

The workhorse machines of the early Unix culture were the PDP-11 and its descendant, the VAX. But because of Unix's portability, it ran essentially unaltered on a wider range of machines than one could find on the entire ARPAnet. And nobody used assembler; C programs were readily portable among all these machines.

Unix even had its own networking, of sorts—UUCP: low-speed and unreliable, but cheap. Any two Unix machines could exchange point-to-point electronic mail over ordinary phone lines; this capability was built into the system, not an optional extra. In 1980 the first Usenet sites began exchanging broadcast news, forming a gigantic distributed bulletin board that would quickly grow bigger than ARPAnet. Unix sites began to form a network nation of their own around Usenet.

A few Unix sites were on the ARPAnet themselves. The PDP-10 and Unix/Usenet cultures began to meet and mingle at the edges, but they didn't mix very well at first. The PDP-10 hackers tended to consider the Unix crowd a bunch of upstarts, using tools that looked ridiculously primitive when set against the baroque, lovely complexities of LISP and ITS. "Stone knives and bearskins!" they muttered.

And there was yet a third current flowing. The first personal computer had been marketed in 1975; Apple was founded in 1977, and advances came with almost unbelievable rapidity in the years that followed. The potential of microcomputers was clear, and attracted yet another generation of bright young hackers. *Their* language was BASIC, so primitive that PDP-10 partisans and Unix aficionados both considered it beneath contempt.

So matters stood in 1980: three cultures, overlapping at the edges but clustered around very different technologies. The ARPAnet/PDP-10 culture, wedded to LISP and MACRO and TOPS-10 and ITS and SAIL. The Unix and C crowd with their PDP-11s and VAXen and pokey telephone connections. And an anarchic horde of early microcomputer enthusiasts bent on taking computer power to the people.

Among these, the ITS culture could still claim pride of place. But stormclouds were gathering over the Lab. The PDP-10 technology ITS depended on was aging, and the Lab itself was split into factions by the first attempts to commercialize artificial intelligence. Some of the Lab's (and SAIL's and CMU's) best were lured away to high-paying jobs at startup companies.

The death blow came in 1983, when DEC cancelled its Jupiter follow-on to the PDP-10 in order to concentrate on the PDP-11 and VAX lines. ITS no longer had a future. Because it wasn't portable, it was more effort than anyone could afford to move ITS to new hardware. The Berkeley variant of Unix running on a VAX became the hacking system *par excellence*, and anyone with an eye on the future could see that microcomputers were growing in power so rapidly that they were likely to sweep all before them.

In 1982, a group of Unix hackers from Stanford and Berkeley founded Sun Microsystems on the belief that Unix running on relatively inexpensive 68000-based hardware would prove a winning combination for a wide variety of applications. They were right, and their vision set the pattern for an entire industry. While still priced out of reach of most individuals, workstations were cheap for corporations and universities; networks of them (one to a user) rapidly replaced the older VAXes and other time-sharing systems.

By 1984, when Ma Bell divested and Unix became a supported AT&T product for the first time, the most important fault line in hackerdom was between a relatively cohesive 'network nation' centered around the Internet and Usenet (and mostly using mini-computer- or workstation-class machines running Unix), and a vast disconnected hinterland of microcomputer enthusiasts.

It was also around this time that serious cracking episodes were first covered in the mainstream press—and journalists began to misapply the term “hacker” to refer to computer vandals, an abuse which sadly continues to this day.

The workstation-class machines built by Sun and others opened up new worlds for hackers. They were built to do high-performance graphics and pass around shared data over a network. During the 1980s hackerdom was preoccupied by the software and tool-building challenges of getting the most use out of these features. Berkeley Unix developed built-in support for the ARPAnet protocols, which offered a solution to the networking problems associated with UUCP's slow point-to-point links and encouraged further growth of the Internet.

There were several attempts to tame workstation graphics. The one that prevailed was the X Window System, developed at MIT with contributions from hundreds of individuals at dozens of companies. A critical factor in its success was that the X developers were willing to give the sources away for free in accordance with the hacker ethic, and able to distribute them over the Internet. X's victory over proprietary graphics systems (including one offered by Sun itself) was an important harbinger of changes that, a few years later, would profoundly affect Unix as a whole.

There was a bit of factional spleen still vented occasionally in the ITS/Unix rivalry (mostly from the ex-ITSers' side). But the last ITS machine shut down for good in 1990; the zealots no longer had a place to stand and mostly assimilated to the Unix culture with various degrees of grumbling.

Within networked hackerdom itself, the big rivalry of the 1980s was between fans of Berkeley Unix and the AT&T versions. Occasionally you can still find copies of a poster from that period, showing a cartoony X-wing fighter out of the “Star Wars” movies streaking away from an exploding Death Star patterned on the AT&T logo. Berkeley hackers liked to see themselves as rebels against soulless corporate empires. AT&T Unix never caught up with BSD/Sun in the marketplace, but it won the standards wars. By 1990, AT&T and BSD versions were becoming harder to tell apart, having adopted many of each other's innovations.