

Here is a tool for revolution. This manifesto is the first clear, simple, activist proposal for creating a new communication medium, and a call to action for everyone, not just the computer cognoscenti.

The following document started out as the testimony of Mitchell Kapor before the House Subcommittee on Telecommunications and Finance. The testimony was prepared by Kapor (founder of Lotus Development Corporation, one of the most successful entrepreneurs of the personal-computer revolution of the 1980s, and cofounder of the Electronic Frontier Foundation), in consultation with Jerry Berman, director of the ACLU Information Technology Project, and Daniel Weitzner of the EFF's Washington office. The proposal began circulating electronically and has been specially revised for WER. Read it. Copy it. Pass it around. If enough people understand this vision, and make their voices heard, the tip-rudder effects could be enormous.

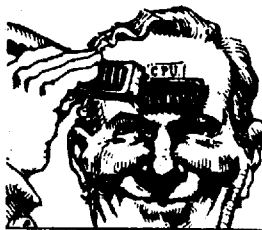
The authors outline a system of information services that could become available relatively soon to every household with a telephone. Most importantly, the authors (who consulted with a well-informed on-line brain trust that has debated these issues for years on computer networks) present a simple and bold plan for protecting civil liberties and equity of access as well as preserving competition in cyberspace.

The past several decades have taught us that decisions about technologies can ripple out to change fundamental aspects of our lives. Most of what we have learned has been illuminated by the power of hindsight — the social impact of the telephone and the culture-shaping power of television were not fully understood until many years after their introduction. Now we have the benefit of well-informed and public-spirited people who understand the nature of the technologies that are emerging from the laboratories, and who have visions of political and regulatory safeguards that could allow us to actively shape the new technological regime, rather than passively waiting for it to do to us what it will do.

In WER #70, Roger Karraker's "Highways of the Mind" introduced the issues involved in the National Research and Education Network (NREN) debate in Congress. That article has been passed around Washington, circulated electronically, reprinted by librarians and activists; it seems to have had some effect in helping to draw attention to the cultural and political benefits of a truly public communication network of the future. But NREN is a half-billion-dollar R&D program to create fiber-optic superhighways linking supercomputers — a massive project to create a whole new communications system. The system proposed here, a National Public Network, could be an "NREN for the rest of us."

The EFF (WER #71, p. 40, "The Electronic Frontier Foundation and Virtual Communities") is a public-interest organization established in 1990 to educate the public about the democratic potential of new computer and communication technologies. EFF works to maximize freedom, competitiveness, and civil liberty in the electronic social environments being created by these new technologies. For more information, write EFF: 155 Second Street, Cambridge, MA 02141. —Howard Rheingold

We Need A National



Matt Wuerker

IN THE PAST, new communication technologies such as the telephone and television have evolved into industries and regulatory structures that are frozen into place before most people understand the way these media affect their lives. By then, it is too late to shape policies. Because we are at a historical crossroads of telecommunication policy, and because citizens today are unusually well-informed with regard to the potential of new communication technologies, we have a rare opportunity to shape this new medium in the public interest, without sacrificing diversity or financial return.

The Infrastructure Challenge

The telecommunications policy debate has largely been framed as a struggle among entrenched commercial interests over who will control and dominate markets such as information services, manufacturing, and long-distance service. With the following proposal, we hope to refocus the debate by defining public goals and specific steps that can be taken to achieve them. Public policy should be guided by an overarching social vision of what we call the National Public Network, a vibrant web of information links to serve as the main channels for commerce, learning, education, politics, social welfare, and entertainment

BY MITCH KAPOR,
JERRY BERMAN, &
DANIEL WEITZNER

1. *Create an open platform for innovation in information services by speedily deploying a nationwide, affordable "Personal ISDN"*

To achieve the information diversity currently available in print and broadcast media in the new digital forum, we must guarantee widespread access to a platform of basic information services. Such a platform offers the dual benefit of helping to create opportunities for competition in the information-services market, and stimulating the development of new services.

Public Network

in the future. This network will include the existing voice telephone service, along with video images, sound, and hybrid forms of communication.

We need more than just safeguards, entry-level tests, or new telephone-company investment in information services and fiber optics. In order to ensure a level playing field, encourage diversity, and safeguard the freedom of users, we must build an open telecommunications platform upon six principles:

- ☛ establish an open platform for information services by speedy deployment of "Personal ISDN (Integrated Services Digital Network)" nationwide;
- ☛ ensure competition in local exchange services;
- ☛ promote First Amendment free expression by reaffirming the principles of common carriage;
- ☛ foster innovations that make networks and information services easy to use;
- ☛ protect personal privacy; and
- ☛ preserve and enhance equitable access to communications media.

Some suggest that the technology necessary to offer such a platform is far from realization, and that it would require billions of dollars of investment in fiber optics. Actually, we have a platform within our reach right now. An Integrated Services Digital Network is a means of using the existing copper telephone wires that run into most homes as a channel for communicating both voice and data — text, video, graphics. Personal ISDN could make voice, data, video, high-speed fax, and multimedia services available *today* to telephone subscribers all around the country. ISDN as a key information-services technology is well known in the communications industry, but its potential as a universal platform is not properly appreciated, nor has it been properly priced and positioned by the Regional Bell Operating Companies (RBOCs) as a basic service for everyone, including consumers and small businesses.

The most valuable contribution of the 1980s computer industry was not a machine, but an idea — the principle of open architecture. Typically, a hardware company neither designs its own applications software nor requires licenses of its application vendors. Instead, the hardware company creates a "platform" — a common set of specifications, published openly so that smaller, independent firms can develop products to work with it. In this way the host company profits from the smaller companies' ingenuity and creativity.

In the early stages of development of an industry, low barriers to entry stimulate competition. It should be as easy to provide an information service as to order a business telephone. Large and small information providers will probably coexist as they do in book publishing, where the players range from multibillion-dollar international conglomerates to firms whose head office is a kitchen table. Large and small publishers can coexist because everyone has access to

production and distribution facilities — printing presses, typography, and the U.S. mails and delivery services — on a nondiscriminatory basis.

To achieve the information diversity currently available in print in the new electronic forum, we must guarantee widespread accessibility to a platform of basic services necessary for creating information services of all kinds. The platform offered must have these key characteristics:

Critical Mass of Features

Existing ISDN standards, once fully implemented, offer switched, high-speed, error-free data communications which can deliver a variety of advanced information services. Many of the capabilities once thought to be possible only on an all-fiber network, such as interactive full-motion video, can be achieved to a significant degree over Personal ISDN. Continuing revolutions in compression technology make it possible to use copper-wire-based ISDN to carry video signals to their destination, at which point they are uncompressed through use of increasingly inexpensive processors, which are built into computers, televisions, and other consumer electronic equipment.

Ubiquity

To create a market for information services, everyone must be able to reach the platform. We must build the new public network by making it easy for people to connect to it with a few simple decisions. An analogy to the personal-computer market is helpful. Minicomputers and mainframes were marketed to companies. Microcomputers (PCs) were marketed to individuals. Personal ISDN can reach into every home and every small business without laying a single mile of fiber optic cable. Telephone-company data indicates that over the next three years a majority of central office switches will be upgraded to the requisite digital capability.

Affordability

Even if they are ubiquitous, platform services are useless unless they are also affordable. Just as the voice-telephone network would be of little value if only a small fraction of the country could afford to have a telephone in their home, a national information platform will only achieve its full potential when a large majority of Americans can buy access to it. All the available information indicates that ISDN can be priced as a basic service. The cost of carrying a digital ISDN call from the customer to the local switch is just

the same as an analog voice call in the digital switching regime that ISDN presupposes. There are some fixed investment costs still to be incurred in order to upgrade the nation's central office switches to handle ISDN traffic, but commitments to these investments are largely already made.

What is needed is a new standard, minimum platform for information exchange. ISDN must be repositioned as a basic service, available to consumers and small businesses. This service can be the test bed for a whole new generation of information services that could benefit the American public.

2. Ensure competition in local exchange services

Many consumer and industry groups are concerned that as the MFJ (Modified Final Judgment — the Justice Department's breakup of AT&T) restrictions are lifted, the RBOCs will come to dominate the design of the emerging National Public Network, shaping it more to accommodate their business goals than in the public interest. The bottleneck that RBOCs could create on local exchange services critical to information providers can be minimized by unbundling these services and allowing non-BOC providers to offer them in competition with BOC local-exchange companies.

Some suggest that an entry-level test is necessary to guarantee that alternative infrastructure is developed for information-services delivery. Alternative pathways are a useful and necessary part of our telecommunications infrastructure, but first and foremost we must find ways to open up the existing public switched network to competition at all levels. Competition will promote innovation in the services on which information providers rely, and help guarantee equal access to all local-exchange facilities. The post-divestiture phone system offers us a valuable lesson: a telecommunications network can be managed effectively by separate com-

panies — even including bitter opponents like AT&T and MCI — as long as they can connect equitably and seamlessly from the user's standpoint. Together with the open platform offered by a Personal ISDN, unbundling and expanded competition are keys to ensuring equitable access to local-exchange services needed for information-service delivery.

3. Promote First Amendment free expression by affirming the principles of common carriage

In a society which increasingly relies on electronic communications media as its primary con-

How to Get Information

"Open Platform Overview"

This is the document you are now reading. It summarizes our policy recommendations for the creation of a ubiquitous, affordable, open telecommunications platform based on ISDN. A slightly different version was printed in *EFFector 2.01*. Additional copies may be obtained via electronic mail: send a message to archive-server@eff.org, any subject, with body: send documents open-platform-overview. Or via anonymous ftp from [eff.org/pub/docs/open-platform-overview](ftp://eff.org/pub/docs/open-platform-overview).

"Testimony of Mitchell Kapor Before the House Subcommittee on Telecommunications and Finance Regarding Telecommunications Infrastructure Legislation and Proposals"

This is the complete testimony presented to Congress, which is the full text from which the "Open Platform Overview" was prepared. Via electronic mail: send a message to archive-server@eff.org, any subject, with body: send doc-

duit for expression, full support for First Amendment values requires extension of the common-carrier principle to all of these new media. Common carriers are companies that provide conduit services for the general public. The common carrier's duties have evolved over hundreds of years in common-law and, later, statutory provisions. The rules governing their conduct can be roughly distilled to a few basic principles. Common carriers have a duty to provide services in a nondiscriminatory manner at a fair price, interconnect with other carriers, and provide adequate services.

uments open-platform-testimony. Or via anonymous ftp from [eff.org/pub/docs/open-platform-testimony](ftp://eff.org/pub/docs/open-platform-testimony).

EFFector Online

This is the regular newsletter of the Electronic Frontier Foundation. We will continue to report progress on the Open Platform initiative here. Via electronic mail: send mail to eff-news-request@eff.org requesting to be put on the mailing list. Via Usenet: comp.org.eff.news.

IBT mailing list

The Internet Brain Trust moderated mailing list is being organized as a forum for discussion on the Open Platform. To join the list, please send mail to ibt-request@eff.org.

The IBT archive will be available via anonymous ftp from [eff.org/pub/ibt](ftp://eff.org/pub/ibt).

General information about the EFF, including membership information

Via electronic mail: send mail to archive-server@eff.org, any subject, with body: send EFF.EFF.about. Or via anonymous ftp from [eff.org/pub/EFF/EFF.about](ftp://eff.org/pub/EFF/EFF.about).

The communications carriers that make up the critical elements of the public switched network — local-exchange and interexchange companies — should be subject to comprehensive common-carriage duties as described above. (Not all communications carriers, however, are necessarily common carriers.)

Unlike the arrangement found in many countries, our communications infrastructure is owned by private corporations, rather than by the government. Therefore, legislatively imposed expanded duty of common carriage on public switched telephone carriers is necessary to protect free expression. A telecommunications provider under a common-carrier obligation would have to carry any legal message regardless of its content, whether it were voice, data, images, or sound. For example, if full common-carrier protections were in place for all of the conduit services offered by the phone company, the termination of "controversial" 900 services such as political fundraising would not be allowed, just as the phone company is now prohibited by the Communications Act from discriminating in the provision of basic telephone services.

4. Make the network simple to use

From a user's perspective, one of the great virtues of today's public switched telephone network is that it operates according to patterns and principles that are now intuitively obvious to almost everyone. As this network grows beyond voice services, information services that become part of this network should reflect this same ease of use and accessibility. The development of such standards and patterns for information services is vital, not just because it helps makes the network easier to use, but also because it ensures an open platform for information providers. However, standards development will be ad hoc and even chaotic at first. Numerous standards may be tried and found

inadequate by users before a mature set of standards emerges. Congress and government regulatory bodies may need to set out the ground rules for standards planning in order to ensure that all interested parties have an equal voice, and the resulting standards should be closely analyzed to make sure that they reflect public needs. But direct government involvement in the process should be as limited as possible.

5. Protect personal privacy

As the National Public Network develops, there are threats to both communications privacy and information privacy. First, electronic communications meant to be private can be intercepted without the consent or even the knowledge of the communicating parties. The privacy of telephone conversations and electronic mail is already protected by the Electronic Communications Privacy Act. However, communication in other media, such as cellular-phone conversations, can be intercepted using readily available technology by private third parties without the knowledge or consent of the conversants. Second, as the public switched telephone network is used for an increasing variety of transactions, it will hold more personal information about consumers. We need to give citizens greater control over information collected, stored, and disseminated by telephone companies and information providers. As the public outcry over Caller ID demonstrates, citizens want and deserve adequate notice about what information is being collected and disseminated by communications firms, and must be able to exercise informed consent before information collected for one purpose can be used for any other purpose.

6. Preserve and enhance equitable access to communications media

The principle of equitable access to basic services is an integral part of the nation's public switched telephone network. We must en-

sure that all Americans have access to the growing information-services market. Some paint a vision of the future in which all citizens have access to education services, such as distance learning or on-line health care services. Nei-

ther market competition nor lifting restrictions on telephone companies alone will deliver these services. It is time for those who propose serving the

"information have-nots" to admit that equity cannot be achieved except by legislative mandate and public funding. ♦

Computer Mediated Communications

While this book is probably not of interest to the telecommunications novice, it is a storehouse of information for a person who has been involved with computer-mediated communication systems (CMCs) and wants to learn more. The book covers the full range of CMCs: electronic mail, computer conferencing, information retrieval, microcomputer bulletin-board systems, and distributed computer networks.

Each system is examined from its historical origins to present and future applications. Several chapters present selection criteria for CMCs in corporate or personal applications, and comparisons with other methods of communication, such as voicemail and fax. Appendixes list names and addresses of hardware, software, and service vendors mentioned in the book.

Although it touches briefly on the growing "virtual community" of conferencing systems, recent FBI impounding of computer bulletin-board systems, and the reluctance of corporations to move towards CMCs due to automatically generated audit trails, this book is primarily concerned with the technology and specifications of CMCs and focuses less on their social implications.

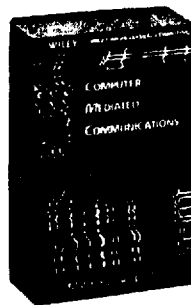
—The Normals™

- In 1971 the Nixon administration's wage and price freeze generated a sudden demand for communications and coordination among private sector business, labor groups, and government policy makers. To coordinate the activities of the departments involved, and because of the need to handle reporting and dissemination of information, the Office of Emergency Preparedness (OEP) commissioned Murry Turoff to develop a computer-based version of the voice conference call. The result was EMISARI, the Emergency Management Information and Reference System, widely recognized today as the prototype computer conferencing system.

- If it becomes relatively inexpensive to contact any machine anywhere in the country (or world) at 9600 bps, systems must distinguish themselves with specialization.

Almost everyone will be able to mount lots of files, though extraordinary numbers, 100,000+, will remain an area of specialization. Small systems are already powerful enough to mount some large databases, or small, unusual ones. An example of "unusual" would be the definitive list of pancake recipes, or a cross-reference of all hotels and the kind of telephone wall connectors they have in their rooms. Many systems are far more sophisticated. There are BBSs dedicated to botany, zoology, satellite tracking, bacterial classification, job hunting, and many, many more.

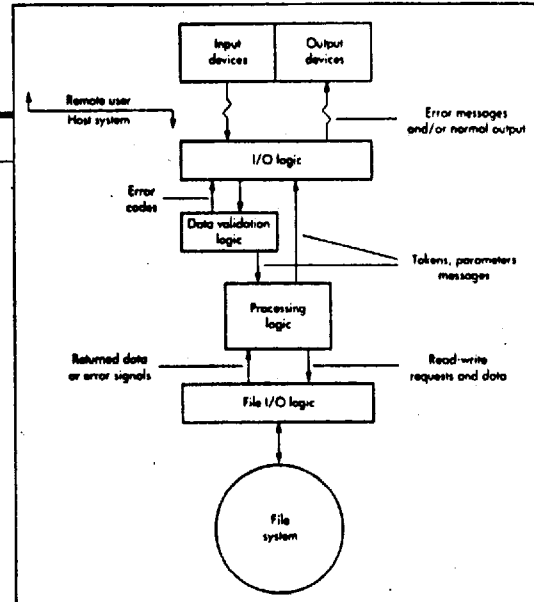
Also in the picture is the US government, with BBS systems specializing in earthquake epicenter reports, solar flare activity, manned space launches, shipping manifests and port activity (Appendix D contains a list of some government operated BBS systems). Games, electronic mail gateways, weather and tide information, and shopping, dating, and travel services are examples of other potential specialization areas.



Computer Mediated Communications

Matthew Rapaport, 1991; 373 pp.

\$34.95 postpaid from John Wiley & Sons, Inc./Eastern Distribution Center, 1 Wiley Drive, Somerset, NJ 08873; 908/469-4400



Matrix News

Computer networks are proliferating even faster than humans: John Quarterman's heroic compendium, *The Matrix*, was the first and perhaps the last attempt to put together a non-electronic guide to the worldnet. A one-minute browse through Quarterman's directory of the world's virtual communities changes your mind about the size of the net, and its global ubiquity.

The state of the net, and the issues this new communication medium raises as it evolves, are dynamic, to say the least. Here's one great tool for keeping up. Not for the completely hardcore readers who argue about communication protocols, and not for the totally uninitiated who have never plugged a computer and a telephone into a node of net, *Matrix News* is a twelve-page paper newsletter that arrives in your snailmailbox once a month. "Matrix News is about contextual issues related to computer networking; preferably issues that cross network, organizational, or political boundaries. We cover art, education, and sociology; law, public policy, and economics, and anything else that fits," editor Quarterman promises.

—Howard Rheingold

- What will we do and be in this new country of the mind? Fear and anger will accom-

Connections

Computer-mediated communications (CMC) are changing the way some people think, and the way they work together. People who have used the medium have our own notions about these changes, but we don't have a body of systematic research about the social effects of CMC. *Connections* might be the seed crystal of that knowledge.

Don't expect this to be a popularization or an exciting read; the authors, computer-communications-savvy sociologists, have different intentions. Sara Kiesler and Lee Sproull are opening a new intellectual discipline, using the kind of rigorous observation required by social-science journals, to understand the interpersonal and intraorganizational effects of CMC. How do workgroups make decisions face-to-face, and how do they make decisions via electronic-mail distribution lists or computer conferences? Which kinds of decisions are best suited for each medium? Most importantly, how are these changes in communica-

tion technologies rippling out to affect other parts of the organizational culture, of society itself?

Spruill, Professor of Management at Boston University, and Kiesler, Professor of Social and Decision Sciences at Carnegie Mellon University, spent years applying sociological observation techniques to the social aspects of CMC networks in small and large companies. They address their conclusions to the business and research managers who are thinking about implementing these systems in their organizations. But they see the field through a broader conceptual framework that takes into account both the immediate and the second-order effects of introducing new communication tools to groups of people who are supposed to work together.

—Howard Rheingold

- Ranked among the most important technological inventions are those that have increased the durability, intelligibility, and portability of information. These "communication technologies" include hieroglyphics, papyrus, and the printing press, as well as modern transportation and communication technologies such as the railroad, typewriter, and telephone. Today's new communication technologies differ from earlier ones in the greater degree to which, through computer processing power, they span space, time, and preexisting social arrangements.

First-level effects of communication technology are the anticipated technical ones — the planned efficiency gains or productivity gains that justify an investment in new technology. . . .

Second-level effects from communication technologies come about primarily because new communication technology leads people to pay attention to different things, have contact with different people, and depend on one another differently. Change in attention means change in how people spend their time and in what they think is important. Change in social contact patterns means change in who people know and how they feel about them. Change in interdependence means change in what people do with and for each other and how these coupled functions are organized in norms, roles, procedures, jobs, and departments. Social roles, which codify patterns of attention and social interaction, change.

- Predicting the potential consequences of any new technology is an extremely complex problem. Simply forecasting the direct costs of new technology can be hard, and that is the easiest step. Understanding how



Connections

Lee Sproull and Sara Kiesler, 1991; 212 pp.
\$19.95 (\$22.95 postpaid) from The MIT Press, 55 Hayward Street, Cambridge, MA 02142; 800/356-0343

the technology will interact with ongoing routine practices and policies is even more difficult. Imagining how that technology will lead to long-term changes in how people work, treat one another, and structure their organizations is harder still. A two-level perspective on technology change can help in anticipating potential consequences.

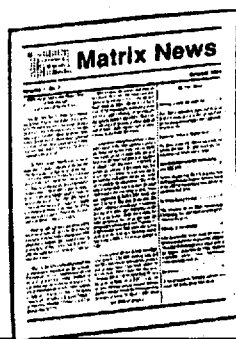
A two-level perspective emphasizes that technologies can have both efficiency effects and social system effects. A social system is a society, organization, group, or other social entity consisting of interdependent people, events, and behaviors. Most inventors and early adopters of technology think primarily about efficiency effects, or first-level effects, of that technology. We argue that second-level system effects are often likely to be more important for organizations. Changes we make to improve efficiency often have other offsetting consequences. Imagine a new rocket-powered ski lift that zooms people to the top of a ski slope. Reducing the time skiers spend going up the mountain improves the efficiency of upward transit. Yet assuming there is no change in how fast people ski down the mountain, the speed lift leads to longer lines at the bottom and more time waiting to get on the faster lift. The invention might also increase the popularity of the lift and therefore produce more crowds on the slopes and even longer lines at the bottom. Building more lanes on the Bay Bridge in San Francisco causes a bigger backup on the highways leading off the bridge. Drug enforcement overcrowds prisons, which forces criminals back on the streets. Bank teller machines cause people to make smaller but more frequent deposits and withdrawals, which increases banks' costs. In each case the technology causes a self-correcting, or deviation-reducing, reaction in the system. More efficiency in one place can cause less in another.

pany us, as will love and compassion. But they will take new forms. Who can flame in the "real world" without immediate adverse consequences? Maybe rush hour drivers, until they take up arms, whose bullets, unlike amber phosphor glow, can kill. Who by a few keystrokes can write a letter in support of a political prisoner, send a message to their government, and answer their lover? Maybe an important executive in the old world, but almost anybody in the new. Will this brave new world be so different from the old? No, in that the creatures in it will be those who inhabited the old world. But will they be unchanged?

Matrix News

John S. Quarterman, Editor.

\$30/year (12 issues) from Matrix Information and Directory Services, 701 Brazos/ Suite 500, Austin, TX 78701-3243



**SPECIAL INAUGURAL REPRINT ISSUE: INFORMATION ENVIRONMENT TOOLS
AND IDEAS Whole Earth Review Dedicated to the Incoming Administration 20 January
1996 - Link Page**

[Previous](#) [Telegeography: Mapping the New World Order \(Summer 1992\)](#)

[Next](#) [The Coevolution of Governance \(Spring 1992\)](#)

[Return to Electronic Index Page](#)