EC 440 – Introduction to Operating Systems

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What I hope to do today

- Discuss a trivial kernel file system based on inodes...
- Show a bunch of the standard services in Linux
- Show how file system and how it interacts with those services

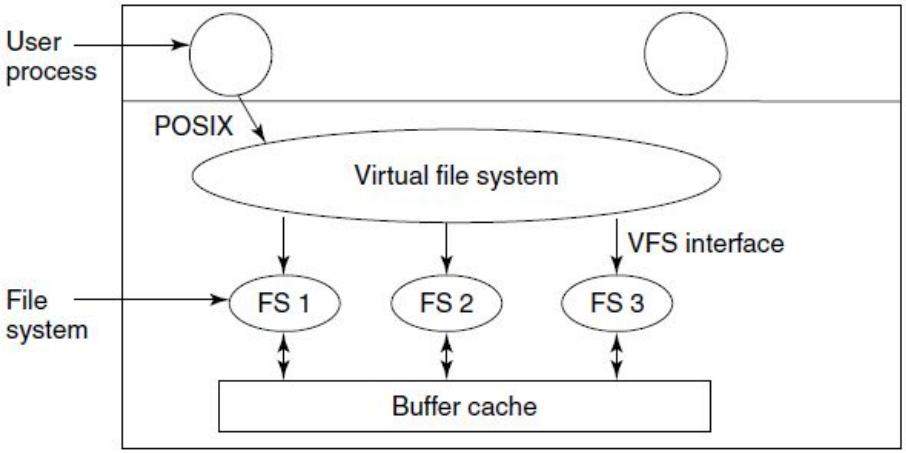
FS/Devices & standard interfaces

- Enable third parties to develop them
- Support wide diversity
- Avoid repeating the same code in every one of them, e.g., cache of directories
- Access to internal kernel services:
  - memory allocation
  - interrupt handling...
- Focus today on VFS

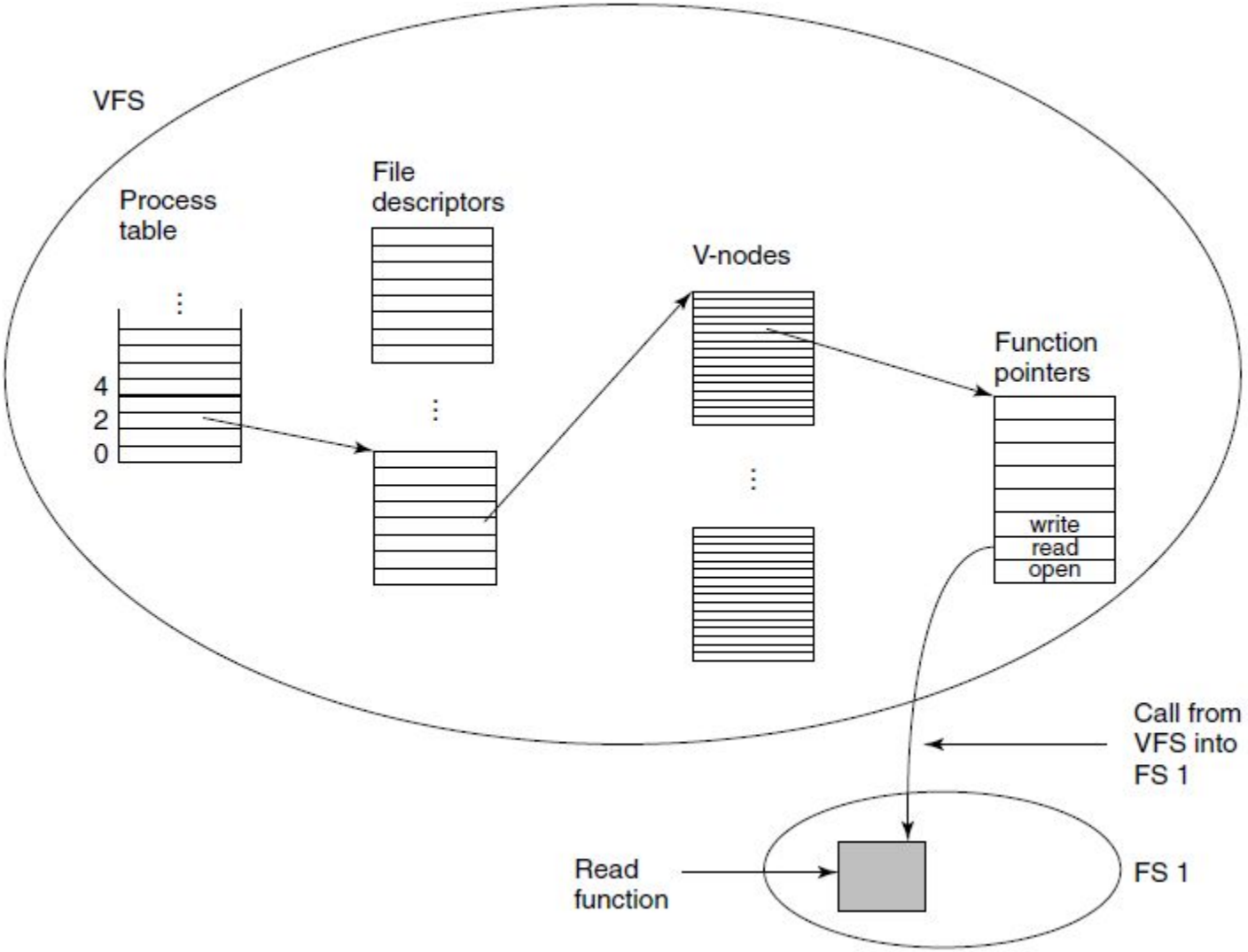
VFS layer - layer above the FS

- The VFS implements all FS calls, and translates them in an OO fashion to calls on:
  - superblocks, inodes, dentries, files, address space
- The file system, in turn, makes calls to the underlying buffer cache to cache its data, and devices

- Everything in one namespace
- Everything is a file, so even devices go through VFS



Simplified picture



Lets get into it

Links

- A flame graph: file:///Volumes/GoogleDrive/My%20Drive/courses/ec440/2021/Lectures/redis_cpu.svg
- Our Simple File system
- Linux source browser