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12-1-1992

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Recommended Citation

Tenopir, Carol, "Online Searching with Internet" (1992). *School of Information Sciences -- Faculty Publications and Other Works*.

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□ ONLINE DATABASES □

BY CAROL TENOPIR

Online Searching with Internet

IT IS DIFFICULT to remember any online system that has had the wide-ranging impact on scholars in such a short time as Internet. A worldwide connection of computer networks, Internet allows users to access and share a vast array of information products and services. Since Internet is a decentralized network of computer links, the costs are relatively low and are usually borne by the connecting institutions. To many individual users, in a university, for example, the services and information on Internet appear to be free.

Internet had only 213 connected hosts in 1981. By 1986, 6000 computers were connected, and the number jumped to 376,000 by 1991. That number rose to over 700,000 systems by 1992 and is fast approaching one million.

Who uses Internet?

Each of these computers may represent dozens or hundreds of individual users in the United States, Europe, Oceania, and Asia. Mitchell Kapor, founder of the Electronic Frontier Foundation, reports 100 percent penetration of Internet in U.S. universities, which, along with government research institutions, were the first users. Internet actually began over 20 years ago, growing from the Department of Defense's ARPAnet and later the National Science Foundation's NSFnet. Each was designed to foster scientific interchange and sharing of supercomputer resources.

Internet access is no longer limited to universities or researchers in the United States. Universities in more than 40 countries are full Internet participants. (Some additional countries access just the E-mail function.) Add to that a growing body of colleges, corporations, public institutions, and in-

dividuals. Almost every type of library can now get access to Internet, so all types of librarians can now get into the Internet habit.

Why use Internet?

Librarians use Internet for a variety of reasons. Like most other Internet users, the primary reason is for E-mail. In addition, Internet is popular in libraries to find out what's new on a variety of issues from library-related bulletin boards and news groups, to search other libraries' online public access catalogs (OPACs), to access the full texts of electronic journals and electronic books, to search a variety of special subject databases, and to use a telecommunications vehicle to access commercial online systems such as DIALOG or BRS.

Librarians use E-mail for the same reasons that any other users do—to share information, to “talk” with friends and colleagues, and to circumvent the high costs of long time delays of other communication channels such as phone, FAX, or paper mail.

Internet E-mail is bigger than the Internet network—a mail gateway system changes messages to or from other networks or E-mail systems into Internet communications protocols. If you know someone who has access to BITNET, CompuServe, MCIMail, Sprintmail, or other E-mail systems, chances are you can communicate with them.

Other Internet E-mail uses are more common in libraries. A survey of special librarians who are Internet users found that special librarians used E-mail functions for “getting quick copy permission; providing and receiving electronic reference and technical assistance; requesting and providing interlibrary loans (ILLs); requesting library materials, missing issues, duplicate exchanges; identifying sources; and submitting applications for employment” (Hope N. Tillman and Sharyn T. Ladner's “Special Librarians and the Internet,” *Special Libraries*, Spring 1992, p. 127-131).

Some users share electronic documents, but much of the ILL or document delivery via Internet is for docu-

ment requests only—the actual documents are then FAXed or mailed. One exception is the Research Libraries Group (RLG) Aerial Service. With the purchase of special software and hardware, Aerial sites can receive scanned image document delivery over Internet. Contact Aerial Coordinator, RLG, 1200 Villa St., Mountain View, CA 94041-1100; 415-691-2284; BL.MXR@RLG.BITNET.

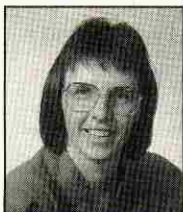
Discussion groups

Another valuable E-mail tool is the many discussion news groups (LISTSERVs) you can join. One of the most popular with librarians is PACS-L, which contains discussions about a wide variety of topics relating to libraries. Subscribers to PACS-L can read about library issues, ask questions of their colleagues, participate in often controversial discussions centering around library technology issues, or just electronically eavesdrop on what others are saying.

The over 40 other news groups relating to libraries cover more specific topics such as archives, bibliographic instruction, CD-ROM local area networks (LANs), library planning, medical and health sciences librarians, and Z39.50 implementation. A complete listing is available from Charles Bailey Jr., University Libraries, University of Houston, Houston, TX 77204-2091; BITNET: LIB3@UHUPVM1.

Remote access to information

Internet's TELNET function allows you to dial up hundreds of university and other Internet system computers and their many published and unpublished textual databases. If you TELNET to Rutgers University library reference, you can search the full text of the *Concise Oxford English Dictionary*, *Oxford Dictionary of Familiar Quotations*, and *Oxford Thesaurus*; California State University has news from the American Philological Association; at Carleton University in Canada you can search *Peterson's College Directory*; Washington and Lee Law Library offers full text of some laws. Over 400 library OPACs are accessible as well. Once



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connected, you search the other site's databases using its commands or menus. For example, if you TELNET to the University of Hawaii library you must use CARL system commands to search the OPAC and other databases loaded on the U.H. version of CARL.

File transfers

The third main function of Internet is FTP (file transfer protocol). FTP allows you to transfer to your system information from another site, either anonymously (no extra password required) or with a password required by that particular FTP site. As with TELNET, the amount of information available is almost overwhelming.

Many sites allow you to upgrade FTP software. The Free Software Foundation is one source, but many vendors also post upgrades online (sometimes for a fee). Getting access to the latest updates of common software packages, usually directly from the vendor, is a popular Internet function.

If all of this sounds too overwhelming or confusing, don't despair. Internet users can still locate useful information, even if they don't know where it is and don't know whether it is accessible via E-mail, TELNET, or FTP. The Gopher, WAIS (wide-area information servers), and WWW (worldwide web) are powerful Internet services that allow you to search for information and then access it no matter what type. Archie is a system for locating information that is publicly available by anonymous FTP. All are relatively easy to use.

Electronic journals and books

Internet is the impetus for a growing electronic publishing effort. To date, most of these newsletters, journals, or books are generated by Internet users in universities and are available free of charge to all Internet users. Bailey lists several library-related electronic publications, including ACQNET (the Acquisitions Librarian's Electronic Network); ALCTS Network News (Association for Library Collections and Technical Services); Hot Off the Tree (excerpts and abstracts of articles about information technology); and Newsletter on Serials Pricing Issues.

Perhaps the most ambitious electronic journal so far on Internet is *The Online Journal of Current Clinical Trials (CCT)* (Automation News, *LJ*, November 1, 1991, p. 32). A joint venture of OCLC and the American Asso-

ciation for the Advancement of Science (AAAS), *CCT* publishes original, refereed articles. The journal includes graphics as well as text and requires a separate subscription fee. Available since this summer, *CCT* has been under development for quite some time and has the backing and clout it needs to fulfill its potential as a true alternative to printed scholarly journals. For more info, contact OCLC, 6565 Frantz Rd., Dublin, OH 43017.

The most ambitious book republishing is Project Gutenberg out of the University of Illinois. Project Gutenberg is putting public domain books into machine-readable form and making them available to Internet users. The manuscripts are incredibly varied—from the complete works of Shakespeare, to *Alice in Wonderland*, to *Moby Dick*, *The Federalist Papers*, and the Book of Mormon!

Some electronic publications are available as news groups with E-mail functions. Anyone interested in an E-mail newsletter would "subscribe" online just as they would subscribe to any news group of interest. Search functions are dependent on your E-mail functionality. Descriptions of these newsletters and instructions on how to subscribe are included in Bailey's list. Other electronic publications require you to access another computer to tap into that site's software and databases with TELNET or FTP.

Accessing commercial online systems

As of this year, many commercial online systems can be accessed over Internet with the TELNET function (not to be confused with Telenet). Internet takes over the telecommunications function—replacing the packet switched networks such as Sprintnet (Telenet) and Tymnet.

Depending on your local Internet system, it can be less expensive and faster than searching the old way. Once Internet sends you to the online host you still must have a host password, and you pay normal connect-hour and other system charges.

The box below shows the Internet addresses and communications costs per hour for many of the major online systems. If you use a communications software package such as Procomm, functionality is just the same as if you were searching on Tymnet or Sprintnet. Other packages (such as DIALOG-LINK) may not offer all software functions in the Internet mode. Check with the online system (or just try it out).

Selected Sources on Internet

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Internet Communications Costs

System	Access Code	Costs Per Hour
DIALOG	telnet dialog.com	\$3
BRS	telnet brs.com	\$6
ORBIT	telnet orbit.com	\$6
DATA-STAR	telnet rserve.rs.ch	\$3
MEAD	telnet 192.73.216.20 telnet 192.73.216.21	schools, free businesses, same as network
EPIC	telnet epic.prod.oclc.org or telnet 132.174.100.2	free
STN	telnet stnc.cas.org or telnet 134.243.5.32	\$7