CS202-(001): Operating Systems

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- [ ] 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)

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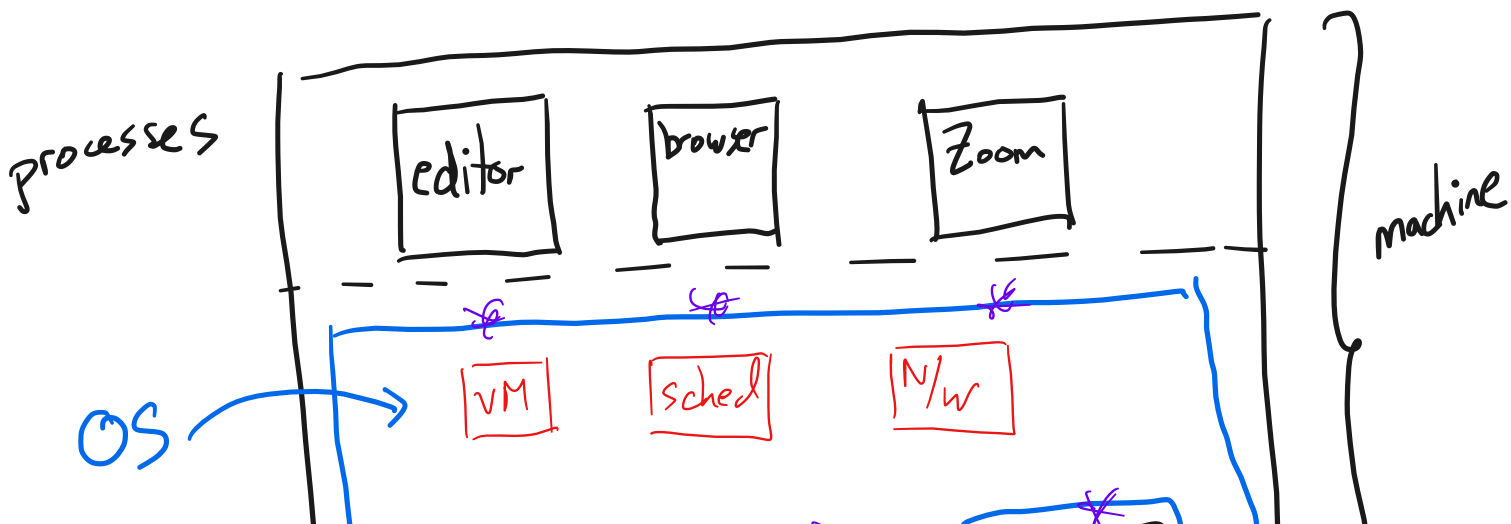
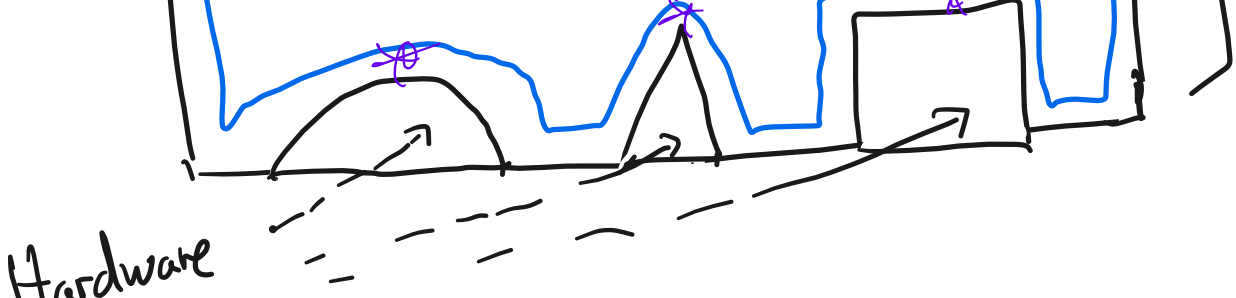
2. What is an operating system?





Classical description of OS:

I. Managing the resources of the machine

II. Abstracting the hardware

Examples?

- file system
  - Abstraction: seq. of bytes
  - Isolation: hiding users' files
- Text input
  - Abstraction: linear stream
  - Isolation: chars go to the intended application
- Memory
  - Abstraction: very large conceivable quantity of mem
  - Isolation: processes cannot access each other's mem

- Scheduling
  - Abstraction : Continuos execution
  - Isolation : one heavy consumer cannot monopolize the CPU

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3. Why study systems?
   a. OS impacts correctness, performance of every program running on the machine.
   b. The ideas are everywhere
   c. Develop an appreciation for what makes an abstraction good
   d. Need to develop new abstractions for new problems.
   e. Essential to know "How things work"

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4. How will we study?

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5. Mechanics + admin

- Comms
- Components
  - class
  - labs
  - exams — 03/09/26 ← midterm
  - reading
  - HW
  - recitation / review; some Thursdays
  - quizzes
- grading
- policies

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6. History (abridged) Unix

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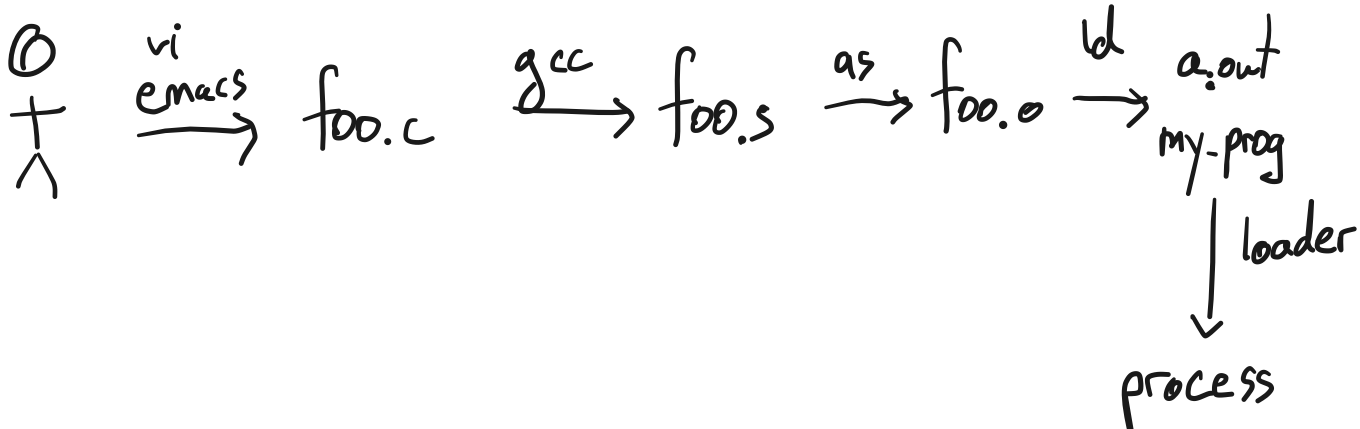
7. Processes

Key abstraction

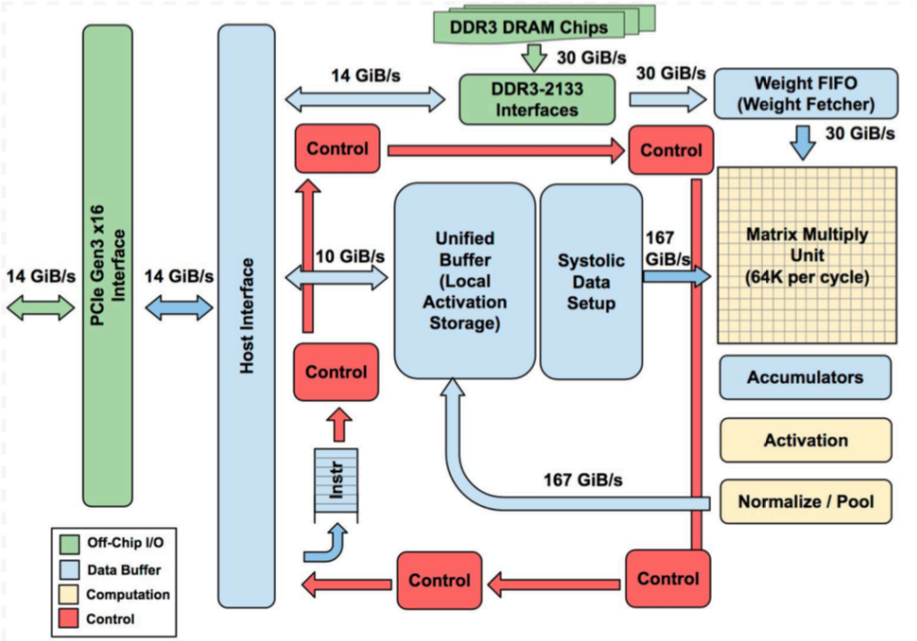


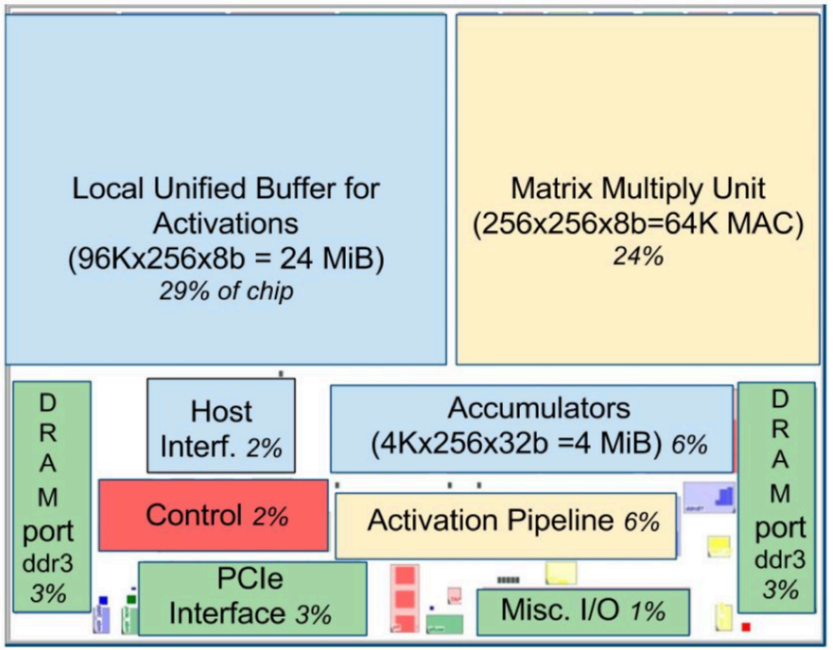
processes can be understood in two ways:

- 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)

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