File System API

CS333 :: Storage Systems

Williams College
Unit Overview/What to Look For

● This unit gives a high-level overview of the "file" abstraction
  ○ How the operating system represents a file
    ■ Identifiers
    ■ Structures/representations/types
    ■ Management
  ○ How applications interact with files
    ■ Key "system calls"
    ■ Guarantees (or lack thereof)
● Some useful "scaffolding" that you may or may not have picked up along the way
  ○ Unix manual pages
  ○ Small "shell" utilities and bash syntax
Strategy

● Watch the video first
● Set up your programming environment (or make sure you have access to the lab environment via ssh)
  ○ You should be able to write and compile code
  ○ You should be able to run commands in the terminal
● When you read the textbook, please
  ○ try out the commands in the examples that have a `prompt > ...
  ○ read the manual pages for the system calls that are shown
  ○ make sure the diagrams make sense:
    ■ they aren't "pretty", but they pack a lot of information in each table
  ○ read the "grey boxes", especially the summary at the end
Demo: Manual Pages

We will explore the manual pages for many things during conference meetings, but you shouldn't wait until then to use this useful tool.

At a *very* high level:

- at the command line, type `man <functionname>`
- navigate up and down using the arrows
- type `q` to quit

There are different "sections" in the manual, and you can distinguish between them using a number:

- `man stat` vs. `man 2 stat`
Terms and Jargon

- Process
- Address space
- Fork
- System call
- Flag