

CS 202-(001): Operating Systems

Instructor: Michael Walfish

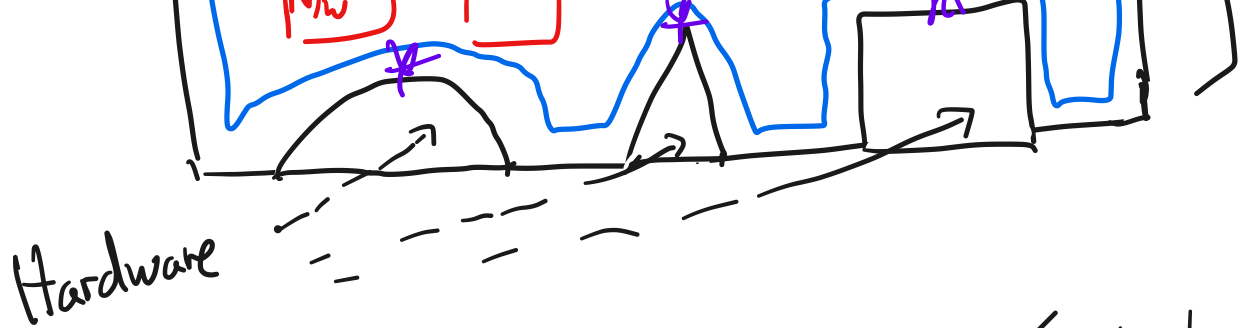
TAs: Khanh Nguyen (head TA), Bailey Bai,
Michael Ma, Panchi Mei

<http://www.cs.nyu.edu/~mwalfish/classes/22sp>

- ☑ 1. Intro & goals
- ☑ 2. What is an operating system?
- ☑ 3. Why study systems?
- ☑ 4. How will we study (operating) systems?
- ☑ 5. Mechanics + admin
- ☑ 6. History
- ☐ 7. Processes (next time)

2. What is an operating system?





Classical description of OS: / isolation

- I. Managing the resources of the machine
- II. Abstracting the hardware

Examples?

- file system

Abstraction: dirs, filename, file

Isolation: prog can't write file w/out permission

- Text input

Abstraction: which devices

Isolation: keystrokes go where intended

- Memory

Abstraction: `movq 0x1248, %rdx`
`local = *(ptr);`

Isolation: progs cannot write to each other's mem

- Scheduling
 - Abstraction :
 - Isolation :
-

3. Why study systems?
- a. "how things work"
 - b. ideas are everywhere
 - c. fundamental design trade-offs
 - d. unsolved problems
 - e. skills building
-

4. How will we study?

5. Mechanics + admin

☑ Comms

☑ Components

☑ class

☑ labs

☑ exams

☑ reading

☑ H/w (≠ labs)

☑ recitation / review Th 11am - 12pm

☑ grading

☑ policies

25% midterm

45% final

25% labs

5% homework

3/9/22

6. History (abridged)

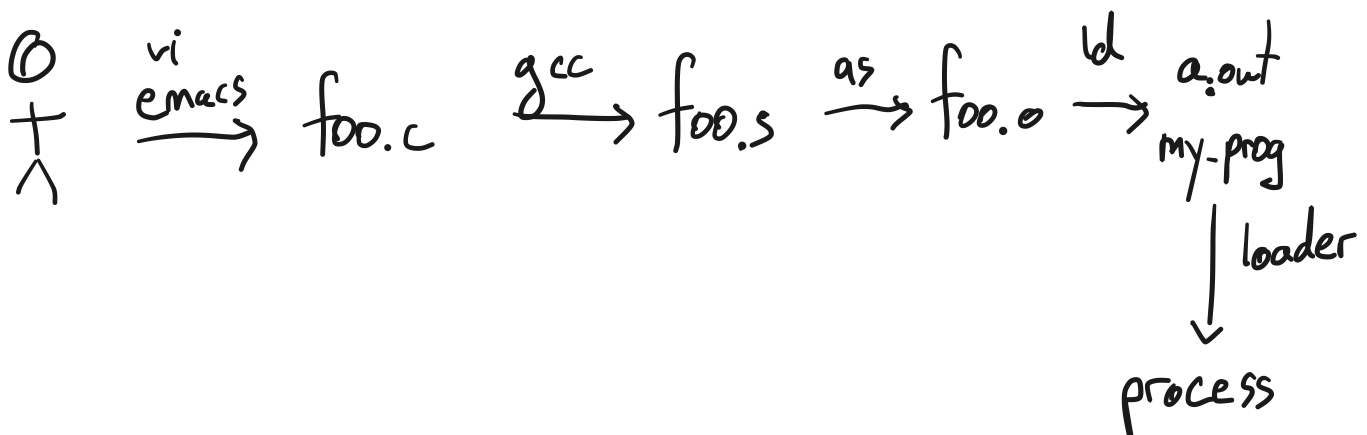
Unix

Ken Thompson + Dennis Ritchie

PARC [1974]

7. Processes

Key abstraction

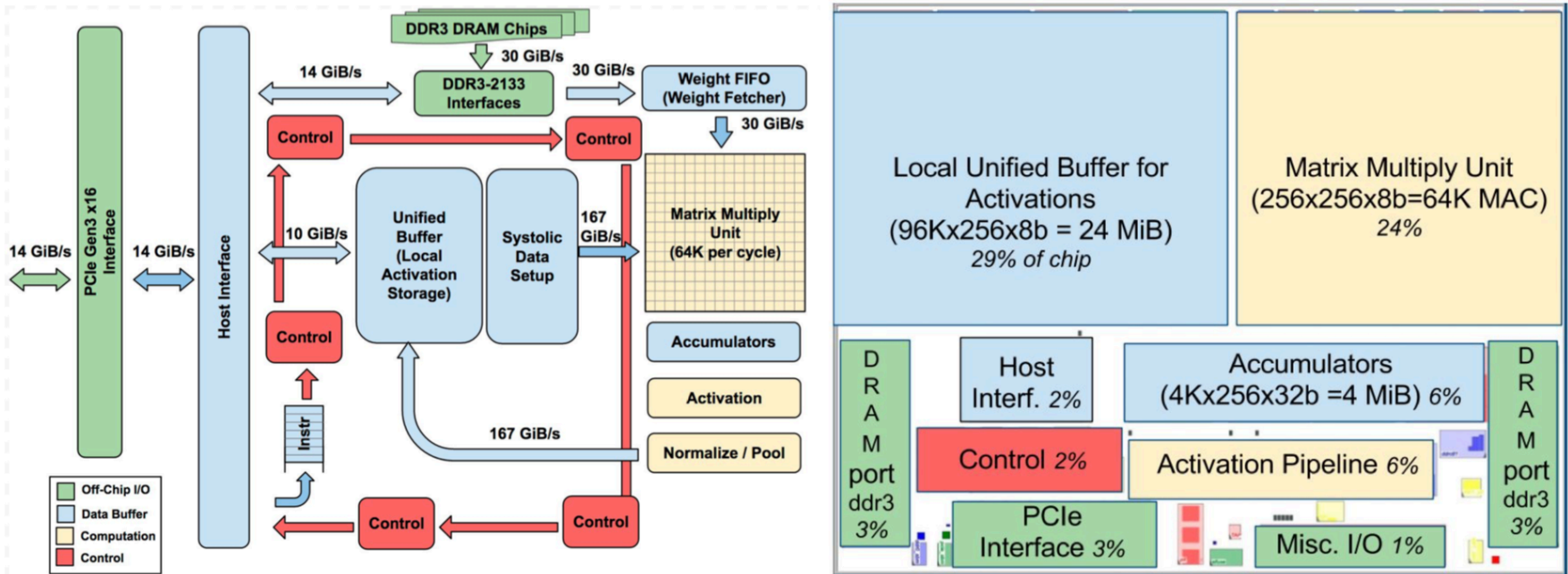


processes can be understood in two ways:

- from the process's point of view

- from the OS's point of view

C? x86-64? My Future Is In Machine Learning!



- Cutting-edge ML backed by custom TPU, unique system software and OS support...



(see class notes for source)



(See class notes for source)