

option, before some organization begins to make use of LISTSERV subscriber lists as a means of identifying groups of individuals that the organization wishes to communicate with. In a very real sense, one can view the LISTSERV system as a very public definition of the interests of many of the individuals on the network today. Put simply, one monitors a Usenet newsgroup, and the fact of that monitoring is between the user and the local Usenet distribution host; one subscribes to a LISTSERV and the fact of that subscription is generally known throughout the Internet, unless the subscriber takes a positive action to conceal it.

A second issue has to do with the ownership of material that participants post to these discussion lists or newsgroups. Currently this is a highly contentious issue, and positions range from organizations that sponsor discussion lists (such as the Well service in the San Francisco Bay area, which simply states that posters own their own words) through individuals who argue that they automatically own their own words and affix copyright notices to postings stating this option. When one considers the text of a LISTSERV discussion in the aggregate, it is even less clear who owns rights to complications copyrights. While a rather complex consensual etiquette is developing which suggests that one should not repost from one list to another or reuse a list posting without the author's permission, the legal (as opposed to consensual and moral) basis of these conventions remains extremely unclear. Many LISTSERV are beginning to view this in some sense as a contractual matter; upon subscription they present subscribers with the assumptions about reuse of postings on the list.

9. The Internet Tradition of "Free" Information: Quality, Integrity and Liability Issues

Fee based services are a relatively recent development on the Internet. Prior to the last few years, for both policy and historical reasons, such services did not exist on the net; certainly, there were machines, services and resources that were restricted to specific user communities (for example, super computer centers where time was allocated through a grant-like mechanism, or machines that belonged to specific universities and were used by communities at that university), but this was considered to be a very different situation from a vendor that provided service to anyone on the net who was willing to pay for such service. The recent presence of commercial information providers such as Dialog and BRS indicates that these policies are a thing of the past, and that current policy at the very least welcomes vendors supplying services to the research and education community. However, there is a strong philosophical bias towards the use of "free" information on the network among most of the network user community. This is a particularly comfortable fit with the values of the libraries that have been appearing on the network both as information providers and information organizers: the Internet tradition of free information is consistent with the library ethos of both intellectual freedom and free access to information. And there is a great deal of free information available; in fact, much of the development in software tools (which were themselves typically free, public domain software, at least in their initial stages) to facilitate the mounting of networked information resources (for example, WAIS and Gopher) has been to facilitate the ability of organizations on the network to offer access to an ever growing array of publicly-accessible networked information resources. This bias towards free information is evidenced by the rather minimal billing and access

control facilities in these software systems,⁵⁹ and indeed throughout the Internet generally.

While there are any number of organizations which have the dissemination of information to the public as part of their mission (including most types of government), it is important to recognize that the strong bias in the Internet user community to prefer free information sources provided by these organizations is not without problems. These problems include a tendency by network users to use relatively low quality information (a “you get what you pay for” argument), a lack of accountability for the quality and integrity of information offered without charge to the Internet community, and the potential for various forms of bias to find their way into the most commonly used information resources on the network. The ultimate result a few years hence—and *it may not be a bad or inappropriate response, given the reality of the situation*—may be a perception of the Internet and much of the information accessible through it as the “net of a million lies”, following science fiction author Vernor Vinge’s vision⁶⁰ of an interstellar information network characterized by the continual release of information (which may or may not be true, and where the reader often has no means of telling whether the information is accurate) by a variety of organizations for obscure and sometimes evil reasons.

The first issue with “free” information is that it is, of course, not really free, but rather subsidized. Free information might be subsidized by a government agency as part of that agency’s mission. It might be subsidized by a not-for-profit organization as part of that organization’s mission to communicate its viewpoint to the public. A university might make information available as part of its missions to support research, education and public service. Some public information resources might be subsidized by a for-profit corporation as part of a public relations campaign.⁶¹ It might, as discussed elsewhere in this paper, be provided as a means of acquiring market research data or mailing lists of people with specific interests. Following traditions in both the print and broadcast media, it might be subsidized by advertisers as a means of delivering advertising.⁶² As an extreme case, one can envision the Internet analog of television

⁵⁹ **There is some evidence** of a new focus on **fee-for-service** information resources on the network. The University of Minnesota, which funds Gopher development, has recently begun the implementation of licensing agreements for the Gopher software that assess substantial charges for organizations that wish to provide information—particularly for-fee **information**—using the Gopher software, in conjunction with an upgrade of the software to Gopher+, which includes facilities to address billing and user authentication. While Thinking Machines Corporation placed the initial version of **WAIS** in the public domain, Brewster Kahle, one of the original developers of the system, has recently formed a company called **WAIS Incorporated** which is seeking to commercialize the system (or at least the server software) and to work with information providers who wish to offer their information through **WAIS** servers—often for a fee.

⁶⁰ This is described in his 1992 novel *A Fire Upon the Deep* [Vinge, 1992]

⁶¹ Print **publications have tried to** establish conventions that clearly identify advertising material as advertising; for example, when a corporation purchases space on a newspaper’s editorial page for a corporate statement on a public-interest issue, the print publication typically goes to some lengths to try to indicate that the material is not part of the publications editorial content but rather paid “advertising” (communications). There will clearly be a need to develop similar conventions for Internet information resources.

⁶² **Advertiser-supported material might be** viewed with particular caution. A number of authors have explored the effect of advertising subsidies on the popular media (both print and broadcast) and have suggested that advertisers have a significant effect on content and editorial positions taken by these

“infomercials” where one obtains some information (probably of questionable accuracy and/or value) along with a very long sales pitch on some given topic, such as getting rich through selling electronic real estate to house out of copyright books. In a sense, one can regard much of the current crop of “shareware” and demo versions of commercial software as forms of advertising promotions.

It is also difficult to entirely separate “free” content from the mechanisms that provide access to the content. One of the properties of networked information distribution is the ability to suddenly and simultaneously make new information available to an enormous user community; a community that is perhaps far larger than the ability of the computing system supporting the information resource to service at initial peak load. New documents, new virus definitions for a virus protection program, new software releases or bug fixes may be provided free by the information provider, but the public access resources supporting access to this material may saturate under the demand levels of initial public release.⁶³ In these situations, users who have a real need for timely access to the newly available information may pay a premium to some access provider (perhaps a service like CompuServe or Applelink) rather than retrying and continually being refused access to some public FTP archive. Or they may be willing to accept some advertising, or the collection of their address for future marketing purposes as a condition of obtaining timely access to the information.

Another very real issue is lack of responsibility and accountability in making information available on the networks. Tools like WAIS and Gopher have made it very easy for anyone to offer an information resource to the network community at large; one simply implements a WAIS server or a Gopher server on one's personal workstation, for example, using publicly available software. Whether this information is accurate, and whether the institution or individual that initially made it available feels any responsibility to ensure that it is accurate or current is unclear. A recent problem that caused a considerable amount of discussion the LISTSERV PACS-L is indicative of the problem. Someone on the network went looking for a copy of the periodic table of the elements. Much to their delight, they located one that someone had made available through one of the networked information access tools. Unfortunately, upon closer inspection, this periodic table was missing entries for a number of the elements. Unfortunately, it was not clear that anyone felt much responsibility to remove the incorrect information from the network, or to update it to be accurate. While the readership of the list PACS-L now

media. See for example *The Media Monopoly* [Bagdikian, 1992]. One of the most pernicious aspects of this advertiser influence is that it is hard for most viewers to identify and subtle in nature. In a networked information environment where advertising may be more easily ignored by viewers of information resources, it may be even less clear who the advertisers are.

63 The **accepted community practices** for access to this type of information distribution are **complex** and quite interesting. For example, some public **FTP** archives limit the number of concurrent accesses from a given institutional network, with the idea being that if information on the archive is very heavily used by a given user community, that community should **import** the information and then make it available internally to reduce load on the public **FTP** archive. Unfortunately, there is little automated assistance to facilitate such actions; in an ideal world, an institutional network might recognize that a file was being frequently requested from a (globally accessible) public **FTP** archive and automatically import (cache) the relevant file and then redirect requests for copies of the file to the institutional file server; later, when demand died down, the local copy would be discarded, and requests would go to the globally available archive. But this type of automated implementation of institutional responsibility for sharing in the resource commitment to distribute such files does not exist today.