global issues

Internet Communities

Linking the world

An Electronic Journal of the U.S. Department of State - November 2000 Volume 5, Number 3

From the Editors

Human history has moved from the Stone Age to the Agrarian Age to the Industrial Age, and now the Information Age is upon us. In the past, the transition from one epoch to the next occurred slowly, unfolding over generations, but now the Information Age has shaken many societies like a sonic boom, sending sudden waves of change in all directions.

A population explosion has occurred in cyberspace. Recent estimates indicate that more than 300 million people worldwide are using the Internet frequently, an online population that is 3,000 times the size it was just seven years ago.

Information Technologies allow us to manage, process, and synthesize data in entirely new ways, but other more profound trends are also at work. The applications of advanced Information Technologies are as diverse as the many forms of human endeavor, and their impact is equally varied, creating new connections, inspiring new methods, and building new alliances. True to the natural architectural work after which it is named, the World Wide Web uses strands of data to weave a fabric of connections unimagined 10 years ago. Internet communities are created from this cloth. They are not defined by physical location, but rather by interest, intellectual activity, purpose, or concern.

In this publication, we turn to specialists in a variety of disciplines to discover how Information Technologies are redefining traditional activities, and expanding old boundaries. Their observations are made with the realization that the Internet is rapidly transforming itself as users and innovators apply these technologies in ways we cannot yet foresee.

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ejglobal@pd.state.gov

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The Office of International Information Programs of the U.S. Department of State publishes five electronic journals that examine major issues facing the United States and the international community. The journals—Economic Perspectives, Global Issues, Issues of Democracy, U.S. Foreign Policy Agenda, and U.S. Society and Values—provide analysis, commentary, and background information in their respective thematic areas. All journal editions appear in English, French, and Spanish language versions, and selected issues also appear in Arabic, Russian, and Portuguese. A new English-language issue is published every three to six weeks. Translated versions normally follow the English original by two to four weeks. The order in which the thematic editions appear is irregular, as some editions publish more issues than others.

Current or back issues of the journals can be found on the Office of International Information Programs International Home Page on the World Wide Web at http://usinfo.state.gov/journals/journals.htm. They are available in several electronic formats to facilitate viewing on-line, transferring, downloading, and printing. Comments are welcome at your local U.S. Embassy (attention Public Affairs Section) or at the editorial offices:

Editor, Global Issues & Communications
Office of International Information Programs
IIP/T/GIC
U.S. Department of State
301 4th Street, SW
Washington, D.C. 20547
United States of America.
E-mail: ejglobal@pd.state.gov

E-Government: No Walls, No Clocks, No Doors

By William Peters & Charlene Porter

Governmental bodies large and small are moving into the digital age by making services increasingly available through the Internet.

Government "of the people, by the people, for the people" has been a United States ideal dating back to the 19th century. In the 21st century, information technologies have given citizens powerful new tools to achieve that goal.

The U.S. government offers citizens new ways to navigate the bureaucratic maze at a World Wide Web site called FirstGov (http://firstgov.gov/). When President Clinton launched the site with an Internet address to the nation on September 20, 2000, he described a service that gives citizens access to government information and services 24 hours a day, seven days a week, 365 days a year. A single online information portal connects Americans with the resources of one of the world's largest collections of Web pages—27 million pages of information located on 20,000 U.S. government Web sites. This message from the President greets the FirstGov site visitor:

"FirstGov allows users to browse a wealth of information—everything from researching at the Library of Congress to tracking a NASA mission. It also enables users to conduct important business online—such as applying for student loans, tracking Social Security benefits, comparing Medicare options, and even administering government grants and contracts. This monumental breakthrough in one-stop shopping for government services will help Americans across the country and around the world find the information and resources they need at a click of a mouse — quickly and easily."

Cyberspace service is what Americans want, according to a recent Hart-Teeter study conducted by the Council for Excellence in Government, a non-profit, bipartisan organization devoted to promoting better performance in the public sector. Investing government funds in e-government was cited as a priority by 68 percent of participants in the poll. That figure rose to 77 percent after surveyors described examples of government services online. Seven in 10 of the respondents who had visited government Web sites praised the quality of what they'd seen, and 60 percent said it was easy to find what they were looking for.

With 50 states, 3,100 county governments, and more than 12,000 cities and towns across the United States, decisions on how to take government online are being approached in myriad ways. However it is approached, e-government must have the support of political leaders, government administrators, and the public, according to officials creating these "electronic capitals" at the state and local government levels.

Some governments are moving more slowly than others, but two jurisdictions bordering Washington, D.C., the nation's capital, offer strong examples of how information technologies can improve the relationship between government and the people.

The Web site maintained by the County of Fairfax, Virginia (http://www.co.fairfax.va.us/fairfax.htm), began as a trial project in 1995. It is a county with

income and education rates exceeding the national average, statistics which correlate with higher levels of computer use. Today, the site averages 1 million visits per month. In an interview, Fairfax's Chief Information Officer David Molchany said, "We didn't know who was going to use the site or how they would use it, or if it would be successful .... (Now) Its use by citizens is just amazing."

Another factor in the public's acceptance of the Web product is that this county of 1 million people has one of the nation's highest concentrations of information technology companies. As a result, when the Fairfax County officials began to promote "a government without walls, doors, or clocks," they spoke to a population more receptive to the idea than might be found in many more rural or less affluent parts of the country.

North of Fairfax, the state of Maryland's more than 5 million people also fit a profile that indicates greater likely willingness to accept e-government. Marylanders have higher incomes and higher education levels than the national average, and most of its population lives within the urbanized areas surrounding Washington, D.C., and Baltimore, Maryland. The state government, based in the capital of Annapolis, began taking its functions online in 1995.

Maryland's Chief Information Officer Alisoun Moore emphasizes how the latest information technologies give citizens greater opportunity to get involved in government. "In Maryland, we now broadcast on the Internet every legislative session —audio broadcasting. You can contact every single one of our legislators, and every government official .... So every citizen has access."

Molchany also cites citizen access as an important component in his jurisdictions' 5-year-old foray into cyberspace. E-mail allows citizens unprecedented access to the Board of Supervisors, the county's top governing board, which is empowered to make decisions about how trash is collected, how land is used, and how police, fire, and emergency services are provided.

Molchany said Fairfax County has adopted a citizen communication tracking system for E-mail communications. "When supervisors get e-mails and letters, they can actually track the course of the issue so they know they are being responsive to the citizens."

The imperatives of citizen access and bridging the digital divide between computer "haves" and "have-nots" also extend to the types of technology in use by these governments. Recognizing that not every household has acquired a computer, the County of Fairfax and the State of Maryland have both included integrated voice response (IVR) technology into their efforts to establish better communication with citizens. IVR gives citizens access to a variety of services and recorded information about government programs with the use of a touch-tone phone.

Moore said attempting to close the digital divide is another goal for Maryland's online-government services. "It's so important that we would err on the side of openness rather than being too closed and restrictive."

The County of Fairfax Web site offers an online catalog of available services: leisure, human services, public safety, government, and courts. Delving into the sub-page on leisure, for example, the visitor can locate all of the county's parks and recreation facilities, peruse recreational opportunities, and even reserve a tee-time on the golf course.

While much of what is on the site now is informational only, Molchany said the Web site will soon incorporate more interactive services, allowing visitors to pay taxes, or register for an exercise class online.

Maryland's Electronic Capital Web site (http://www.mec.state.md.us/) offers information and links to the entire range of state services, in addition to consumer-friendly advice such as "How to Get Things Done in Maryland." A visitor can find information on a vacation spot in Maryland, employment in state government, or the status of a pending bill in the legislature. The site also allows easy navigation to sites outside of the state bureaucracy: colleges, universities, businesses, and local governments.

Beyond communication about services and activities, Moore sees Maryland's "Electronic Capital" as an extension of the government's commitment to creating better communities and to improving the quality of life and the standard of living for citizens. "It's everything from the political freedom to the physical environment, schools, and parks, and so on. Government must use technology to support and encourage the development and use of these resources."

In their work to create electronic government sites, Molchany and Moore have now also become disciples attempting to convert other leaders to a belief in what the Internet can do and the opportunities it can bring to citizens. Molchany is now part of a statewide Digital Opportunities Taskforce in Virginia devoted to helping communities in less developed areas create "e-communities." He said, "We're going to try and build different blueprints or templates that we can hand out to different size computer communities and say, 'Here are some things you can do to actually get your citizens connected, to get them online.'"

Moore raises the global question about the Internet's potential to loosen the grip of dictators and autocrats, allowing a greater flow of information into insulated societies. The Internet, Moore said, "is like an electrical grid, an information grid, an information highway, that you can literally get anywhere in the world (and) get information .... The Internet makes it possible for people to get knowledge and use knowledge, and basically you can't keep the people ignorant."

William Peters is the editor of Global Issues. Charlene Porter writes on communications issues for the Office of International Information Programs, U.S. Department of State.

Education for the 21st Century: Using Technology to Enhance Teaching and Learning

By Linda Roberts
Director, Office of Educational Technology
U.S. Department of Education

"All of our students deserve well-trained teachers, Internet access, and appropriate educational technology in order to help them learn, to help them get to college, and to help them succeed in 21st century jobs. To achieve this goal, we need to reach out to the poorest of the poor, which means working hard to provide equal access to a quality education. That is a key civil right for the 21st century."

U.S. Secretary of Education Richard W. Riley

When Secretary Riley made these remarks in a recent speech, he called on teachers, students, parents, and business people to build partnerships to advance the use of computers and the Internet for learning.

As U.S. educators and technology experts think about the classroom of the future, they see many new tools and possibilities, from e-books that carry literally limitless amounts of information to global classroom communities gathering scientific data in joint projects.

Ensuring that teachers and students in U.S. schools —particularly those in rural and economically disadvantaged areas—have access to effective technology has been one of the Clinton administration's major education initiatives since 1994. The passage of the Telecommunications Act of 1996 was one of the first steps to help accomplish this goal. The act increased access to telecommunications by establishing the "E-rate". Also known as the Universal Service Fund for Schools and Libraries, the E-rate gives discounts on the cost of telecommunications services and equipment to all public and private schools and libraries. Since its enactment, the program has provided more than $4,000 million in universal service funds—lowering the cost of access to the Internet for schools and libraries.

With funding from the U.S. Department of Education, the Urban Institute (a Washington-based research organization) conducted a study of the E-rate's implementation so far, finding that 75,000 schools, 13,000 school districts, and 4,500 library systems have applied for funding under the E-rate program to improve telecommunications equipment and services. The Urban Institute's analysis found that E-rate targeting works. The neediest schools were getting the most funds. According to the study, the poorest schools (those in which half their students were eligible for free and reduced-cost lunches) represented only 25 percent of public schools but received 60 percent of the funds.

That's only part of the progress. There's been more, as educators and policy-makers all over the country have come to the same realization about the imperative to incorporate the newest computer and communications technologies into the experiences of our students.

Developed with broad input from educators, academic experts, technology developers, and state business leaders, the U.S. Department of Education's National Plan for Educational Technology focused public, private, state, and local attention on educational technology for the first time. In

response, every state has developed a plan to integrate the use of technology into instructional programs, to develop teacher training in these technologies, and to devise financing plans. In addition:

•. Between 1993 and 1999, the percentage of classrooms with Internet access grew from 3 percent to 65 percent. By the end of this year, 100 percent of schools are likely to be connected to the Internet and individual classroom connections will continue to increase.

•. In 1993, only 19 percent of the nation's poorest schools had Internet access. By 1999, 90 percent were online.

•. The percentage of teachers receiving professional development training in the use of information technologies increased from 51 percent in 1994 to 78 percent in 1998.

With these achievements as a strong foundation, and with the passage of four years since the development of the first plan, the Department of Education is now revising its National Plan for Educational Technology. The use of technology in education has catapulted to the forefront of national interest, based largely on its ever-increasing influence on economic growth, and its potential to transform the teaching and learning experience.

Our priorities are clear:

•. All students and teachers will have universal access to effective information technology in their classrooms, schools, communities, and homes. Fostering learning anytime and anywhere requires the universal availability of the appropriate learning tools.

•. All teachers will effectively use technology. The need for training is ongoing and must not only be about how to use technology, but also about how to support student learning.

•. All students will be technologically literate and responsible cybercitizens. Understanding how to locate information, determine its relevance and accuracy, and then integrate it with other sources will be an ever-more important skill in a rapidly changing world.

•. Research development and evaluation will shape the next generation of technology applications for teaching and learning. The incorporation of technology into educational programs is not foolproof. It is critical that we know which methods are working and which are not as e-learning becomes a greater component of the instructional system.

•. Education will drive the e-learning economy. The delivery of educational and related services over the Internet could well become the next most significant innovation application of the Internet, so we must also foster innovation in learning techniques.

Information and computer technologies offer students multimedia, interactive capabilities, and access to knowledge and expertise located far from their classrooms. Technology must be an integral part of education reform, but technology alone is not sufficient. Just as important are high-quality learning resources and well-trained, dedicated teachers in every classroom. Only then can students make the most of the new technologies.

The Internet as an Ever-Expanding Platform for Global Research

By Lori A. Perine
Deputy to the Associate Director, Technology
White House Office of Science and Technology Policy

The power of the Internet for enabling advances in basic scientific research, coupled with its expanding international reach, is providing opportunities for discoveries that bridge nations and scientific disciplines.

The history of technology is full of examples of revolutionary science and technology advances with surprisingly humble origins. Such is the story of the Internet. Like the printing press, the 15th century technology to which it is often compared, the Internet today is spawning global economic and cultural transformations that began three decades ago as a simple effort among scholars and researchers to more easily share knowledge and resources.

In the late 1960s, four American universities were engaged in research of defense-related applications for computers. The applications, forerunners of the software and services now in common commercial and personal use, tested the limits of computational power available at the time. The research teams began to explore ways of sharing their data and computational power among themselves. The obvious solution, establishing a data network between the four university sites, carried with it a major technical challenge: the computers had to be connected in a way that would allow the network to continue to function, even in face of military attack.

The U.S. Defense Advanced Research Projects Agency (DARPA) agreed to fund this "internetting project." A networking technique known as "packet switching" was developed that allowed data traveling along the network to reroute itself if any part of the network should cease to function. The first network connected researchers at four universities and was completed in 1969, establishing the first nodes of what would eventually become the Internet.

As the network grew in the early 1970s to encompass more than 100 research sites, there was an increasingly pressing need to find a "common language" for communication between different types of computers. The Transmission Control Protocol/Internet Protocol (TCP/IP) standard emerged in 1974 as a way of addressing and transporting data packets along the "network of networks" that had evolved. By the late 1980s, the population of Internet users and network constituents expanded internationally and began to include commercial facilities.

With packet switching and the TCP/IP standard forming the basic underlying technologies, the invention of the World Wide Web in 1990 at the European Organization for Nuclear Research (CERN) in Switzerland expanded the potential of the Internet beyond education and research communities. Created so that researchers around the world could easily access and retrieve information in a variety of formats from remote sites around the world, the technology made applications as diverse as telemedecine and e-commerce possible. Today, the Internet connects numerous networks in educational and research institutions, businesses, and government organizations across the globe. The set of technologies originally developed to meet basic communications needs of military and academic researchers now

provide the technology platform for international communications, collaboration, and commerce.

GLOBAL COLLABORATION

Today's Internet remains a vital tool for collaboration within the research community. The power of the Internet for enabling advances in basic scientific research and expanding education is such that U.S. academic and government researchers are primary partners in developing the next generation Internet. These advances in network speed and robustness, coupled with the expanding international reach of the Internet, also provide enhanced opportunities for discoveries that bridge nations and scientific disciplines. Researchers exploring complex and interdisciplinary problems can access large data repositories, tap into computational resources, and consult with colleagues from around the world. Using advanced visualization technologies and collaborative environments, scientific colleagues can view, interact with, and control a single experiment from multiple locations. The examples below illustrate the scope and breadth of current international collaborations made possible through the Internet.

Student-to-Scientist: The Global Learning and Observation to Benefit the Environment (GLOBE) program of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, is a worldwide partnership of students, teachers, and scientists collaborating internationally in studies of the global environment. Through the Internet, scientists and students work together as an extended research team. Hundreds of thousands of students and more than 15,000 teachers in more than 9,700 schools in 95 countries collect and send weather data via the Internet to GLOBE. They then use the extensive analysis and visualization capabilities of the GLOBE Web site (http:www.globe.gov) to view graphs and maps and study weather phenomena worldwide.

Scientist-to-Scientist: In December 1999, SIMnet, an Internet-based interactive system, demonstrated real-time comparisons of scientific measurements performed at meteorology laboratories throughout the Americas. The SIMnet project, developed by the Commerce Department's National Institute of Standards and Technology, was tested by 12 countries, including Argentina, Brazil, Canada, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Panama, Trinidad and Tobago, the United States, and Uruguay. With support from the Organization of American States (OAS), SIMnet helped to accomplish two major objectives set at the 1994 Summit of the Americas: increasing cooperation in science and technology, and promoting prosperity and free trade by eliminating technical barriers to international trade. The new system provides multiple clients with the ability to share real-time Internet-based audio, video, data, and applications in order to develop and agree upon technical meteorological standards and certifications.

The United States and European Community are also collaborating on a research agenda for global access to large scientific databases in biology, physics, the environment, and other disciplines. The research community is generating large amounts of valuable data, and new technologies are needed to store, access, and fully extract relevant information. The Internet and associated networking technologies are vital to the success of this endeavor, since a crucial requirement for collaboration is trans-Atlantic data communications that provide high bandwidth, high availability, and low latency.

Denizen-to-Denizen: Commercial and non-profit researchers are exploring new Internet applications and appliances to help bring thousands of millions of world citizens into the digital economy. A large Swedish telecommunications giant recently announced plans for the Ericsson Bangladesh Wireless Initiative, which calls for the launch of a mobile Internet service in Bangladesh in early 2001. This service would provide mobile telephone users access to the Internet using Wireless Application Protocol (WAP) without the need for expensive online computers. In a similar effort in Honduras, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and OAS sponsored the creation of a locally sustainable telecommunications network. In order to adapt the technology to its rural location for use by local people, the network runs on solar power, and provides Internet connections through satellite downlinks.

Medical Expert-to-Caregiver: Biomedical research, public health, and individual healthcare are all areas where the Internet is providing new technology for collaborations previously not possible. Recently, a surgeon at Johns Hopkins University in Baltimore performed a complicated surgical procedure guided by video input coming over the Internet from another surgeon monitoring the surgery half a continent away. The surgical procedure was reported at the annual meeting of the American College of Surgeons. Similar technology allows x-ray images to be examined over the Internet by physicians at remote locations. These advances demonstrate the potential for providing quality medical care to disadvantaged or remote locations throughout the world. An equally important capability provided by the Internet is sharing online medical databases, biomedical data, and even basic healthcare information. Access to this type of information has the potential to revolutionize health and nutrition worldwide. Individual projects throughout the world are bringing together local medical providers, Internet content providers, and health specialists to create relevant information in an appropriate format, supported by a sustainable technical infrastructure.

International collaborations using the Internet can also aid in controlling the spread of infectious diseases. Scientists, medical personnel, and other healthcare professionals working together using Internet technologies report disease incidences to a central repository, thus providing a more comprehensive mechanism to identify and track the progress of infectious diseases. Current cultural beliefs that inhibit effective reporting and treatment of diseases can also be addressed. Computer kiosks can be made available to indigenous populations to gather public health information and provide healthcare tips anonymously, avoiding existing cultural taboos that have significantly hampered efforts to date.

NEW ENVIRONMENTS FOR DISCOVERY

The research community has been very creative in using the technology to establish global collaborations. As a result, a variety of innovative Internet applications are emerging as researchers use the network as a tool for scientific inquiry, and experiment with its use in potential solutions.

As the next generation Internet with its advanced capabilities evolves, scientists and engineers will be able to participate in dramatically new environments for discovery. High-speed, secure, and reliable communications promise to enable scientific and technical discoveries through virtual collaboration, access to complex information, high-fidelity scientific modeling of complex phenomena, and the sharing of data and computational resources — all without regard to physical location.

The technical promise of the next generation Internet is not the only thing that will determine the potential for future Internet-enabled collaboration among international researchers. Attention must also be given to issues of access, to basic connectivity, to advanced services, and to content. Ninety-five percent of the world's population has no Internet connection, and a distinct limit to collaborative opportunities. Where connectivity is available, scientific and research applications often require advanced, high-speed, low-latency capabilities that may not be supported by today's Internet. Providing this capability over long distances both nationally and internationally can be prohibitively expensive. Finally, content itself can present access issues. Interoperability of data formats (for example, scientific data or public health data), language translation, and presenting the information in a format that is understandable to the user are as important as underlying technology for delivering the content.

Technical research in networking and other information technologies can provide partial solutions for many of these access issues. However, associated technical, economic, and legal factors must be examined together so that the appropriate conditions can be established to facilitate Internet-based collaboration.

CONCLUSION

Scientists, engineers, and students are using the Internet to collaborate with colleagues throughout the world to share information and data, conduct basic research, and develop technology in areas as diverse as environmental protection, basic physics,

and monitoring emerging infectious diseases. The next generation Internet will create exciting new environments for discovery. Yet attention must be given to access issues that may be limiting opportunities for collaboration. Addressing the interaction of technical, economic, and legal factors can increase the potential for future Internet-enabled collaborative research.

Med Help International: Where There's a Doctor on the Web

An interview with Cindy Thompson and Phil Garfinkel, who together created Med Help International, a non-profit World Wide Web site based in Melbourne, Florida.

Look for "medical information" on the Web and one search engine will give you almost 7 million Web sites that deal with the subject. One of the earliest of those sites to go online is Med Help International (http://medhelp.org), currently visited by about 5 million consumers each month who use its services at no cost. Med Help is supported through corporate and institutional donations and is always in search of new sponsorship. Cindy Thompson and Phil Garfinkel developed the site after meeting in an online discussion in 1993. At that time, they each had undergone a long ordeal, coping with traumatic illnesses in their families. They also shared common frustration and dismay about their inability to find accurate medical information in the midst of their family health crises. Thompson and Garfinkel talked with Charlene Porter about how Med Help International began, how it has grown, and the services the site provides to consumers.

Question: How did the two of you come up with the idea for providing an information source for medical consumers?

Thompson: I vowed that if I was ever in a position to do something to help others avoid this kind of situation, I would. Then I ran into Phil.
It was actually on Compuserve (an online dial-up service), before the Internet was big. I said to Phil, "I would love to create a safe place where people could go to get the highest quality support when they need it most." He said, "I can build that, if you can find the doctors." My background had been in the pharmaceutical and biotechnology industries working as a headhunter (executive search and placement consultant) specifically with physicians. So it worked out really well.

Q: What was the state of development for the World Wide Web at that time?

Garfinkel: It didn't exist at that time.

Thompson: There was no WWW.

Q: What form did the earliest version of Med Help International take then?

Garfinkel: In April of 1994, we started with a 386 computer, two modems, and two phone lines. We put together what was known at that time as a bulletin board system or BBS. People could dial in. We had some articles online from various sources, and we asked other people to donate articles. They would dial in on phone lines through modems from the U.S. and Canada. Actually, it got as far as Europe. It got quite popular.

Thompson: I remember the *London Daily Telegraph*

did an article on us very early on, as did *Forbes* magazine very early in our development.

Garfinkel: Then by 1995, the Internet itself supported just a few functions. It supported e-mail, which was limited to certain programs. It was very difficult to navigate e-mail in those days. It supported a protocol called FTP (File Transfer Protocol) through which files could be transferred, and (the) Telnet (program), which allows a user to log on to a remote computer. We connected to an Internet Service Provider (ISP). There were very few of them in those days. And we had a live dial-up connection to our ISP, and we were on the Internet. So rather than having to make a long distance call to this BBS, people were able to come in through the Internet, log on, and browse our libraries. That was the first step.

Then shortly after, Web technology started evolving a little bit. We changed this BBS so that it would also provide Web service. It was about 1995. At that point, in terms of health information, there was us and the University of Iowa was out there (on the Web). The National Cancer Institute had an FTP presence, but not a Web presence at that point. I don't really remember too many others.

Thompson: Certainly Columbia University School of Medicine was out there. And we were the only three that I'm aware of who were offering consumer health information. We were strictly consumer-oriented, as opposed to researcher-oriented. We didn't care about offering professional information to doctors. We felt that there were many sites that could do it better than we could, but we could certainly speak to the consumer.

Q: Describe the various types of content that a person can access on your site when they've gotten a diagnosis of some difficult or rare medical condition.

Garfinkel: Let's say they're diagnosed with some kind of neurological disorder, for example. Initially they can search the site and read articles, descriptions, basic material about the disease in laymen's terminology. They can peruse questions and answers posted to doctors at the Cleveland Clinic Neurology Center regarding their specific conditions and side effects.

Q: So one individual can learn from the experience of another who's suffering from the same condition?

Thompson: Absolutely true. That also falls into our patient-to-patient network whereby people register with their first name, by a particular disease or disorder, and they can share experiences via e-mail.

We also offer a clinical trials database that is donated to us by Centerwatch (a clinical trials listing service online at www.centerwatch.com). So, let's say someone is diagnosed with a rare disorder or a horrendous disease, they can look through this clinical trials database and see if there are any trials that would be appropriate to them.

We also have a daily news feed that comes to us from Intelihealth (www.intelihealth.com), which is now teamed with Harvard University Medical School. Basically, what we've done is barter or trade information for viewers. I mean we will offer people visibility on our Web site if they share with us quality information. So we've done a lot of what we've done via the barter system. We give, they give, and everybody benefits.

Garfinkel: Consumers will post a question on the site that a doctor will respond to in a public forum, or in a message board. We've been at the forefront in this particular area over the years. That allows the consumer to get an answer to their personal question in a specific case, in somewhat general terms because obviously doctors can't diagnose.

Once the doctors have posted an answer, it gets archived. Subsequent people coming on the site can look up what was posted, and the answers. So we've cut out most of the chase (for information). So when the consumer does a search on chicken pox, for example, they might find answers that a doctor has given to a specific patient that might be appropriate to them also.

I guess the other thing to note is that we have a

very large collection of information now online. At one point, we had the largest collection of consumer information online anywhere with the exception of the National Library of Medicine.

Q: What has been the progression in the last five years on the number of visitors to your Web site?

Garfinkel: Initially, in August of 1995, I think we had about 38,000 visitors a month. In October 2000, we had about 5 million.

Thompson: And it has grown consistently every year.

Q: Are people visiting Med Help International because they're in remote areas or foreign countries lacking access to a large body of medical information? Who and where are your clientele?

Garfinkel: I think we have more than 120 countries represented. Eighty-five percent of our visitors are from the United States.

Thompson: After that, our largest number of visitors comes from Canada. Next highest is the United Kingdom, and next highest is Australia.

Q: What have you learned about the value of your site to visitors logging in from the developing world?

Thompson: We get e-mail from countries like Bangladesh and Pakistan. Visitors from parts of China have come to us saying, "We rely on your site because we don't have health care in our town or our village."

We had a beautiful e-mail from a missionary who said about once a week he got into a town where he could access the Internet and he would visit our site to look for information to help patients with various diseases. He used our site all the time.

People in Alaska come to us quite a bit, looking for help. They're out in the bush with little medical care available. They have satellite connections to the Internet. They can come to Med Help International and ask their questions and get answers.

Garfinkel: One other point to note is that we've been building these communities of visitors who have similar conditions such as heart problems or neurological problems. They tend to attract people with chronic diseases, so that these people are logging on daily, chatting with each other, sharing information. So from these communities, we have an awful lot of repeat business, if you will.

Q: The site is very explicit in explaining to visitors that the forums are not intended to offer diagnoses, and visitors really must see their physicians for specific information. Do you have fears that visitors may not take these warnings seriously enough, that they'll use sites like yours to make self-diagnoses?

Thompson: I hope there has been enough news coverage worldwide about that very issue, cautioning everyone about anything on the Internet, not just medical information, but any kind of information. So we hope that people are aware that it's for educational purposes or support purposes. It is certainly not a place you can get a diagnosis, and anyone who claims to offer a diagnosis is not dealing with the public squarely.

Q: There are few things more personal than describing a medical condition or disease. How do you strive to protect the privacy of your site visitors?

Thompson: That's one of the reasons we don't offer e-mail replies to questions posed to doctors, because of the security issues. E-mail can be altered, and can be grabbed via the Internet. Phil has developed customized software on our site that guarantees that the doctor answering the question in one of our forums is indeed a doctor from one of the organizations working with us. We don't ask people to give us any personal information other than a first name, and an e-mail address, which we don't share with anyone.

Garfinkel: They surf anonymously, and they post anonymously.

Q: The advice visitors get from doctors is an important service, but do your visitors find that the networking capability is just as important, finding other people perhaps with the same condition who

have compassion and understanding of their problems?

Thompson: Equally important, yes. The support that people show each other can be incredible. Just finding out that you're not alone in the world, you're not the only one with a chronic disease or disorder. I know myself I have seen things on our Web site about a condition I have where I say, "Gee, I've had that same reaction. Isn't that interesting, I'm not the only one." So it's very nice to have that information and support.

Q: On the patient support sub-page at the Med Help site, you have this quotation posted: "The deepest need of man is to overcome his separateness and to leave the prison of his aloneness." Those are the words of prominent psychologist Erich Fromm. How does that quote reflect the goals of Med Help's patient support page?

Thompson: Based on the "thank you" letters we receive every day, and based on the threads running through the forums, I think we've been very helpful in not only helping people connect with the highest quality medical information, but also to connect with others who share the same disease or disorder, and offer support via those means.

Garfinkel: Every time we go through frustration and heartache and heartburn, then all of a sudden one of these letters will come in and we say, "Wow!"

Thompson: It reminds us why we're doing this again.

Garfinkel: On an altruistic level, we've achieved many, many goals that we set out to do in 1994.

Thompson: Exceeded! When we started our BBS, you can't imagine how excited we were when there were two people online at the same time. We sat there and watched the lights (on the systems console) and said, "Oooh! There are two people on our site at the same time." Now 100,000 could be on the site at the same time. It's just incredible. Not only our site, but the Internet has changed the world.

Garfinkel: There were about 1 million sites on the Web in the mid-90s, and now there's about 1 billion (1,000 million). That's what the growth has been.

Thompson: I have felt for years that the Internet can create, probably will create, the best means for Third World countries and rural areas to access information, not just medical information, but all sorts of information, that can spur growth in those areas.

Garfinkel: Our mission is being achieved and I think the general level of patient and public education has been raised enormously, not just through our efforts, but through the efforts of many other organizations also. The Internet is basically a leveling mechanism whereby each individual now can get access to some of the best minds in the country.

Charlene Porter writes on communications issues for the Office of International Information Programs, U.S. Department of State.

Old Strategy and New Tactics Drive Environmental Advocacy on the Internet

By Thomas Beierle
Research Fellow, Resources for the Future

The Internet has become a new kind of meeting place where activists find like-minded people to promote their causes. Environmentalists have been particularly effective in using cyberspace to protect the earth.

As thousands of protestors besieged the city of Seattle, Washington, in December 1999 to decry the policies of the World Trade Organization (WTO), a *Washington Post* editorial stated: "Last time trade liberalizing talks were launched in Uruguay in 1986, 12 nongovernmental organizations (NGOs) registered to observe the process. But the reach and clout of NGOs have since expanded marvelously, courtesy of the Internet."

Commenting on the same week-long series of events, columnist Sebastian Mallaby also argued in the *Washington Post*, "The Internet has handed these groups too much power to make their complete exclusion practical."

When did the Internet gain such clout? How can a technology only widely available within the last five years be proclaimed the cornerstone of one of the most dramatic displays of grassroots mobilization in the United States in recent years?

Just as the Internet is transforming many aspects of society, it is changing how NGOs organize and advocate. While the basic strategy for advocacy has not changed with the Internet, tactics have. Advocacy groups still attempt to influence policy by making persuasive arguments to decision makers, demonstrate broad support by mobilizing the public, and build coalitions with like-minded groups. But the Internet has introduced a variety of new techniques to influence and mobilize, and in doing so, it may be changing the nature of NGOs themselves.

The Internet's impact arises from its unique technological features. Unlike television or radio, the Internet allows "many-to-many," synchronous interactivity in a distributed and decentralized network. There are no geographical barriers and no intermediaries. The marginal cost of sending a message is essentially zero. Messages can be broadcast widely or, using the Internet's capacity for personalization, "narrowcast" to a targeted audience. All of these features mean that the Internet has unprecedented ability to connect, with great speed, communities of interest around the globe.

Environmental NGOs have been quick to use the Internet's networking capacity to create such communities and spur them to collective action. The art of advocacy rests on four strategic elements—communication, effective argument, public mobilization, and coalition building. The Internet brings new techniques to each of those endeavors.

New tools for communicating with policy-makers are perhaps the most obvious impact of the Internet revolution, but in some ways the least interesting. Petitions, letters, faxes, telephone calls, and office visits are the tried and true techniques of reaching legislators, executives, and other decision makers. The e-mail message is another of those tools. Simply as a means of conveying a message, however, e-mails are little different from

letters or faxes. In fact, the Internet's lack of geographic identifiers may actually weaken the impact of e-mails because legislators may be unable to determine whether an e-mail comes from a voter in their district or not.

The Internet's impact on the content of communication is more significant. The explosion of information available on the Internet, as well as increased access to analytical tools, gives NGOs the power that arises from strong, informed argument. The Internet gives the public unprecedented access to localized, specialized, and instantaneous data on environmental problems. Increasingly the public also has sophisticated tools for interpreting and analyzing data. Networks of users build their strength by using these powerful tools, then sharing their information and experience with allies to give their arguments greater potency and wider circulation.

Regardless of the strength of a group's message, ultimate influence depends on the ability to mobilize the public to act on that message. The Internet offers innovative new tactics using the same consumer targeting techniques as e-commerce Web sites. Online advocacy campaigns target issue alerts to citizens most likely to be sympathetic to the cause. The aim is not just to mobilize the public, but to build membership and develop a network of activists ready to act on short notice.

The American Heritage Forests campaign, for example, seeking to restrict road building in national forests, recently pushed White House servers to the limit with 170,000 e-mails generated by a campaign targeted at people with an affinity for outdoor activities. The campaign utilized the services of Juno, an online service provider that collects personal profile information about its 13 million subscribers in exchange for free e-mail, and then uses the data to target advertisements and issue campaigns.

Online targeting appears to allow environmental groups to reach entirely new audiences. In the American Heritage Forests case, for example, most people who took action were not already affiliated with an environmental group. Each participant was added to the campaign's advocacy network database for quick action on future issues. Similar tactics of identifying affinity groups can also be used for fundraising, an activity made easier by the advent of secure connections for transmitting financial information.

In addition to mobilizing the public, the Internet is a powerful tool for creating strategic coalitions. The WTO protests in Seattle, for example, involved the unlikely coalition of the United Methodist Church, the NGO environmental group Friends of the Earth, the Teamsters labor union, and the Steelworkers Union. Many of the groups involved in the WTO protests in Seattle in 1999 used similar online organizing tactics to thwart negotiations by the Organization for Economic Cooperation and Development (OECD) on the Multilateral Agreement on Investment (MAI) in 1998. Opposition to the MAI involved 600 groups in 70 countries. One person involved in the opposition related the power of the Internet in coordinating around the globe: "If a negotiator says something to someone over a glass of wine, we'll have it on the Internet within an hour, all over the world .... If we know something that is sensitive to one government, we get it to our ally in that country instantly. I don't think governments will ever be able to do these kind of secret trade negotiations again."

As the Internet introduces new tactics for advocacy groups to communicate, argue, mobilize, and coordinate, it may also be changing the nature of NGOs themselves. As more activities go online, the need for staff and membership offline diminishes. With an effective online advocacy campaign, even small public interest groups can have a big impact. Indeed, the Internet has created the possibility that advocacy groups can exist almost entirely in cyberspace. While in the past groups had to sign up members, and then mobilize them, Internet campaigns make recruitment and mobilization more seamless. The ability to run advocacy campaigns on a minimal budget has already threatened some national environmental NGOs, as regional and local chapters need to rely less and less on headquarters for membership and resources.

Just as some NGOs may be virtual organizations, their constituencies may be virtual as well. Analysts

have coined the term "astroturf" to distinguish one-time, online activism from solid grassroots membership and support. While advocacy groups have found people quite willing to engage in a one-time action, they have encountered a greater challenge in sustaining long-term interest and activity. Indeed, the perception that most online activism is actually astroturf has led to some creative strategies to mask the online origins of communications. Rather than sending e-mails, the click of an icon on some advocacy Web sites generates personalized letters or faxes, or even initiates a phone call between the computer user and a Congressional office.

Proclamations about the capability of the Internet to bolster the power of NGOs could be interpreted in different ways. The Internet may be helping to usher in a new era of direct democracy and robust civic engagement in which the unique technology of the Internet overcomes long-acknowledged barriers to identifying, organizing, and expressing legitimate public interest. In a pessimistic scenario, however, the move online may be putting extremely powerful tools in the hands of groups who are not representative of—or accountable to—any real grassroots membership, and whose campaigns respond to fleeting and ephemeral public whims. It is too early to tell which scenario will dominate the future of online activism. All we do know is that the Internet will continue to change the rules of the game for environmental advocates and decision makers for some time to come.

Thomas Beierle is engaged in ongoing analysis on the role of public involvement in environmental decision-making at Resources for the Future (www.rff.org), a nonprofit, nonpartisan organization, conducting research on environmental and natural resource issues.

Crafting the News in a Digital Age

By Brad Kalbfeld
Deputy Director and Managing Editor
The Associated Press, Broadcast Division

The digital age has created an entirely new medium for journalists. Just as they did during the earliest days of radio and television, journalists explore this new medium, learning how to find and present the facts in cyberspace.

A century and a half ago, covering international news was straightforward: wait for a ship to arrive from overseas, interview the passengers, then run as fast as possible back to the newsroom and try to beat the competition to print. Communications between countries involved physical presence. A reporter literally had to be there to hear the news and had to get back to the newsroom to file.

Journalism has changed dramatically since then, as technology, starting with the telegraph and telephone, has made it possible to find out about events without actually being there.

The Internet, of course, makes it possible to peek into many places without that physical presence, and while that is a boon to journalists and their audiences alike, it also carries certain risks.

The Internet connects uncounted computers around the world, making it possible for an elementary school student in Akron, Ohio, to read files on a university's server in Berne, Switzerland, or a journalist in Tokyo to see the latest news release on a government file server in Washington.

This makes the Internet an unparalleled research and reporting tool. A reporter today can, with a few minutes of searching on the World Wide Web, find information that would have taken hours of expensive long-distance telephone calls just a decade ago.

In addition, the Web has made it possible to interview someone without actually having a conversation. If a news source can't be reached by telephone, he or she can always be e-mailed.

Interviewing someone on paper isn't new, of course —Mark Twain famously told The Associated Press by telegram in 1897 that "reports of my death are greatly exaggerated"—but in today's world, the question and response can be exchanged in minutes, not the hours required for hand-delivery of a telegram, or the days it takes for an exchange to occur through the mails.

All this convenience has its drawbacks. How does a reporter know that the person receiving or answering the e-mail is the person they purport to be? There's no voice to recognize, no face to see —only an e-mail address, which the reporter may have obtained from a colleague, from a Web site, or from a news release.

The same problem arises when a reporter or researcher goes to a Web site for the first time. All the person sees is what the people who created the site want to be seen. So, for example, a person sitting in his garage could create a site that purports to represent a giant corporation. Because the reporter sees nothing more than the site—after all, the whole idea of the Web is that they don't have to physically be there—he or she has no way of knowing whether the corporation has one employee or a thousand.

In 1996, a site with the URL "www.dole96.org" looked, at first glance, like the official site of

Republican presidential nominee Bob Dole. A casual observer would not have noticed that it was, in fact, a parody site—surely not something the Dole campaign would have chosen to put on the Web itself. While no one can be certain of the motives of the author of that particular site, the use of misinformation to influence voters is nothing new—political history is full of examples of "dirty tricks" that rely on hiding the identity of the author. The Web raises the possibility of anonymous troublemaking to new heights because it provides so few obvious clues to the identity of a site's proprietor.

The Web might be used to subvert the democratic process, or to promote a freer society. During the political upheaval that eventually led to the downfall of Yugoslavia's President Slobodan Milosevic, the independent station B-92 took on a new Internet identity, B2-92, to keep information flowing after the government seized its radio and television studios.

From political debates to the investigation of airline crashes, Internet hoaxes have made their way into mainstream news reports, potentially damaging the reputation of the reporters and certainly misleading the public. During a 2000 election debate in the state of New York, the moderator asked candidates Hillary Clinton and Rick Lazio about their views of "Bill 602P," which was described as a proposal for the U.S. Postal Service to impose a five-cent tax on every e-mail sent on the Internet. Both Clinton and Lazio voiced strong opposition to such a tax. But there is no such bill. The television station that sponsored the debate says the question was received via e-mail in response to a public solicitation for ideas. The question made it to the debate even though the Postal Service had sent out an advisory in May 1999 saying that the bill was fictional.

This is not to say that everything on the Web is untrustworthy—or even that a majority of sites are. But it does mean that, with more information available to the general public (and journalists) than at any time in human history, the skills that journalists practice—fact-checking, identifying and qualifying their sources of information, and displaying a healthy skepticism about appearances—are more important than ever.

Edward R. Murrow once said that "a loud voice which reaches from coast to coast is not necessarily uttering truths more profound than those that may be heard in the classroom, the bar, or country store," an idea that clearly applies to the Internet. In an age of ubiquitous information, the integrity of the information assumes central importance. Consumers need to sort fact from gossip, and want to know that they can trust what they see. They will rely more heavily than ever on the journalistic practices of news organizations such as The Associated Press to identify sources of information and to verify facts.

Paradoxically, this also means that "being there" to cover news stories is more valuable than ever because of the premium put on having rock-solid facts. Few companies can afford to invest in in-person news coverage, but those who do provide a vital service to Web consumers. And without the costs of newsprint, without the time limitations of television and radio, journalists on the Web are free to present those facts in greater detail than ever.

What's more, the Web's point-and-click format makes it possible to present this depth in "layers." If a reader wants more depth, links are provided to sidebar stories, biographies of people quoted in the story, and transcripts of events. As digital technology progresses, viewers will be able to see the video of events as well as read the transcripts.

News sites even provide links to newsmaker sites, enabling readers to see for themselves, in great depth, the information provided by the people covered in the story, unfiltered by journalists.

This has transformational implications for news consumers and the journalists who serve them.

Despite its depth and extensive use of text and still photographs, Web journalism is not newspaper journalism. Even though it uses audio and video, and reports information in real time, Web journalism isn't broadcast journalism, either. It's something in between.

On the Web, the consumer is in control of how much depth he or she sees on a story, and whether the story is "experienced" through audio or video,

"described" by a reporter's prose, or both. It's like a newspaper on steroids—just as a reader can decide which stories to read, in what order, a Web viewer decides which stories to read and which links to click on. With so many choices, each consumer experiences each story in his or her own way.

How will all of this choice affect the news consumption habits of the public? It's too early for anything conclusive, but a June 2000 study by the Pew Research Center asked Americans who regularly get news online what kinds of news they seek when they log on. World news ranked fifth on the list, at 45 percent, behind weather, science and health, technology, and business news. Political news ranked eighth, being sought by 39 percent of those who regularly get news online.[1] Web viewers are clearly taking advantage of the ability to target specific kinds of information.

The biggest, most-visited Internet sites have links to general news coverage, giving consumers the opportunity to navigate through the top stories or click down to specific topics. There are, of course, editors for these information pages, people who make decisions about what stories to display most prominently (just like the lead in a newspaper or on a newscast), how much detail to put in, and what multimedia elements to link to each story. Most important, Web editors must bring to their sites the same journalistic standards of accuracy and objectivity that they bring to newspapers and broadcast stations. In a sense, that makes editing a Web site more difficult than editing a newspaper or a newscast, since the same high standards must be applied to the depth of a newspaper with the speed of a television or radio station.

With all of this work on the part of journalists—in-person reporting; gathering video, audio, and still photos; making graphics; verifying facts; and applying professional news judgment and standards of accuracy and objectivity—news gathering companies are making significant investments in Web journalism. The technology makes their work available to everyone. But the same technology also makes it possible for unscrupulous Web sites and other media outlets to misappropriate the results of a competitor's original work. It is possible for someone at home in an American suburb or a flat in a European city to make a Web site resemble a legitimate news site by swiping stories from others.

This, of course, is illegal, and harms the newsgathering organizations that make the investment to send reporters to cover stories and to check facts. But this sort of cybertheft is hard to police.

That is why copyright notices, and specific licenses regulating how information on the Internet may be used, are so important. Web viewers often think that, if they can see something, they can use it. Before downloading a photo or sound bite or article, the copyright terms—so easy to ignore—should be read and respected.

The consumer as editor, the use of technology to misinform, the need to protect intellectual property: it is surely a complicated world for today's journalists. The Internet is a powerful new reporting tool, giving reporters easy access to detailed information on the full range of human knowledge. The Web puts that power in the hands of the audience, too, coupling the blessing of availability with the curse of overwhelming volume.

One hundred fifty years ago, most newspaper readers couldn't get to that ship bringing news from overseas, so they needed journalists to do it for them. Today's news consumer can go directly to the source behind a news story. But even in the Internet age, journalists do more than bring information to the public. We've gone from an age of too little information to an age of overload. With all of the information now at the user's fingertips, Web viewers need context, someone to verify facts and identify sources, to make sure all sides of the story are told. The newsroom of the future needs to be better than ever at good old-fashioned journalism.

[1] "Internet Sapping Broadcast News Audience," Pew Research Center study, April-May 2000. www.people-press.org.

The State of the Internet 2000

Following are excerpts from a September 2000, report released by the U.S. Internet Council, self-described as a "nonpartisan, educational resource for state and federal policy makers." The council's goal is to provide reliable information and analysis on Internet policy issues. It is led by members of the U.S. Congress, state legislators from across the United States, and representatives from an array of information technology companies such as America Online, Apple Computers, Cisco Systems, Dell Computer, and Hewlett Packard.

The report is available in its entirety at: (http://www.usic.org/)

SOCIAL TRENDS

The Internet is changing lives. The Internet has made more information more accessible to more people. It is fundamentally changing the way we communicate and live. E-mail is quickly outpacing traditional postal service. According to Messaging Online, electronic mailboxes grew 83 percent in 1999, amounting to over 569 million. Online retailing is changing the way people shop and opening individuals to a global marketplace. Also, communities formed in cyberspace among individuals with mutual interests who are geographically distant are reshaping social and political debates on issues as diverse as banning landmines to controlling U.S. gun violence. These virtual communities are super-empowered by the net. They have the ability to reach farther and faster than ever before and can even mobilize their members through the efficiencies of the Web. The World Trade Organization (WTO) bore witness to this full power to mobilize individuals during the November 1999 meeting in Seattle and few have underestimated the influence of virtual communities since. As the Internet moves toward wireless access, the Web will increasingly become an integral part of our daily lives. Soon the Web will be available anywhere and anytime. The Internet is also changing the way we learn and creating new opportunities in education. Computers in schools and access to the Internet are improving the educational possibilities for millions of students. Moreover, classroom connectivity in the U.S. has increased dramatically over the last decade, giving more children the chance to receive the advantages of learning online. Distance learning on the Web is also offering opportunities to adults to continue learning with greater convenience. However, the digital divide remains and lower income households without access to the Web may feel more disconnected than ever ....

VIRTUAL COMMUNITIES

Virtual communities, which just a few years ago were little more than chat rooms, have expanded into all-encompassing portal sites. Today's virtual communities allow users to read the latest news, conduct online banking and other financial transactions, participate in chat rooms, send and receive email, play online games, listen to music, shop, and receive career-building assistance, to name the more common applications. Larger portals such as Yahoo!, eGroups, and About.com

cater to the general public, while other sites focus on a common link to attract Internet users.

Throughout 1999, a large number of these specialized portals were launched, covering all areas of life from child-rearing to auto repair. The purpose of these sites is to share information on topics of interest to the users. Here are a few examples:

The Women's Network (www.ivillage.com): Launched in early 1999, The Women's Network is the leading women's online community providing practical solutions and everyday support for women between the ages of 25 and 54. In the first quarter 2000, there was an average of 155 million monthly page views and revenue exceeded $20 million.

PlanetGov (www.planetgov.com): PlanetGov, launched in May 2000, is the first and only vertically targeted Web portal created specifically for government and military employees. The creators of PlanetGov surveyed government employees and built the site according to survey responses.

The AFL-CIO Online Community (www.workingfamilies.com): WorkingFamilies is a portal for union members and their families. In addition to providing many of the applications mentioned above, WorkingFamilies provides news on issues affecting unions and ways to become a politically active member of the AFL-CIO.

Another trend in the virtual communities arena is the use of Web sites, e-mail, and chat rooms to raise awareness and support for grassroots organizations and their initiatives. Small local organizations have received national and, in some cases, international attention through their Web sites. The Internet has quickly proven to be vital to such movements as:

Town Hall (www.townhall.com): Online since 1992, Town Hall is the central online address for dozens of conservative public policy, political, grassroots, and educational organizations and publishers. Sponsored by the Heritage Foundation, Town Hall promotes the exchange, discussion, and dissemination of the latest news and information from the conservative movement through chat rooms and news articles.

The International Campaign to Ban Landmines (www.icbl.org): An organization dedicated to raising awareness of the dangers of landmines, it uses its Web site to document national compliance with the 1997 International Landmine Ban Treaty. The Internet has allowed ICBL to reach a much wider audience, increasing public awareness and support since the organization began building its Web site.

The Million Mom March Foundation (www.millionmommarch.com): Initially a small California-based gun-control organization, this organization gained national attention and support for its Million Mom March on Washington, D.C., on Mother's Day 2000. Membership has swelled since the march, and organizers give much of the credit to their Web site and e-mail campaign for the large turnout and continued support of the organization.

Conservative HQ (www.conservativehq.com): A new venture led by Richard Viguerie, this site is a portal dedicated to becoming an international cyber-community of American conservative principles. The site offers chat rooms, e-mail, bulletin boards, and up-to-date political news and information of interest to conservative-minded individuals.

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BRIDGING THE DIGITAL DIVIDE
State Government News, Vol. 43, No. 9, October 2000, pp. 10-11, 23

Selected Internet Resources

INFORMATION TECHNOLOGIES

The Berkman Center for Internet and Society at Harvard University Law School
http://cyber.law.harvard.edu/

Center for Democracy and Technology
http://www.cdt.org/publications

Electronic Frontier Foundation
http://www.eff.org/

Internet Education Foundation
www.neted.org

Internet Society
www.isoc.org

InterConnection (A non-profit organization donating Internet services and support to developing world organizations)
http://www.interconnection.org/

The Internet Corporation for Assigned Names and Numbers
www.icann.org

Netaction, Virtual Activist
http://www.netaction.org/training/

United States Internet Council
http://www.usic.org/

GOVERNMENT

American Legislative Exchange Council
www.alec.org

FirstGov
www.firstgov.gov

E-Government
http://gov_affairs.senate.gov/egov

The e-Freedom Coalition
http://www.e-freedom.org/

National Conference of State Legislatures
www.ncsl.org

Thomas (U.S. Congress on the Web)
http://thomas.loc.gov/

EDUCATION AND DIGITAL DIVIDE

U.S. Department of Education, Office of Educational Technology
http://www.ed.gov/Technology/

Americans in the Information Age: Falling Through the Net
http://www.ntia.doc.gov/ntiahome/digitaldivide/index.htm/

U.S. Federal Communications Commission, E-Rate page
http://www.fcc.gov/learnnet/

Get Net Wise (A Parent & Child Internet Guide)
www.getnetwise.org/

SCIENCE

Popular Science Magazine
http://www.popsci.com/

National Academy of Sciences
http://www.nationalacademies.org/nas/nashome.nsf

National Science Foundation
http://www.nsf.gov/

HEALTH

The Center for Patient Advocacy (A nonprofit consumer health coalition)
http://www.patientadvocacy.org/

Healthfinder (A guide to health information from the U.S. Department of Health and Human Services)
http://www.healthfinder.gov/

Mayo Clinic Health Oasis (A consumer health information center sponsored by a respected U.S. health care center)
http://www.mayohealth.org/

Med Help International (Consumer Health Information)
http://www.medhelp.org

U.S. Centers for Disease Control and Prevention, Health Topics A-Z
http://www.cdc.gov/health/diseases.htm

U.S. Food & Drug Administration, Buying Medicines and Medical Products Online
http://www.fda.gov/oc/buyonline/default.htm

ENVIRONMENTALISM

EcoNet (The environment forum for the nonprofit Institute for Global Communications, devoted to the use of communications technologies as activist tools)
http://www.igc.org/igc/gateway/enindex.html

The Nature Conservancy
http://www.tnc.org/

Sierra Club, Take Action!
http://www.sierraclub.org/takeaction/

U.S. Environmental Protection Agency
http://www.epa.gov/

JOURNALISM

The Annenberg Washington Program (Northwestern University, Communications Studies Program)
http://www.annenberg.nwu.edu/

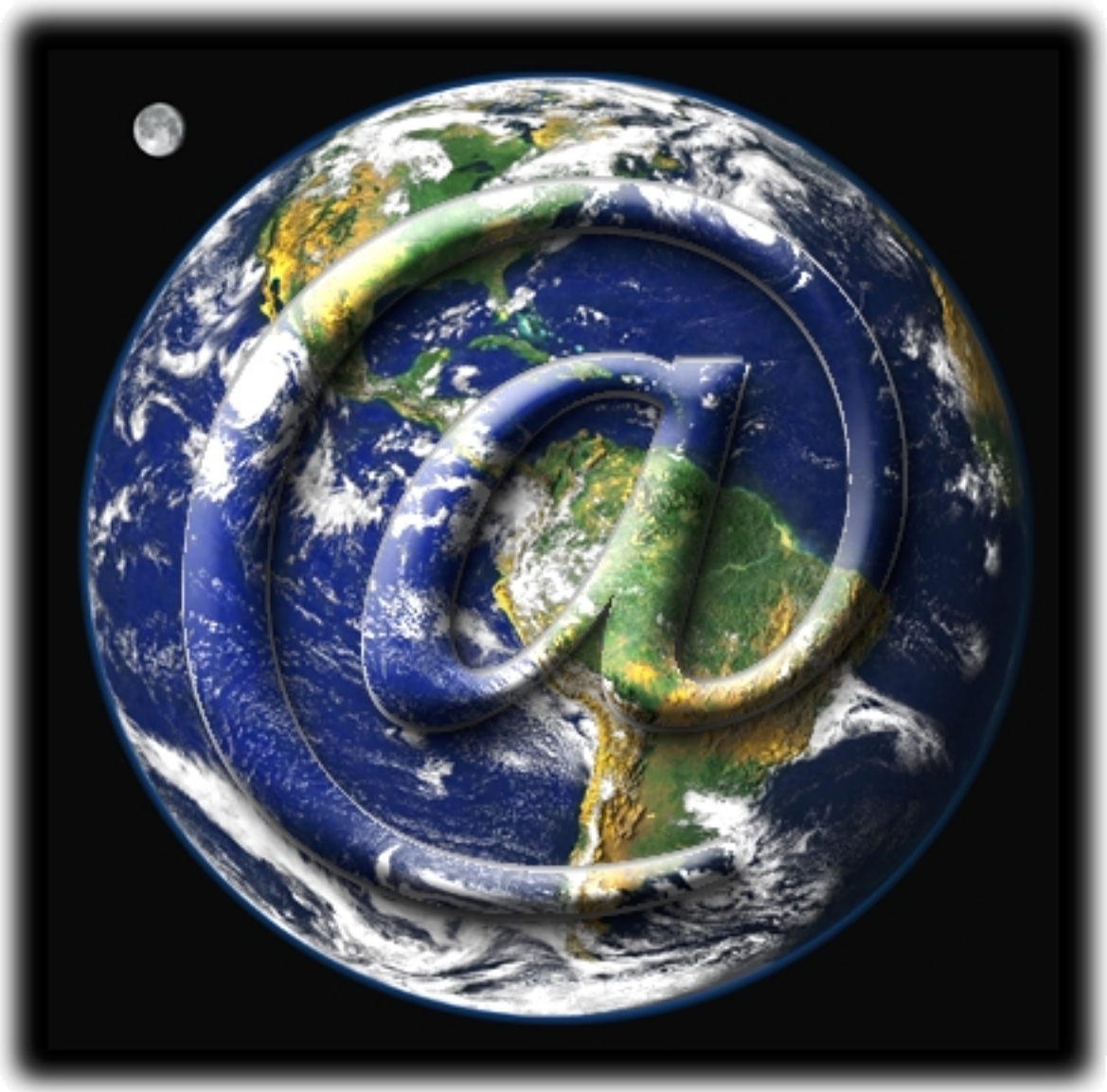
Center for Media Education (A nonprofit organization working to insure that the media serve the public interest)
http://www.cme.org/

International Press Institute (A global network of journalists devoted to freedom of the press and improving journalistic practice)
http://www.freemedia.at/index1.html

Newspapers Online (A reference guide to the world's newspapers)
http://www.newspapers.com/

global issues

Internet Communities



Linking the world

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