Chapter 12
"Imminent Death of the Net Predicted!"

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> "The organization of the agricultural industry could not at that period make any marked progress, for the direction of its operations was still in the hands of the feudal class, which could not in general really learn the habits of industrial life, or place itself in sufficient harmony with the workers on its domains. The industry of the towns had to proceed that of the country, and the latter had developed mainly by the action of the former."
> John Kelly Ingram, A History of Political Economy

In his work, Political Arithmetic, Sir William Petty, who has been called the Father of the Science of Economics, explains that a careful examination of the public interest is needed. Without such he proposes that it is easy to be immobilized because of an inaccurate assessment of the situation. What is the public interest in the current battle over the Net?

In the past three decades a computer user's network has grown up and expanded, connecting computer users around the world. How has this been achieved? What are the lessons that can be learned from these developments?

The creation of time-sharing and interactive computing was supported by U.S. government funding of Project MAC at MIT, and other time-sharing projects around the U.S. like Project GENIE at the University of California at Berkeley. Similarly, the development and growth of the ARPANET and then the NSFNet which made the Internet possible, were funded by public monies.

Usenet, on the other hand, was developed by graduate students and researchers at universities, government and industrial sites. Some of these sites were supported by government grants, including key sites like ucbvax. Users at all sites, however, were obligated to make the Usenet available to others free of charge in exchange for their news feed.

Usenet and the Internet have thus grown and flourished as the result of research in computer automation and software development. They demonstrate that an open, cooperative, experimental environment where participants support and help each other, and an environment free from market pressures, commercial time constraints, and 'bottom line' considerations, can produce an invaluable public and social communications resource.

The development of the Net was the result of the work of many computer pioneers from the academic and government and research sectors working cooperatively to produce a significant public resource. The creation and expansion of the global network shows that the conditions under which network development occurs, greatly affects whether such develop will be encouraged or impeded.

On September 15, 1994, the U.S. government announced a plan to privatize the NSFNet backbone to the Internet. The plan, the National Information Infrastructure Agenda for Action (NII), proposed to privatize the public NSF backbone and put network development into private hands subject to so called "market forces", thereby subordinating an advanced sector of the U.S. economy to a more backward sector. The NII report contained no examination of the great achievements represented by the three decades of networking developments. Nor did it analyze the factors that made this achievement possible.

The plan to privatize the Internet was agreed upon several years earlier at a private meeting. This meeting, described in the document "Commercialization of the Internet: Summary Report" was held March 1-3, 1990 at Harvard University in Cambridge, Massachusetts by the "Science, Technology, and Public Policy Program" of the John F. Kennedy School of Government.[1] Attendance at the workshop was by invitation only. Listed participants included representatives from the U.S. Congressional Office of Technology Assessment, the RAND Corporation, Brookings Institute, DARPA, MERIT, AT&T, MCI, AMERITECH, EDUCOM, Sprint International, Research Libraries Group, U.S. Department of Commerce's National Telecommunications and Information Administration, State of Ohio, IBM, Litel Telecommunications, Corporation for National Research Initiatives, Performance Systems International, UUNET, Digital Equipment Corporation, and the National Science Foundation.

The workshop took as its mandate to change the role of the U.S. Government in network development. The Summary Report quotes the Program Plan of the NREN proposing that "the networks of Stages 2 and 3 will be implemented and operated so that they can become commercialized…."[3] It proposes that "a specific, structured process" be set in place "resulting in transition of the network from a government operation to a commercial service."[4]

The Summary Report describes how Stephen Wolff of the NSF outlined the acceptable use policy (AUP) that had been governing the NSFNet. He explained: "Under the draft acceptable use policy in effect from 1988 to mid-1990, use of the NSFNet backbone had to support the purpose of 'scientific research and other scholarly activities.' The interim policy promulgated in June 1990 is the same, except that the purpose of the NSFNET is now 'to support research and education in and among academic institutions in the U.S. by access to unique resources and the opportunity for collaborative work'."

Wolff outlined the distinction between commercialization and privatization of the NSFNet. The distinction he made is that "commercialization" is "permitting commercial users and providers to access and use Internet facilities and services," while "privatization" is "the elimination of the federal role in providing or subsidizing network services."

The Report claimed that despite the restrictions on commercial usage of the NSFNet, commercial usage was increasing 15-20% a month. The problem Wolff explained was that such commercial use of the NSF backbone might be offering unfair competition from the U.S. Government to "private providers of network services (notably the public X.25 packet-switched

networks, such as SprintNet and Tymnet)."

Wolff gave no legal basis for his concern to avoid such so called 'government competition with commercial providers.' However, such an argument would effectively eliminate all government services to the public since each might be then attacked as competing with their commercial counterparts, e.g., no social security insurance as that might compete with commercial insurance, no public schools as they compete with private schools, no post office as that competes with commercial mail or package delivery, etc. Such an argument eliminates the historic obligation of government to provide for the health and welfare of the people.

There is no other reason offered in this Summary Report for abolishing the government role in sponsoring and supporting the NSFNet backbone to the Internet. To the contrary, the participants recognized that it is cheaper and more efficient for the U.S. government to fund the U.S. portion of the backbone than to have to figure out other means of funding government supported users as "it is easier for NSF to simply provide one free backbone to all comers rather than deal with 25 mid-level networks, 500 universities, or perhaps tens or hundreds of thousands of individual researchers," explained Wolff.

Also, the Summary Report acknowledged that privately owned and funded TCP/IC companies would not be concerned with network development but with their bottom line profits. The Report explains: "The market-driven suppliers of TCP/IP-based Internet connectivity are naturally going after those markets that can be wired at a low cost per institution, i.e., large metropolitan areas, especially those with a high concentration of R&D facilities, such as Boston, San Francisco, and Washington, D.C. And that in the voice environment, this kind of targeted marketing by unregulated companies is widely recognized as cream-skimming." Thus market driven access is contrary to the development of a network, where all areas need to be connected, or the whole net is harmed.

The Summary Report also acknowledged that since there was unmetered access to the NSFNet, academic institutions would make access available across disciplines, but once the network was metered, access would be restricted.

The Summary Report explained that in an academic network, all benefit from each other's contributions as "all networks benefit from access to each other's users and resources," while commercial entities often use the network's resources, but contribute much less to the network: "for example, because of the mailing lists available without charge on the Internet, three times as much traffic runs over the mail gateway from the Internet to MCI MAIL than to the Internet. This pattern is reinforced by the send-pays fee structure of MCI MAIL, which discourages mailing list distribution from within MCI MAIL," explained Wolff.

The Summary Report described MERIT, part of Michigan's public higher education system, and the State of Michigan Strategic Fund that provided $5 million to the NSFNet. The Report called MERIT and the State of Michigan "private entrepreneurs in the national operation of a backbone service." The problem with such an analysis is that MERIT and the State of Michigan Strategic Fund

are public entities that cannot be private entrepreneurs.

The Summary Report demonstrated that dissenting opinions were not allowed.

Instead, the Harvard meeting encouraged the participants, many of whom subsequently became participants on the com-priv@psi.com mailing list, to vigorously promote this significant change of direction of the NSFNet, with no public discussion or examination of the virtues or harm to come from such a major change of public policy. And many on the compriv@psi.com mailing list would ridicule or wage personal attacks on anyone who expressed opposition to commercialization and privatization of the NSFNet.

Shortly after the March 1990 Harvard workshop, there were abrupt changes in the contracts between MERIT and the NSF. Reviewing these changes, the Office of the Inspector General, (OIG) for the NSF in a report issued on March 23, 1993, explained: "In April 1990 MERIT submitted a revised statement of work based on the input received from the National Science Foundation, in particular the need for adding nodes to and expanding the switching and transmission capacity for the NSFNet backbone." (Page 11 from "Revised Statement of Work/NSF Supplemental Proposal No 8944037", April 20, 1990.)

Then on May 29, 1990 an amendment to the cooperative proposal that MERIT had with the NSF provided MERIT with funding for the revision. A significant change in the nature and oversight of the NSFNet then followed, as documented by the Inspector General's report, carrying out steps toward the transition to commercialization and privatization of the NSFNet.

The NSF transferred MERIT's responsibilities to the Advanced Network & Services, Inc., (ANS, made up of a public entity, MERIT, and private entities, IBM and MCI) and agreed that ANS should seek commercial users for what was previously a network restricted to academic, government, or industry research and scientific use as defined by the Acceptable Use Policy of the NSF and the goals of the NSF.

After several articles by reporter Brock Meeks were published in Communications Daily (on February 4, 1992, February 6, 1992, and February 21, 1992), Congressional Rep. Rick Boucher (D-Va) held a Congressional hearing on March 12, 1992 of the House Subcommittee on Science, Research and Technology to examine serious irregularities in the administration and oversight of the NSFNet by the National Science Foundation. After the hearing, the U.S. Inspector General for the NSF was asked to conduct an investigation into the unresolved questions. While the investigation was ongoing, Congressman Boucher's Committee changed the law regulating the obligations of the NSF rather than waiting for the report and recommendations of the Inspector General's Office, thereby undermining the very oversight process Congress had set in motion.

When the OIG Report examined how this substantial change in policy had come about, it merely noted that there was a lack of a "reasoned" documentation in NSF files providing for such a significant change of policy. Though the OIG admitted that the U.S. government had an obligation

to hear discussion on such significant changes in policy, the OIG claimed that it is in the NSF's discretion as to whether it does so or not. The AUP governing the use of the NSFNet continued in effect after the NFS Inspector General's Report, but U.S. government officials no longer enforced it.

The AUP was derived from the authority vested in the NSF under the "National Science Foundation Act of 1950, as amended." According to the OIG Report, under this act, the NSF was given the authority "to foster and support the development and use of computer and other scientific and engineering methods and technologies, primarily for research and education in the sciences and engineering."(42 U.S.C. S 1862(a)(4).)

The report explained that in 1989, the NSF drafted an "Acceptable Use Policy (AUP) to define research and education traffic that may properly be conveyed under Section 4(a) of the NSF Act." And "in March 1992, NSF's Office of General Council concluded that 'some form of acceptable use policy' will continue to be necessary to ensure that NSF funds are used to further the objections of section 3(a)(4) of the Act."

Following is the Acceptable Usenet Policy (AUP), that governed NSF networking developments. These principles provide helpful guidelines for how to build and expand a public computer network. The AUP states:

"GENERAL PRINCIPLE:

(1) NSFNet Backbone services are provided to support open research and education in and among U.S. research and instructional institutions, plus research arms of for-profit firms when engaged in open scholarly communication and research. Use for other purposes is not acceptable.

SPECIFICALLY ACCEPTABLE USES:

(2) Communication with foreign researchers and educators in connection with research or instruction, as long as any network that the foreign user employs for such communication provides reciprocal access to U.S. researchers and educators.

(3) Communication and exchange for professional development, to maintain currency, or to debate issues in a field or subfield of knowledge.

(4) Use for disciplinary-society, university-association, government advisory, or standards activities related to the user's research and instructional activities.

(5) Use in applying for or administering grants or contracts for research or instruction, but not for other fund-raising or public relations activities.

(6) Any other administrative communications or activities in direct support of research and

instruction.

(7) Announcements of new products or activities in direct support of research and instruction, but not advertising of any kind.

(8) Any traffic originating from a network of another member agency of the Federal Networking Council if the traffic meets the acceptable use policy of that agency.

(9) Communication incidental to otherwise acceptable use, except for illegal or specifically unacceptable use.

UNACCEPTABLE USES

(10) Use for for-profit activities unless covered by the General Principle or as a specifically acceptable use.

(11) Extensive use for private or personal business.

This statement applies to use of the NSFNet Backbone only. NSF expects that connecting networks will formulate their own use policies. The NSF Division of the Networking and Communications Research and Infrastructure will resolve any questions about this Policy or its interpretation."[2]

The development and growth of the ARPANET and then the NSF backbone of the U.S. portion of the Internet have been financed by public funds and networking developments were guided and nourished by an Acceptable Use Policy (AUP), that governed those funds.

The AUP required that the research carried out via the Net be open and available to others.

"The Review of the NSFNet" from the Office of the Inspector General of the NSF which was issued in April 1993, demonstrated the problems which occur when private entities are charged with oversight of a public network. Inevitable conflicts of interest develop. The thrust of privatizing the public backbone to the U.S. portion of the Internet which is outlined in the NII Agenda for Action is to encourage conflict of interest and proprietary profit making purposes in place of further expansion of the Net for the public benefit.

The Net has grown up in public hands, in a scientific and research environment. The educational and cooperative principles embodied in the AUP are important principles. The Net flourished under the Acceptable Use Policy that guided networking developments. It put the development of the Net into the hands of the public, educational and scientific sectors of society. These are sectors that need communication and are able to work openly and cooperatively to create public resources. The AUP needed to be strengthened, as the recommendations from the Inspector General's report on the NSFNet recommended, not removed. The lesson from the development of

the Net is that there is a need to expand access to the Net by making available free or very low cost access to more of the public.

To determine the best path forward for the Net, what is needed is a public process with online access and oversight by the online community. The NTIA online conference in November, 1994, provides a prototype of the kind of public process that is needed. However, the NII Agenda for Action does not provide for such a public process to determine the future of the Net. Instead it has created a small committee of private commercial interests to make recommendations for how to turn the public Net over to the private sector. No mechanisms of online participation, discussion or oversight have been provided to oversee the actions of this committee.

What is needed is a public process with on-line access by the networking community so any committee proposing public policy recommendations about the future of the Net can appropriately be open to comments, contributions and debate over what the problems are that further network development has to solve. Increasing vigilance and action are needed if the Net and the resources created cooperatively for the Net are to continue to expand and flourish. The NII Agenda for Action has predicted the death of the scientific, research, and education network, proposing to subsume it into a privately owned and operated so called "infrastructure" to serve business. Many times before the death of the Net has been predicted. In the past, those who care about the Net have taken such challenges seriously and have taken up to deal with the problems, thus defending and protecting the Net and the cooperative resources and culture that are the "Soul of the Net". The article "Computer Users Battle High-Tech Marketers Over Soul of the Internet" appearing in the *Wall Street Journal* the day after the NII Agenda for Action was announced, documented how the battle continues.[5]

"Imminent death of the net predicted. Films at 11:00." :-)

Notes for Chapter 12

1. According to the Report of the Office of Inspector General Report.

2. This account is in the OBI available at the world.com via ftp. There is also an account of the same meeting in B. Kahin, "Commercialization of the Internet: Summary Report", Internet Request for Comment 1192, November, 1990.

3. Federal Research Internet Coordinating Committee, "Program Plan for the National Research and Education Network," May 23, 1989, pp. 4-5.

4. From Office of Science and Technology Policy, "The Federal High Performance Computing Program," September 8, 1989, pp. 32 & 35.

5. Steve Stecklow, "Computer Users Battle High-Tech Marketers Over Soul of Internet", *Wall Street Journal*, September 16, 1993, p. 1.
