Overview of Nachos

Not another completely heuristic operating system.

An instructional operating system developed at Berkeley.

Objective Learn modern operating system concepts by getting hands dirty.

- Take apart the code to see how OS works at low level.

- Build significant components of OS.

- Observe the effects of your work.

Nachos illustrates modern OS technology:

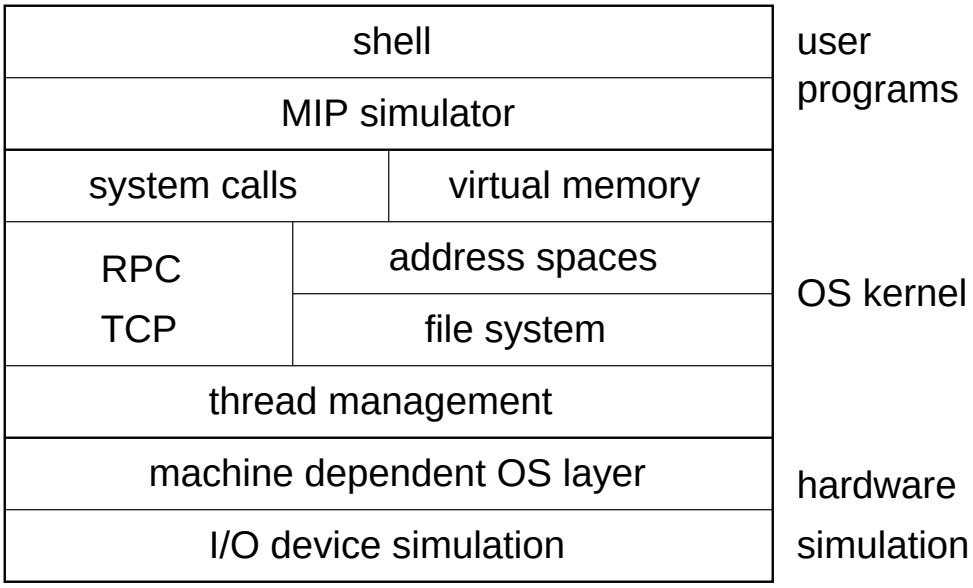
- threads
- remote procedure calls
- RISC architecture
- hierarchical memory
- protocol layering
- Object-oriented programming

Baseline Nachos provides a simple and working example.

- Thread manager
- File system (flat)
- Ability to run user programs
- Network mailbox

Only about 2500 lines, half of which are interface descriptions and comments.

Nachos structure



In Nachos, user applications, the operating-system kernel, and hardware simulator run together in a normal UNIX process. We can run multiple Nachos "machines".

- User applications. We can run normal compiled C programs on a MIPS simulator.

- Kernel. Behavior is reproducible but randomized.

- Hardware simulator. A timer, a disk (UNIX file), a console, network (UNIX socket).