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Basic Architecture of a Modern Computer/Network: Abstraction Layers

1. When the machine powers up, tells central processing unit (CPU) to check memory, etc. and where to go to find how to “boot up”

2. The very basic interface between hardware and software—where the computer “converses” with all peripheral devices, as well as hard drives, video/sound cards, etc.

2. Controls access to almost all reads (sensing the keyboard, disk drive, memory, or other inputs), writes (to memory, printer, screen, speakers) through the CPU, which actually processes the data stream. Also includes filing system, e.g. where you locate your documents (from papers to music and images), applications, and the like.

3. For Windows (up to 2000) and MacOS (up to 9.2), a patched, cobbled-in way of using Internet-standard communications protocols, such as TCP/IP and Ethernet (and its descendants). For Unix and its variants (such as MacOS X and Linux) communications are now embedded in the OS.

3. [One hopes!] a set of knowable “sockets” into which data to and from applications can be fed, and through which a keystroke or other data input is handled by the OS and CPU. Can be open and publicly known, but is often internal corporate, proprietary (and thus secret) information—a de facto set of standards

4. The applications with which you’re familiar, for example Netscape, Mulberry, Word, WinAmp, etc.—indeed, the operating environment in which you probably spend most of your time

5. The applications and systems that allow communication and integration among separate machines (caveat: Unix does this implicitly) for high-level, often Net-based data-handling. In theory, these are independent of the specific hard- and software of any PC—they are “cross-platform.”

6. Networked processing, with the ability to hand-off processing tasks to any CPU able to perform the tasks requested. Potentially a very rich level, where individual processors are able to negotiate with others, and perhaps develop their own practices of deference to each other.