Appendix A:
Computer Networking
for Native Americans | A

Computer networking is a powerful tool available to Native Americans who have access to the necessary computer equipment, telecommunication lines, and technical assistance. The Office of Technology Assessment has used computer networking to locate and obtain information on Native American issues. Project staff have used dial-up connections and the Internet (with a full-time dedicated connection) to access various Gopher servers,[1] electronic mail list servers (e-mail listservs), electronic bulletin board services (BBSs), file transfer protocol (FTP) servers, and World Wide Web (WWW) servers that contain information on Native American issues, concerns, and culture.

PROJECT EXPERIENCE WITH COMPUTER NETWORKING

∎ Gopher Servers

To find Native American computer sites and documents, OTA project staff began with a search of what is known as "Gopher space." Gopher is a computerized menu-based system. The searches were facilitated by using a tool called "Veronica" (an acronym for Very Easy Rodent-Oriented Net-wide Index to Computerized Archives). Veronica searches Gopher servers all over the world for file and directory names with key words entered by the user.[2] Through these searches, project staff found a significant amount of information relevant to Native American topics, including lists of electronic discussion groups (list servers) and BBSs on topics related to indigenous peoples.

Organizations maintaining Native American Gopher servers include the National Indian Policy Center (NIPC) at George Washington University and the Extension Indian Reservation Program (EIRP) of the U.S. Department of Agriculture. The NIPC Gopher server contains information on topics such as culture, education, environmental protection, and tribal governance. The host address is gwis.circ.gwu.edu. The successive menu choices to get to the NIPC are first "Centers, Institutes, and Research at GWU," followed by "Centers and Institutes," and finally, "National Indian Policy Center." The EIRP Gopher at 134.121.80.31:70/1/eirp/eirp.70 contains information

---

[1] A server is a computer that stores files and "serves" them to other computers referred to as clients.

[2] For a discussion on search strategies for Native American topics see Jeanette M. Mueller-Alexander and Helen J. Seaton, "Researching Native Americans: Tips On Vocabulary, Search Strategies and Internet Resources," *Database*, April 1994, pp. 45-56.

on tribal and federal courts, grant information, events in Indian country, and Native American literature as well as many other topics. Other Gopher servers are listed in OTA's Native American Resource Page developed for this study (see appendix B).

▌Anonymous File Transfer Protocol Servers

OTA discovered only a few anonymous FTP servers (compared with several Gopher servers and many WWW servers) with Native American information. Cornell University has an anonymous FTP server at ftp.cit.cornell.edu with several files addressing Native American topics in the directory pub/special/Native-Profs. OTA found information such as tribal college addresses, lists of federally recognized tribes (along with their phone numbers and addresses), examples of Native fonts for different computer operating systems, and issues of *Native American News*.

Another anonymous FTP site, ftp.netcom.com, contains lists of Native American BBSs and electronic mail list servers under the directory /pub/am/amcgee/indigenous.

▌List Servers

Project staff subscribed to several e-mail listservs. Some listservs are broadcast and others function as electronic discussion groups whereby e-mail posted by one member of a group is sent to every other member of the group. Some listservs are moderated to screen out offensive language or irrelevant material. Many listserv e-mail messages are archived and thus can be read at any time. As part of project outreach, OTA posted its project proposal on a few listservs. For additional outreach and information-gathering, OTA distributed selected research questions to appropriate e-mail forums, bulletin boards, and news groups oriented toward Native Americans and others.

To subscribe to a listserv, send the e-mail message "subscribe <list name> <your name>" to a subscription e-mail address. In some cases, a personal e-mail address is used instead of <your name>. Subscription to a list is necessary to post messages on it.

OTA subscribed to the following listservs (with the exception of NATIVEPROFS-L and STRONGDOG-LIST whose membership is restricted) described by the list name, supporting organization and/or topic, and subscription address.

- AISESNET, covers issues relevant to the American Indian Science and Engineering Society (AISES) or to Native Americans more generally, send an informal request to demeler@selway.umt.edu
- DRUGS AND ALCOHOL/AISESNET, an anonymous list maintained by AISES on drug and alcohol issues, send an informal request to demeler@selway.umt.edu
- DRUM GROUPS/AISESNET, a list maintained by AISES about and for pow-wow drum groups, send an informal request to demeler@selway.umt.edu
- EIRP, Extension Indian Reservation Program of the U.S. Department of Agriculture, listproc@listproc.wsu.edu
- IND-NET, general American Indian issues maintained by EIRP, listproc@listproc.wsu.edu
- INDKNOW, indigenous knowledge systems and traditional ecological knowledge and developments, listproc@u.washington.edu
- IROQUOIS, Iroquoian languages, listserv@vm.utcc.utoronto.ca
- NAGPRA-L, Native American graves protection and repatriation, nagpra-l-request@world.std.com
- NAT-EDU, Native education, listserv@indycms.iupui.edu
- NAT-HLTH, Native health, listserv@tamvm1.tamu.edu
- NAT-LANG, languages of indigenous peoples, listserv@tamvm1.tamu.edu
- NATCHAT, general topics of interest to Native Americans, listserv@tamvm1.tamu.edu
- NAT-WORK, work issues of Native Americans, listserv@tamvm1.tamu.edu
- NATIVE-L, general topics of interest to Native Americans, listserv@tamvm1.tamu.edu
- NIRI, broadcasts by the National Indian Policy Center, listserv@gwuvm.gwu.edu
- NATIVEPROFS-L, a private listserv for Native American professors, listserv@cornell.edu
- MINN-IND, American Indian issues in Minnesota and midwest states, listserv@vm1.spcs.umn.edu
- STRONGDOG-LIST, a private listserv for people interested in the poetry of Turtle Heart, an Ojibway artist and director of the American Indian Computer Arts Project, majordomo@soft21.s21.com (To subscribe write your e-mail address instead of your name in the body of the e-mail.)

- TRAILS, tribal libraries, maiser@slis.lib.uoknor.edu
- TRIBALLAW, laws and policy that affect North American Native Americans, listserv@thecity.sfsu.edu

▌ Bulletin Board Systems

Project staff also investigated dial-up BBSs. With a modem and terminal (or computer), users can dial into these systems and perform a number of tasks. BBSs often have several electronic discussion groups and/or real-time chat sessions. In addition, they provide access to electronic mail, libraries of files available for downloading, and ways to upload or contribute information. The large amount of information in these systems, however, can make it difficult to find items of particular interest among the hundreds of trivial postings and announcements. BBSs vary in their degree of organization; most provide a menu, while some offer search capability and/or an index.

A list of BBSs in North America that are either operated by or oriented toward indigenous peoples can be found on the anonymous FTP server ftp.netcom.com in the directory pub/am/amcgee/indigenous/my_indigenous_related_lists/ in the file natvbbs.msg. More than 75 electronic bulletin boards are listed as Native-owned or -operated.

▌ World Wide Web Servers and Browsers

OTA also used Mosaic and Netscape, two interactive, user-friendly interfaces (or WWW browsers), to access WWW and other types of servers on the Internet. WWW browsers combine text and graphics to lead a user to points of interest that may otherwise be difficult to locate. They display menus (e.g., Gopher menus or WWW home pages) and allow one to display or download files from FTP, Gopher, and WWW servers in a user-friendly way. For example, OTA staff accessed online information from several tribes, agencies, universities, and organizations including the Fourth World Documentation Project and the Oneida Nation of New York.

The Fourth World Documentation Project's online archive contains more than 300 documents on Fourth World nations in the Americas, Africa, Asia, Europe, Melanesia, and the Pacific. Included are essays, position papers, resolutions, treaties, organizational information, and the United Nations documents, speeches, and declarations. This archive is split into directories that contain information on certain geographical areas, such as the FWDP/Americas/ directory. Under the /Resolutions/ directory there are several areas relating to Native Americans, including Navajo-Hopi Land Commission Papers, the National Congress of American Indians Resolutions, Tribal Government Resolutions, and much more. This archive can be found at http://www.halcyon.com/FWDP/fwdp.html.[3] It can also be accessed through an anonymous FTP site at ftp.halcyon.com in the pub/FWDP directory.

The Oneida Nation of New York has created a WWW page to express Oneida history and culture and illustrate ongoing community development. The Oneida Nation wired a housing development with fiberoptic cable, began developing a native font and interactive computer program to revive their language, and created an online Treaties Project. This home page is frequently updated and can be accessed at http://nysernet.org/oneida/.

After browsing the Internet for a few weeks, OTA project staff developed the Native American Resource Page, a WWW home page with descriptions and links to more than 50 Native American sites. Thereafter, OTA used the home page on a regular basis for research purposes. The OTA Native American Resource Page can be accessed at http://www.ota.gov/nativea.html (see appendix B for a description).

LIMITATIONS OF COMPUTER NETWORKING

Overall, computer networking has been useful to OTA in searching for information, but not without difficulties. One problem with Internet searching is that files of information are not well organized or cataloged.

---

[3]Addresses used with WWW browsers are referred to as URLs (Uniform Resource Locators).

While the keyword search capabilities of Veronica and information pointers of WWW home pages are helpful, more advanced methods for organizing and searching are needed.[4] There is no catalog or directory that organizes all of the materials on the Internet. For now, successful searching is much like solving a mystery. Each source, like a clue, leads to another and, in the end, to the material one is seeking.

One problem for Native Americans with computer networking is the limited number of Native participants. Many Native Americans do not have or cannot afford computers with modems and/or access to the Internet. The long-distance phone charges required by many dial-in systems are also a barrier. While this is true for Americans in general, the lack of these resources appears more pronounced in Native American communities. Also, OTA found that some e-mail list-servs created to discuss Native American concerns apparently are dominated by non-Native Americans, and may not reflect Native points of view and experiences.

---

[4]Search tools are under development worldwide. For example, Hyper-G, similar to and compatible with WWW technology, is one such tool under development to better organize and categorize very large amounts of information. The hyper-g discussion group can be subscribed to by sending the e-mail message "subscribe hyper-g <your name>" to the e-mail address listproc@iicm.tu-graz.ac.at.