

HISTORY

Distributing the News

UUCP to UUNET

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If you were lucky enough to be on the ARPANET in the 1970s, you could get mail and news (in the form of a topical mailing list). But in January 1976 there were still only 63 hosts, and you had to be one of the elite to gain access. But soon there were methods to reach other sites. Like UNIX, the software began in New Jersey. Let's look at the next dozen years.

In 1976, Mike Lesk at Bell Labs came up with a program called UUCP—"UNIX to UNIX copy." UUCP enabled users to send mail, transfer files, and execute remote commands. Lesk first called it a "scheme for better distribution" (*Mini-Systems Newsletter*, January 1977); but only a month later it was referred to as UUCP. First designed to operate over 300 baud lines, UUCP was finally published in February 1978.

UUCP was taken up widely and this led to a need for improvements. The next version was written by Lesk and Dave Nowitz, with contributions by Greg Chesson, and appeared in Seventh Edition UNIX in October 1978.

Enter Usenet

In late 1979, the Seventh Edition was installed at the University of North Carolina at Chapel Hill. Steve Bellovin—partly as an exercise in the new system and partly to fill an administrative need—wrote a rudimentary news system as a UNIX shell file. It was very slow. Around the same time, Tom Truscott and Bellovin were experimenting with a UUCP link between UNC and Duke University (in Durham, NC). Truscott and Jim Ellis came up with the notion of distributing news to other sites via the UUCP link, using Duke as the central hub. Remote sites would reimburse Duke for the phone charges.

At the beginning of 1980 there were three sites: UNC, Duke University, and the Duke Medical Center Department of Physiology. The setup was described by Ellis in a pamphlet distributed at USENIX in Boulder, CO, at the end of January. An implementation of the A News software (by Steve Daniels) was made available on the 1980 USENIX distribution tape at the 1980 summer meeting in Newark, DE. By then there were 15 sites. The explosion occurred when the University of California joined.

The explosion was the direct responsibility of Armando Stettner and Bill Shannon of Digital Equipment Corporation. Someone at the USENIX meeting complained about the telephone bills run up by transcontinental calls. Armando and Bill said that if they could get a feed to decvax in New Hampshire, they'd pick up the Berkeley phone bill. (Stettner subsequently covered the news feeds to Europe, Japan, and Australia.)

Bellovin told me that the network was "called USENET, patterned upon USENIX... The hope was that Usenet would someday become the official network of USENIX." Within a year, the net grew to over 100 sites and 25 articles per day. And so the system collapsed. Lesk had never contemplated such uses of UUCP; Bellovin, Truscott, and Ellis never dreamt of such popularity.

Bellovin had revised his code, rewriting it in C. This had been revised by Steve Daniels and then Truscott, resulting in A News. In 1981, Mark Horton (a graduate student at UC Berkeley) and Matt Glickman (a high school student) rewrote A News into B News. Horton contin-



ued revising B News until 1984, when he produced version 2.10.1. At that point, Rick Adams at the Center for Seismic Studies took over coordination and maintenance, producing 2.10.2.

This added the provision for moderated groups; Rick told me: “It was more like editing a magazine than moderating.” In June 1984, Mark Horton and Karen Summers-Horton produced the “USENET GEOGRAPHIC MAP,” showing connections to Australia, Hawaii, Canada (British Columbia, Alberta, Ontario, Quebec, and Newfoundland), and Europe (UK, Netherlands, Norway, Sweden, Germany, Switzerland, France, and Austria).

In 1986 version 2.11 of B News was released, including modifications and implementations by Rick, Spencer Thomas, Ray Essick, Rob Kolstad, and others. And while there were later releases (2.11.19 in 1994), Rick said: “It was dead in 1989.”

The mortal blow was NNTP—RFC 977 “Network News Transfer Protocol,” by Brian Kantor (UC Berkeley) and Phil Lapsley (UC San Diego), February 1986. Geoff Collyer and Henry Spencer (both at the University of Toronto) released C News, a new alternative in 1987, announcing it at the January USENIX Conference in Washington, DC. And while there is much more of interest where news is concerned (e.g., Larry Wall’s *rn*, Rich Salz’s *InterNetNews*, and Geoff Huston’s *ANU-NEWS* (Australian National University in Canberra)), I will drop this thread here.

Usenet in the Sky: Stargate

Even with DEC picking up a portion of the expense, sending/receiving news produced vast telephone bills. At the summer 1984 USENIX Conference (Salt Lake City), Lauren Weinstein gave a paper proposing a possible “technological solution to the most pressing part of the problem, the cost of news transmission. The idea is as follows: portions of the video signal on TV transmission are not used for picture information, and can carry other information, in particular, suitably encoded ASCII. The effective bandwidth of this type of transmission could easily exceed 65 Kbps.” [Lou Katz, *login*: vol. 9, no. 6 (December 1984), 8–10]

Lauren succeeded in gaining support from a number of corporations and institutions. USENIX provided “support for incoming phone lines at the transmitter site, a small microwave receiver dish to test that mode of reception[,] and travel to the transmission site to set up the system.” [Ibid.] Bellcore provided modems; Fortune Systems provided the uplink computer (a Fortune XT30—a desktop machine that retailed for about \$5000); and Southern Satellite Systems of Atlanta supplied continuous use of part of a scan line in the broadcast signal of WTBS.

The transmission ran at 1200 bps for several months. There was a presentation about it at the Dallas USENIX in January 1985. But once it was successfully demonstrated, there was little further progress, and the USENIX Board of Directors, after a visit to the site in a cornfield near Atlanta, terminated the funding.

By the mid-1980s, there were several commercial networks in operation, but they were limited in service and generally quite high in price. None was what we would think of as an ISP.

In the autumn of 1985, Rick Adams (still at seismo), spoke with Debbie Scherrer, Vice President of USENIX, of a plan for a centralized site, accessed via Tymnet by subscribers, supplying Usenet access as well as ARPANET and UUCP. In an email dated December 6, 1985, Debbie expressed interest in this.

The May/June 1986 issue of *login*: carried a “Request for UUCP and/or Usenet Proposals.” Having funded Stargate and a one-year network mapping project (Horton and Summers-Horton), the Association was contemplating moving further.

Rick attended the October 1986 Board meeting in Monterey, CA, where reaction was mixed, one director asking why folks would pay for access that could be obtained free. But the Board agreed to entertain a proposal. Rick (and Mike O’Dell) brought a brief plan to the January 1987 (Washington, DC) meeting.

A majority of the USENIX Board liked the plan, but it really wasn’t much of a business plan, and Rick and Mike were asked to fill out the plan, with the participation of Board members John Quarterman and Wally Wedel, and return.

By late March 1987 (in New Orleans), Rick was back with a full plan, and the Board approved it enthusiastically. I was authorized to spend up to \$35,000 for an experimental period.

UUNET was born. “As people moved from universities and corporations where they had email and Usenet access to jobs where they had no access,” Rick told me, “a need developed for a service that could provide email and Usenet access. UUNET was created in response to that need.”

At the outset, UUNET ran on a Sequent B21 (16 processors): “the Sequent was the size of a small truck,” Rick wrote me. In 1989, he moved UUNET to new office space, and the following year he turned it into a for-profit operation as UUNET Technologies.

When the word got out, subscriber demand far exceeded expectations. For example, Rick and Mike had forecast 50 subscribers by the end of summer. They topped 50 by mid-June 1987. Five years later, they had several thousand customers. UUNET was listed on NASDAQ and had its IPO in May 1995.

In 1991, UUNET participated in the founding of the Commercial Internet Exchange Association, and in 1992, it co-created (with Metropolitan Fiber Systems) MAE-East, for a time the world’s busiest Internet exchange and center of the Internet.



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Rick wrote me: "Usenet was part of the service, but what really hooked people was being able to send domain-based email over UUCP. The ARPANET/NSFNET gateway was key: we were gatewaying MCVAX running TCP/IP in Europe on a full commercial basis in November 1988 and speaking TCP/IP with them over a 9600 bps leased line for many months before NFS approved access (world's longest SLIP connection that I know of)."

More importantly, the "in-group" atmosphere of the ARPANET had been broken. UUNET initiated commercial delivery of Usenet and the Internet.

My thanks to Rick Adams, Lou Katz, and Mike O'Dell for their comments on this article. Any remaining errors are mine.

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