



THE VICE PRESIDENT

WASHINGTON

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January 4, 1994

MEMORANDUM FOR MACK McLARTY
DAVID GERGEN
GEORGE STEPHANOPOULOS
✓ JOHN PODESTA
PAT GRIFFIN
MARK GEARAN

FROM: THE VICE PRESIDENT

SUBJECT: TELECOMMUNICATIONS MEMORANDUM

I attach a copy, for your eyes only, of the memorandum I am providing the President summarizing the policy recommendations of the National Information Infrastructure Working Group. The memo addresses a set of very difficult and important policy questions that will affect many diverse interests. The memorandum and the policy recommendations should be treated as highly confidential.



THE VICE PRESIDENT
WASHINGTON

January 4, 1994

MEMORANDUM FOR THE PRESIDENT

FROM: THE VICE PRESIDENT

SUBJECT: OUTLINE OF ADMINISTRATION'S TELECOMMUNICATIONS
POLICY

On January 11th, I will be giving a speech on the Administration's telecommunications policy. I have been meeting with officials from Commerce, Justice, NEC, OSTP, OMB and CEA to develop a consensus Administration position on these issues. I believe this is critical because telecommunications policy reform crucial to setting the "rules of the road" for the information highway is a key commitment of this Administration. Key members of Congress are also committed to passing legislation this session. Before proceeding further, I wanted to let you know where we are headed and to get your input.

As I stated in my speech at the National Press Club on December 21st, I believe that the Administration's policy in this area should be guided by five principles. We should:

1. Encourage private sector investment so that the information highway is built as rapidly as possible;
2. Promote and protect competition by encouraging entry into markets dominated by monopolies and preventing abuse of monopoly power;
3. Provide open access to this network so that entrepreneurs and individuals can easily provide content -- in the same way that anyone can write software for the personal computer;
4. Avoid creating a society of information "haves" and "have nots"; and
5. Encourage flexibility so that our policies can evolve over time as markets and technologies change.

Below, in outline form, are the positions that we believe best implement these principles. I have also attached summaries of major existing legislation.

1. **Telco/Cable Crossownership:**

- Currently, telephone companies ("telcos") are not permitted to own cable systems in the region that they serve. We believe that telcos should be permitted to provide video services in their local exchange areas, subject to certain conditions and safeguards. To prevent "multimedia monopolies", we would prevent telcos from buying existing cable systems in their service areas for at least five years.

2. **Local Competition:**

- We would promote the development of local telephone competition by requiring that phone companies (a) "unbundle" their services; and (b) provide interconnection with competing providers. This would require preempting state entry and rate regulation of new entrants into the local telephone service market.
- States will still have the authority to establish "price caps" to prevent sharp increases in residential rates that might occur as cross-subsidies from business to residential customers are eliminated.

3. **Universal Service:**

- We would make the preservation and advancement of "universal service" an explicit objective of the Communications Act, and oblige all carriers to contribute to the preservation and advancement of universal service. Carriers could provide "in-kind" contributions to universal service as well as contribute to a fund. A Federal/State Joint Board, with input from public interest groups, would make recommendations concerning the fundamental elements of universal service.
- We would also set a national goal to connect all classrooms, hospitals and libraries to the emerging information highway.

4. **Forbearance:**

- We would allow the FCC to reduce regulation of non-dominant carriers.

5. **Modified Final Judgment:**

- Under the consent decree which forced the break-up of AT&T, the Bell Operating Companies ("BOCs") were prevented from entering certain lines of business such as long-distance, manufacturing, and information services.
- Brooks and Dingell have introduced legislation, which we generally support, that would transfer jurisdiction over the decree and its restrictions to the DOJ and FCC, and gradually allow the BOCs into new markets, subject to certain conditions and safeguards.
- On long-distance, we have adopted a slightly different approach. We would encourage BOCs to establish a separate "local loop" affiliate to handle that portion of their business that would remain a regulated monopoly. This would minimize the potential for anti-competitive behavior. In exchange, a less stringent entry test for entry into long distance would be applied.
- Brooks and Dingell would allow BOC entry into two significant portions of the long distance market immediately, but force them to wait for at least five years before providing the full range of long-distance services.

6. **Open Access:**

- We are working to develop legislative provisions that will allow open and non-discriminatory access to the network, and prevent companies from abusing their control of the network.

7. **The Future of Telecommunications Regulation:**

- We want to produce legislation that will stand the test of time and address tomorrow's challenges as well as today's. To that end, we are working to develop a regulatory regime for the competitive provision of wide-band, interactive digital programming and services to home and office.

cc: Mack McLarty
David Gergen
George Stephanopoulos
✓ John Podesta
Pat Griffin
Mark Gearan

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LOCAL COMPETITION

- Telecommunications carriers would be required under the FCC rules (and certain consistent State rules) to provide others with interconnection and nondiscriminatory access to certain facilities and services. Industry (and if it fails, the FCC) would develop the necessary standards and planning. Carriers without market power would have pricing flexibility.

CABLE-TELEPHONE COMPANY CROSSOWNERSHIP

- Local exchange carriers (LECs), currently restricted from providing video programming directly to subscribers, could provide programming through a separate subsidiary. These LECs would also be restricted from buying cable systems in their telephone service areas (except where now permitted, in rural areas). Also, any cable operator (not just a LEC) could only provide telecommunications services directly to subscribers in its cable service area through a separate subsidiary, and would be prohibited from subsidizing video programming operations its telecommunications services.

EXCEPTIONS TO BELL COMPANY LONG DISTANCE REQUIREMENTS

- The current restriction on Bell Company provision of long distance services (established in the AT&T Consent Decree) would be modified to allow Bell Companies to provide some long distance services, solely to provide certain aspects of cellular mobile radio services, under various restrictions.

SAFEGUARDS ON BELL COMPANY PROVISION OF INFORMATION SERVICES

- Bell Companies could not use exchange revenues to cross-subsidize their provision of information services. A Bell Company could provide electronic publishing services only through a separate subsidiary and subject to various restrictions.

CUSTOMER INFORMATION

- Release and use of information about customers, such as names, addresses, and telephone usage data, would be restricted.

UNIVERSAL SERVICE

- All telecommunications carriers are to contribute to the preservation and advancement of "universal service" (a term not defined in the bill).

MARKEY-FIELDS BILL -- HR 3636

The Markey Fields bill is built on 3 key themes of local telephone competition, multichannel video competition, and universal service. Original cosponsors include Fields, Boucher and Oxley. While borrowing from legislation already introduced on cable-telco and infrastructure issues by Boucher and Oxley (HR 1504), the Subcommittee bill also puts more emphasis on the advanced services variation of Electronic Frontier Foundation's open platform philosophy.

LOCAL COMPETITION

Markey's bill takes much of the language on cable-telco from HR-1504 introduced by Boucher and Oxley. Under the Markey bill, cable companies, independent phone companies and information providers would be allowed to compete with the local telephone companies and to use its facilities. The FCC would establish rules for compensating local telephone companies for providing interconnection and equal access to competitors. State laws that prohibit local competition would be preempted.

VIDEO COMPETITION

The Markey bill would rescind the cross-ownership ban and permit telephone companies to compete in offering video programming. However, telephone companies would have to offer video under a separate subsidiary in its telephone service area. Telephone companies would be required to offer "video platform" service, and would be able to keep 25% of capacity for their own programming, offering the rest on a common carrier basis, as in the Boucher/Oxley bill. The Markey bill also would prohibit telephone companies from buying out existing cable systems in their service territory. Joint ventures would be allowed in certain circumstances, while cross-subsidy of programming by regulated services would be banned.

UNIVERSAL SERVICE

A Federal-State Joint Board would be created to draw up plans to require all service providers to contribute to support universal service. The board would define the nature and extent of the services in a telephone company's universal service obligation. The FCC would be required to review whether the concept of universal service should be expanded to include digital services, when technically and economically feasible. The bill also proposes protection for small telcos and rural areas, giving FCC the power to exempt them from interconnection requirements and ordering the Commission to study the effects of competition on rural carriers.

Open Platform Service -- The newest wrinkle contributed by the Markey bill is the concept of "Open Platform Service," which would provide digital services to residential subscribers at affordable rates through tariffs. By providing digital compression at reasonable rates, some say subscribers might see an economical way to increase by a factor of 10 to 15, the amount of data that can travel down a copper phone line.

BROOKS-DINGELL BILL -- HR 3626

Brooks - Dingell bill overhauls Judge Greene's consent decree on long distance services. The legislation is divided into two sections -- one dealing with Bell Company entry into long distance and the second dealing with post-entry behavior of the Bell Companies.

Long Distance

INTRASTATE

Until the breakup of AT&T, the provision of intrastate long distance service was regulated by the States. H.R. 3626 returns that authority to the States. To the extent that a State's laws and/or regulations permit a Bell Company to offer in-state long distance service, the MFJ restrictions will no longer interfere with the states' policies.

INTERSTATE, IN-REGION

Although the Bell Companies operate networks throughout their regions, they are restricted from using them for interstate long distance service. H.R. 3626 permits them to petition the Department of Justice and the Federal Communications Commission to utilize their own networks to provide interstate long distance service.

INTERSTATE RESALE

The legislation permits the Bell Companies to petition the Justice Department and the FCC to provide interstate resale services 18 months after the date of enactment.

NATIONWIDE NETWORKS

H.R. 3626 permits the Bell Companies to petition the Department of Justice and the FCC to build and operate interstate networks outside of their regions after five years.

The Attorney General will determine whether or not to grant the petitions filed by the Bell Companies based on a finding that there is no substantial possibility that the Bell Company or its affiliates could use monopoly power to impede competition in the market it seeks to enter.

MANUFACTURING

Within a year of enactment, a Bell Company can submit an application to the Justice Department to engage in manufacturing. A Bell Company can engage in manufacturing activities through a separate subsidiary.

BURGLAR ALARM SERVICES

The Bell Companies are precluded from applying to offer burglar alarm services for 5 1/2 years after the date of enactment.

Post -Entry Safeguards

The legislation also includes provisions that were developed in close collaboration with the disabled community. These provisions are designed to ensure that equipment -- and network services provided utilizing equipment -- is accessible and usable to disabled individuals.

ELECTRONIC PUBLISHING

H.R. 3626 provides that Bell Companies may only engage in electronic publishing through separate affiliates or electronic publishing joint ventures. The statutory restrictions contained in the legislation sunset in four years.

SPEECH REACTION

The reactions to the Vice President's speech have been favorable and include the following:

NYNEX VP THOMAS TAUKE

In reacting to the speech, Tuake said it generally reflected industry consensus that has emerged over the last 18 months on issues such as opening the local loop. Although some telcos still object, most believe that this path will have to be taken. Tauke said that beyond general principles Gore outlined, key issues yet to be decided are the timing of the transition from current regulatory structure, expansion of the universal service concept to include broadband technology and public interest considerations (and who will pay for it), and the move to regulatory parity.

AT&T

It supported principles outlined in his speech. In a statement, AT&T was pleased that the Administration sees private industry, and not the government, as the catalyst for ensuring that benefits of advanced services reach the public. The fact that the telecommunications industry is still operating under policies that in many ways look backward rather than forward must change according to AT&T. The Administration can ensure that the public gets the full benefit of advanced services by eliminating existing subsidies and directing explicit subsidies only to those who need them to gain access to new services, company said.

REP. BOUCHER

He praised the speech saying he was gratified that the Vice President was supportive of his legislation. Boucher added that the conduct of many cable companies has been outrageous and that cable companies have shamefully raised their rates, gouged customers by restructuring their service offerings and then blamed it all on the federal government which is clearly unacceptable, and our legislation is the proper response.

BELLSOUTH EXEC. VP R.L. (MICKEY) MCGUIRE, CHMN. OF MFJ TASK FORCE

He commented that the Vice President painted an accurate picture of how technology is changing and how business relationships are changing and maturing. BellSouth hopes Congress will not only change the rules but change them now, effective immediately, so BellSouth can start delivering advanced services to the public.

NCTA ACTING PRES. DECKER ANSTROM

He hailed the speech as solid, comprehensive principles that should help pave the way for a national information infrastructure. He said cable systems hope to be a major component of that infrastructure.

USTA VP-GOVT. & PUBLIC RELATIONS WARD WHITE

He commented that the Administration obviously understands the changing nature of the telecommunications marketplace. Any legislative or regulatory initiatives must take into account the impact of competition on universal service.

CATA PRES. STEPHEN EFFROS

Effros said CATA applauded the Administration's focus on telecommunications policy, but we would hope this could be achieved, as the Vice President suggested, with a minimum of official micromanagement.

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BACKGROUND ON THE ADMINISTRATION'S COMMUNICATIONS LEGISLATIVE PROPOSALS

On September 15, 1993, the Administration issued "The National Information Infrastructure: Agenda for Action," which unveiled our National Information Infrastructure (NII) initiative. There is a national consensus that construction of an advanced NII will "help unleash an information revolution that will change forever the way people live, work, and interact with each other." The "Agenda for Action" recognized that realizing the full potential of the NII will require aggressive, far-sighted government action on a number of fronts. The legislative proposals that Vice President Al Gore has outlined today are the culmination of extensive Administration efforts in one critical area -- telecommunications regulatory reform. Similar work is being done in other important areas, including support for innovative applications that will use the NII, improving access to government information, and protecting individual privacy and intellectual property rights.

In a December 21 speech at the National Press Club in Washington, DC, the Vice President announced the Administration's plans to present a package of legislative and administrative proposals concerning telecommunications and information policy. He stated that the Administration's policy would be based on the following fundamental principles:

- ✓ Encouraging private investment in the NII;
- ✓ Promoting and protecting competition;
- ✓ Providing open access to the NII by consumers and service providers;
- ✓ Preserving and advancing universal service to avoid creating a society of information "haves" and "have nots";
- ✓ Ensuring flexibility so that the newly-adopted regulatory framework can keep pace with the rapid technological and market changes that pervade the telecommunications and information industries.

The major elements of the Administration's legislative initiative are identified below, along with a brief discussion of how each proposal advances the principles set forth above. In doing so, the Administration has studied carefully the legislative initiatives of Senators

Hollings, Inouye, and Danforth and Representatives Brooks, Dingell, Markey, and Fields. Its proposals reflect the strengths of, and build on, those bills. The Administration is building upon the dramatic steps taken by the states, including substantial and innovative regulatory reforms. The Administration intends to work closely with the states, some of which are moving aggressively to encourage competition, infrastructure modernization, and NII applications in health care, education, and government services.

In addition to the legislative package, it is a goal of this Administration that by the year 2000 all of the classrooms, libraries, hospitals, and clinics in the United States will be connected to the NII.

ENCOURAGING PRIVATE INVESTMENT AND PROMOTING COMPETITION

To fully realize the benefits of private investment and more competition in the information infrastructure, regulatory change is needed. For many years, government regulation assumed clear, stable boundaries between industries and markets. This assumption sometimes prompted regulators to view (and to regulate) firms in various industries differently, even when they offered similar services. It also caused regulators to address the threat of anticompetitive conduct on the part of some firms by barring them from certain industries and markets.

The time has come for another approach. Even if the lines between industries and markets were clear in the past, technological and market changes are now blurring them beyond recognition, if not erasing them entirely. Regulatory policies predicated on such perceived distinctions can harm consumers by impeding competition and discouraging private investment in networks and services. The Administration is therefore committed to removing unnecessary and artificial barriers to participation by private firms in all communications markets, while making sure that consumers remain protected and interconnected.

CABLE-TELCO CROSS-OWNERSHIP

The Administration proposes to remove the current cross-ownership restriction of the 1984 Cable Act, and allow telephone companies to provide video services in their local exchange areas in order to promote investments that expand consumer choices and services. To ensure that telephone company entry does not harm consumers or competition, such entry will be subject to certain safeguards, most notably a requirement that the telephone company make channel capacity available to unaffiliated video program providers on a nondiscriminatory basis. This requirement should create market opportunities for competing providers of video services, thereby reducing prices and expanding the diversity of services available to television viewers.

Further, to deter premature and potentially anticompetitive mergers between telephone companies and their most likely competitors -- existing cable companies -- the Administration proposes to prohibit telephone companies from acquiring cable systems located in the companies' local exchange areas. There would be an exception for those telephone companies operating in rural areas, which may be unable to support more than one carrier. However, to ensure that this measure does not outlive its usefulness, the Administration proposes to authorize the Federal Communications Commission (FCC) to begin proceedings that could allow such acquisitions five years after the date of legislative enactment, if certain conditions are met (e.g., the presence of sufficient competition in the telco's service area). Any telephone company/cable system acquisition would also be subject to the antitrust laws in the same manner as an acquisition in any other industry.

LOCAL COMPETITION

Competition has generated substantial benefits for consumers in a host of communications and information service markets, including customer premises equipment and long distance service. The varieties of customer premises equipment have expanded dramatically since deregulation. In addition, the price of interstate long distance telephone service for the average residential user has declined more than fifty percent in real dollars since 1984, due to competition and regulatory reform. Consumers will realize similar benefits by the expansion of competition in the local telephone service market. Competition in that market will reduce the ability of any telephone company to harm competition and consumers through monopoly control and will encourage investment and innovation in the "on and off ramps" of the NII.

Accordingly, the Administration proposes to ensure that competing providers have the opportunity to interconnect their networks on reasonable, nondiscriminatory terms, with the facilities of all local telephone companies. Such companies should also be required to unbundle their service offerings so that alternative providers can offer similar services using a combination of, for example, telephone company-provided switching and their own transmission facilities. Finally, the Administration's plan will preempt state entry barriers, as well as rate regulation of carriers that the FCC finds or has found to lack market power.

The Administration understands that the growth of competition for local telephone services may require repricing of some local services. Such repricing must not be allowed to cause "rate shock" for consumers. Therefore, in implementing network interconnection and unbundling, the FCC and state regulators will be directed to prevent undue rate increases for any class or group of ratepayers.

MODIFIED FINAL JUDGEMENT (MFJ) RESTRICTIONS

The Administration is grateful for and appreciative of the excellent job done by the courts in connection with the MFJ. The break-up of AT&T has helped spur the competition and innovation that have kept America at the vanguard of the telecommunications industry. Now, the time has come to move beyond a decree remedying only specific violations of law administered by the courts and to enact a far-reaching and comprehensive plan reflecting a vision of the telecommunications world of the future. A key element of that plan must be to promote and protect competition, the engine of progress and jobs.

LONG DISTANCE SERVICE

The Administration supports the Brooks-Dingell bill provision that requires Department of Justice (DOJ) and FCC approval before the Regional Bell Operating Companies (RBOCs) may provide interexchange services -- most notably long distance service. In determining whether to lift the restriction, the Department of Justice will apply the test contained in Section VIII(C) of the MFJ. The FCC will apply a public interest test like that set forth in the legislative proposal offered by Chairmen Brooks and Dingell. These entry tests are designed in part to ensure competition and to protect consumers and local telephone ratepayers against cross-subsidization and other potential abuses of monopoly power. In working with the Congress, the Administration will explore the creation of incentives for RBOCs to increase the transparency of their facility-based local services, because of concerns associated with cross-subsidization and abuses of monopoly power. The Administration's plan will also include an immediate and limited exception to the prohibition of the provision of long distance services incidental to RBOC provision of wireless, cable television, and certain other services.

INFORMATION SERVICES

As current law provides, the RBOCs are permitted to offer information services. The Administration supports the approach taken in the Brooks-Dingell legislation that requires a separate affiliate for electronic publishing.

MANUFACTURING

In keeping with the principle of removing barriers to participation by all firms in all markets except where necessary, the Administration proposes to remove the current ban on RBOC research, development, and manufacturing subject to safeguards to prevent cross-subsidization and discriminatory practices. The safeguards to be applied before entry would include a

notification-and-waiting-period procedure, as contained in the legislation proposed by Chairmen Brooks and Dingell, under which an RBOC would submit relevant information about its proposal to the Department of Justice, which could investigate and sue to enjoin the proposed entry. The Administration also supports substantive post-entry safeguards, as contained in legislation introduced by Chairman Hollings and passed by the Senate in the last Congress. Those safeguards include, among other things, requirements that manufacturing be kept separate from the monopoly portion of the telephone company's business, that the RBOC not discriminate in either procurement or sales, and that needed network information be timely disclosed to competing manufacturers.

OPEN ACCESS/PROGRAMMING DIVERSITY

There is a long-standing national policy, embodied in the First Amendment, of protecting diversity and competition in the flow of ideas. This fundamental interest is critical not only with respect to the provision of entertainment, but also with respect to educational material, health information, information necessary to an informed citizenry, and other programming matter. To further this goal, the Administration plans to require the FCC, one year after enactment, to impose nondiscriminatory access obligations on cable television systems, except when technology, costs, and market conditions make it inappropriate.

ENSURING REGULATORY FLEXIBILITY AND FAIRNESS

The new regulatory framework that the Administration seeks to create is designed to adjust to the technological and market changes that have undermined the regulatory regime created by the Communications Act. Legislation in this area must stand the test of time, by addressing tomorrow's challenges as well as today's. The Administration's lodestars in this efforts are flexibility, adaptability, and fairness. The regulatory instruments we choose must be supple enough to accommodate the continual change that will typify communications industries in the future. At the same time, those instruments must be equitable; similarly situated services should be subject to the same regulatory requirements.

Beyond tackling the problems that have arisen as a result of current technological and market changes, the Administration recognizes that a new kind of communications service provider will emerge, one that offers switched, broadband digital transmission services to home and office. Such firms face the potential of being regulated under two different parts of the Communications Act -- Titles II (common carriers) and VI (cable communications). These firms will also be regulated

at the state level for the intrastate component of their Title II services and at the local level for their Title VI services, creating a needlessly overlapping and complex regulatory environment.

The nation needs a flexible, adaptable regulatory regime that encourages the competitive provision of the broadband, switched digital transmission services that can truly knit homes and businesses together. The Administration will propose a future-oriented regulatory regime, to be enacted as a new Title VII to the Communications Act, that will encourage firms to provide these services.

The keys to regulatory reform:

- Flexibility
- Adaptability
- Fairness

The Administration's proposal would provide the FCC with broad forbearance authority while maintaining key public policy goals, including open access and interoperability requirements, along with obligations to support universal service. In addition, consistent with the approach taken in the 1992 Cable Act, the proposal will provide for rate regulation until competition is established in these service markets, with a presumption of forbearance for new entrants that are not dominant in related services. State and local regulation of services not subject to competition could take place subject to FCC guidelines. Under the Administration's plan, the FCC would adopt transition rules to move to this new regime. Firms would elect to be regulated under the new framework, provided that they meet threshold criteria established by the FCC.

In addition, the Administration proposes to allow the FCC to reduce regulation for telecommunications carriers that lack market power. This provision will ensure that unnecessary government regulation -- however well-intentioned -- does not harm users of the infrastructure, or impede competitive entry, investment, and the introduction of new services.

UNIVERSAL SERVICE

The United States has long been dedicated to "universal service" -- widespread availability of basic telephone service at affordable rates. As stated in the "Agenda for Action," the Administration is committed to developing a new concept of universal service that will serve the information needs of the American people in the 21st century. Indeed, the full potential of the NII will not be realized unless all Americans who desire it have easy, affordable access to advanced communications and information services, regardless of income, disability, or location.

THE WHITE HOUSE
OFFICE OF THE VICE PRESIDENT

January 11, 1994
FOR IMMEDIATE RELEASE

Contact: 202-456-7035

VICE PRESIDENT PROPOSES NATIONAL TELECOMMUNICATIONS REFORM

Bring the Information Revolution to Every Classroom, Hospital, and Library in the Nation By the End of the Century

Los Angeles, CA--Citing the need to bring the economic, health, and educational benefits of the information revolution to all Americans, Vice President Al Gore, in a speech to the Academy of Television Arts and Sciences, today outlined the Clinton Administration's proposals to reform the communications marketplace.

Gore challenged his audience to provide free links from the information superhighways to every classroom, library, hospital, and clinic in the country. "You here today represent the companies that can do it," said the Vice President. Following The Vice President's pledge during the 30 minute speech, he stated the Administration's support for removing the legal and regulatory barriers that prevent telephone, cable and long distance companies from entering each others business.

The Vice President recalled the dream of the interstate highway system of his youth. "Today," he explained, "we have a dream for a different kind of superhighway -- an information superhighway that can save lives, create jobs and give every American young and old, the chance for the best education available to anyone, anywhere."

The Vice President said the Clinton Administration's position grew out of the following five principles, which he outlined in a December speech at the National Press Club in Washington, D.C.:

- ✓ Encourage private investment
- ✓ Provide and protect competition
- ✓ Provide open access to the network
- ✓ Avoid creating information "haves and have nots"
- ✓ Encourage flexible and responsive government action

In a much anticipated announcement, Gore presented a series of policy decisions that will "clear from the road the wreckage of outdated regulations and allow a free-flowing traffic of ideas and commerce for the benefit of all Americans."

Specifically, Gore's proposal would allow telephone companies to get into the cable business, and let cable and other companies into the telephone business.

To make such new ventures possible, the Administration will prevent states from imposing barriers to new companies entering the local phone business and will require local phone companies to make their facilities available to all comers without discrimination and to allow competitors to provide all kinds of telephone services the phone company provides now.

On the issue of the court decree governing the breakup of AT&T, Gore said he supported the effort by key Congressional chairmen to take the courts out of the phone business and provide a pathway by which the local phone companies can enter other lines of business -- like long distance service -- but including also electronic publishing and manufacturing. Gore praised the work of Congressman John Dingell (D-MI) and Jack Brooks (D-TX) and pledged his support to work with them to enact a bill this year.

Gore also recognized the work of his colleagues in the U.S. Senate; Senators Ernest Hollings (D-SC), Daniel Inouye (D-HI), and John Danforth (R-MO) and in the U.S. House of Representatives; Ed Markey (D-MA), and Jack Fields (D-TX). "In many ways our legislative goals complement (their) work, said Gore. "We expect to introduce our legislative package shortly, and to work with Congress to ensure its speedy passage."

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Remarks
Prepared for Delivery
by Vice President Al Gore
Royce Hall, UCLA
Los Angeles, California
January 11, 1994

It's great to be here at the Television Academy today. I feel I have a lot in common with those of you who are members of the Academy. I was on Letterman. I wrote my own lines.

I'm still waiting for residuals.

At first, I thought this could lead to a whole new image. And maybe a new career. No more Leno jokes about being stiffer than the Secret Service. Maybe an opportunity to do other shows. I was elated when "Star Trek: The Next Generation" wanted me to do a guest shot -- until I learned they wanted me to replace Lieutenant Commander Data.

The historian Daniel Boorstin once wrote that for Americans "nothing has happened unless it is on television." This of course leaves out a few major events in our history. But this meeting today is on television -- so apparently this event is actually occurring.

I join you to outline not only this Administration's vision of the National Information Infrastructure but our proposals for creating it.

Last month in Washington, I set forth some of the principles behind our vision. Today I'll talk about the legislative package necessary to ensure the creation of that national infrastructure in a manner which will connect and empower the citizens of this country through broadband, interactive communication.

We've all become used to stumbling over cliches in our efforts to describe the enormity of change now underway and the incredible speed with which it is taking place. Often we call it a revolution -- the digital revolution.

Speaking of cliches, I often use the analogy to autos, saying that if cars had advanced as rapidly as computer chips in recent years, a Rolls Royce would go a million miles an hour and cost twenty-five cents.

The last time I used it was at a meeting of computer experts and one of them said, "Yeah -- but that Rolls Royce would be one millimeter long."

What we've seen in the last decade is amazing. But it's nothing compared to what will happen in the decade ahead. The word revolution by no means overstates the case.

But this revolution is based on traditions that go far back in our history.

Since the transcontinental telegraph that transmitted Abraham Lincoln's election victory to California in real time, our ability to communicate electronically has informed and shaped America.

It was only a year before that election that the Pony Express was the talk of the nation, able to send a message cross country in seven days. The next year, it was out of business.

Today's technology has made possible a global community united by instantaneous information and analysis. Protesters at the Berlin Wall communicated with their followers through CNN news broadcasts. The fax machine connected us with demonstrators at Tiananmen Square.

So it's worth remembering that while we talk about this digital revolution as if it's about to happen, in many places it's already underway. Even in the White House.

The day after Inauguration, I was astonished to see how relatively primitive the White House communications system was. President Clinton and I took a tour and found operators actually having to pull cords for each call and plug them into jacks. It reminded me of the switchboard used by Ernestine, the Lily Tomlin character.

And there were actually phones like these all over the White House. They're still there. But we made progress. They're only in the press room now.

Those phones didn't meet our needs. So now, especially on trips, I use a cellular phone.

Our new ways of communicating will entertain as well as inform. More importantly, they will educate, promote democracy, and save lives. And in the process they will also create a lot of new jobs. In fact, they're already doing it.

The impact on America's businesses will not be limited just to those who are in the information business, either. Virtually every business will find it possible to use these new tools to become more competitive. And by taking the lead in quickly employing these new information technologies, America's businesses will gain enormous advantages in the worldwide marketplace. And that is important because if America is to prosper, we must be able to manufacture goods within our borders and sell them not just in Tennessee but Tokyo -- not just in Los Angeles but Latin America.

Last month, when I was in Central Asia, the President of Kyrgyzstan told me his eight-year-old son came to him and said, "Father, I have to learn English."

"But why?" President Akayev asked.

"Because, father, the computer speaks English."

By now, we are becoming familiar with the ability of the new communications technologies to transcend international boundaries and bring our world closer together. But many of you are now in the process of transcending other old boundaries -- the boundary lines which have long defined different sectors of the information industry. The speed with which these boundaries are eroding is quite dramatic.

I'm reminded of an idea of Stephen Hawking, the British physicist. Hawking has Lou Gehrig's disease. But thanks to information technology he can still communicate not only to his students and colleagues but to millions around the world. Incidentally, I read the other day that his voice box has an American accent -- because it was developed here in California.

Anyway, in that American accent, Hawking has speculated about a distant future when the universe stops expanding and begins to contract. Eventually, all matter comes colliding together in a "Big Crunch," which scientists say could then be followed by another "Big Bang" -- a universe expanding outward once again.

Our current information industries -- cable, local telephone, long distance telephone, television, film, computers, and others -- seem headed for a Big Crunch/Big Bang of their own. The space between these diverse functions is rapidly shrinking -- between computers and televisions, for example, or inter-active communication and video.

But after the next Big Bang, in the ensuing expansion of the information business, the new marketplace will no longer be divided along current sectoral lines. There may not be cable companies or phone companies or computer companies, as such. Everyone will be in the bit business. The functions provided will define the marketplace. There will be information conduits, information providers, information appliances and information consumers.

That's the future. It's easy to see where we need to go. It's hard to see how to get there. When faced with the enormity and complexity of the transition some retreat to the view best enunciated by Yogi Berra when he said: "What we have here is an insurmountable opportunity."

Not long ago this transition did indeed seem too formidable to contemplate, but no longer. Because a remarkable consensus has emerged throughout our country -- in business, in public interest groups and in government. This consensus begins with agreement on the right, specific questions we must answer together.

How can government ensure that the information marketplace emerging on the other side of the Big Crunch will permit everyone to be able to compete with everyone else for the opportunity to provide any service to all willing customers? How can we ensure that this new marketplace reaches the entire nation? How can we ensure that it fulfills the enormous promise of education, economic growth and job creation?

Today I will provide the Administration's answers to those questions. But before I do let me state my firm belief that legislative and regulatory action alone will not get us where we need to be. This Administration argued in our National Performance Review last year, that government often acts best when it sets clear goals, acts as a catalyst for the national teamwork required to achieve them, then lets the private and non-profit sector, move the ball downfield.

It was in this spirit that then-Governor Clinton and I, campaigning for the White House in 1992, set as a vital national goal linking every classroom in every school in the United States to the National Information Infrastructure.

It was in this same spirit that less than a month ago, I pointed out that when it comes to telecommunications services, schools are the most impoverished institutions in society.

And so I was pleased to hear that some companies participating in the communications revolution are now talking about voluntarily linking every classroom in their service areas to the NII.

Let me be clear. I challenge you, the people in this room, to connect all of our classrooms, all of our libraries, and all of our hospitals and clinics by the year 2000. We must do this to realize the full potential of information to educate, to save lives, provide access to health care and lower medical costs.

Our nation can and must meet this challenge. The best way to do so is by working together. Just as communications industries are moving to the unified information marketplace of the future, so must we move from the traditional adversarial relationship between business and government to a more productive relationship based on consensus. We must build a new model of public-private cooperation that, if properly pursued, can obviate many governmental mandates.

But make no mistake about it -- one way or another, we will meet this goal.

As I announced last month, we will soon introduce a legislative package that aggressively confronts the most pressing telecommunications issues, and is based on five principles.

This Administration will:

- Encourage Private Investment
- Provide and Protect Competition
- Provide Open Access to the Network
- Take Action To Avoid Creating a Society of Information "Haves" and "Have Nots"
- Encourage Flexible and Responsive Governmental Action

Many of you have our White Paper today, outlining the bill in detail. If you didn't get your copy, it's available on the Internet, right now.

Let me run through the highlights with you -- and talk about how they grow out of our five principles.

We begin with two of our basic principles -- the need for private investment and fair competition. The nation needs private investment to complete the construction of the National Information Infrastructure. And competition is the single most critical means of encouraging that private investment.

I referred earlier to the use of the telegraph in 1860, linking the nation together. Congress funded Samuel Morse's first demonstration of the telegraph in 1844. Morse then suggested that a national system be built with federal funding. But Congress said no, that private investment should build the information infrastructure. And that's what happened -- to the great and continuing competitive advantage of this country.

Today, we must choose competition again and protect it against both suffocating regulation on the one hand and unfettered monopolies on the other.

To understand why competition is so important, let's recall what has happened since the breakup of AT&T ten years ago this month.

As recently as 1987, AT&T was still projecting that it would take until the year 2010 to convert 95% of its long distance network to digital technology.

Then it became pressed by the competition. The result? AT&T made its network virtually 100% digital by the end of 1991. Meanwhile, over the last decade the price of interstate long distance service for the average residential customer declined over 50%.

Now it is time to take the next step. We must open the local telephone exchanges, those wires and switches that link homes and offices to the local telephone companies.

The pressure of competition will be great -- and it will drive continuing advancements in technology, quality and cost. One businessman told me recently that he was accelerating his investment in new technology to avoid ending up as "roadkill" on the information superhighway.

To take one example of what competition means, cable companies, long distance companies, and electric utilities must be free to offer two-way communications and local telephone service. To accomplish this goal, our legislative package will establish a federal standard that permits entry to the local telephone markets. Moreover, the FCC will be authorized to reduce regulation for telecommunications carriers that lack market power.

We expect open competition to bring lower prices and better services. But let me be clear: We insist upon safeguards to ensure that new corporate freedoms will not be translated into sudden and unjustified rate increases for telephone consumers.

The advancement of competition will necessarily require more opportunity, as well, for the Regional Bell Operating Companies. Current restrictions on their operations are themselves the legacy of the break-up of AT&T and must be re-examined.

This Administration endorses the basic principles of the Brooks-Dingell bill, which proposes a framework for allowing long-distance and local telephone companies to compete against each other.

Regulation and review of this framework should be transferred from the courts to the Department of Justice and the Federal Communications Commission.

This process of change must be carefully calibrated. We must make sure that the Regional Bells will not be able to use their present monopoly positions as unfair leverage into new lines of business. That is why the Administration supports the approach of the Brooks-Dingell provision that requires the approval of the Department of Justice and the Federal Communications Commission before the Regional Bells may provide

interexchange services -- most notably long distance.

In working with Congress, the Administration will explore the creation of incentives for the Regional Bells. We want to increase the transparency of those facility-based local services that raise concerns associated with cross-subsidization and abuses of monopoly power.

Our view of the entry of local telephone companies into cable television also balances the advantages of competition against the possibility of competitive abuse. We will continue to bar the acquisition of existing cable companies by telephone companies within their local service areas. We need this limitation to ensure that no single giant entity controls access to homes and offices. But to increase diversity and benefit consumers, we will permit telephone companies to provide video programming over new, open access systems.

Even these measures, however, may not eliminate all scarcity in the local loop -- those information byways that provide the last electronic connection with homes and offices. For some time, in many places, there are likely to be only one or two broadband, interactive wires, probably owned by cable or telephone companies. In the long run, the local loop may contain a wider set of competitors offering a broad range of interactive services, including wireless, microwave and direct broadcast satellite.

But, for now, we cannot assume that competition in the local loop will end all of the accrued market power of past regulatory advantage and market domination.

We cannot permit the creation of information bottlenecks that adversely affect information providers who use the highways as a means of supplying their customers.

Nor can we can permit bottlenecks for information consumers who desire programming that may not be available through the wires that enter their homes or offices.

Preserving the free flow of information requires open access, our third basic principle.

How can you sell your ideas, your information, your programs, if an intermediary who is also your competitor has the means to unfairly block your access to customers? We can't subject the free flow of content to artificial constraints at the hands of either government regulators or would-be monopolists.

We must also guard against unreasonable technical obstacles. We know how to do this; we've seen this problem in our past. For example, when railroad tracks were different sizes, a passenger could not travel easily from a town served by one railroad to a town served by another. But the use of standardized tracks permitted the creation of a national system of rail transport.

Accordingly, our legislative package will contain provisions designed to ensure that each telephone carrier's networks will be readily accessible to other users. We will create an affirmative obligation to interconnect and to afford nondiscriminatory access to network facilities, services, functions and information. We must also explore the future of non-commercial broadcasting;

there must be public access to the information superhighway.

These measures will preserve the future within the context of our present regulatory structures. But that is not enough. We must move towards a regulatory approach that encourages investment, promotes competition and secures open access. And one that is not just a patch-work quilt of old approaches, but an approach necessary to promote fair competition in the future.

We begin with a simple idea: Similar entities must be treated similarly. But let's be clear: our quest for equal treatment of competing entities will not blind us to the economic realities of the new information marketplace, where apparent similarities may mask important differences.

This idea is best expressed in the story about the man who went into a restaurant and ordered the rabbit stew.

It came, he took a few bites, then called the manager over. "This doesn't taste like rabbit stew!" he said. "It tastes ... well, it tastes like horsemeat!"

The manager was embarrassed. "I actually ran out of rabbit this morning and I -- well, I put some horsemeat in."

"How much horsemeat?"

"Well -- it's equally divided."

"What's that mean?"

"One horse, one rabbit."

The lesson is obvious. A start-up local telephone company isn't the same as a Baby Bell.

What we favor is genuine regulatory symmetry. That means regulation must be based on the services that are offered and the ability to compete -- and not on corporate identity, regulatory history or technological process.

For example, our legislative package will grant the Federal Communications Commission the future authority, under appropriate conditions, to impose non-discriminatory access requirements on cable companies. As cable and telephone service become harder and harder to distinguish, this provision will help to ensure that labels derived from past regulatory structures are not translated into inadvertent, unfair competitive advantages.

As different services are grouped within a single corporate structure, we must ensure that these new, combined entities are not caught in a cross-fire of conflicting and duplicative regulatory burdens and standards. This Administration will not let existing regulatory structures impede or distort the evolution of the communications industry.

In the information marketplace of the future, we will obtain our goals of investment, competition and open access only if regulation matches the marketplace. That requires a flexible, adaptable regulatory regime that encourages the widespread provision of broadband, interactive digital services.

That is why the Administration proposes the creation of an alternative regulatory regime that is unified, as well as symmetrical. Our new regime would not be mandatory, but it would be available to providers of broadband, interactive services. Such companies could elect to be regulated under the current

provisions of the Communications Act or under a new title, Title VII, that would harmonize those provisions in order to provide a single system of regulation. These "Title VII" companies would be able to avoid the danger of conflicting or duplicative regulatory burdens. But in return, they would provide their services and access to their facilities to others on a nondiscriminatory basis. The nation would thus be assured that these companies would provide open access to information providers and consumers and the benefits of competition, including lower prices and higher-quality services, to their customers.

This new method itself illustrates one of our five principles -- that government itself must be flexible. Our proposals for symmetrical, and ultimately unified, regulation demonstrate how we will initiate governmental action that furthers our substantive principles but that adapts, and disappears, as the need for governmental intervention changes -- or ends. They demonstrate, as well, the new relationship of which I spoke earlier -- the private and public sectors working together to fulfill our common goals.

The principles that I have described thus far will build an open and free information marketplace. They will lower prices, stimulate demand and expand access to the National Information Infrastructure.

They will, in other words, help to attain our final basic principle -- avoiding a society of information "haves" separate from a society of information "have nots".

There was a Washington Post headline last month: "Will the 'Information Superhighway' Detour the Poor?"

Not if I have anything to do about it. After all, governmental action to ensure universal service has been part of American history since the days of Ben Franklin's Post Office. We will have in our legislative package a strong mandate to ensure universal service in the future -- and I want to explain why.

We have become an information-rich society. Almost 100% of households have radio and television, and about 94% have telephone service. Three-quarters of households contain a VCR, about 60% have cable, and roughly 30% of households have personal computers.

As the information infrastructure expands in breadth and depth, so too will our understanding of the services that are deemed essential. This is not a matter of guaranteeing the right to play video-games. It is a matter of guaranteeing access to essential services.

We cannot tolerate -- nor in the long run can this nation afford -- a society in which some children become fully educated and others do not; in which some adults have access to training and lifetime education, and others do not.

Nor can we permit geographic location to determine whether the information highway passes by your door. I've often spoken about my vision of a schoolchild in my home town of Carthage,

Tennessee being able to come home, turn on her computer and plug into the Library of Congress. Carthage is a small town. Its population is only about 2,000. So let me emphasize the point: We must work to ensure that no geographic region of the United States, rural or urban, is left without access to broadband, interactive service. Yes, we support opening the local telephone exchange to competition. But we will not permit the dismantling of our present national networks.

All this won't be easy. It is critically important, therefore, that all carriers must be obliged to contribute, on an equitable and competitively neutral basis, to the preservation and advancement of universal service.

The responsibility to design specific measures to achieve these aims will be delegated to the Federal Communications Commission. But they will be required to do so. Our basic goal is simple: There will be universal service; that definition will evolve as technology and the infrastructure advance; and the FCC will get the job done.

Reforming our communications laws is only one element of the Administration's NII agenda. We'll be working hard to invest in critical NII technologies. We'll promote applications of the NII in areas such as scientific research, energy efficiency and advanced manufacturing. We'll work to deliver government services more efficiently. We'll also update our policies to make sure that privacy and copyright are protected in the networked world.

We'll help law enforcement agencies thwart criminals and terrorists who might use advanced telecommunications to commit crimes.

The Administration is working with industry to develop the new technologies needed for the National Information Infrastructure Initiative.

I have been working with the First Lady's Health Care Task Force, former Surgeon General C. Everett Koop, and others to develop ways we can use networks to improve the quality of health care.

Beginning this month, we are concentrating first on the legislative package I outlined earlier. We haven't invented all of the ideas it contains ourselves. Representatives Dingell and Brooks, Markey and Fields--and Senators Hollings, Inouye, and Danforth have all focused on these issues.

In many ways our legislative goals reflect or complement that work. We expect to introduce our legislative package shortly, and to work with Congress to ensure speedy passage this year of a bill that will stand the test of time.

Our efforts are not, of course, confined only to government. The people in this room, and the private sector in general, symbolize private enterprise.

Our economic future will depend, in a real sense, on your ability to grasp opportunity and turn it into concrete achievement.

As we move into the new era, we must never lose sight of our heritage of innovation and entrepreneurship.

In some ways, we appreciate that heritage more when we see countries without it. Last month, in Russia, I had a chance to see close up a country that tried to hold back the information age -- a country that used to put armed guards in front of copiers. In a way we should be grateful it did; that helped strengthen the desire of the Russian people to end Communism.

My hope is that now Central and Eastern Europe can use technology and the free market to build democracy -- not thwart it.

And my hope is that America, born in revolution, can lead the way in this new, peaceful world revolution.

Let's work on it together.

A few months ago, Toni Morrison won the Nobel Prize for Literature. It was a proud -- and signal -- moment for this country: recognition of an African-American woman who has communicated her insight and narrative power to readers all over the world.

In her acceptance speech, Toni Morrison used one version of an old story -- a parable, really -- to make an interesting point. It's of a blind, old woman renowned for her wisdom, and a boy who decides to play a trick on her. He captures a bird, brings it to her cupped in his hands, and says "Old woman, is this bird alive or dead?"

If she says "Dead," he can set it free. If she says "Alive," the boy will crush the bird.

She thinks, and says, "The answer is in your hands."

Toni Morrison's point is that the future of language is in our hands.

As we enter this new millennium, we are learning a new language. It will be the lingua franca of the new age. It is made up of ones and zeros and bits and bytes. But as we master it ... as we bring the digital revolution into our homes and schools ... we will be able to communicate ideas, and information -- in fact, entire Toni Morrison novels -- with an ease never before thought possible.

We meet today on common ground, not to predict the future but to make firm the arrangements for its arrival. Let us master and develop this new language together.

The future really is in our hands.

Thank you.

BACKGROUND ON THE ADMINISTRATION'S TELECOMMUNICATIONS POLICY REFORM INITIATIVE

On September 15, 1993, the Administration issued "The National Information Infrastructure: Agenda for Action," which unveiled our National Information Infrastructure (NII) initiative. There is a national consensus that construction of an advanced NII will "help unleash an information revolution that will change forever the way people live, work, and interact with each other." The "Agenda for Action" recognized that realizing the full potential of the NII will require aggressive, far-sighted government action on a number of fronts. The legislative proposals that Vice President Al Gore has outlined today are the culmination of extensive Administration efforts in one critical area -- telecommunications regulatory reform. Similar work is being done in other important areas, including support for innovative applications that will use the NII, improving access to government information, and protecting individual privacy and intellectual property rights.

In a December 21 speech at the National Press Club in Washington, DC, the Vice President announced the Administration's plans to present a package of legislative and administrative proposals concerning telecommunications and information policy. He stated that the Administration's policy would be based on the following fundamental principles:

- ✓ Encouraging private investment in the NII;
- ✓ Promoting and protecting competition;
- ✓ Providing open access to the NII by consumers and service providers;
- ✓ Preserving and advancing universal service to avoid creating a society of information "haves" and "have nots";
- ✓ Ensuring flexibility so that the newly-adopted regulatory framework can keep pace with the rapid technological and market changes that pervade the telecommunications and information industries.

The major elements of the Administration's legislative initiative are identified below, along with a brief discussion of how each proposal advances the principles set forth above. In doing so, the Administration has studied carefully the legislative initiatives of Senators

Hollings, Inouye, and Danforth and Representatives Brooks, Dingell, Markey, and Fields. Its proposals reflect the strengths of, and build on, those bills. The Administration is building upon the dramatic steps taken by the states, including substantial and innovative regulatory reforms. The Administration intends to work closely with the states, some of which are moving aggressively to encourage competition, infrastructure modernization, and NII applications in health care, education, and government services.

In addition to the legislative package, it is a goal of this Administration that by the year 2000 all of the classrooms, libraries, hospitals, and clinics in the United States will be connected to the NII.

ENCOURAGING PRIVATE INVESTMENT AND PROMOTING COMPETITION

To fully realize the benefits of private investment and more competition in the information infrastructure, regulatory change is needed. For many years, government regulation assumed clear, stable boundaries between industries and markets. This assumption sometimes prompted regulators to view (and to regulate) firms in various industries differently, even when they offered similar services. It also caused regulators to address the threat of anticompetitive conduct on the part of some firms by barring them from certain industries and markets.

The time has come for another approach. Even if the lines between industries and markets were clear in the past, technological and market changes are now blurring them beyond recognition, if not erasing them entirely. Regulatory policies predicated on such perceived distinctions can harm consumers by impeding competition and discouraging private investment in networks and services. The Administration is therefore committed to removing unnecessary and artificial barriers to participation by private firms in all communications markets, while making sure that consumers remain protected and interconnected.

CABLE-TELCO CROSS-OWNERSHIP

The Administration proposes to remove the current cross-ownership restriction of the 1984 Cable Act, and allow telephone companies to provide video services in their local exchange areas in order to promote investments that expand consumer choices and services. To ensure that telephone company entry does not harm consumers or competition, such entry will be subject to certain safeguards, most notably a requirement that the telephone company make channel capacity available to unaffiliated video program providers on a nondiscriminatory basis. This requirement should create market opportunities for competing providers of video services, thereby reducing prices and expanding the diversity of services available to television viewers.

Further, to deter premature and potentially anticompetitive mergers between telephone companies and their most likely competitors -- existing cable companies -- the Administration proposes to prohibit telephone companies from acquiring cable systems located in the companies' local exchange areas. There would be an exception for those telephone companies operating in rural areas, which may be unable to support more than one carrier. However, to ensure that this measure does not outlive its usefulness, the Administration proposes to authorize the Federal Communications Commission (FCC) to begin proceedings that could allow such acquisitions five years after the date of legislative enactment, if certain conditions are met (e.g., the presence of sufficient competition in the telco's service area). Any telephone company/cable system acquisition would also be subject to the antitrust laws in the same manner as an acquisition in any other industry.

LOCAL COMPETITION

Competition has generated substantial benefits for consumers in a host of communications and information service markets, including customer premises equipment and long distance service. The varieties of customer premises equipment have expanded dramatically since deregulation. In addition, the price of interstate long distance telephone service for the average residential user has declined more than fifty percent in real dollars since 1984, due to competition and regulatory reform. Consumers will realize similar benefits by the expansion of competition in the local telephone service market. Competition in that market will reduce the ability of any telephone company to harm competition and consumers through monopoly control and will encourage investment and innovation in the "on and off ramps" of the NII.

Accordingly, the Administration proposes to ensure that competing providers have the opportunity to interconnect their networks on reasonable, nondiscriminatory terms, with the facilities of all local telephone companies. Such companies should also be required to unbundle their service offerings so that alternative providers can offer similar services using a combination of, for example, telephone company-provided switching and their own transmission facilities. Finally, the Administration's plan will preempt state entry barriers, as well as rate regulation of carriers that the FCC finds or has found to lack market power.

The Administration understands that the growth of competition for local telephone services may require repricing of some local services. Such repricing must not be allowed to cause "rate shock" for consumers. Therefore, in implementing network interconnection and unbundling, the FCC and state regulators will be directed to prevent undue rate increases for any class or group of ratepayers.

MODIFIED FINAL JUDGEMENT (MFJ) RESTRICTIONS

The Administration is grateful for and appreciative of the excellent job done by the courts in connection with the MFJ. The break-up of AT&T has helped spur the competition and innovation that have kept America at the vanguard of the telecommunications industry. Now, the time has come to move beyond a decree remedying only specific violations of law administered by the courts and to enact a far-reaching and comprehensive plan reflecting a vision of the telecommunications world of the future. A key element of that plan must be to promote and protect competition, the engine of progress and jobs.

LONG DISTANCE SERVICE

The Administration supports the Brooks-Dingell bill provision that requires Department of Justice (DOJ) and FCC approval before the Regional Bell Operating Companies (RBOCs) may provide interexchange services -- most notably long distance service. In determining whether to lift the restriction, the Department of Justice will apply the test contained in Section VIII(C) of the MFJ. The FCC will apply a public interest test like that set forth in the legislative proposal offered by Chairmen Brooks and Dingell. These entry tests are designed in part to ensure competition and to protect consumers and local telephone ratepayers against cross-subsidization and other potential abuses of monopoly power. In working with the Congress, the Administration will explore the creation of incentives for RBOCs to increase the transparency of their facility-based local services, because of concerns associated with cross-subsidization and abuses of monopoly power. The Administration's plan will also include an immediate and limited exception to the prohibition of the provision of long distance services incidental to RBOC provision of wireless, cable television, and certain other services.

INFORMATION SERVICES

As current law provides, the RBOCs are permitted to offer information services. The Administration supports the approach taken in the Brooks-Dingell legislation that requires a separate affiliate for electronic publishing.

MANUFACTURING

In keeping with the principle of removing barriers to participation by all firms in all markets except where necessary, the Administration proposes to remove the current ban on RBOC research, development, and manufacturing subject to safeguards to prevent cross-subsidization and discriminatory practices. The safeguards to be applied before entry would include a

notification-and-waiting-period procedure, as contained in the legislation proposed by Chairmen Brooks and Dingell, under which an RBOC would submit relevant information about its proposal to the Department of Justice, which could investigate and sue to enjoin the proposed entry. The Administration also supports substantive post-entry safeguards, as contained in legislation introduced by Chairman Hollings and passed by the Senate in the last Congress. Those safeguards include, among other things, requirements that manufacturing be kept separate from the monopoly portion of the telephone company's business, that the RBOC not discriminate in either procurement or sales, and that needed network information be timely disclosed to competing manufacturers.

OPEN ACCESS/PROGRAMMING DIVERSITY

There is a long-standing national policy, embodied in the First Amendment, of protecting diversity and competition in the flow of ideas. This fundamental interest is critical not only with respect to the provision of entertainment, but also with respect to educational material, health information, information necessary to an informed citizenry, and other programming matter. To further this goal, the Administration plans to require the FCC, one year after enactment, to impose nondiscriminatory access obligations on cable television systems, except when technology, costs, and market conditions make it inappropriate.

ENSURING REGULATORY FLEXIBILITY AND FAIRNESS

The new regulatory framework that the Administration seeks to create is designed to adjust to the technological and market changes that have undermined the regulatory regime created by the Communications Act. Legislation in this area must stand the test of time, by addressing tomorrow's challenges as well as today's. The Administration's lodestars in this efforts are flexibility, adaptability, and fairness. The regulatory instruments we choose must be supple enough to accommodate the continual change that will typify communications industries in the future. At the same time, those instruments must be equitable; similarly situated services should be subject to the same regulatory requirements.

Beyond tackling the problems that have arisen as a result of current technological and market changes, the Administration recognizes that a new kind of communications service provider will emerge, one that offers switched, broadband digital transmission services to home and office. Such firms face the potential of being regulated under two different parts of the Communications Act -- Titles II (common carriers) and VI (cable communications). These firms will also be regulated

at the state level for the intrastate component of their Title II services and at the local level for their Title VI services, creating a needlessly overlapping and complex regulatory environment.

The nation needs a flexible, adaptable regulatory regime that encourages the competitive provision of the broadband, switched digital transmission services that can truly knit homes and businesses together. The Administration will propose a future-oriented regulatory regime, to be enacted as a new Title VII to the Communications Act, that will encourage firms to provide these services.

The keys to regulatory reform:

- Flexibility
- Adaptability
- Fairness

The Administration's proposal would provide the FCC with broad forbearance authority while maintaining key public policy goals, including open access and interoperability requirements, along with obligations to support universal service. In addition, consistent with the approach taken in the 1992 Cable Act, the proposal will provide for rate regulation until competition is established in these service markets, with a presumption of forbearance for new entrants that are not dominant in related services. State and local regulation of services not subject to competition could take place subject to FCC guidelines. Under the Administration's plan, the FCC would adopt transition rules to move to this new regime. Firms would elect to be regulated under the new framework, provided that they meet threshold criteria established by the FCC.

In addition, the Administration proposes to allow the FCC to reduce regulation for telecommunications carriers that lack market power. This provision will ensure that unnecessary government regulation -- however well-intentioned -- does not harm users of the infrastructure, or impede competitive entry, investment, and the introduction of new services.

UNIVERSAL SERVICE

The United States has long been dedicated to "universal service" -- widespread availability of basic telephone service at affordable rates. As stated in the "Agenda for Action," the Administration is committed to developing a new concept of universal service that will serve the information needs of the American people in the 21st century. Indeed, the full potential of the NII will not be realized unless all Americans who desire it have easy, affordable access to advanced communications and information services, regardless of income, disability, or location.

It is a goal of this Administration that by the year 2000, all of the classrooms, libraries, hospitals, and clinics in the United States will be connected to the NII.

The Administration recognizes, however, that crafting a new, meaningful, and practical definition of universal service will require flexibility, foresight, and the balancing of diverse interests. Given these circumstances, the proposed legislation will establish several overarching guidelines and charge the expert agencies -- the FCC and the state regulatory commissions -- with establishing the details.

The Administration therefore proposes to:

- ✓ Make the preservation and advancement of "universal service" an explicit objective of the Communications Act, in order to establish the goal that advanced services be available to rural and urban lower income users, to users in areas where the costs of service are high, and to social institutions, especially schools and health care facilities.
- ✓ Charge the FCC and the states with continuing responsibility to review the definition of universal service to meet changing technological, economic, and societal circumstances.
- ✓ Establish a Federal/State Joint Board to make recommendations concerning FCC and state action on the fundamental elements of universal service. In its deliberations, the Joint Board must gather input from non-governmental organizations.
- ✓ Oblige those who provide telecommunications services to contribute to the preservation and advancement of universal service. However, the FCC, in consultation with the states, would be authorized to permit "sliding scale" contributions (e.g., to avoid burdening small providers and new entrants), or "in-kind" contributions in lieu of cash payments (e.g., to reduce the monetary payments owed by providers that offer to connect with schools, hospitals, etc.).

TELECOMMUNICATIONS POLICY REFORM

New technologies and market forces have led to a convergence of once separate communications industries, and this convergence requires a new framework to ensure that the United States remains a leader of the information age. This new framework is the Administration's legislative agenda on communications outlined by Vice President Gore. It is only one in a series of steps to encourage the development of the National Information Infrastructure (NII), a seamless web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users' fingertips.

The Administration's legislative agenda on telecommunications seeks to facilitate greater economic growth by removing regulatory barriers, and to create new jobs, new business opportunities and expanded diversity of choice for American consumers. An advanced information infrastructure will bring into millions of homes information that will enrich people's economic, social, and political lives. Ensuring that this technology is used to promote education, health care, and information access for the benefit of all Americans is a major goal of the legislative initiatives.

Specifically, the initiatives aim to create a flexible, adaptable approach to the communications industry that will encourage the development of the information infrastructure -- a network that eventually will link homes and businesses together in multimedia community networks. The legislative initiatives promote what is known as a broadband interactive network, or a network that enables vast amounts of information to flow back and forth. In addition, the legislation will:

- ✓ Increase competition and private investment in communications by removing unnecessary regulations and artificial barriers to participation by private firms in all communications markets. For example, the Administration proposes to permit cable companies and others to provide local telephone service;
- ✓ Secure open access to the network for consumers and service providers. For example, the legislation requires all local telephone companies upon reasonable request to interconnect their networks with the facilities of competing providers on nondiscriminatory terms;
- ✓ Preserve and advance universal service for all Americans across all sectors of society. Because full and productive participation in American society will increasingly depend on access to information, the Administration is committed to promoting the availability of information resources to all people at affordable prices;
- ✓ Develop a new regulatory framework that is flexible and fair by allowing the FCC to reduce regulation for telecommunications carriers that lack market power.

The Administration's legislative agenda outlines a comprehensive approach to communications. It is a broad vision of the future of the information infrastructure, with a commitment to using communications technology to improve and enhance the lives of all Americans.

Electronic Copies of the Vice President's Speech

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THE NATIONAL INFORMATION INFRASTRUCTURE: AGENDA FOR ACTION

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TAB A

THE NATIONAL INFORMATION INFRASTRUCTURE: AGENDA FOR ACTION

EXECUTIVE SUMMARY

All Americans have a stake in the construction of an advanced National Information Infrastructure (NII), a seamless web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users' fingertips. Development of the NII can help unleash an information revolution that will change forever the way people live, work, and interact with each other:

- People could live almost anywhere they wanted, without foregoing opportunities for useful and fulfilling employment, by "telecommuting" to their offices through an electronic highway;
- The best schools, teachers, and courses would be available to all students, without regard to geography, distance, resources, or disability;
- Services that improve America's health care system and respond to other important social needs could be available on-line, without waiting in line, when and where you needed them.

Private sector firms are already developing and deploying that infrastructure today. Nevertheless, there remain essential roles for government in this process. Carefully crafted government action will complement and enhance the efforts of the private sector and assure the growth of an information infrastructure available to all Americans at reasonable cost. In developing our policy initiatives in this area, the Administration will work in close partnership with business, labor, academia, the public, Congress, and state and local government. Our efforts will be guided by the following principles and objectives:

- **Promote private sector investment**, through appropriate tax and regulatory policies.
- **Extend the "universal service" concept to ensure that information resources are available to all at affordable prices.** Because information means empowerment--and employment--the government has a duty to ensure that all Americans have access to the resources and job creation potential of the Information Age.
- **Act as a catalyst to promote technological innovation and new applications.** Commit important government research programs and grants to help the private sector develop and demonstrate technologies needed for the NII, and develop the applications and services that will maximize its value to users.
- **Promote seamless, interactive, user-driven operation of the NII.** As the NII evolves into a "network of networks," government will ensure that users can transfer

information across networks easily and efficiently. To increase the likelihood that the NII will be both interactive and, to a large extent, user-driven, government must reform regulations and policies that may inadvertently hamper the development of interactive applications.

- **Ensure information security and network reliability.** The NII must be trustworthy and secure, protecting the privacy of its users. Government action will also ensure that the overall system remains reliable, quickly repairable in the event of a failure and, perhaps most importantly, easy to use.

- **Improve management of the radio frequency spectrum,** an increasingly critical resource.

- **Protect intellectual property rights.** The Administration will investigate how to strengthen domestic copyright laws and international intellectual property treaties to prevent piracy and to protect the integrity of intellectual property.

- **Coordinate with other levels of government and with other nations.** Because information crosses state, regional, and national boundaries, coordination is critical to avoid needless obstacles and prevent unfair policies that handicap U.S. industry.

- **Provide access to government information and improve government procurement.** The Administration will seek to ensure that Federal agencies, in concert with state and local governments, use the NII to expand the information available to the public, ensuring that the immense reservoir of government information is available to the public easily and equitably. Additionally, Federal procurement policies for telecommunications and information services and equipment will be designed to promote important technical developments for the NII and to provide attractive incentives for the private sector to contribute to NII development.

The time for action is now. Every day brings news of change: new technologies, like hand-held computerized assistants; new ventures and mergers combining businesses that not long ago seemed discrete and insular; new legal decisions that challenge the separation of computer, cable, and telephone companies. These changes promise substantial benefits for the American people, but only if government understands fully their implications and begins working with the private sector and other interested parties to shape the evolution of the communications infrastructure.

The benefits of the NII for the nation are immense. An advanced information infrastructure will enable U.S. firms to compete and win in the global economy, generating good jobs for the American people and economic growth for the nation. As importantly, the NII can transform the lives of the American people -- ameliorating the constraints of geography, disability, and economic status -- giving all Americans a fair opportunity to go as far as their talents and ambitions will take them.

TAB B

THE NATIONAL INFORMATION INFRASTRUCTURE: THE ADMINISTRATION'S AGENDA FOR ACTION

Version 1.0

I. The Promise of the NII

Imagine you had a device that combined a telephone, a TV, a camcorder, and a personal computer. No matter where you went or what time it was, your child could see you and talk to you, you could watch a replay of your team's last game, you could browse the latest additions to the library, or you could find the best prices in town on groceries, furniture, clothes -- whatever you needed.

Imagine further the dramatic changes in your life if:

- The best schools, teachers, and courses were available to all students, without regard to geography, distance, resources, or disability;
- The vast resources of art, literature, and science were available everywhere, not just in large institutions or big-city libraries and museums;
- Services that improve America's health care system and respond to other important social needs were available on-line, without waiting in line, when and where you needed them;
- You could live in many places without foregoing opportunities for useful and fulfilling employment, by "telecommuting" to your office through an electronic highway instead of by automobile, bus or train;
- Small manufacturers could get orders from all over the world electronically -- with detailed specifications -- in a form that the machines could use to produce the necessary items;
- You could see the latest movies, play the hottest video games, or bank and shop from the comfort of your home whenever you chose;
- You could obtain government information directly or through local organizations like libraries, apply for and receive government benefits electronically, and get in touch with government officials easily; and
- Individual government agencies, businesses and other entities all could exchange information electronically -- reducing paperwork and improving service.

Information is one of the nation's most critical economic resources, for service industries as well as manufacturing, for economic as well as national security. By one estimate, two-thirds of U.S. workers are in information-related jobs, and the rest are in industries that rely heavily on information. In an era of global markets and global competition, the technologies to create, manipulate, manage and use information are of strategic importance for the United States. Those technologies will help U.S. businesses remain competitive and create challenging, high-paying jobs. They also will fuel economic growth which, in turn, will generate a steadily-increasing standard of living for all Americans.

That is why the Administration has launched the National Information Infrastructure initiative. We are committed to working with business, labor, academia, public interest groups, Congress, and state and local government to ensure the development of a national information infrastructure (NII) that enables all Americans to access information and communicate with each other using voice, data, image or video at anytime, anywhere. By encouraging private sector investment in the NII's development, and through government programs to improve access to essential services, we will promote U.S. competitiveness, job creation and solutions to pressing social problems.

II. What Is the NII?

The phrase "information infrastructure" has an expansive meaning. The NII includes more than just the physical facilities used to transmit, store, process, and display voice, data, and images. It encompasses:

- A wide range and ever-expanding range of equipment including cameras, scanners, keyboards, telephones, fax machines, computers, switches, compact disks, video and audio tape, cable, wire, satellites, optical fiber transmission lines, microwave nets, switches, televisions, monitors, printers, and much more.

The NII will integrate and interconnect these physical components in a technologically neutral manner so that no one industry will be favored over any other. Most importantly, the NII requires building foundations for living in the Information Age and for making these technological advances useful to the public, business, libraries, and other nongovernmental entities. That is why, beyond the physical components of the infrastructure, the value of the National Information Infrastructure to users and the nation will depend in large part on the quality of its other elements:

- The information itself, which may be in the form of video programming, scientific or business databases, images, sound recordings, library archives, and other media. Vast quantities of that

information exist today in government agencies and even more valuable information is produced every day in our laboratories, studios, publishing houses, and elsewhere.

- Applications and software that allow users to access, manipulate, organize, and digest the proliferating mass of information that the NII's facilities will put at their fingertips.
- The network standards and transmission codes that facilitate interconnection and interoperation between networks, and ensure the privacy of persons and the security of the information carried, as well as the security and reliability of the networks .
- The people -- largely in the private sector -- who create the information, develop applications and services, construct the facilities, and train others to tap its potential. Many of these people will be vendors, operators, and service providers working for private industry.

Every component of the information infrastructure must be developed and integrated if America is to capture the promise of the Information Age.

The Administration's NII initiative will promote and support full development of each component. Regulatory and economic policies will be adopted that encourage private firms to create jobs and invest in the applications and physical facilities that comprise the infrastructure. The Federal government will assist industry, labor, academia, and state and local governments in developing the information resources and applications needed to maximize the potential of those underlying facilities. Moreover, and perhaps most importantly, the NII initiative will help educate and train our people so that they are prepared not only to contribute to the further growth of the NII, but also to understand and enjoy fully the services and capabilities that it will make available.

III. Need for Government Action To Complement Private Sector Leadership

The foregoing discussion of the transforming potential of the NII should not obscure a fundamental fact -- the private sector is already developing and deploying such an infrastructure today. The United States communications system -- the conduit through which most information is accessed or distributed -- is second to none in speed, capacity, and reliability. Each year the information resources, both hardware and software, available to most Americans are substantially more extensive and more powerful than the previous year.

The private sector will lead the deployment of the NII. In recent years, U.S. companies have invested more than \$50 billion annually in telecommunications infrastructure -- and that figure does not account for the vast investments made by firms in related industries, such as computers. In contrast, the Administration's ambitious agenda for investment in critical NII projects (including computing) amounts to \$1-2 billion annually. Nonetheless, while the private sector role in NII development will predominate, the government has an essential role to play. In particular, carefully crafted government action can complement and enhance the benefits of these private sector initiatives. Accordingly, the Administration's NII initiative will be guided by the following nine principles and goals, which are discussed in more detail below:

1) Promote private sector investment, through tax and regulatory policies that encourage innovation and promote long-term investment, as well as wise procurement of services.

2) Extend the "universal service" concept to ensure that information resources are available to all at affordable prices. Because information means empowerment, the government has a duty to ensure that all Americans have access to the resources of the Information Age.

3) Act as catalyst to promote technological innovation and new applications. Commit important government research programs and grants to help the private sector develop and demonstrate technologies needed for the NII.

4) Promote seamless, interactive, user-driven operation of the NII. As the NII evolves into a "network of networks," government will ensure that users can transfer information across networks easily and efficiently.

5) Ensure information security and network reliability. The NII must be trustworthy and secure, protecting the privacy of its users. Government action will also aim to ensure that the overall system remains reliable, quickly repairable in the event of a failure and, perhaps most importantly, easy to use.

6) Improve management of the radio frequency spectrum, an increasingly critical resource.

7) Protect intellectual property rights. The Administration will investigate how to strengthen domestic copyright laws and international intellectual property treaties to prevent piracy and to protect the integrity of intellectual property.

8) Coordinate with other levels of government and with other nations. Because information crosses state, regional, and national boundaries, coordination

is important to avoid unnecessary obstacles and to prevent unfair policies that handicap U.S. industry.

9) Provide access to government information and improve government procurement. As described in the National Performance Review, the Administration will seek to ensure that Federal agencies, in concert with state and local governments, use the NII to expand the information available to the public, so that the immense reservoir of government information is available to the public easily and equitably. Additionally, Federal procurement policies for telecommunications and information services and equipment will be designed to promote important technical developments for the NII and to provide attractive incentives for the private sector to contribute to NII development.

The time for action is now. Every day brings news of change: new technologies, like hand-held computerized assistants; new ventures and mergers combining businesses that not long ago seemed discrete and insular; new legal decisions that challenge the separation of computer, cable and telephones. These changes promise substantial benefits for the American people, but only if government understands fully the implications of these changes and to work with the private sector and other interested parties to shape the evolution of the communications infrastructure.

IV. Managing Change/ Forging Partnerships

We will help to build a partnership of business, labor, academia, the public, and government that is committed to deployment of an advanced, rapid, powerful infrastructure accessible and accountable to all Americans.

Forging this partnership will require extensive inter-governmental coordination to ensure that Administration, Congressional, state and local government policy regarding the NII is consistent, coherent, and timely. It also requires the development of strong working alliances among industry groups and between government and the businesses responsible for creating and operating the NII. Finally, close cooperation will be needed between government, users, service providers, and public interest groups to ensure that the NII develops in a way that benefits the American people.

Specifically, the Administration will:

(1) Establish an interagency Information Infrastructure Task Force

The President has convened a Federal inter-agency "Information Infrastructure Task Force" (IITF) that will work with Congress and the private sector to propose the policies and initiatives needed to accelerate deployment of a

National Information Infrastructure. Activities of the IITF include coordinating government efforts in NII applications, linking government applications to the private sector, resolving outstanding disputes, and implementing Administration policies. Chaired by Secretary of Commerce Ron Brown and composed of high-level Federal agency representatives, the IITF's three committees focus on telecommunications policy, information policy, and applications.

(2) Establish a private sector Advisory Council on the National Information Infrastructure

To facilitate meaningful private sector participation in the IITF's deliberations, the President will sign an Executive Order creating the "United States Advisory Council on the National Information Infrastructure" to advise the IITF on matters relating to the development of the NII. The Council will consist of 25 members, who will be named by the Secretary of Commerce by December 1993. Nominations will be solicited from a variety of NII constituencies and interested parties. The IITF and its committees also will use other mechanisms to solicit public comment to ensure that it hears the views of all interested parties.

(3) Strengthen and streamline Federal communications and information policy-making agencies

In order to implement the ambitious agenda outlined in this document, the federal agencies most directly responsible for the evolution of the NII (such as NTIA, the Office of Information and Regulatory Affairs at OMB, and the FCC) must be properly structured and adequately staffed to address many new and difficult policy issues. The Administration intends to ensure that these agencies have the intellectual and material resources they need. In addition, in accord with the Vice President's National Performance Review, these agencies will make the organizational and procedural changes needed to most effectively contribute to the NII initiative.

V. Principles and Goals for Government Action

The Task Force currently is undertaking a wide-ranging examination of all issues relevant to the timely development and growth of the National Information Infrastructure. Specific principles and goals in areas where government action is warranted have already been identified and work has begun on the following matters:

1. Promote Private Sector Investment

One of the most effective ways to promote investments in our nation's information infrastructure is to introduce or further expand competition in

communications and information markets. Vibrant competition in these markets will spur economic growth, create new businesses and benefit U.S. consumers.

To realize this vision, however, policy changes will be necessary:

Action: Passage of communications reform legislation. The Administration will work with Congress to pass legislation by the end of 1994 that will increase competition and ensure universal access in communications markets -- particularly those, such as the cable television and local telephone markets, that have been dominated by monopolies. Such legislation will explicitly promote private sector infrastructure investment -- both by companies already in the market and those seeking entry.

Action: Revision of tax policies. Tax policies are important determinants of the amount of private sector investment in the NII. The President has signed into law tax incentives for private sector investment in R&D and new business formation, including a three-year extension of the R&D credit and a targeted capital gains reduction for investments in small businesses. Both of these tax incentives will help spur the private sector investment needed to develop the NII.

2. **Extend the "Universal Service" Concept to Ensure that Information Resources Are Available to All at Affordable Prices**

The Communications Act of 1934 articulated in general terms a national goal of "Universal Service" for telephones -- widespread availability of a basic communications service at affordable rates. A major objective in developing the NII will be to extend the Universal Service concept to the information needs of the American people in the 21st Century. As a matter of fundamental fairness, this nation cannot accept a division of our people among telecommunications or information "haves" and "have-nots." The Administration is committed to developing a broad, modern concept of Universal Service -- one that would emphasize giving all Americans who desire it easy, affordable access to advanced communications and information services, regardless of income, disability, or location.

Devising and attaining a new goal for expanded Universal Service is consistent with efforts to spur infrastructure development by increasing competition in communications and information markets. As noted above, competition can make low cost, high quality services and equipment widely available. Policies promoting greater competition in combination with targeted support for disadvantaged users or especially high cost or rural areas would advance both rapid infrastructure modernization and expanded Universal Service.

Action: Develop a New Concept of Universal Service. To gather information on the best characteristics of an expanded concept of Universal Service, the Commerce Department's National Telecommunications and Information Administration (NTIA) will hold a series of public hearings on Universal Service and the NII, beginning by December 1993. The Administration will make a special effort to hear from public interest groups. Building on the knowledge gained from these activities, the IITF will work with the Advisory Council on the National Information Infrastructure, as well as with state regulatory commissions, to determine how the Universal Service concept should be applied in the 21st Century.

3. Promote Technological Innovation and New Applications

Government regulatory, antitrust, tax, and intellectual property policies all affect the level and timing of new offerings in services and equipment -- including the technology base that generates innovations for the marketplace. But technological innovations ultimately depend upon purposeful investment in research and development, by both the private sector and government. R&D investment helps firms to create better products and services at lower costs.

As noted in the Administration's February 22, 1993 technology policy statement: "We are moving to accelerate the development of technologies critical for long-term growth but not receiving adequate support from private firms, either because the returns are too distant or because the level of funding required is too great for individual firms to bear." Government research support already has helped create basic information technologies in computing, networking and electronics. We will support further NII-related research and technology development through research partnerships and other mechanisms to accelerate technologies where market mechanisms do not adequately reflect the nation's return on investment. In particular, these government research and funding programs will focus on the development of beneficial public applications in the fields of education, health care, manufacturing, and provision of government services.

Action: Continue the High-Performance Computing and Communications Program. Established by the High-Performance Computing Act of 1991, the HPCC Program funds R&D designed to create more powerful computers, faster computer networks, and more sophisticated software. In addition, the HPCC Program is providing scientists and engineers with the tools and training they need to solve "Grand Challenges," research problems -- like designing new drugs -- that cannot be solved without the most powerful computers. The Administration has requested \$1 billion for the HPCC Program in fiscal year 1994, and is in the process of forming a "High-

Performance Computing Advisory Committee," to provide private sector input on the Program.

We have also requested an additional \$96 million in the FY 1994 budget to create a new component of the HPCC Program -- Information Infrastructure Technologies and Applications (IITA). The Administration is working with Congress to obtain authorization to fund this effort, which will develop and apply high-performance computing and high-speed networking technologies for use in the fields of health care, education, libraries, manufacturing, and provision of government information.

Action: Implement the NII Pilot Projects Program. In its FY 94 budget, the Administration has requested funding from the Congress for NII networking pilot and demonstration projects. Under NTIA's direction, this pilot program will provide matching grants to state and local governments, health care providers, school districts, libraries, universities, and other non-profit entities. The grants will be awarded after a competitive merit review process and will be used to fund projects to connect institutions to existing networks, enhance communications networks that are currently operational, and permit users to interconnect among different networks. Funded projects will demonstrate the potential of the NII and provide tangible benefits to their communities. Equally important, they will help leverage the resources and creativity of the private sector to devise new applications and uses of the NII. The successes of these pilot projects will create an iterative process that will generate more innovative approaches each year.

Action: Inventory NII Applications Projects. Many insights can be gained by sharing information about how government can effectively use the NII. By the end of January 1994, the IITF will complete an inventory of current and planned government activities and will widely disseminate the results through electronic and printed means. An electronic forum is being established to encourage government and private sector contributions and comments about government applications projects.

4. Promote Seamless, Interactive, User-Driven Operation

Because the NII will be a network of networks, information must be transferable over the disparate networks easily, accurately, and without compromising the content of the messages. Moreover, the NII will be of maximum value to users if it is sufficiently "open" and interactive so that users can develop new services and applications or exchange information among themselves, without waiting for services to be offered by the firms that operate the NII. In this way, users will develop new "electronic communities" and share knowledge and

experiences that can improve the way that they learn, work, play, and participate in the American democracy.

To assure interoperability and openness of the many components of an efficient, high-capacity NII, standards for voice, video, data, and multi-media services must be developed. Those standards also must be compatible with the large installed base of communications technologies, and flexible and adaptable enough to meet user needs at affordable costs. The United States has long relied on a consensus-based, voluntary standards-setting process in communications. Particularly in the area of information and communications technology, where product cycles are often measured in months, not years, the standards process is critical and has not always worked to speed technological innovation and serve end-users well. Government can catalyze this industry-driven process by participating more actively in private-sector standards-writing bodies and by working with industry to address strategic technical barriers to interoperability and adoption of new technologies.

To increase the likelihood that the NII will be both interactive and, to a large extent, user-driven, government also must reform regulations and policies that may inadvertently hamper the development of interactive applications. For example, government regulations concerning the lack of reimbursement of health care procedures may deter the growth of distance medicine applications.

Action: Review and clarify the standards process to speed NII applications. By October 15, 1993 the Commerce Department's National Institute for Standards and Technology (NIST) will establish a panel and work with other appropriate agencies to review the government's involvement in establishing network requirements and standards with domestic and international partners. The panel, with input from the private sector and other levels of government, will consider the role of the government in the standards process and will identify opportunities for accelerating the deployment of the NII.

Action: Review and reform government regulations that impede development of interactive services and applications. The Administration will work closely with the private sector, as well as state and local governments, to identify government policies and regulations that may hinder the growth of interactive services and applications. The IITF will determine how those regulations should be changed.

5. Ensure Information Security and Network Reliability

The trustworthiness and security of communications channels and networks are essential to the success of the NII. Users must be assured that information

transmitted over the infrastructure will go when and where it is intended to go. Electronic information systems can create new vulnerabilities. For example, electronic files can be broken into and copied from remote locations, and cellular phone conversations can be monitored easily. Yet these same systems, if properly designed, can offer greater security than less advanced communications channels.

Through the use of information systems, gathering, sending, and receiving a wide variety of personal information is now simple, quick, and relatively inexpensive. The use of information technologies to access, modify, revise, repackage, and resell information can benefit individuals, but unauthorized use can encroach on their privacy. While media reports often emphasize the role of modern information technology in invading privacy, technology advances and enhanced management oversight also offer the opportunity for privacy protection. This protection is especially important to businesses that increasingly transmit sensitive proprietary data through electronic means. In a climate of tough global competitiveness to gain market advantage, the confidentiality of this information can spell the difference between business success or failure.

In addition, it is essential that the Federal government work with the communications industry to reduce the vulnerability of the nation's information infrastructure. The NII must be designed and managed in a way that minimizes the impact of accident or sabotage. The system must also continue to function in the event of attack or catastrophic natural disaster.

Action: Review privacy concerns of the NII. The IITF has developed a work plan to investigate what policies are necessary to ensure individual privacy, while recognizing the legitimate societal needs for information, including those of law enforcement. The IITF has also developed a work plan to investigate how the government will ensure that the infrastructure's operations are compatible with the legitimate privacy interests of its users.

Action: Review of encryption technology. In April, the President announced a thorough review of Federal policies on encryption technology. In addition, Federal agencies are working with industry to develop new technologies that protect the privacy of citizens, while enabling law enforcement agencies to continue to use court-authorized wiretaps to fight terrorism, drug rings, organized crime, and corruption. Federal agencies are working with industry to develop encryption hardware and software that can be used for this application.

Action: Work with industry to increase network reliability. The National Communications System brings together 23 Federal agencies with industry to reduce the vulnerability of the nation's telecommunications systems to accident, sabotage, natural disaster, or military attack. And the Federal

Communications Commission has an industry and user Network Reliability Council to advise it on ensuring the reliability of the nation's commercial telecommunications networks. These efforts are increasingly important as the threat posed by terrorism and computing hacking grows. The NCS will continue its work and will coordinate with the IITF. In addition, the National Security Telecommunications Advisory Committee, which advises the President in coordination with the NCS, as well as the FCC's Network Reliability Council, will coordinate with and complement the work of the Advisory Council on the National Information Infrastructure.

6. Improve Management of the Radio Frequency Spectrum

Many of the dramatic changes expected from the development of the information infrastructure will grow out of advances in wireless technologies. The ability to access the resources of the NII at any time, from anywhere in the country, will be constrained, however, if there is inadequate spectrum available. To ensure that spectrum scarcity does not impede the development of the NII, the Administration places a high priority on streamlining its procedures for the allocation and use of this valuable resource.

Action: Streamline allocation and use of spectrum. The Administration is working with Congress to fully implement the spectrum management provisions of the Omnibus Budget and Reconciliation Act of 1993, to streamline government use of spectrum and to get spectrum to the public efficiently. These provisions will provide greater flexibility in spectrum allocation, including increased sharing of spectrum between private sector and government users, increased flexibility in technical and service standards, and increased choices for licensees in employing their assigned spectrum.

Action: Promote market principles in spectrum distribution. Further, the Administration will continue to support policies that place a greater reliance on market principles in distributing spectrum, particularly in the assignment process, as a superior way to apportion this scarce resource among the widely differing wireless services that will be a part of the NII. At the same time, the Administration will develop policies to ensure that entrepreneurs and small, rural, minority- and women-owned businesses are able to participate in spectrum auctions.

7. Protect Intellectual Property Rights

Development of an advanced information infrastructure will create unprecedented market opportunities and new challenges for our world-preeminent media and information industries. The broad public interest in promoting the

dissemination of information to our citizens must be balanced with the need to ensure the integrity of intellectual property rights and copyrights in information and entertainment products. This protection is crucial if these products -- whether in the form of text, images, computer programs, databases, video or sound recordings, or multimedia formats -- are to move in commerce using the full capability of the NII.

Action: Examine the adequacy of copyright laws. The IITF will investigate how to strengthen domestic copyright laws and international intellectual property treaties to prevent piracy and to protect the integrity of intellectual property. To ensure broad access to information via the NII, the IITF will study how traditional concepts of fair use should apply with respect to new media and new works.

Action: Explore ways to identify and reimburse copyright owners. The IITF will explore the need for standards for the identification of copyright ownership of information products in electronic systems (e.g., electronic headers, labels or signature techniques). The Task Force will also evaluate the need to develop an efficient system for the identification, licensing, and use of work, and for the payment of royalties for copyrighted products delivered or made available over electronic information systems.

8. Coordinate with Other Levels of Governmental and With Other Bodies

Domestic: Many of the firms that will likely participate in the NII are now subject to regulation by Federal, state, and local government agencies. If the information infrastructure is to develop quickly and coherently, there must be close coordination among the various government entities, particularly with respect to regulatory policy. It is crucial that all government bodies -- particularly Congress, the FCC, the Administration, and state and local governments -- work cooperatively to forge regulatory principles that will promote deployment of the NII.

Action: Seek ways to improve coordination with state and local officials. The IITF will meet with state and local officials to discuss policy issues related to development of the NII. The Task Force will also seek input from the private sector and non-federal agencies as it devises proposals for regulatory reform. The Administration is committed to working closely with state and local governments in developing its telecommunications policies.

International: The NII also will develop in the context of evolving global networks. Because customers typically demand that U.S. communications providers offer services on a global basis, it is critical that the infrastructure within this country can meet international, as well as domestic, requirements.

Action: Open up overseas markets. The Administration has shown its willingness to work directly on behalf of U.S. firms to ensure that they have an equal opportunity to export telecommunications-related goods and services to potential overseas customers. For example, the Commerce Department is developing new export control policies governing computers and telecommunications equipment manufactured by U.S. firms. These changes will remove export restrictions on many of these products and permit U.S. manufacturers to enter new markets not previously available to them. The Administration will continue to work to open overseas markets for U.S. services and products.

Action: Eliminate barriers caused by incompatible standards. Equally important is the need to avoid trade barriers raised by incompatible U.S. and foreign standards or -- more subtly -- between the methods used to test conformance to standards. Through its participation in international standards committees, the Administration is working to eliminate or avert such barriers.

Action: Examine international and U.S. trade regulations. The IITF will coordinate the Administration's examination of policy issues related to the delivery of telecommunications services to and from the U.S., including claims by some U.S. companies that regulatory practices in foreign countries -- including denial of market access for U.S. carriers and the imposition of excessive charges for completing calls from the United States -- are harming the competitiveness of the industry and the costs charged to U.S. customers for service. The IITF also will reexamine U.S. regulation of international telecommunications services.

9. Provide Access to Government Information and Improve Government Procurement

Thomas Jefferson said that information is the currency of democracy. Federal agencies are among the most prolific collectors and generators of information that is useful and valuable to citizens and business. Improvement of the nation's information infrastructure provides a tremendous opportunity to improve the delivery of government information to the taxpayers who paid for its collection; to provide it equitably, at a fair price, as efficiently as possible.

The Federal government is improving every step of the process of information collection, manipulation, and dissemination. The Administration is funding research programs that will improve the software used for browsing, searching, describing, organizing, and managing information. But it is committed as well to applying those tools to the distribution of information that can be useful

to the public in their various roles as teachers, researchers, businesspeople, consumers, etc.

The key questions that must be addressed are: What information does the public want? What information is in electronic form? By what means can it be distributed? How can all Americans have access to it? A secondary question is: How can government itself improve through better information management?

Action: Improve the accessibility of government information. IITF working groups will carefully consider the problems associated with making government information broadly accessible to the public electronically. Additionally, several inter-agency efforts have been started to ensure that the right information is stored and available. Finally, to help the public find government information, an inter-agency project has been formed to develop a virtual card catalogue that will indicate the availability of government information in whatever form it takes.

Action: Upgrade the infrastructure for the delivery of government information. The Federal government has already taken a number of steps to promote wider distribution of its public reports. Legislation has been enacted to improve electronic dissemination of government documents by the Government Printing Office. A number of Federal agencies have moved aggressively to convert their public information into electronic form and disseminate it over the Internet, where it will be available to many more people than have previously had access to such information. In the future, substantial improvements will be made to "FedWorld," an electronic bulletin board established by the Department of Commerce's National Technical Information Service (NTIS), which links the public with more than 100 Federal bulletin boards and information centers. These improvements will enhance FedWorld's ability to distribute to the public scientific, technical, and business-related information generated by the U.S. Government and other sources. Finally, a conference will be held in the Fall of 1993 to begin teaching Federal employees how they can use these distribution mechanisms.

Action: Enhance citizen access to government information. In June 1993, OMB prescribed new policies pertaining to the acquisition, use, and distribution of government information by Federal agencies. Among other things, the policies mandate that, in distributing information to the public, Federal agencies should recoup only those costs associated with the dissemination of that information, not with its creation or collection. Moreover, a number of inter-agency efforts are under way to afford greater public access to government information. One project seeks to turn thousands of local and field offices of various Federal agencies into

Interactive Citizen Participation Centers, at which citizens can communicate with the public affairs departments of all Federal agencies.

Action: Strengthen inter-agency coordination through the use of electronic mail. To implement the National Performance Review's recommendation on expanded use of electronic mail within the Federal government, an inter-agency coordinating body has been established to incorporate electronic mail into the daily work environment of Federal workers. The group is also sponsoring three pilot projects to expand connectivity that will build a body of experience that other Federal agencies can draw on when they begin to use electronic mail.

Action: Reform the Federal procurement process to make government a leading-edge technology adopter. The Federal government is the largest single buyer of high technology products. The government has played a key role in developing emerging markets for advanced technologies of military significance; it can be similarly effective for civilian technologies. The Administration will implement the procurement policy reforms set forth in the National Performance Review report.

VI. America's Destiny is Linked to our Information Infrastructure

The principles and goals outlined in this document provide a blueprint for government action on the NII. Applying them will ensure that government provides constructive assistance to U.S. industry, labor, academia and private citizens as they develop, deploy and use the infrastructure.

The potential benefits for the nation are immense. The NII will enable U.S. firms to compete and win in the global economy, generating good jobs for the American people and economic growth for the nation. As importantly, the NII promises to transform the lives of the American people. It can ameliorate the constraints of geography and economic status, and give all Americans a fair opportunity to go as far as their talents and ambitions will take them.

TAB C

BENEFITS AND APPLICATIONS OF THE NATIONAL INFORMATION INFRASTRUCTURE

The development of the National Information Infrastructure is not an end in itself; it is a means by which the United States can achieve a broad range of economic and social goals. Although the NII is not a "silver bullet" for all of the problems we face, it can make an important contribution to our most pressing economic and social challenges.

This infrastructure can be used by all Americans, not just by scientists and engineers. As entrepreneurs, factory workers, doctors, teachers, federal employees, and citizens, Americans can harness this technology to:

- Create jobs, spur growth, and foster U.S. technological leadership;
- Reduce health care costs while increasing the quality of service in underserved areas;
- Deliver higher-quality, lower-cost government services;
- Prepare our children for the fast-paced workplace of the 21st century; and
- Build a more open and participatory democracy at all levels of government.

This is not a far-fetched prediction. As shown below, our current information infrastructure is already making a difference in the lives of ordinary Americans, and we have just begun to tap its potential.

ECONOMIC BENEFITS

The National Information Infrastructure will help create high-wage jobs, stimulate economic growth, enable new products and services, and strengthen America's technological leadership. Whole new industries will be created, and the infrastructure will be used in ways we can only begin to imagine. Below are some of the potential benefits to the U.S. economy:

1. Increased economic growth and productivity

- The Computer Systems Policy Project estimates that the NII will "create as much as \$300 billion annually in new sales across a range of industries."
- The Economic Strategy Institute concluded that accelerated deployment of the NII would increase GDP by \$194 - \$321 billion to GNP by the year 2007, and increase productivity by 20 to 40 percent.

2. Job creation

Although there are no definitive estimates for the total number of U.S. jobs the deployment of the NII will create, it is clear that it has the potential to create hundreds of thousands of jobs. For example:

- Industry experts believe that the Personal Communications Services industry, a new family of wireless services, could create as many as 300,000 jobs in the next 10-15 years. The development of this industry will be accelerated by the Emerging Telecommunications Technology Act, which was signed by President Clinton as part of the budget package.

3. Technological leadership

The NII will serve as the driver for a wide variety of technologies, such as semiconductors, high-speed networking, advanced displays, software, and human/computer interfaces such as speech recognition.

This technology will be used to create exciting new products and services, strengthening U.S. leadership in the electronics and information technology sector. For example, experts envision the production of powerful computers that will be held in the palm of our hand, "as mobile as a watch and as personal as a wallet, ... [they] will recognize speech, navigate streets, take notes, keep schedules, collect mail, manage money, open the door and start the car, among other computer functions we cannot imagine today."

4. Regional, state, and local economic development

In today's knowledge-based, global economy in which capital and technology are increasingly mobile, the quality of America's information infrastructure will help determine whether companies invest here or overseas. States and regions increasingly recognize that development of their information infrastructure is key to creating jobs and attracting new businesses:

- In May 1993, Governor Jim Hunt announced the creation of the North Carolina Information Highway, a network of fiber optics and advanced switches capable of transmitting the entire 33-volume Encyclopedia Britannica in 4.7 seconds. This network, which will be deployed in cooperation with BellSouth, GTE, and Carolina Telephone, is a key element of North Carolina's economic development strategy.
- In California's Silicon Valley, academics, business executives, government officials, and private citizens are working together to build an "advanced information infrastructure and the collective ability to use it." A non-profit organization, Smart Valley Inc., will help develop the information infrastructure and its applications. Many business applications are envisioned, including desktop videoconferencing, rapid delivery of parts designs to fabrication shops, design of chips on remote supercomputers, electronic commerce, and telecommuting.
- The Council of Great Lakes Governors has developed a regional telecommunications initiative, which includes creating an open data network as a first step towards creation of a Great Lakes Information Highway, promoting access in rural areas, developing a set of telecommunications service goals and a time table for achieving them, and developing a computerized inventory of each state's advanced telecommunications infrastructure.

5. Electronic commerce

Electronic commerce (e.g., on-line parts catalogues, multi-media mail, electronic payment, brokering services, collaborative engineering) can dramatically reduce the time required to design, manufacture, and market new products. "Time to market" is a critical success factor in today's global marketplace. Electronic commerce will also strengthen the relationships between manufacturer, suppliers, and joint developers. In today's marketplace, it is not unusual to have 12 or more companies collaborating to develop and manufacture new products.

HEALTH CARE

The NII can help solve America's health care crisis. The Clinton Administration is committed to health care reform that will ensure that Americans will never again lose their health care coverage and that controls skyrocketing health care costs. The costs of doing nothing are prohibitive:

- Since 1980, our nation's health care costs have quadrupled. Between 1980 and 1992, health expenditures shot up from 9 percent to 14 percent of GDP; under current policies, they will hit 19 percent by the year 2000. Health care cost increases will eat up more than half of the new federal revenue expected over the next four years.
- Twenty-five cents out of every dollar on a hospital bill goes to administrative costs and does not buy any patient care. The number of health care administrators is increasing four times faster than the number of doctors.

These problems will not be solved without comprehensive health care reform. Better use of information technology and the development of health care applications for the NII, however, can make an important contribution to reform. Experts estimate that telecommunications applications could reduce health care costs by \$36 to \$100 billion each year while improving quality and increasing access. Below are some of the existing and potential applications:

1. **Telemedicine:** By using telemedicine, doctors and other care givers can consult with specialists thousands of miles away; continually upgrade their education and skills; and share medical records and x-rays.

Example: In Texas, over 70 hospitals, primarily in rural areas, have been forced to close since 1984. The Texas Telemedicine Project in Austin, Texas offers interactive video consultation to primary care physicians in rural hospitals as a way of alleviating the shortage of specialists in rural areas. This trial is increasing the quality of care in rural areas and providing at least 14 percent savings by cutting patient transfer costs and provider travel.

2. **Unified Electronic Claims:** More than 4 billion health care claims are submitted annually from health care providers to reimbursement organizations such as insurance companies, Medicare, Medicaid, and HMOs. Moreover, there are 1500 different insurance companies in the United States using many different claims forms. The administrative costs of the U.S. health care system could be dramatically reduced by moving towards standardized electronic submission and processing of claims.

3. **Personal Health Information Systems:** The United States can use computers and networks to promote self care and prevention by making health care information available 24 hours a day in a form that aids decision making. Most people do not have the tools necessary to become an active and informed participant in their own health care. As a result, far too many people (estimates range from 50 to 80 percent) entering the health care system do not really need a physician's care. Many improperly use the system by, for example, using the emergency room for a cold or back strain. Many of those who end up with serious health problems enter the health care system too late, and thus require more extensive and costly therapy. Michael McDonald, chairman of the Communications and Computer Applications in Public Health (CCAPH), estimates that even if personal health information systems were used only 25 to 35 percent of the time, \$40 to \$60 billion could be saved.

Example: InterPractice Systems, a joint venture of Harvard Community Health Plan in Boston and Electronic Data Systems, has placed terminals in the homes of heavy users of health care, such as the elderly, pregnant women, and families with young children. Based on a patient's symptoms and their medical history, an electronic advice system makes recommendations to HCHP's members about using self care, talking with a doctor, or scheduling an appointment. In one instance, "an 11-year old who regularly played with the terminal heard his father complain one day of chest pains and turned to the system for help; it diagnosed the symptoms as a probable heart attack. The diagnosis was correct."

4. **Computer-Based Patient Records:** The Institute of Medicine has concluded that Computer-Based Patient Records are critical to improving the quality and reducing the cost of health care. Currently:
- 11 percent of laboratory tests must be re-ordered because of lost results;
 - 30 percent of the time, the treatment ordered is not documented at all;
 - 40 percent of the time a diagnosis isn't recorded; and
 - 30 percent of the time a medical record is completely unavailable during patient visits.

CIVIC NETWORKING TECHNOLOGY IN THE PUBLIC INTEREST

The benefits of the NII extend far beyond economic growth. As the Center for Civic Networking observed,

"A country that works smarter; enjoys efficient, less costly government, guided by a well-informed citizenry; that produces high quality jobs and educated citizens to fill them; that paves a road away from poverty; that promotes life-long learning, public life and the cultural life of our communities. This is the promise of the National Information Infrastructure."

The NII could be used to create an "electronic commons" and promote the public interest in the following ways:

1. **Community Access Networks:** Grass-roots networks are springing up all over the country, providing citizens with a wide range of information services. The National Information Infrastructure should expand a citizen's capacity for action in local institutions, as it must honor regional differences and the cultural diversity of America's heritage.

Example: The Heartland FreeNet in Peoria, Illinois provides a wide range of community information to the citizens of Central Illinois 24 hours a day. Topics covered include 113 areas of social services; a year long community calendar; the American Red Cross; current listings from the Illinois Job Service; resources for local businesses; and local government information. Experts in all fields from law to the Red Cross to chemical dependency volunteer their time and expertise to answer questions anonymously asked by the public.

Example: The Big Sky Telegraph began operation in 1988 as an electronic bulletin board system linking Montana's 114 one-room schools to each other and to Western Montana College. Today, the Big Sky Telegraph enables the formation of "virtual communities" -- linking schools, libraries, county extension services, women's centers, and hospitals. Montana's high-school students learning Russian can now communicate with Russian students, and science students are participating in a course on "chaos theory" offered by MIT.

2. **Dissemination of government information:** The free flow of information between the government and the public is essential to a democratic society. Improvements in the National Information Infrastructure provide a

tremendous opportunity to improve the delivery of government information to the taxpayers who paid for its collection; to provide it equitably, at a fair price, as equitably as possible.

Example: Some of the most powerful examples of the power inherent in information collection and dissemination come from the experience of Federal agencies. For example, the Emergency Planning and Community Right-to-Know Act of 1986 established a Toxic Release Inventory (TRI), which required industries to report their estimated total releases of toxic chemicals to the environment. The Environmental Protection Agency has used a variety of means for making the data available to the public, including a collaborative effort involving the agency, the nonprofit community, and philanthropy. This effort involved making the TRI available through an online service called RTK NET (the Right-to-Know Computer Network), operated by OMB Watch and Unison Institute.

As a result of the TRI program, EPA and industry developed the "33/50" program, in which CEOs set a goal of reducing their pollution by 33 percent by 1992 and 50 percent by 1995. Because of RTK NET's success, EPA is seeking to expand the information available on the service.

3. **Universal access:** The NII must be used to bring Americans together, as opposed to allowing a further polarization between information "haves" and "have nots."

Example: As part of a recent cable franchise negotiation, fiber optic cable was deployed in Harlem, where 40 percent of the residents live below the poverty line. New York City is exploring the use of interactive video conferencing between community rooms in housing projects and government offices, schools, and New York corporations. These facilities could be used to teach parenting to teenage mothers, and promote mentoring programs between inner city youth and employees of New York corporations.

RESEARCH

One of the central objectives of the High Performance Computing and Communications Initiative (HPCCI) is to increase the productivity of the research community and enable scientists and engineers to tackle "Grand Challenges," such as forecasting the weather, building more energy-efficient cars, designing life-saving drugs, and understanding how galaxies are formed.

As a result of advances in computing and networking technologies promoted by the HPCCI, America's scientists and engineers (and their colleagues and peers around the world) are able to solve fundamental problems that would have been impossible to solve in the past. U.S. researchers will continue to benefit from the HPCCI and the emerging National Information Infrastructure. Below are just a few of the ways in which this technology is being used by U.S. researchers:

1. **Solving Grand Challenges:** As a result of investments in high performance computers, software, and high-speed networks, researchers have access to more and more computational resources. As a result, scientists and engineers have been able to more accurately model the Earth's climate; design and simulate next-generation aircraft (the High Speed Civil Transport); improve detection of breast cancer by turning two-dimensional MRI images into three-dimensional views; and enhance the recovery of oil and gas from America's existing reservoirs.
2. **Enabling remote access to scientific instruments:** Because of advancements in networks and visualization software, scientists can control and share remote electron microscopes, radio telescopes, and other scientific instruments.
3. **Supporting scientific collaboration:** The Internet has allowed scientists in the United States and around the world to access databases, share documents, and communicate with colleagues. For example, one computer language was developed by 60 people in industry, government and academia over a period of 3 years with only two days of face-to-face meetings. Instead, project participants sent 3,000 e-mail messages to each other, dramatically reducing the time required to develop the language. As scientific research becomes increasingly complex and interdisciplinary, scientists see the need to develop "collaboratories," centers without walls in which "the nations' researchers can perform their research without regard to geographical location -- interacting with colleagues, access instrumentation, sharing data and computational resources, [and] accessing information in digital libraries."

LIFE-LONG LEARNING

Increasingly, what we earn depends on what we learn. Americans must be well-educated and well-trained if we are to compete internationally and enjoy a healthy democracy. The magnitude of the challenge we face is well-known:

- 25 percent of students nation-wide no longer complete high-school, a figure which rises to 57 percent in some large cities.
- Currently, 90 million adults in the United States do not have the literacy skills they need to function in our increasingly complex society.

The Clinton Administration has set ambitious national goals for lifelong learning. The "Goals 2000: Educate America Act" would make six education goals part of national policy: 90 percent high school graduation rate; U.S. dominance in math and science; total adult literacy; safe and drug-free schools; increased competency in challenging subjects; and having every child enter school "ready to learn." Secretary of Labor Robert Reich also has emphasized the need to move towards "new work." New work requires problem-solving as opposed to rote repetition, upgrading worker skills, and empowering front-line workers to continuously improve products and services. All of the Administration's policy initiatives (national skill standards, school-to-work transition, training for displaced workers) are aimed at promoting the transition towards high-wage, higher-value "new work."

Although technology alone can not fix what is wrong with America's education and training system, the NII can help. Studies have shown that computer-based instruction is cost-effective, enabling 30% percent more learning in 40% less time at 30% less cost. *Fortune* recently reported that:

"From Harlem to Honolulu, electronic networks are sparking the kind of excitement not seen in America's classrooms since the space race ... In scores of programs and pilot projects, networks are changing the way teachers teach and students learn."

The United States has just begun to exploit the educational applications of computers and networks. Students and teachers can use the NII to promote collaborative learning between students, teachers, and experts; access on-line "digital libraries"; and take "virtual" field trips to museums and science exhibits without leaving the classroom.

Example: Headquartered in Cambridge, Massachusetts and funded by the National Science Foundation, the Global Laboratory Project links students

from over 101 schools in 27 states and 17 foreign countries, including Japan, Saudi Arabia, Russia and Argentina. All over the world, students establish environmental monitoring stations to study climate change, monitor pollutants such as pesticides and heavy metals, and measure ultraviolet radiation. Students share their data over the Global Lab telecommunications network with each other and with scientists to make comparisons, conduct analyses, and gain a global perspective on environmental problems.

Example: In Texas, the Texas Education Network (TENET) now serves over 25,000 educators, and is making the resources of the Internet available to classrooms. One Texas educator from a small school district described the impact it was having on the learning experiences of children:

"The smaller districts can now access NASA, leave messages for the astronauts, browse around in libraries larger than ever they will ever be able to visit, discuss the Superconducting Supercollider project with the physicist in charge, discuss world ecology with students in countries around the world, read world and national news that appears in newspapers that are not available in their small towns, work on projects as equals and collaborators with those in urban areas, and change the way they feel about the size of their world. This will create students that we could not create otherwise. This is a new education and instruction."

As computers become more powerful and less expensive, students may eventually carry hand-held, computer-based "intelligent tutors," or learn in elaborate simulated environments. One expert predicted the following educational use of virtual reality:

"Imagine a biology student entering an immersive virtual laboratory environment that includes simulated molecules. The learner can pick up two molecules and attempt to fit them together, exploring docking sites. In addition to the three-dimensional images in the head-mounted display, the gesture gloves on his hands press back to provide feedback to his sense of touch. Alternatively, the student can expand a molecule to the size of a large building and fly around in it, examining the internal structure."

CREATING A GOVERNMENT THAT WORKS BETTER & COSTS LESS

The Vice President Gore's *National Performance Review* (NPR) provides a bold vision of a federal government which is effective, efficient and responsive. Moving from red tape to results will require sweeping changes: emphasizing accountability for achieving results as opposed to following rules; putting customers first; empowering employees; and reengineering how government agencies do their work. As part of this vision, the NPR emphasizes the importance of information technology as a tool for reinventing government:

"With computers and telecommunications, we need not do things as we have in the past. We can design a customer-driven electronic government that operates in ways that, 10 years ago, the most visionary planner could not have imagined."

The NPR has identified a number of ways in which "electronic government" can improve the quality of government services while cutting costs, some of which are described below:

1. **Develop a nationwide system to deliver government benefits electronically:** The government can cut costs through "electronic benefits transfer" for programs such as federal retirement, social security, unemployment insurance, AFDC, and food stamps. For example, 3 billion Food Stamps are printed and distributed to over 10 million households. Estimates suggest that \$1 billion could be saved over five years once electronic benefits for food stamps is fully implemented.
2. **Develop integrated electronic access to government information and services:** Currently, citizen access to federal government information is uncoordinated and not customer-friendly. Electronic kiosks and computer bulletin boards can result in quick response, complete information, and an end to telephone tag.

Example: Info/California is a network of kiosks in places like libraries and shopping malls. Californians can use these touch-screen computers to renew vehicle registration, register for employment openings, and get information on 90 different subjects, such as applying for student loans or resolving tenant-landlord disputes. These kiosks have reduced the cost of job-match services from \$150 to \$40 per person.

3. **Establish a National Law Enforcement/Public Safety Network:** Whether responding to natural or technological disasters, or performing search and rescue or interdiction activities, federal, state, and local law enforcement and public safety workers must be able to communicate with each other effectively, efficiently, and securely. Currently, federal, state and local law enforcement agencies have radio systems which can not communicate with each other because they occupy different parts of the spectrum.
4. **Demonstrate and Provide Governmentwide Electronic Mail:** Governmentwide e-mail can provide rapid communications among individuals and groups, break down barriers to information flows between and within agencies, allow better management of complex interagency projects, and permit more communication between government officials and the public.

TAB D

THE INFORMATION INFRASTRUCTURE TASK FORCE

Mission

While the private sector will build and run virtually all of the National Information Infrastructure (NII), the President and the Vice President have stated clearly that the Federal government has a key leadership role to play in its development. Accordingly, the White House formed the Information Infrastructure Task Force (IITF) to articulate and implement the Administration's vision for the NII. The task force consists of high-level representatives of the Federal agencies that play a major role in the development and application of information technologies. Working together with the private sector, the participating agencies will develop comprehensive telecommunications and information policies that best meet the needs of both the agencies and the country. By helping build consensus on thorny policy issues, the IITF will enable agencies to make and implement policy more quickly and effectively.

A high-level Advisory Council on the National Information Infrastructure has been established by Executive Order to provide advice to the IITF. It will consist of representatives of the many different stakeholders in the NII, including industry, labor, academia, public interest groups, and state and local governments. The Secretary of Commerce will appoint the 25 members of the advisory committee.

The IITF is working closely with the High Performance Computing, Communications, and Information Technology (HPCCIT) Subcommittee of the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET), which is chaired by the White House Office of Science and Technology Policy. The HPCCIT Subcommittee provides technical advice to the IITF and coordinates Federal research activities that support development of the National Information Infrastructure.

Membership

All the key agencies involved in telecommunications and information policy are represented on the task force. The task force operates under the aegis of the White House Office of Science and Technology Policy and the National Economic Council. Ron Brown, the Secretary of Commerce, chairs the IITF, and much of the staff work for the task force will be done by the National Telecommunications and Information Administration (NTIA) of the Department of Commerce.

Structure

To date, three committees of the IITF have been established:

(1) Telecommunications Policy Committee, which will formulate a consistent Administration position on key telecommunications issues, is chaired by Larry Irving, head of the National Telecommunications and Information Administration of the Department of Commerce. Recently, the Committee created:

The Working Group on Universal Service, which will work to ensure that all Americans have access to and can enjoy the benefits of the National Information Infrastructure.

(2) Information Policy Committee, which is addressing critical information policy issues that must be addressed if the National Information Infrastructure is to be fully deployed and utilized. Sally Katzen, head of the Office of Information and Regulatory Affairs at the Office of Management and Budget (OMB), chairs the Committee. The Committee has created three working groups:

The Working Group on Intellectual Property Rights, to develop proposals for protecting copyrights and other IPR in an electronic world. Bruce Lehman, head of the Patent and Trademark Office of the Department of Commerce, chairs this group.

The Working Group on Privacy, to design Administration policies to protect individual privacy despite the rapid increase in the collection, storage, and dissemination of personal data in electronic form. It is chaired by Pat Faley, Acting Director of the Office of Consumer Affairs, Department of Health and Human Services.

The Working Group on Government Information focuses on ways to promote dissemination of government data in electronic form. Bruce McConnell, OMB's Office of Information and Regulatory Affairs, chairs this group.

(3) Applications Committee, which coordinates Administration efforts to develop, demonstrate, and promote applications of information technology in manufacturing, education, health care, government services, libraries, and other areas. This group works closely with the High-Performance Computing and Communications Program, which is funding development of new applications technologies, to determine how Administration policies can best promote the deployment of such technologies. Arati Prabhakar, Director of the National Institute of Standards and Technology, chairs the committee. This committee is responsible for implementing many of the recommendations of the Vice President's National Performance Review that pertain to information technology. So far, the Committee has created

one working group:

The Working Group on Government Information Technology Services (GITS) will coordinate efforts to improve the application of information technology by Federal agencies.

TAB E

**UNITED STATES ADVISORY COUNCIL
ON THE NATIONAL INFORMATION INFRASTRUCTURE**

- o The President will sign an Executive Order creating the "United States Advisory Council on the National Information Infrastructure" to facilitate private sector input to the Information Infrastructure Task Force. The IITF, which is chaired by the Secretary of Commerce, will work with Congress and the private sector to propose the policies and initiatives needed to accelerate deployment of the NII.
- o The Council will consist of not more than 25 senior-level individuals to be named by the Secretary of Commerce this year. A chair and/or vice chair will be appointed by the Secretary from among the Council members.
- o Nominations will be solicited from a variety of NII constituencies and interest groups. The IITF and its committees also will use other mechanisms to solicit public input to ensure that it hears the views of all interested parties.
- o The Council will be broadly representative of the key constituencies impacted by the NII, including business, labor, academia, public interest groups, and state and local governments.
- o The Council shall advise the IITF on matters related to the development of the NII, such as: the appropriate roles of the private and public sectors in NII development; a vision for the evolution of the NII and its public and commercial applications; the impact of current and proposed regulatory regimes on the evolution of the NII; privacy, security, and copyright issues; national strategies for maximizing interconnection and interoperability of communications networks; and universal access.
- o The Council is expected to invite experts to submit information to the Council and form subcommittees of the Council to review specific issues.
- o The Department of Commerce will act as "secretariat" for the Council, providing administrative services, facilities, staff and other support services.
- o The Council will exist for two years unless its charter is extended.
- o The Council will be separate from, and complementary to, the High Performance Computing Advisory Committee, which will be established to provide private sector input on the High Performance Computing and Communications Initiative.

TAB F

ADMINISTRATION NII ACCOMPLISHMENTS

During its first seven months, the Clinton-Gore Administration has taken major steps to make its vision of the National Information Infrastructure a reality:

1. Freeing up spectrum to create information "skyways":

- The President recently signed the Emerging Telecommunications Technology Act, which directs the Secretary of Commerce to transfer, over a ten-year period, at least 200 MHz of spectrum now used by federal agencies to the FCC for subsequent licensing to the private sector. It allows the FCC to use competitive bidding to grant new license assignments for spectrum.
- This will create high-tech jobs and accelerate the development of new wireless industries such as Personal Communications Services. The entire cellular industry, which has created 100,000 jobs, was created by licensing only 50 MHz of spectrum.

2. Reinventing Government:

- The Administration is committed to using "electronic government" to ensure that the federal government works better and costs less.
- As part of the National Performance Review, the Vice President has identified a number of concrete ways to use information technology to cut costs and improve services, such as electronic benefits transfer; access to government information and services through electronic "kiosks"; a national law enforcement/public safety network; and electronic procurement.

3. Investing in technology:

The President's FY 1994 budget includes:

- \$1.1 billion for the High-Performance Computing and Communications Initiative, including a new \$100 million program to develop applications in areas such as education, manufacturing, health, and digital libraries. The House has passed legislation which would authorize these new programs; Senate action is expected in the fall of 1993.
- \$50 million for NTIA grants to demonstrate the applications of the NII for non-profit institutions such as schools, hospitals, and libraries.

- \$40 million for research by the Department of Energy's National Labs on the information infrastructure.

The ARPA-led Technology Reinvestment Project (TRP), funded at \$472 million in FY 1993, has generated almost 3,000 proposals from the private sector, requesting a total of \$8.5 billion. Many of these proposals are for technology development for the National Information Infrastructure and its applications in health care, manufacturing, electronic commerce, and education and training. The President recently endorsed increasing the funding of the TRP to \$600 million for FY 1994.

3. Making government information more available to citizens:

- The Office of Management and Budget issued a new policy in June (OMB Circular A-130) to encourage agencies to increase citizen access to public information.
- Also in June, the President and Vice President announced that the White House would be accessible to the public via electronic mail. The Administration is using on-line information services and the Internet to make available speeches, press briefings, executive orders, and a summary of the budget.

4. Creating the right environment for private sector investment in the National Information Infrastructure:

- The President has signed into law tax incentives for private sector investment in R&D and new business formation, including a three-year extension of the R&D credit and a targeted capital gains reduction for investments in small businesses. Both of these tax incentives will help spur the private sector investment needed to develop the National Information Infrastructure.

TAB G

ADMINISTRATION NII INFORMATION SOURCES

To submit comments on "*The National Information Infrastructure: Agenda for Action*" or to request additional copies of this package:

Write: NTIA NII Office
15th Street and Constitution Avenue
Washington, D.C. 20230
Call: 202-482-1840
Fax: 202-482-1635
Internet: nii@ntia.doc.gov

To obtain copies of this package electronically see instructions on next page.

Key Administration Contacts:

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The package is available in ASCII format from a variety of electronic sources including the following:

1. Internet The package is available in ASCII format through both FTP and Gopher. The name of the file is "niiagenda.asc". Access information and directories are described below.

FTP:

Address: <ftp.ntia.doc.gov>

Login as "anonymous". Use your email address or guest as the password. Change directory to "pub".

Address: <enh.nist.gov>

Login as "pub" using "guest" as the password.

Address: <isdres.er.usgs.gov>

Login as "anonymous". Use your email address or "guest" as the password. Change directory to npr.

The package also may be present in a self extracting compressed file named "niiagend.exe". Remember to issue the binary command before "getting" the compressed file.

Gopher (server/client):

Address: <gopher.nist.gov>

login as "gopher". Choose the menu item "DOC Documents". Choose "niiagenda.asc".

2. Bulletin Boards The package is available for downloading on the following bulletin boards:

Name: NTIA Bulletin Board

Phone: (202) 482-1199

Communications parameters should be set to either 2400 or 9600 baud, no parity, 8 data bits and 1 stop bit. The package is available under the "press releases" menu item as "niiagenda.asc" (ascii) and "niiagend.exe" (compressed-self extracting).

Name: Department of Commerce Economic Bulletin Board

Phone: 202-482-1986 (voice instructions for subscription information)

This is a "fee for service" bulletin board. Subscribers may download the "niiagenda" document for normal on-line charges. Non-subscribers may subscribe for \$35 and download the report for no additional charge. Free telnet access and download services are available through the Internet by using the address: ebb.stat-usa.gov. Use trial as your user id.

Name: FedWorld Bulletin Board

Phone: (703) 321-8020

Communications parameters should be set to either 2400 or 9600 baud, no parity, 8 data bits and 1 stop bit. To access "niiagend.asc" from the FedWorld menu, enter "<f s w-house>". Telnet access is available through the Internet using the address: fedworld.doc.gov. Further information about FedWorld can be obtained by calling (voice) 703-487-4648.

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OBJECTIVE

Executive assistance/liaison for a policy or administrative leader in telecommunications, technology, or competitiveness; or responsibility for a legislative, executive, or policy research program in a defined area of domestic policy. ***Salary requirement: \$67,955.***

EMPLOYMENT EXPERIENCE

- 7 years current experience in telecommunications technology & policy.
- 19 years total experience in technology policy analysis.
- 5 years experience in economics and operations analysis.
- 4 years experience in engineering and operations analysis.
- Experience in both private sector and Federal Government.
- Experience in both Executive and Legislative Branch.
- Knowledge of telecommunications, computer, electronics and energy industries.

EMPLOYMENT HISTORY

1973-present, Congressional Research Service (CRS)--U.S. Library of Congress. Last position: Analyst in Information Science and Technology, specializing in communications technology & policy. Responsibility includes Mass Media, Common Carrier, Private Radio, and Field Operations bureaus of the Federal Communications Commission (FCC). Last salary/grade \$67,955/GS-1301-14.

1970-1973, Executive Office of the President--Office of Emergency Preparedness (precursor of FEMA). Operations Research Analyst (Economist). Analysis of the U.S. economy with applications to national energy consumption and Strategic Materials Stockpile policy. Developed research plans and supervised mathematicians/computer programmers in carrying out the plans. Was formally trained in supervision by the agency. Held TOP SECRET clearance. Last salary/grade \$18,350/GS-1515-12.

1968-1970, San Francisco Federal Reserve Bank. Research Assistant. Computer analysis of the U.S. economy; collaborated in creation and application of a sixty-equation model of the U.S. economy. Supervised one computer programmer. Last salary \$8,400.

1961-1965, General Electric Company--Nuclear Energy Division, Vallecitos Atomic Laboratory. Operations Physicist (nuclear engineer). Responsible for engineering computations and operations analysis for the G.E. Test Reactor, an industrial research and production facility operated for profit. Last salary \$8,360. ***Accent on Value Award, 1964.***

VOLUNTEER EXPERIENCE

-- IEEE-USA Committee on Communications and Information Policy (CCIP), Task Force on Telecommunications Infrastructure.

-- The Ad Hoc Group, Program Committee. This association, since 1987, has sponsored 24 one-day round-table meetings--of Congressional, Executive Branch, industrial, and professional-society leaders--on digital high-resolution imaging and high-capacity networks.

3/2/93

-- Telecommunications Policy Group (charter member). This interagency & interindustry association has sponsored a monthly luncheon meeting and guest speaker in downtown D.C. since 1988. Members are staff at FCC, NTIA, NAB, NCTA, MSTV, GWU, etc.

-- Capitol Hill Toastmasters Club: one year as Vice President (Education), and two years as President. Initiated monthly Executive Council meetings, a system of standing committees, and an annual training retreat of incoming officers by outgoing officers. **Winner of speech, extemporaneous speech, and speech evaluation contests.**

-- Montgomery County (MD) Democratic Central Committee. Initiated and chaired (in 1991 & 1992) an annual fund-raising ChiliFest, featuring Democratic candidates for Congress.

-- As Elections Chairman of a community political action group in California (1967), initiated the first joint meetings with a rival group. These groups subsequently formed a permanent Coalition and elected to Congress a Democrat who is now chairman of a major House committee.

EDUCATION

1983-1985, Virginia Polytechnic Institute and State University, Northern Virginia Graduate Center, part time graduate study in economics, no degree, grade average: A-.

1982-1983, The George Washington University, part time graduate study in economics, no degree, grade average: A-.

1965-1970, University of California (Berkeley), part time graduate study, major in economics, no degree, grade average in economics courses: B.

1957-1961, University of Redlands (Calif.), full time undergraduate study, B.S. in Physics **Magna Cum Laude**, grade average in physics courses A-.

ADDITIONAL PROFESSIONAL ASSOCIATIONS

Society of Motion Picture and Television Engineers; Capitol Telecommunications Professionals; American Economics Association; National Economists Club; Society of Government Economists; National Association of Business Economists; International Association of Energy Economists--Membership Chairman and Executive Council, National Capital Area Chapter.

SELECTED POLICY ANALYSIS REPORTS, ISSUE BRIEFS, AND MEMORANDA

Telephone Companies--and Six Other Contributors to Competition in local Telephone Service. Cable Television--and Eight Other Contributors to Competition in Multichannel TV Service. Release of Government-Held Radio Spectrum for Non-Government Use. Cable Television Addressability. Standards and Standardization [in information technology]. Telecommunications and Information-Systems Standardization--Is America Ready? A Discounted Cash-Flow Model for Computing The Increased Monthly Subscriber Revenues Required to Support the Cost of Cable-TV Addressable Decoder Units. High-Definition Television and Advanced Video Information Systems. High-Definition Television in the U.S.--What Does A Level Playing Field Look Like? Flat-Panel Displays [research and development]. Caller I.D. and Automatic Telephone Number Identification. Communications Satellites [in Japan-U.S. trade]. Digital Audio Tape Recording. Digital Audio Recorder Act of 1987--Analysis...With Policy Alternatives.

CRS Report for Congress

Telephone Companies--and Six Other Contributors To Competition In Local Telephone Service

*Todd
H
Tolte*

David B. Hack
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February 18, 1993



TELEPHONE COMPANIES--AND SIX OTHER CONTRIBUTORS TO COMPETITION IN LOCAL TELEPHONE SERVICE

SUMMARY

The telecommunications industry is increasingly complex and diverse. Developing public policy in this changing environment is a difficult undertaking. At issue is how to develop a new regime of regulatory policy that accommodates technological change rather than reacts to each new technology development piecemeal. An earlier CRS Report (No. 92-785 SPR) examined the prospects for competition in the multichannel (cable) television market. This report examines the prospects for introducing competition into *local telephone service*.

Electronic information technology for many years has been advancing rapidly. This creates competitive alternatives in what have been "natural monopoly" industries. From early in the 20th Century, the American Telephone and Telegraph Company (AT&T) was the only long-distance telephone company most Americans knew. Now consumers take for granted a choice in long-distance telephone service suppliers. Could a similar development occur in *local telephone service*? Local telephone companies (telcos) are regulated (and excluded from some businesses) because of their monopoly of voice telephone service. If real competition were achieved in the telephone industry, the business restrictions on telcos would lose much of their rationale.

Current or potential contributors to competition in local telephone service include various forms of "Personal Communications Services (PCS)." PCS may be offered through local telephone companies; through cellular telephone companies; through cable TV networks; and others. A conceivable but limited competitor in local telephone service may be PCS through Low-Earth-Orbit (LEO) Satellite Networks. Another source of local telephone competition is Competitive Access Providers (CAPS). Competition also may be enhanced through a regulatory concept known as "Telecommunications Free Trade Zones (TFTZs)," sometimes described as "Open Network Architecture (ONA)" or "Full Interconnection Tariff."

The 102d Congress faced an array of communications policy issues that touched on infrastructure improvement, competition in communications services, and regulatory responses to the continued rapid advance of communications technology. Congress addressed these diverse issues in a variety of ways. Congress dealt with a National Research and Education Network (NREN); re-regulated cable television; made authorizations for the Commerce Department's advanced technology programs; attempted to find new bands of radiofrequency spectrum to support commercialization of new radiocommunications technologies; and explored several new approaches to Bell telephone company regulation.

The 103d Congress is taking up communications policy in a context of continued rapid advance in communications technologies and continued trends toward more competition in communications *generally*. Increasingly, the choice of physical medium, transport path, or carrier by which a communication signal is sent is independent of the signal's content and format, and of the purpose the signal serves. The 103d Congress will contend with different views of how to update Federal telecommunications policy to reflect changing technology.

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TELEPHONE COMPANIES--AND SIX OTHER CONTRIBUTORS TO COMPETITION IN LOCAL TELEPHONE SERVICES

INTRODUCTION

The telecommunications industry is increasingly complex and diverse, due in large measure to new technological opportunities. Advances in telecommunications and computer technology together are accelerating the development of many new potential modes, techniques, and pathways for electronic communication, permitting entry by various new service providers. This advance of technology tends to intervene in regulatory policy by spawning competitive businesses in industries once regarded as natural monopolies.

Developing public policy in this changing environment is a complex and difficult undertaking. Traditional values such as universal service, competition, and localism, the strength of existing interests, the pressures from new business entrants--all are considerations involved in developing new policies.

At issue is how to develop a new regime of regulatory policy that accommodates technological change rather than reacts to each new technology development piecemeal, as if it were expected to be the last. Such a regime would seek ways to invite choices to be made by markets, rather than trying to outguess the market in rulemaking proceedings, or impede it by maintaining regulatory barriers to entry.

Some observers have begun to ask questions such as: (1) Are there possibilities for effective competition in local telephone service? (2) If competition were present in some measure, would the likelihood of cross-subsidies diminish, and by how much? (3) If the undesired cross-subsidies were less likely, could that justify releasing local telephone companies (telcos) from current prohibitions against entering the long-distance, manufacturing, or television distribution and programming markets?

This report examines the first question: what are the prospects for introducing competition into the *local telephone loop*, through nurturing new local-carrier technologies, together with appropriate allocation or re-allocation of radio spectrum where needed? An earlier CRS Report examined in some detail a similar question pertaining to cable television and the *multichannel TV marketplace*; that Report contains a glossary of relevant communications technology terms.¹

¹ U.S. Library of Congress. Congressional Research Service. Cable Television--and Eight Other Contributors to Competition in Multichannel TV Service. CRS Report 92-785 SPR, by David B. Hack. Washington, Nov. 3, 1992. 44 p.

TRENDS IN TELEPHONE TECHNOLOGY AND REGULATION

Technology Advance in Telecommunications

Electronic information technology for many years has been advancing rapidly.² Advances in both telecommunications and computer technology are accelerating the development of many new potential modes of information transport. Advancing technology therefore may create competitive alternatives to what had been "natural monopolies." The task for policymakers is to develop a regulatory regime that recognizes this trend toward competition (through rapid technological advance) instead of dealing with a series of relatively fixed snapshots of technology in successive regulatory proceedings. Such a regime would seek ways to allow technology choices to be made by markets, rather than trying to outguess the market or to forecast technology's pace or specific features.

History and Status of Voice Telephony

From Telephones to Computers

In 1875, Alexander Graham Bell invented what we may now regard as a relatively simple but enduring device. Fundamentally unchanged for almost a century, the telephone is now undergoing a rapid transformation and is converging in technology, if not quite yet in form, with the computer and with television. Attempting to deal one by one with the regulatory challenges this convergence has caused, the Federal Communications Commission (FCC) announced various rulemaking initiatives, now known individually as Computer I (1966), Computer II (1976), and Computer III (1986).

Computer I said basically that computer information services were a competitive business that regulated telephone companies could not engage in, except through a subsidiary corporation completely separate from its telephone service operations.³

Computer II abandoned the attempt to define all computer or information services as separate from data communications. Instead, it established two classes of information service: "basic" and "enhanced." Basic services were defined as those services providing *only* for the movement of information, by whatever means. Enhanced services were defined as those services providing anything *beyond* information transport. Computer II said that only *enhanced* information services would be considered competitive and be unregulated. Regulated carriers were permitted to provide *enhanced* information services

² Ibid., p. 7-13, 25-28.

³ McGraw Hill, Datapro Information Services Group. Managing Voice Networks, Issues and Trends. A History of Telecommunications Regulation Report No. 1020, May 1992. p. 6-7, 13.

through a fully separated subsidiary corporation, in the competitive market. *Basic* service (information transport) would remain regulated.⁴

Computer III went a step further. It abandoned the attempt to enforce structural separation of basic and enhanced information services. Computer III substituted non-structural safeguards for the structural separations of Computer I and Computer II.⁵

Introduction of Competition in Long-Distance Calling

From early in the 20th Century, the American Telephone and Telegraph Company (AT&T) was the only telephone company most Americans knew. For *most* subscribers, both long-distance and local calling were supplied by AT&T and its local subsidiaries.⁶ This monopoly was either formally or tacitly approved by both state and interstate (Federal) regulators.⁷

In 1959, a decision of the FCC made a small opening in the monopoly. The decision concerned allocation of frequencies in the radio spectrum above 890 MHz, which is generally referred to as microwave. The decision is most often cited for its conclusion that private point-to-point communications operations would be licensed for the use of frequencies in this spectrum segment, thereby creating alternatives to the telecommunications common carrier services then available and providing the basis necessary for competition in long-distance telephone service.⁸

⁴ Computer II also led eventually to de-tariffed (competitive) provision of all telephone equipment to be used at a customers premises. *A History of Telecommunications Regulation*. p. 7.

⁵ *A History of Telecommunications Regulation*, p. 12.

⁶ AT&T and its subsidiaries before 1984 served 80 percent of telephone subscribers and covered 50 percent of the United States Land Mass. Independent local telephone companies served 20 percent of subscribers.

⁷ In 1913, to avoid an antitrust suit by the Federal Government, AT&T negotiated an agreement with the U.S. Department of Justice. AT&T agreed to give up its controlling interest in Western Union Telegraph Company (which it had acquired in 1909), to purchase no more independent telephone companies without the consent of the Interstate Commerce Commission, and to allow independent telephone companies to interconnect with AT&T's Bell System companies. This agreement became known as the "Kingsbury Commitment" after Nathan C. Kingsbury, then a vice president of AT&T. See: *A History of Telecommunications Regulation*, p. 3.

⁸ This decision is commonly referred to as the "above 890 decision." *Allocation of Microwave Frequencies Above 890 Mc.*, Report and Order, 27 F.C.C. 359 (1959), *reconsidered*, 29 F.C.C. 825 (1960). Cited in: U.S. Congress. Senate. Committee on Foreign Relations. *International Telecommunications and*

Things began to change more after 1968. That was the year a business executive skilled in turning around troubled companies joined a tiny firm that held one main asset: an application to the FCC for a license to provide a mobile radio telephone service--to truckers driving between Chicago and St. Louis, an interstate route. The executive was William McGowan; the company was Microwave Communications Inc., soon to become MCI. It was McGowan's insight that the FCC application, *if approved*, could lead to a nationwide wireless telephone network to carry long-distance calls in competition with AT&T.⁹

The license was granted on August 14, 1969. The FCC not only gave MCI permission for a microwave radio system, they required AT&T's local telephone companies to give MCI "interconnection." Specifically, the FCC concluded that it was in the public interest to give MCI access to the local phone networks, *for long-distance specialized private-line service*.¹⁰ This access was crucial to the long-distance telephone business that McGowan foresaw. The local networks, unlike long-distance service, were *bona fide* monopolies; MCI could not have duplicated the local networks even if it had wanted to.¹¹

In July 1970, the FCC began a rule-making proceeding and inquiry to see what the public thought about additional independent companies getting into the telephone business as specialized common carriers. In May 1971, the FCC decided unanimously that anyone could enter the long-distance market *as a specialized common-carrier* without hearings or other delays.¹²

Information Policy: Selected Issues For The 1980s [A Report . . . By The Congressional Research Service, Library of Congress]. 98th Congress, 1st session. Washington, U.S. Govt. Print. Off., Sept. 1983. 60 p. At p. 55: "Key Telecommunications Laws and Federal Communications Commission Regulatory Decisions."

⁹ William G. McGowan Dies. The Washington Post, June 9, 1992. p. A1.

¹⁰ FCC did not at that time contemplate granting MCI access to local telephone networks for switched local service. Interconnection for switched local service did not come until after the "Execunet Decisions" of 1977-78. Telephone interview with Claudia Pabo, FCC Common Carrier Bureau, Policy and Program Planning Division, Feb. 16, 1993. The Execunet Decisions are: *MCI Telecommunications Corp. v. F.C.C.*, 561 F.2d 365 (D.C. Cir.), *cert. denied*, 434 U.S. 1040 (1977) (Execunet I); *MCI Telecommunications Inc. v. F.C.C.*, 580 F.2d 590 (D.C. Cir.), *cert. denied*, 439 U.S. 980 (1978) (Execunet II). Cited in: U.S. Congress, op. cit., p. 57.

¹¹ Kahaner, Larry. On The Line: The Men of MCI--Who Took On AT&T, Risked Everything, and Won! Warner Books, New York, 1986. p. 61.

¹² Ibid., p. 63. Also see a previous footnote citing the Execunet Decisions of 1977-78.

In March 1974, after years of difficult negotiations with AT&T over the terms of the FCC-mandated interconnections, MCI filed suit under the Sherman Antitrust Act, asking for treble damages.¹³ On November 20 of that year, the U.S. Department of Justice joined MCI's antitrust suit, alleging AT&T actions over many years attempting to monopolize the telephone service and telephone equipment manufacturing businesses.¹⁴

On January 1, 1984, in compliance with a court-approved settlement and reorganization plan, AT&T transferred a majority of its assets and functions to its stockholders--in the form of new shares of stock in seven new companies.¹⁵ The court order in the settlement is known as the "Modification of Final Judgement . . ." or "MFJ." AT&T was thus divided into eight parts: seven Regional Bell Operating Companies (RBOCs)--to hold and operate 22 regulated local-exchange telephone companies--and the "new" AT&T: a long-distance and manufacturing company, newly free to engage in non-telephone lines of business, such as computers, but forbidden to re-acquire monopoly local telephone operations and banned for seven years from offering electronic information services.¹⁶

The MFJ court order also put three restrictions on the lines of business in which the *divested* RBOCs could engage. They were prohibited from engaging in long-distance (interexchange) service, from the manufacture of telecommunications equipment (both network equipment and customer-premises equipment such as consumer telephones), and from the provision of so-called "enhanced" information services.¹⁷ The information services restriction of the MFJ was removed by court decisions in 1991.

As a separate matter, U.S. telephone companies holding a monopoly franchise for local telephone service (not just the RBOCs) generally are prohibited by the Cable Communications Policy Act of 1984 (P.L. 98-549) from providing--in their franchised monopoly service areas--one special kind of information service: cable television.¹⁸

¹³ Ibid., p. 98.

¹⁴ A History of Telecommunications Regulation, p. 9.

¹⁵ U.S. Library of Congress. Congressional Research Service. The American Telephone and Telegraph Divestiture: Background, Provisions, and Restructuring. CRS Report 84-58 E, by Angele A. Gilroy. Washington, Apr. 11, 1984. p. 1.

¹⁶ A History of Telecommunications Regulation, p. 9-10.

¹⁷ Ibid., p. 9-10.

¹⁸ There is an exception under which they may provide cable television services in rural (as defined by the FCC) areas even within their monopoly service area. The market for Cable TV service and closely competing services

Local Telephone Companies and Competitive Markets

The RBOCs and other local telephone companies want to be released from the remaining restrictions (whether court ordered or legislated), but opponents say that the regulated monopolies could conceal (within their regulated business) costs that should be charged to their unregulated or "competitive" businesses. The opponents claim that telcos could use the regulated returns of local telephone service business to subsidize the telephone companies' competitive businesses. This would give an unfair competitive advantage and would tend over time to lead to the monopolization of the unregulated businesses as well as the one that is regulated.

In providing local telephone voice service, telephone companies have the special advantage that they have traditionally been the monopoly supplier. On the other hand, they have the obligation of "universal service," as codified by the Communications Act of 1934.¹⁹ Telephone companies argue that their universal service obligation is a reason for regulators to restrict telephone competitors--that regulators should not allow "cream skimming" of low-cost or high-profit customers or services by competitors, while the incumbent telephone companies are required to serve all of the high-cost or low-profit customers with basic service. On the other hand, some analysts suggest leveling the playing field with an explicit subsidy for high-cost customers, financed by a uniform levy on all telephone service providers in each local jurisdiction.

Competition in Local Telephone Service--Definitions

Basic telephone service, sometimes called "plain old telephone service" (POTS), essentially means voice service, and is sometimes characterized as the provision of "dialtone." The dialtone sound indicates that the telephone network is ready to provide voice telephone service. Both telephone companies ("telcos") and cable companies ("cables") are potentially capable of providing voice telephony, data transport, and information services (including video).

While voice is currently dominated by telcos and video is currently dominated by cables, neither telcos nor cables are naturals to dominate either data transport or non-video information services. What is more, with the rapid advance of technology, neither is a natural even to retain its current dominance (or monopoly).

Competition in video delivery is not a subject for this Report. It was surveyed in some detail in the CRS Report "Cable Television--and Eight Other

is discussed in CRS Report 92-785 SPR.

¹⁹ June 19, 1934, ch. 652, 48 Stat. 1064. The legislation aimed in part "to make available, so far as possible, to all the people of the United States, a rapid, efficient, nationwide and worldwide wire and radio communication service with adequate facilities at reasonable charges. See: A History of Telecommunications Regulation, p. 4: Communications Act of 1934.

Contributors to Competition in Multichannel TV Service."²⁰ While both telcos and cables are potentially capable of distributing multichannel video service, several other technologies or business concepts are also. The competition or lack thereof in the multichannel *video* market is a criterion for regulation or deregulation of the *cable* industry, not the telco industry.

For the telco industry, the regulatory issue centers on whether there is, or is not, actual market penetration by competitors in the basic telephone service market. That is, telcos are regulated (and limited from entering some businesses including video programming) because of their monopoly of voice telephone service. However, video transport and programming are examples of businesses that telcos more easily could be allowed to enter if their *voice service market* were to become competitive.²¹ The purpose here of examining the prospects for competition in the voice telephone industry is this: if real competition were achieved--actual market penetration, not just availability of a technological alternative--the line-of-business restrictions on telephone companies would lose much of their rationale.

CURRENT OR POTENTIAL CONTRIBUTORS TO COMPETITION IN LOCAL TELEPHONE SERVICE²²

... a triad of forces is now converging to potentially open the . . . [local] telecommunications market to competition in the 1990s.²³ This is the opening of the last great monopoly in the American Telephone business.²⁴

The triad described above includes the technology, the market dynamics (supply/demand), and regulation. The appearance of microwave and satellite communications technologies years ago stimulated competition in the supply of long-distance communication (both international and domestic), by MCI and others. Similarly, fiber-optic cable technology has brought growth and competition to voice, data, and video transport--both long-distance and local.²⁵

²⁰ CRS Report 92-785 SPR, op. cit.

²¹ Valovic, Tom. Will The U.S. Finally See Competition in The Local Exchange? Telecommunications, Feb. 1990. p. 43.

²² For a detailed inquiry into the potential contributors to competition in the *multichannel video* market, see CRS Report 92-785 SPR.

²³ Holland, Royce J. Competitive Local Communications: The New Landscape. Telecommunications. Feb. 1992. p. 23.

²⁴ Holland, Royce J. Quoted in: The Local Call Goes Up For Grabs. The New York Times, Dec. 29, 1991. p. 1, sec. 3.

²⁵ Competitive Local Communications, p. 25.

Another technology application--that of microcellular radiotelephone techniques to personal communications services (PCS)--is expected to foster still more competition in local telephony. One competitor offers that "what the market demands and what technology can provide, the regulators will allow to happen."²⁶

Personal Communications Networks (PCN) or Services (PCS)²⁷

Technology and Market Factors

What are personal communications services? Although an exact definition of personal communications services has not yet emerged, generally the term is taken to mean communications services delivered directly to individuals via very small, light-weight, battery-powered and very portable handsets, small enough to fit in a pocket. With PCS, a call could be placed to an individual, rather than to a physical location associated with a particular telephone number. Because telephone numbers would be associated with individuals rather than locations, the subscriber to a personal communications service would be able to receive and place calls virtually anyplace and anytime. The associated personal communications network (PCN) would keep track of a person's location, route an incoming call to that location, and deliver it to the subscriber's small handset via an interconnected system of low-power radio base-stations.²⁸ However, if a person did not want to be located, the handset could be turned off. Through a voice mail feature of the network, messages might be retrieved later.

The critical feature of PCS, from the point of view of this Report, is its ability to provide services which are *alternate to and competitive with* those of the local telephone company's wires. Although free-standing (unaffiliated) providers of PCS are possible in principle, the capital expense of linking the radio base stations together with a newly constructed wire line (or radio-circuit) network will be sufficiently costly that fully commercial PCS likely will be offered first by a company already possessed of a communications (or public utility) network, or by an affiliate or partner of such a company. The various approaches to providing PCS are examined in more detail in the following pages.

²⁶ Competitive Local Communications, p. 25. The author, Royce J. Holland, is president and chief executive officer of Metropolitan Fiber Systems, a competitive access provider (CAP). See below for discussion of the CAPs in local telephone service competition.

²⁷ U.S. Federal Communications Commission. Office of Plans and Policy. Putting It All Together: The Cost Structure of Personal Communications Services. OPP Working Paper No. 28, by David P. Reed, Nov. 1992. 86 p.

²⁸ The Annenberg Washington Program. Public Policy Issues in Personal Communications Services. Rapporteur Summary, Nov. 16, 1990. 4 p., at p. 1.

Regulatory Factors

The Federal Communications Commission has said that personal communications services encompass a broad range of radio communications services *that free individuals from the constraints of the wireline public switched telephone network* and enable them to communicate when they are *away from their home or office* cellular telephone.

According to the FCC, a rudimentary form of PCS is the current cordless telephone many consumers have in their homes, which is linked to the telco's wire line network. Car telephones through cellular radio represent a more advanced form of PCS. Though car telephone service has been in operation for at least two decades, it was available only to a limited number of users until the middle 1980s, when cellular radiotelephone service began to be offered in most of the major cities in the United States. This form of PCS has since experienced a very rapid growth. Such growth is expected to continue into the 1990s with the continued increased use of hand-held portable cellular telephones, as distinct from car-installed cellular telephones.²⁹

PCS Through Local Telephone Companies

Technology and Market Factors

There is no technical or business reason why PCS could not be provided by franchised local telephone companies. The telephone companies already have right-of-way access and an existing wire line network. PCS base stations in many instances could probably be hung right on existing telephone poles. The telephone companies have the required expertise to attach PCS base stations to their wire line network, and they have network operation and maintenance--as well as marketing, billing, and finance departments--up and running.

Regulatory Factors

PCS through a monopoly local telephone company is certainly one way to bring a new *service* into a local telephone service area. However, doing so would bring no new *competitor* into the market for local telephone service. Therefore this route would fail to promote additional competition in local telephone service.

On the other hand, if one RBOC were to enter another RBOC's monopoly territory to provide local telephone service, the entering RBOC could indeed be a source of new competition, whatever technology or existing infrastructure it chose to use. In this vein, a recent development is very interesting. Southwestern Bell recently announced an agreement to purchase two cable TV companies in the monopoly service region of another RBOC, Bell Atlantic. This

²⁹ U.S. Federal Communications Commission. General Docket No. 90-314. Notice of Inquiry. Personal Communications Services, June 28, 1990. 17 p. part 2.

development could lead to Southwestern Bell's provision of competitive telephone service, through those newly purchased cable TV networks, in suburban Washington, D.C. See below, "PCS Through Cable TV Companies," for insight into how this could be done.³⁰

PCS Through Cellular Radiotelephone Companies

Technology and Market Factors

Some have suggested that, as cellular handsets become smaller and cheaper, the distinction between (conventional) cellular telephony and (microcellular) PCS may become blurred. Conventional cellular technology is adapted specifically for automobile radiotelephone communications, and its costs are high in comparison to a network designed for microcellular PCS to be used by pedestrians. However, through construction of microcells designed for pedestrian traffic, and dedication of some of their radiofrequency channels for PCS, the cellular companies could expand the capacity of their networks by getting more geographic re-use of their assigned radiofrequencies--with the possible downside of making some of their frequencies unusable at the higher speeds of automobile travel.

Regulatory Factors

There are two cellular radiotelephone franchises in every major market (one is owned by the local wireline telephone company). Conventional cellular exists now. However, the cellular telephone operators say they should not be left out when spectrum allocated specifically for microcellular PCS service is assigned. Others say that there is no regulatory barrier to the cellular companies using their currently allocated spectrum to develop microcellular PCS, and that in the interest of local market competition, companies independent of the telephone company should be assigned the spectrum specifically allocated to PCS.

PCS Through Cable TV Companies

Technology and Market Factors

Cable TV companies would be "new" providers in the sense that they are not now involved in provision of any form of local telephone service, as the telcos and cellulators are. The cable companies are however increasingly looking at evolving their networks to do switched two-way communications like the telephone companies do now. The coaxial cable on which cable networks are based has at least a hundred times more information throughput capacity than the copper-pair wires of telephone companies.³¹ A small portion of this capacity could potentially carry wired local telephone service. Another small portion of

³⁰ Southwestern Bell Reaches Pact to Break Into Cable TV. The Wall Street Journal, Feb. 10, 1993. p. B1, and A1.

³¹ See, CRS Report 92-785 SPR, op. cit.

portion of this capacity could be used as a wireline network linking PCS microcells, in a cable company variation of the PCS concept.

Cable networks were developed for a one-way, essentially broadcast information flow, and are fundamentally different from phone networks. Increasingly, however, they are evolving to be more like telephone networks in their architecture, and the networks they have already installed give them a large advantage. Cable TV providers recently have realized that it is probably faster and cheaper to retrofit their existing broadband-to-the-home networks with switches, two-way capability, and fiber *trunk* lines--and to negotiate linking their cable telephone systems with those in neighboring franchise regions--than it is for telephone companies to replace all of their copper *last-mile* wires with fiber.³²

Some analysts suggest that the coaxial cable technology used by cable companies is becoming obsolete and will rapidly be displaced by fiber-optic cable and satellite transmission to the home. But the cable industry says that it will offer the futuristic communications services that people are talking about, more quickly and more cost efficiently than anyone else, precisely because it has spent the last 40 years connecting the Nation's homes with coaxial cable.³³

The cable industry concedes that its coaxial cable has the drawback that it requires many amplifiers in series to compensate for attenuation of the signal with distance, and that these amplifiers limit the information throughput (bandwidth) they can handle. But coaxial cable has the advantage that, *over short distances*, it can transmit about the same volume of information as fiber-optic technology.³⁴

Fiber is ideal for transmission over long distances, and coaxial cable is very efficient and cost-effective for short distances. It therefore makes sense to design a hybrid system using fiber to get from the center of each cable system into each neighborhood, and then to go the last mile to the home through coaxial cable. Coaxial cable is already in place to do that, and the installed cable represents 75 percent of the cost of the whole network.³⁵ Less than 20 percent of the investment is in the trunk portion of the cable system, leaving about 5-6

³² IEEE Spectrum, Jan. 1993, p. 38.

³³ Chiddix, Jim. Chairman of the Advanced Network Development. Subcommittee of Cable Television Laboratories--"Cablelabs". Testimony before the Federal Communications Commission, Dec. 5, 1991. Typescript, 26 p., at p. 5.

³⁴ Although fiber optic cable theoretically can transmit practically unlimited amounts of information, in practice it is limited by the capacity of the terminals (the connectors which convert light waves to electronic waves and vice-versa) at the beginning or end of a fiber link.

³⁵ Chiddix, op. cit., p. 6.

percent for the plant and equipment at the head-end and in the subscriber's home. So, the limitations of conventional cable systems can be overcome by replacing less than 20 percent of their sunk investment with optical fiber. The result is a fiber/coaxial hybrid system with enormous capacity, signal quality and reliability.

Time Warner, Inc., has built a 150-channel, two-way cable system in Queens, New York, serving 10,000 homes. The video benefits aside, this network has the "star" or "hub and spokes" architecture characteristic of a telephone network. Thus, the interconnection needs of a microcellular (PCS) system may be realized, almost as a byproduct of a network built for cable's entertainment business. By avoiding the need to construct a new and independent network system for interconnection of base stations, the deployment of PCS could be significantly accelerated.³⁶ Further, its cost would seem to be reduced, and no scarce radio spectrum would be required for the interconnection of base stations linked by cable.

Time Warner announced in January 1993 its plan to build a two-way cable system in suburban Orlando, Florida, to deliver--in addition to conventional cable television--movies on demand, interactive games, home shopping *and telephone services*. The system is planned to be in operation by early 1994 and to serve 4,000 homes. Time Warner is talking with potential partners and suppliers to help it launch similar systems in other U.S. cities where it has local cable television franchises. It plans to link such systems together in a national network. The company said it would be the first cable operator to deploy digital switching telecommunications technology together with computerized storage to hold libraries of movies and other information. The company said it has applied to the Federal Communications Commission for an experimental license to test personal communications services and to provide connections to long-distance carriers. Business customers will be offered video-conferencing and high-speed data transport. Leading the effort in telecommunications is former FCC Chairman Dennis R. Patrick, who is president and chief executive of Time Warner Telecommunications, a subsidiary of Time Warner, Inc., and located in Washington, D.C.³⁷

Regulatory Factors

In order to compete effectively as a local telephone service provider, either with wires into homes or through microcellular base stations, cable companies would require a regulatory authorization mandating interconnection of their telephone net with that of the local telco, so that all local telephones, not just those on the cable net, could be connected. Such switched interconnection would be analogous with that granted to MCI, for its switched long-distance

³⁶ Chiddix, op. cit., p. 14, 18; and also: Gilder, George. Cable's Secret Weapon. *Forbes*, Apr. 13, 1992. p. 80-84.

³⁷ Time Warner Plans Electronic "Superhighway." *The Wall Street Journal*, Jan. 27, 1993. p. B1.

service, by the Execunet Decisions of 1977-78. Conventional cellular telephone companies already have this interconnection with the local wireline telco, and recent regulatory decisions at both the state and federal level have moved in this direction. See Regulatory Factors under Competitive Access Providers (CAPs).

PCS Through "Other New Providers"

Technology and Market Factors

"Other new providers" include *local* non-telco, non-cellular, and non-cable companies, as well as *non-local* firms of many kinds. Examples are: local public utilities, interexchange (long-distance) carriers, out-of-region telephone, cellular, cable, utility or other firms, including "competitive access providers" or CAPs.

Regulatory Factors

A local PCS operation by a local *regulated* public utility (e.g., electric power) company would seem to raise familiar considerations of cross-subsidy, since the utility distribution plant and maintenance operations for an in-region utility would have features in common with the network aspects of PCS.

An out-of-region telephone or utility company might at first seem, to in-region telephone regulators, to be the regulatory equivalent of an independent local firm. However, if the out-of-region company is regulated in its home region, it might use its out-of-region regulated business to subsidize its in-region competitive PCS business. It could be, though, that geographic distance would result in de-facto separation of work forces, equipment, and rights-of-way--perhaps even in separation of corporate structures as well. If sufficient separation did not occur as a matter of course, the regulators of in-region telephone and PCS services would probably have to attend to matters of structural separation on the part of out-of-region companies--or to other means of preventing subsidy of in-region competitive PCS operations by out-of-region regulated businesses. On the other hand, a local PCS operation by a *competitive* interexchange carrier appears not to raise such issues.

Competitive access providers (CAPs) are discussed below.

Competitive Access Providers

Technology and Market Factors

There are some relatively new competitors in local telephone service that, unlike the expected new PCS applications, are actual commercial competitors now. Competitive Access Providers (CAPs) have deployed fiber-optic telephone networks or "fiber rings" in about 30 metropolitan areas, providing dedicated special access and local private-line service linking large business customers with long-distance carriers. These companies have also been known as Metropolitan

Area Networks (MANs), Alternative Access Vendors (AAVs), and Competitive Local Carriers (CLCs).³⁸ Another term is "bypass company."³⁹

The largest CAPs are Metropolitan Fiber Systems, Inc. (MFS) and Teleport Communications Group Inc. (Teleport). Like MCI in the early days of competition in long-distance service, MFS and Teleport are forcing a new way of thinking in the local telecommunications industry.⁴⁰

The Teleport Communications Group was started up in 1985 by the Merrill Lynch stock brokerage company.⁴¹ Its plan was to provide satellite communications earth-station facilities on Staten Island, and the required connecting fiber-optic links to serve Manhattan financial district businesses. Teleport subsequently sold the earth station facilities and retained the fiber link business.

In August 1992--following FCC approval--Teleport was acquired from Merrill Lynch by the largest cable-system operating company, Telecommunications, Inc. (TCI), together with Cox Enterprises, a newspaper/broadcasting/cable television holding company. TCI holds 49.9 percent of Teleport, while Cox has 50.1 percent and management control. The United States Telephone Association had petitioned the FCC to block the purchase, as long as telephone companies were blocked from owning cable companies in their telephone service areas.⁴²

Metropolitan Fiber Systems (MFS) was founded in January 1988 to provide competitive local access communications on fiber-optic networks that it installs and operates locally in major metropolitan areas. MFS provides dedicated special access to long-distance carriers and local private-line service between customer buildings located on an MFS fiber-optic urban network.⁴³

Although the CAPs started with a niche market, their deployment of state-of-the-art fiber networks with diverse paths, redundant electronics, and

³⁸ Valovic, Tom. Will The U.S. Finally See Competition in The Local Exchange? p. 43. A POTS Shot At Telcos. Cable World, June 8, 1992. p. 17.

³⁹ Opposition Emerges to Cox Teleport Buy. Newsbytes, May 7, 1992.

⁴⁰ Burkhart, Lori A. From Microwave to Fiber: Breaking the Monopoly, Round 2. Public Utilities Fortnightly, Oct. 15, 1992. p. 24.

⁴¹ Ibid., p. 26.

⁴² TCI Buy of Teleport Raises New Questions. Newsbytes, Feb. 19, 1992. Cox Enterprises to Exercise Teleport Purchase Option. Newsbytes, Mar. 6, 1992. Opposition Emerges to Cox Teleport Buy. Newsbytes, May 7, 1992. Teleport Sales to Cable Companies Approved. Newsbytes, Aug. 6, 1992.

⁴³ From Microwave to Fiber, p. 24.

continuous monitoring of circuits is bringing a new level of reliability, disaster protection, and responsiveness to users of high-capacity voice, data, and video transmission services. In fact, the RBOCs have been attempting to catch up to the CAPs by deploying fiber rings in areas subject to their competition and by improving the level of service to their large business customers.⁴⁴ In the market for local telecommunications transport, the CAP industry is in a similar position today to that of the competitive long-distance carriers (MCI, etc.) in the mid-1970s.⁴⁵

Regulatory Factors

In the local communications market, competitive access providers have prompted some promising and significant regulatory events that may extend the benefits of local communications competition to a far broader group of customers.⁴⁶ Following State-level precedents in New Jersey, New York, Massachusetts, Illinois, and California, the FCC decided on September 17, 1992, to allow the CAPs to have physical interconnection *interstate*.⁴⁷

In New York, the Public Service Commission has adopted rules promoting competitive interconnection for special access services and in 1992 was considering expanding those rules to the switched services market.⁴⁸

In May 1991, the FCC issued a Notice of Inquiry and Proposed Rulemaking, in response to a petition by Metropolitan Fiber Systems--requesting interconnection to local telephone networks and tariff unbundling for the competitive provision of *special access* and *switched access* local services. On September 17, 1992, the FCC announced its decision to allow CAPs to offer physical interconnection to interstate *special access* telephone services. The president of Metropolitan Fiber Systems said that the order recalled the Execunet decisions of 1977-78, when the Federal courts allowed MCI to open the long-distance market by forcing the pre-divestiture Bell system to allow competitors to interconnect to the AT&T network's local exchange companies, for origination and termination of *switched access* long-distance calls through to the local network.⁴⁹

⁴⁴ Competitive Local Communications, p. 23.

⁴⁵ Ibid., p. 23.

⁴⁶ Ibid., p. 25.

⁴⁷ From Microwave to Fiber: Breaking the Monopoly. p. 24. The FCC proceeding was Common Carrier Docket 91-141: Expanded Interconnection With Local Telephone Company Facilities.

⁴⁸ Ibid., p. 25.

⁴⁹ Ibid., p. 25 and 23.

Telecommunications Free-Trade Zones (TFTZs)

Regulatory Factors

Telecommunications Free Trade Zones (TFTZs) are not a technological concept, but rather a regulatory concept--published in January 1992, by Commissioner Terry Barnich of the Illinois Commerce Commission (ICC), who was then Chairman of the ICC. Barnich defines a TFTZ as *a geographically defined market in which any entrant meeting minimum qualifications would be permitted to offer, on a "take-all-comers" or universal service basis within the zone, the full array of telecommunications services including local exchange switched service.* Prices and terms of these services would be left to the market rather than to the utility regulator.⁵⁰ The regulator, however would retain three crucially important residual powers, as provided for by Illinois law.⁵¹

First, there would be continued oversight to assure that competition did indeed continue for basic service on a universal basis. "The policy of universal telephone service has been clearly articulated by both Federal and State legislators and we intend to continue to fully pursue these ideals," said Barnich.

Second, the regulator would insure against unfair discriminatory customer classifications in order to guarantee competitive access and choice for all customers within the free trade zone.

Third, the regulator would retain customary ratemaking and other regulatory powers and, if the traditional incumbent chose, it could remain under classic cost-of-service regulation while new entrants operated freely under a regime of market-based pricing and service offerings.⁵²

Barnich proposed establishment of a Telecommunications Free-Trade Zone in downtown Chicago, when the requirements of law were met.⁵³ Barnich and ICC staff Craig Clausen and Calvin Monson believe that there is an inevitability about the creation of TFTZs around the country and that, therefore, it is

⁵⁰ Barnich, Terrence L. et al. Illinois Commerce Commission. Telecommunications Free Trade Zones: Crafting a Model for Local Exchange Competition. Jan. 1992. 26 p.

⁵¹ The Illinois General Assembly enacted the Universal Telephone Service Protection Law of 1985, which authorized the introduction of competition at the local exchange level. The law expressly authorized the Illinois Commerce Commission to loosen regulation--by classifying as competitive those services for which there is more than one provider--on a service-by-service and either statewide or geographically restricted basis. Barnich, et al., op. cit.

⁵² Barnich, op. cit., p. 1.

⁵³ Ibid.

incumbent upon regulators to "pay more than lip service" to local exchange competition.

*We must begin crafting a framework under which TFTZs can operate successfully. Our goal is to show that competition at the local exchange level is upon us, that it should be welcomed because it offers a superior regulatory paradigm, and to further offer the beginning of a framework in which the benefits of a competitive local telecommunications exchange can be realized.*⁵⁴

Technology and Market Factors

The market considerations that led to the proposal of TFTZs were the establishment and growth of the competitive access providers discussed above, as well as other potential sources of competition. Technology advance thus played an important part in motivating the TFTZ regulatory concept. Three cities appear now to be in the forefront of TFTZ developments: Chicago, New York City, and Rochester, N.Y.

In both Chicago and New York City, the initiative toward a TFTZ has been taken by the regulatory agencies. In Rochester, the local telephone company (Rochester Telephone) took the initiative and *asked* to be put on a "full interconnection tariff," establishing "open network architecture" (Rochester Tel's terminology for "TFTZ").⁵⁵ Rochester Tel wants prompt regulatory approval, so it can complete the required corporate restructuring by the end of 1993. Rochester Tel said that "developments in [transmission and switching] technologies,

while already dramatic, appear likely, if anything, to accelerate. New Advances . . . are reported almost every day Confronted with these trends, [Rochester Tel] has made a careful and considered decision to embrace competition, rather than resist it. [Rochester Tel is] the first telephone company in the nation to initiate such a plan for full open local competition."⁵⁶

Apparently, Rochester Telephone took account of what was happening to local telephone markets. They saw local telephone service monopolies being eroded by the CAPs, through their service offerings to large telephone customers, and by piecemeal regulatory decisions. They saw cable companies moving toward provision of telephone service on their own, or through buying

⁵⁴ Ibid., p. 1.

⁵⁵ Rochester Telephone Corporation Seeks Approval To Restructure, Says It Is "First Telco" To Initiate Plan For "Full Open Local Competition." Telecommunications Reports, Feb. 8, 1993. p. 1

⁵⁶ Ibid., p. 3.

control of CAPs. As a result of these developments, Rochester has now emerged as the city likeliest to be first with actual implementation of a TFTZ.⁵⁷

Low-Earth-Orbit (LEO) Satellite Networks

Technology and Market Factors

Low-earth-orbit (LEO) satellites for voice telephony are sometimes known as "big LEOs." Here, they are called simply "LEOs."⁵⁸ Motorola pioneered the concept of LEO satellite networks for remote-area PCS. The original proposal was for a system which, when complete, would consist of 77 communications satellites in orbits only a few hundred miles above the surface of the Earth. These satellites would not be geostationary (not revolve in synchrony with the earth's rotation) but would pass overhead quite frequently. As one satellite disappeared over the horizon, another would come within range to take over the communications link. Thus, LEO systems are sometimes called "upside down" cellular systems, because the *base stations* move while the *callers* remain relatively stationary on the Earth's surface. At least four other plans have come before the FCC. The four other proposers are Loral Corporation, TRW Inc., and two small companies, Constellation Communications Inc. of Herndon, Virginia, and Ellipsat of Washington, D.C. LEOs are included in the discussion of local PCS because of particular similarities with local PCS and/or cellular service. The similarities are however limited in scope.

LEO communications are intended to use small hand-held earth stations (transceivers), similar to handsets that would be used for local PCS. Nevertheless, the LEO proposals are designed specifically to provide telephone access for isolated users located in very remote areas--deserts and oil exploration platforms have been mentioned. The *handsets* may be made compatible with conventional cellular systems, so they could connect with the lower cost cellular or PCS systems whenever and wherever available. But the LEO *satellite network* would make no significant contribution to competition in areas covered by cellular service or local PCS because, even if the satellite network were used in such areas, its cost of use would be higher and thus non-competitive. Other PCS concepts, in comparison, are specifically designed to be most feasible in urban and suburban areas where the user population is greater, and thus very closely spaced and very low-power base stations could be cost effective. LEOs are an expensive way to get network access where population is dense.

⁵⁷ Craig Clausen (policy advisor to Illinois Commerce Commissioner Barnich), telephone interview by CRS, Feb. 10, 1993.

⁵⁸ There are also proposals for "little LEO" systems. These are smaller, cheaper low-earth-orbit satellite systems designed for transmission of data only.

Regulatory Factors

Radio spectrum for LEOs was set aside on a worldwide basis by an international conference that took place in 1992.⁵⁹ Even before the international conference though, the FCC, on January 16, 1992, proposed to reallocate, within U.S. jurisdiction, 220 Mhz of spectrum between 1.85 and 2.20 Ghz from existing users to accommodate emerging services such as PCS, data PCS, digital audio broadcasting, and LEO satellite services.⁶⁰ If the proposal is adopted, the current users in the band, most of which are point-to-point microwave operations, will have to migrate to other bands. The utilities, railroads, and other microwave users have objected vehemently to the FCC's move to establish a spectrum reserve band at 2 Ghz for the emerging technologies. These users have lobbied the Congress to retain their 2 Ghz positions. As a result, the adoption of the FCC's spectrum reallocation decision has been delayed. In early August 1992, the FCC issued a Further Notice of Proposed Rulemaking. This further proposed rule would create five bands above 3 Ghz, to accommodate displaced fixed microwave systems, in the hope of allowing easy migration for current users in the 2 GHz band.⁶¹

TELECOMMUNICATIONS ISSUES IN CONGRESS

The 102d Congress

The 102d Congress faced an array of communications policy issues that touch on infrastructure improvement, competition in communications services, and regulatory responses to the continued rapid advance of communications technology. Congress addressed these diverse issues in a variety of ways.

National Research and Education Network (NREN)

The 102d Congress accelerated the evolution of a National Research and Education Network (NREN) by passing the High Performance Computing Act of 1991 (P.L. 102-194).⁶²

⁵⁹ The conference, sponsored by the International Telecommunications Union (ITU), was known as World Administrative Radio Conference 1992 (WARC 92).

⁶⁰ In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies. Notice of Proposed Rulemaking, ET Docket No. 92-9, 7 FCC Record 1542 (1992). As cited in Telecommunications Policy, Nov. 1992. p. 626.

⁶¹ Telecommunications Policy, Nov. 1992, p. 626.

⁶² See U.S. Library of Congress. Congressional Research Service. Building the National Research and Education Network. CRS Issue Brief IB90126, updated, Feb. 20, 1992. (archived)

Cable Television

The 102d Congress passed The Cable Television Consumer Protection and Competition Act of 1992 (P.L. 102-385), over President Bush's veto. The Act re-regulates cable TV prices and service. It also alters competition in multichannel TV--by changing the rules under which cable and other multichannel TV distributors obtain their programming. The new rules are expected to influence how much (or whether) competing multichannel video distributors must pay to obtain various proprietary program signals.⁶³

Research and Development

For FY 1993, the 102d Congress authorized \$100 million and appropriated \$68 million for the Commerce Department's Advanced Technology Program, which funds R&D projects in a variety of technologies, including telecommunications and information sciences. Congress also established a High-Resolution (video) Systems Advisory Board in the Office of Science and Technology Policy (Executive Office of the President), modeled after the National Advisory Commission on Semiconductors.⁶⁴

Radio Spectrum Policy

The House passed the Emerging Telecommunications Technologies Act (H.R. 531), but the Senate did not pass its companion bill (S. 218). Both bills provided for new radiocommunications applications, through new FCC allocations of radiofrequency spectrum in an amount equivalent to either 33 new television channels or 1,000 new FM radio frequencies. This spectrum was to be taken from that reserved for use by Federal Government agencies, as allocated by the Commerce Department's National Telecommunications and Information Administration (NTIA). In the Senate, a compromise was reached between Senator Inouye and Senator Stevens on an amendment providing for

⁶³ The conference report on the bill S. 12 (H.Rept. 102-862) was passed by the House Sept. 17, and by the Senate Sept. 22, 1992. The President's veto was overridden by both House and Senate, Oct. 5. See U.S. Library of Congress. Congressional Research Service. Cable Television Rate Reregulation (by Angele A. Gilroy). CRS Issue Brief IB91079. (Archived.)

⁶⁴ The authorizations were contained in the Technology Preeminence Act (P.L. 102-245, Feb. 14, 1992). See: U.S. Library of Congress. Congressional Research Service. High-Definition Television and Advanced Video Information Systems (by David B. Hack). CRS Issue Brief IB89088, updated July 29, 1992 (archived), p. 5-6; and see: U.S. Congress. House. Committee on Science, Space, and Technology. Subcommittee on Technology and Competitiveness. High Definition Information Systems, Report prepared by the 102d Congress, 2d Session. Washington, U.S. Govt. Print. Off., July 1992. 23 p.

a trial of radiofrequency license assignment by competitive bidding (sometimes called "auctions"), but the bill was not brought to the Senate for debate.⁶⁵

Bell Telephone Company Regulation

The 102d Congress considered a variety of legislative proposals to remove Bell telephone company regulation from the control of the Federal courts--how and whether the seven Regional Bell Operating Companies (RBOCs) would be allowed to engage in the three lines of business that were forbidden to them following the 1984 breakup of the American Telephone and Telegraph company (AT&T).⁶⁶ Selected bills--those which either received substantial legislative attention *or contained proposals specifically relevant to competition in local, basic telephone service or interconnection for competitive networks providing such service*--are discussed below to the extent of their treatment of such service.

Senator Hollings introduced S. 173, to lift the ban on RBOC entry into manufacturing (passed by a Senate vote of 71-24 on June 5, 1991).

Representative Brooks, Chairman of the House Committee on the Judiciary, introduced The Antitrust Reform Act of 1992 (H.R. 5096) to let the RBOCs into all three forbidden businesses, subject to stringent legal procedures, specified waiting periods in selected areas, and other rules. The Brooks bill was reported out by the Judiciary Committee. Hearings were held by the Rules Committee shortly before the 102d Congress adjourned, but the bill was not sent to the House floor.⁶⁷

⁶⁵ See U.S. Library of Congress. Congressional Research Service. Release of Government-Held Radio Spectrum for Non-Government Use. CRS Issue Brief IB91114. (updated regularly)

⁶⁶ *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983). Cited in: Pepper, Robert M. Through the Looking Glass: Integrated Broadband Networks, Regulatory Policy and Institutional Change. Washington, Federal Communications Commission, Office of Plans and Policy. Nov. 1988. p. 25; and see: U.S. Library of Congress. Congressional Research Service. The American Telephone and Telegraph Company Divestiture: Background, Provisions, and Restructuring. CRS Report 84-58 E, by Angele A. Gilroy. Washington, Apr. 11, 1984. 55 p.

The forbidden lines of business were: manufacturing of telecommunications equipment, long distance service, and "information services."

⁶⁷ Communications Daily, Aug. 14, 1992, p. 1; Congressional Quarterly, Sept. 5, 1992, p. 2613; H. Rept. 102-850 on H.R. 5096 and S. Rept. 102-41 on S. 173; U.S. Library of Congress. Congressional Research Service. Information Services: What Role for the Bell Operating Companies? CRS Report 90-346 E, by Angele A. Gilroy. Washington, July 13, 1990. 11 p; and Should the "Baby Bells" Be Allowed to Manufacture? CRS Issue Brief IB91094, by David B. Hack and Stephen J. Downs. 15 p. (updated regularly)

Representative Jim Cooper of Tennessee, late in the 102d Congress' first session,⁶⁸ introduced H.R. 3515--requiring "each local exchange carrier [to] provide interconnection, on a reasonable and nondiscriminatory basis, to *common carriers*⁶⁹ and other providers of telecommunications services and information services who request [interconnection of their networks or information service equipment with that of the local exchange carrier]."⁷⁰ The Cooper bill also required local tariff unbundling beyond that required by the FCC, local number portability when a telephone subscriber moves from one local telephone service provider to another, and local telephone service market-share tests--all as a *quid pro quo* for RBOC entry into content-based information services in their own local service territories.⁷¹ The Cooper bill was referred jointly to the House Committee on Energy and Commerce (Subcommittee on Telecommunications and Finance) and to the House Committee on the Judiciary (Subcommittee on Economic and Commercial Law). The Telecommunications Subcommittee held a day of hearings on it (October 24, 1991), and the bill saw no further action.⁷²

Summary of 102d Congress

Thus, the 102d Congress addressed some of the issues born of rapidly advancing communication technologies, and some of the consequent opportunities for more competition in communications service markets, as those issues or opportunities arose in particular industries or particular committee jurisdictions. Some of the 102d-Congress issues and bills can be expected to come back in the 103d, albeit in altered form, as advancing technology, and policy actions already taken, continue to alter the terms of debate.

The 103d Congress

The 103d Congress is taking up communications policy in a context of continued rapid advance in communication technologies and continued trends toward more competition in communications *generally*. New avenues of actual or potential competition continue to appear among the cable, telephone, broadcast, and satellite communications industries. Increasingly, the choice of

⁶⁸ H.R. 3515 was introduced on Oct. 8, 1991, the day after a Federal appeals court cleared the way for the RBOCS immediately to offer information services. The bill sought to impose conditions limiting the RBOC's entry into information services, therefore partially rolling back the appeals court's grant of unconditional entry.

⁶⁹ Emphasis added.

⁷⁰ Text of bill H.R. 3515 (102d Congress).

⁷¹ Competitive Local Communications, p. 25.

⁷² Senator Inouye introduced in the 102d Congress a bill (S. 2112) similar in some respects to H.R. 3515, but no hearings were held.

physical medium, transport path, or carrier by which a communication signal is sent is independent of the signal's content and format, and of the purpose the signal serves.⁷³

The 103d Congress will contend with different views of how to update Federal communications policy to reflect the changing technological and market realities. A number of major interest groups will be competing to influence the outcome of this debate. The telcos want to be able to provide the full range of information services--television included--while other information providers such as newspapers want to limit telco entry into this field. The telcos and cable companies are in conflict over provision of video service by telcos, even as the cable companies make their networks capable of providing telephone service. Already there is talk of bills to "fine tune" the 1992 Cable Act. The newer wireless carriers (PCS, LEOs) want a piece of both the telco and the cellular businesses, as well as the newer "personal" service markets.

The FY 1994 authorizations and appropriations for the Commerce Department's technology programs may include new initiatives in support of network technology development.

Other policy debates are likely to center on radio spectrum availability, allocations, and assignment methods including competitive bidding. There is a new radio spectrum transfer bill in the House (H.R. 707), and it has already been passed by subcommittee up to the full Committee level at Energy and Commerce.⁷⁴ In the Senate, a similar bill--but containing also a provision for a trial of competitive bidding for radiofrequency channel assignments--has been introduced by Senators Inouye, Stevens, and others (S. 335, Feb. 4, 1993).⁷⁵

On RBOC business restrictions, continued congressional efforts to reclaim policymaking from the courts, and renewal of the related jurisdictional disagreements in the House--between Commerce and Judiciary--are likely. With both State and local regulators considering further action on interconnection requirements and tariff unbundling rules, new versions of the 102d-Congress bills H.R. 3515 (Cooper) and S. 2112 (Inouye) may be seen.

⁷³ CRS Report 92-785 SPR, p. 11.

⁷⁴ U.S. Congress. House. Committee on Energy and Commerce. Subcommittee on Telecommunications and Finance. Hearing on H.R. 707 (Emerging Telecommunications Technology Act). Feb. 4, 1993. 103d Congress, 1st Session. Washington, U.S. Govt. Print. Off. [In press.]

⁷⁵ The bill's text, and statements by Senators Inouye, Danforth, and Stevens, were published in the Congressional Record, Feb. 4, 1993, S1437-1443. The bill was referred to the Committee on Commerce, Science and Transportation.

There is a movement in several quarters, including the Clinton-Gore Administration,⁷⁶ toward consideration of accelerated development of the U.S. information and telecommunications "infrastructure." 103d-Congress oversight hearings on infrastructure began in the House on January 19, 1993.⁷⁷ On the same date, Senator Hollings introduced a bill to promote U.S. competitiveness (S. 4).⁷⁸ It contains provisions to extend the broadband network infrastructure initiative embodied in the High Performance Computing Act (P.L. 102-194), by facilitating the development and demonstration of National Research and Education Network (NREN) technology in health care, education and manufacturing.⁷⁹ In the House, a similar bill (H.R. 820) was introduced by Representative Valentine on February 4, 1993.⁸⁰

⁷⁶ Clinton/Gore National Campaign Headquarters. Technology: the Engine of Economic Growth--A National Technology Policy for America. Sept. 18, 1992.

⁷⁷ U.S. Congress. House. Committee on Energy and Commerce. Subcommittee on Telecommunications and Finance. Oversight Hearing on the National Communications and Information Infrastructure, Jan. 19, 1993. 103d Congress, 1st Session. Washington, U.S. Govt. Print. Off. [In press.]

⁷⁸ "A bill to promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Department of Commerce, amending the Stevenson-Wydler Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, and for other purposes."

⁷⁹ U.S. Library of Congress. Congressional Research Service. U.S. Telecommunications Infrastructure: Projected Future Evolution. CRS Report 93-161 SPR, by Stephen Gould. Washington, Feb. 3, 1993. 8 p.

⁸⁰ Cosponsored by Representative George Brown, et. al.

John B. Mike Miller ^{BAP}

Joe, Peter, Cindy, Carol Risher, Tom Nelson 4-16-93

Info Infrastructure, / Publishing Community

Language included in NREN last time

Copyright issues re copyrighted materials

being delivered & copied over Nat'l Info Infrastructure

To be common in issues foremost as far as Infrastr. Task Force

by Cable Tele

Radio Free Albin

Increase computer in the local loop

But into issues key too - title:

How protect copyright

ensure security

protect privacy

Evolution of the Internet

(David) Lytel at ~~NSA~~ OSTP will be key on Info Infrastructure

Robert Arice that'd report usage back to
copyright owner - raises privacy problems

that was in
NREN
bill I
guess

(S.4)

Applic. of ② language & mechanisms
for payment to S.4 Logical to compare
3102 (c)(5)(b) to S.4 Title VI

Q v.11 S.4 be drafted as amendment
to 1991 Act

Bob Kahn

NREN 3

- 1) NREN backbone that foot. controls
- 2) NREN ^{regional} networks that tie into it backbone regional
etc decentralized
- 3) Internet everything else commercial etc.

JDP: How to I.I. consistent w/ copyright

191
Act deals
w/ Network
characteristics

Technical community thinks under '91
network operators can't be expected
to build in charact. allowing copyright
protection -- to be liable for failing to
do this

'91 bill not set policy for Internet
or even for whole NREN

headers

Recording + billing + tracking mechanisms for Copyright

JDP Saying do it causes w/ © is very diff
from saying how to do it or what are
consequences if you don't...

billing etc. copyright mechanisms

JOB - no one has suggested AT&T can be sued for failing to build in characteristics that allow tracking.

Carol Risher: Libraries are scanning & digitizing books & this could ultimately put publishers out of business

Critical 1332e

Only real drag in this right now is lack of bandwidth

JB: Technol. facilitates the legal sol'n which ~~was~~ is simply the copyright law -- copying except fair use is illegal & must get permission & pay for it

CR: photocopying rules under © Act 5 copy rule etc. written in '76 not contemplate making an digitized copy that the whole library can access

analogy to music performances - another case of mass use which is handled via ASCAP / BMI etc.

Bob Kenev has a bill on digitizing state libraries

T. Kahl: Carrier liability -

Computer Systems Policy Project
Recommend no carrier liability

§

~~How~~
JOD - as long as you can
ID

JOD to eliminate liability, you must
be able to ID the sender
(whether the issue is copyright,
obscenity or terrorism)

"Windows" bill passed Senate & ~~not~~
on suspension in House

Klipper: Make sure §102 applies to S.4