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Reflections on 20 Years—One Standard

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This is a nice compact description of an important period in history. There is a lot more to the story, and I realize you couldn't have gotten into everything. The TCP/IP story actually began before Vint and I began working together. It was just that once I told him about what I had in mind, we joined together to make it happen.

Even though (as you point out) there was a transition plan prepared for DARPA, at our request, having a plan doesn't guarantee its implementation or even success. And, of course, the transition from NCP to TCP didn't happen on that date or even that week. Rather it was a lengthy process covering many months. As late as Christmas of 1982, ARPANET sites were asking if the conversion was really going to happen on January 1, 1983. When assured it was, some said it would take them months to get ready, despite the fact they had at least one or two years of advance notice. This kind of argument didn't stop DARPA from proceeding, but we did agree to have both NCP and TCP running simultaneously at all sites for something like 6 months to ensure we didn't affect connectivity (and even after that some of the hosts that didn't need the wide connectivity never converted).

Vint Cerf had left DARPA for MCI in September 1982 and, even though I was the IPTO office director, I ran the Internet program for the next year until one of the IPTO program managers (Barry Leiner) took over. I actually managed the transition during that heady period from January 1 until it was substantially over. It was anything but a cakewalk.

One final thought. The Internet represents a new technological capability for open architecture. This was first articulated by Vint Cerf and myself (not so much as a proposal in Sussex) but as a plan that DARPA pursued. The first implementations of TCP were in the mid 1970s at Stanford, BBN, and UCL. The first gateway was

implemented within the packet radio station around 1975-76. The first test of a two-node system was probably in 1976 with the packet radio system linked to the ARPANET. It was followed thereafter by the packet satellite system linked to the ARPANET in 1977. In late 1977, there was a three-network demonstration involving ARPANET, SATNET and packet radio. There was also launched around that time a set of users on experimental research machines (well before the IBM PC and Sun workstation) that connected to the ARPANET with ethernet, ring nets, chaos nets and other home grown LANS and machines. This experimental capability involved lots of interconnected nets and real users. In 1983, when the formal transition to internet protocols were mandated for everyone, there had already been in operation the nascent working Internet for the experimentalists for many years.

Thus, I find the January 1, 1983, date to be a very artificial date for anything but the formal date on which the transition was to occur, but actually didn't. As you know, the transition took place over an interval of many months. If the Wright Bros. analogy with flying were invoked, the start would have been sometime in the 1976 period. We can see if a first two-net experiment date can be found in the archives.

From a planning perspective, the plan was being conceived in the 1972-73 time frame and basically written down during the summer of 1973. In my mind, that's the period when it all started, and not a decade later. Thus, we really should be recognizing the 30th anniversary of the beginning of the Internet.

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