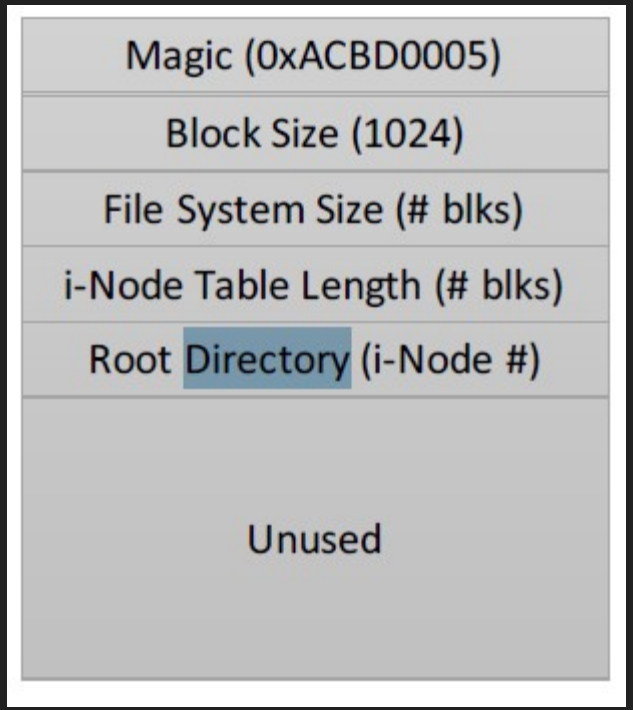
The boot block usu de to boot the system.

The super block contains critical information about the layout of the file system, such as number of I-nodes and the number of disk blocks.

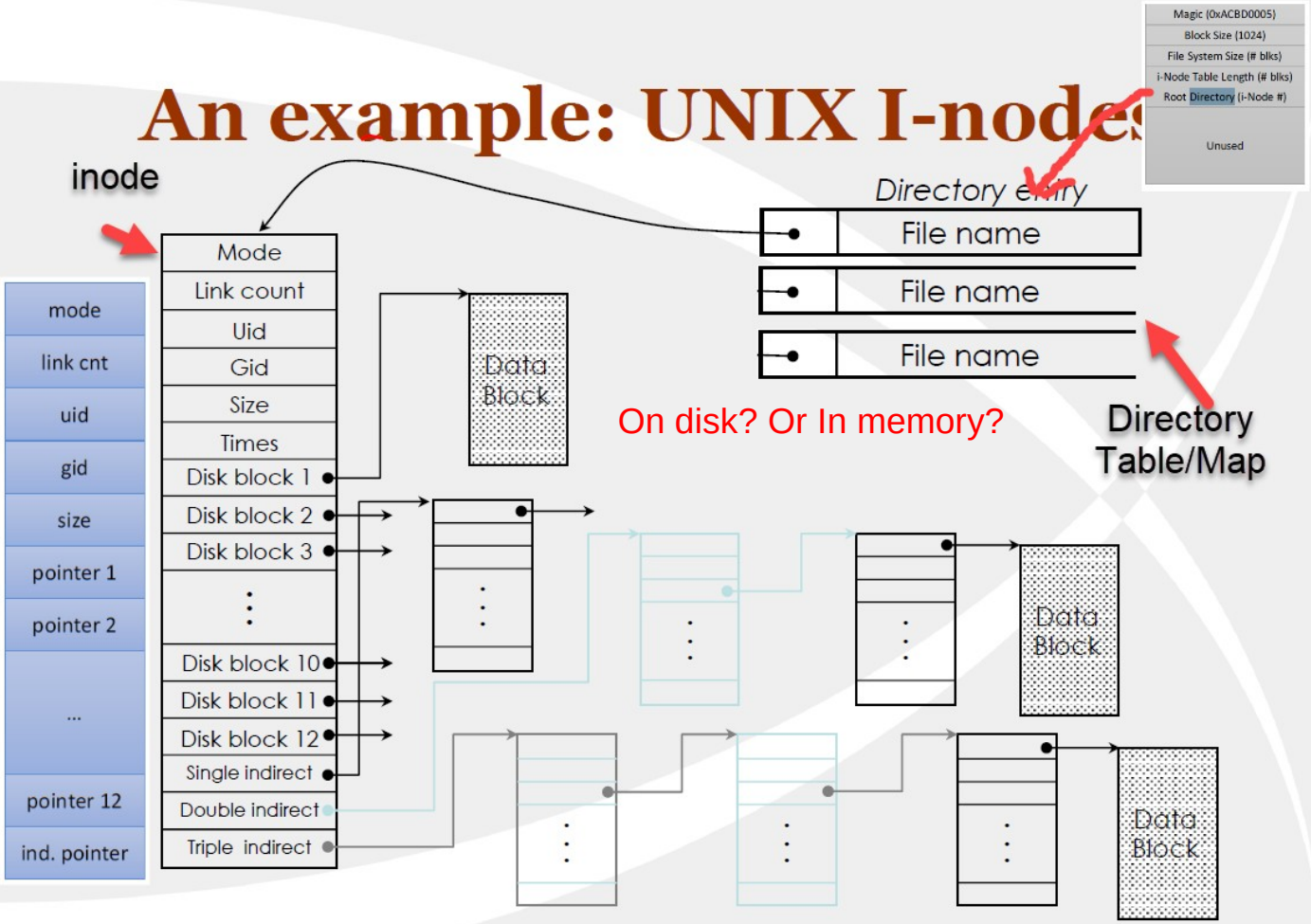
Each I-node entry contains the file attributes, except the name. The first I-node points to the block containing the root directory of the file system.

Data structures : Super block

- Describes file system layout
- On disk? Or in memory?



An example: UNIX I-nodes

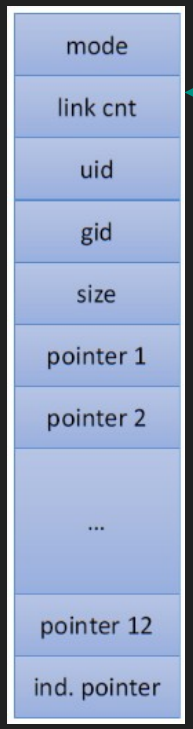


SFS initialization

- Create disk using disk emulator
- Initialize super block
- Initialize Inode
- Initializations for directory
- ….. Some other initialization…

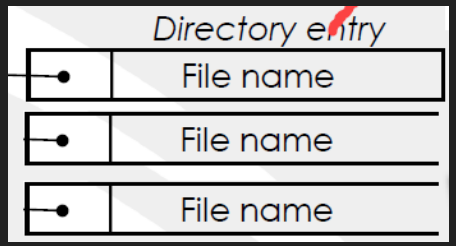
- Questions to ask?
  - How many blocks on disk?
  - What is the block size? - 1024
  - How many inodes per block? – Depending on inode size

Creating file

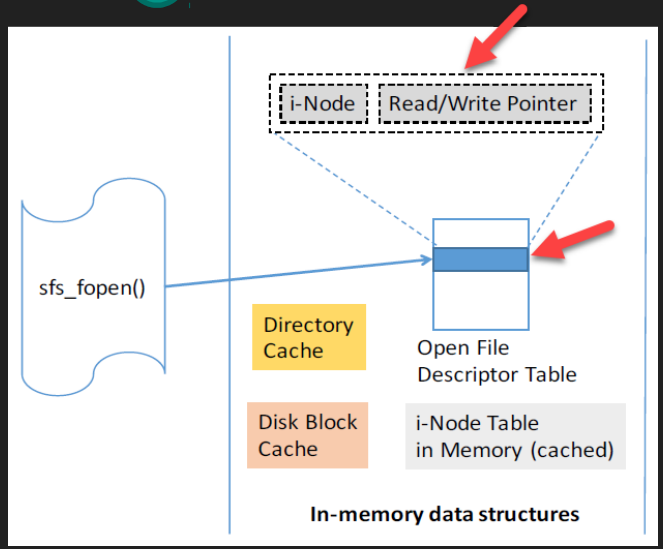


1 Create and initialize inode

2 Update directory entry



3 Update file descriptor table



Creating file

- Questions to ask
  - What if there is already a file by this name?
  - What if the file is already open?
  - Is an inode available to create a new file?
  - Does any parameter need to be updated in the super block?

Reading and Writing files

- If you understood creating file, you know how to read and write. 

Questions + Networking

Discussion is encouraged. Absolutely no plagiarism, however.