The National Telecommunications and Information Administration (NTIA) is working hard to develop a set of policies on some of the controversial regulatory and legal issues that affect this industry. We will announce these policies during a hearing on Senate Bill 1086, called the Danforth-Itouye Bill. That bill, in a fairly comprehensive way, addresses a lot of the issues that have affected this industry for many years.

Until recently, I think most people directing communications policy felt like Moses must have felt when he was in the desert for forty years where he could see the promised land off in the distance on the mountain top, but knew that he would never live to actually get there. I have been in this field for almost fourteen years and often it seemed the brave new world of advanced telecommunications was just there on the horizon, but we would never get there in our lifetime. But now there is a change. I think we are no longer content to maintain the old plodding pace. The prospect that we see in our time is a glimmering landscape, not just in new technologies, but in a new way of life; a life in which Americans can live where they wish, without foregoing opportunities for useful and fulfilling employment; a life with the best education, and all the vast resources of art, literature and science which would be available everywhere, not just in elite institutions or big city libraries; a life where health and other critically important social services are available on line, without waiting in line, when and where we need them.

The Clinton-Gore administration in Washington is taking steps to make some of this vision a reality. Through its National Information Infrastructure initiative, the administration is trying to provide a sense of direction. The policy and political leadership is critically important now because of the opportunities to make real progress. Technology has advanced more rapidly than even the most visionary had anticipated, and the dynamics of competition have proved even more powerful than the advocates of open markets predicted. There is much more that we can do to accelerate that process. But first, I would like to address some of the misconceptions concerning the National Information Infrastructure initiative.

Misconceptions of the National Information Infrastructure Initiative

For several months now, President Clinton, Vice President Gore, and Secretary Brown have been talking about the need for a national information superhighway system. On first examination, that expression provides a clear and useful analogy. The interstate highway system is national; it has a high traffic capacity and was able to bring together the different regions of this vast country, both economically and socially. The same will be true of advanced information infrastructure. But even the best analogies can be taken to extremes. Within the government, many of us were so taken with the superhighway analogy that we began to rack our brains for ways to extend the image. Certain kinds of communications were compared to off-ramps or different styles of roads. But then I began to receive memos explaining how one element of the communications system was the concrete in the highway, and another was the lane markers. Then, diagrams appeared with median strips and clover leaft. Opponents began to use the metaphor against us, saying, for example, there was no need to build six-lane expressways to everyone's driveway. Finally, the use of the highway analogy engendered considerable confusion about the role of government in this process. In short, things were getting entirely out of hand. The metaphor was overtaking the reality. So, although we still use "information superhighway" as a metaphor, we have tried in recent months not to overextend the analogy.

A second misconception concerns the role of broadband communications in general, and fiber optics in particular. This initiative was described as the plan to "fiber" the country. Fiber is already an important part of the information infrastructure and will doubtless become even more important. But it may not be the Holy Grail. Neither Congress, the administration, nor the FCC is going to mandate the deployment of any particular technology, even one with as many attractive attributes as fiber optics. Two-way broadband communications is a more general way to characterize the national information infrastructure that we have in mind. But for a number of reasons, even that
phraseology both understates and overstates its scope.

First, mobility will play a major role in the advanced communications infrastructure that this country needs. That implies that radio spectrum will play a major role, perhaps as important as fiber and other broad-band technologies.

Second, there will not be one network, but a large number of interconnected networks, many of them competing with one another. This is already the case in this country. However, the trend toward a multiplicity of network operators seems to be intensifying as competition appears ready to enter some of the last bastions of monopoly, for example, local telephone and cable television services. The recent dramatic developments in the marketplace underscore this.

Most importantly, there is a growing recognition among the general public that an advanced infrastructure will do more than provide additional entertainment options for the home. It will be a critical pathway for new kinds of economic opportunities that will enhance our international competitiveness and provide more and better jobs for all Americans in the years ahead. At the same time, it can, and I believe will, change the way we educate our children, deliver health care, and provide other critical social services to our citizens. In sum, the potential for advanced telecommunications playing a significant role in enhancing the quality of life for U.S. citizens is enormous.

**Government’s Role in the National Information Infrastructure Initiative**

First, with all this activity as background, there has been an ongoing reassessment of government’s proper role. It should be obvious that the government will not itself build, own, or operate the national information infrastructure. The private sector is already investing $50 billion per year in development of communications infrastructure, and it is inconceivable that direct government spending will significantly increase that amount. When this initiative began in the spring, I was addressing a group of telecommunications executives from various carriers. I thought I would make a joke by saying that we in government were sick and tired of them taking too long to build this infrastructure, and that we were going to take it over and build it for them. There was dead silence. People started taking their pens and pads out and started writing. I realized the joke wasn’t working. So we have put in every speech we make and every speech the Secretary makes that government is not going to displace the private sector, we’re not going to be in the telecommunications system what the government is in the highway system.

However, there are some areas where the government can make an important contribution, if the disparate parts of government can act in a coherent fashion. First, one role government can play is to articulate a vision, to put certain issues and goals on the public agenda. We have tried to do that with the national information infrastructure. The vision that advanced telecommunications is important for the economic competitiveness of the country and can have a significant impact on the quality of life of our citizens is being propounded not just at NTIA, but for the first time in memory at the very highest levels of government, including President Clinton, Vice President Gore and Secretary Brown. In September, the Vice President and Secretary Brown released a report, Agenda for Action, setting out this vision and some of the specific goals the administration has in mind in this area. Much of my speech this evening reflects that Agenda for Action, in that I’ll be describing some of the ongoing efforts we have to put some flesh on those goals and proposals, and the detailed steps we’ll need to implement that agenda.

Secondly, in addition to the vision, government can provide targeted support for the development of new information and communications technologies. For example, we will continue and accelerate the High-Performance Computing and Communications Program (HPCC), a program now in its third year, that is developing more powerful supercomputers, more sophisticated software, and faster networks; the kind that will be needed for a truly advanced information infrastructure. Legislation for this program was sponsored by then-Senator Al Gore. The government is a major user of supercomputer technology and a major supporter and participant in the scientific research community. The HPCC initiative has the dual goals of supporting these governmental programmatic functions while at the same time, it is hoped, helping to facilitate progress in the development of advanced computing and networking.

Telecommunications historians might recall that the very first telecommunications system ever built was the telegraph. In 1830, Samuel Morse had this new idea and was trying to raise capital from the private sector. However, he was very unsuccessful in doing so. Morse then went to Congress, and after many failures, finally succeeded in getting funds for a demonstration project to run a telegraph line between Washington and Baltimore. He eventually did so, but not without some difficulty. There were many risks involved because they didn’t know much about electricity at the time. The system failed a number of times. Indeed, the original plan was to string the wires in conduits. However, the conduit itself had conductive properties, and they did not know much about insulation. It was only in desperation that they capped up the wires on poles and strung it along the railroad lines; that is where our system of wires on poles started. Finally, the system was built and it was demonstrated to work. Morse was ecstatic. He went back to Congress and said, “Let’s build a national information infrastructure. Give me tens of billions of dollars (or whatever the 1830s version of what tens of billions of dollars were) and we’ll build it.” Congress said, “No, no, no, no. You’ve demonstrated the technology, now go to the private markets and do your thing.” Indeed he did. Perhaps Congress in the 1830s already had the right model in mind both in what it would fund and what it would not fund.

Third, the administration proposes to provide grants to demonstrate the benefits of this infrastructure for educa-
tion, health care, libraries, and other social services that have traditionally been funded by the public sector. The NTIA will be administering that grant program. Recently, Congress passed legislation appropriating $26 million for that program, for Fiscal Year '94. Just yesterday, our authorization committee in the House of Representatives passed legislation authorizing us at levels of $100 and $150 million for fiscal years '95 and '96. The legislation will now go to the Senate.

Fourth, the administration proposes to reinvent the way that governments itself distributes information. The proposal calls for government to use computer and networking technologies to provide easier public access to the vast databases that it has already compiled in economic, environmental, technical and other subject areas.

Fifth, and perhaps most importantly, the administration will seek to develop a coherent set of forward-looking telecommunications regulatory and legal policies that will encourage private-sector investment in a ubiquitous, advanced telecommunications system and ensure that all Americans will enjoy the benefits of such a system. For example, the President has formed the Information Infrastructure Task Force chaired by Secretary Brown. The members of the task force are cabinet-level officials. The task force itself has formed three committees below it: the Telecommunications Policy Committee, headed by Larry Irving; the Information Policy Committee, headed by Sally Katzen of the Office of Management and Budget; and an Applications Committee, headed by Arati Prabhakar, who is the director of the National Institute of Standards and Technology in the Department of Commerce. The task force has wide representation throughout government; the Vice President has referred to it as a virtual Department of Information.

One of the charges of this task force is to work with the Congress and the private sector to implement policy changes needed to accelerate deployment of a national information infrastructure. The Agenda for Action states that it is an administration goal to have legislation in this area within the next year. The goal will be to establish a consistent, stable regulatory policy aimed at increasing both the rate of innovation and the efficiency with which it is undertaken.

The administration believes that competitive markets work best in the telecommunications industry, and is interested in the best ways to introduce competition in some of those areas that are still characterized by less than fully competitive markets. Another important goal will be universal service. We do not want this to be an infrastructure that widens the gaps between people. Larry often says it should be an infrastructure that is available not just to Harvard, but to Howard. Government will play an important leadership role in setting policy in the universal service area, because legislation will be required. To the extent possible, we would like to develop a process for consensus and the administration is starting internally. For example, we developed and will build on a cooperative relationship with the Antitrust Division at the Department of Justice.

Our philosophy is pro-competitive, but technologynutral. We will not be picking winners and losers. Instead, consumers must be allowed to determine what they want and what they need. We have to develop a set of policies that permit and encourage entrepreneurship and the rapid changes in technology and the marketplace. Frankly, government is not very good at predicting such developments. Additionally, government can not use the idea that we have perfect knowledge and can direct all this as the basis for any legislative policies or regulations.

To cite some examples from this industry: the president of Western Union, back when the telephone was first invented, said, "What need does this company have with this electronic toy?" Western Union now is in the business of delivering money across the country, but the electronic toy has taken over. When consumer VCRs became available twelve years ago, the motion picture industry opposed it, thinking it would be the death of motion pictures. Last year, Hollywood made $6 billion at the box office and $12 billion from videocassettes. I don't think they think VCRs are the death of motion pictures. When personal computers were first becoming available, the chairman of Digital Equipment Corp. in 1977 stated, "There's no reason for any individual to have a computer in their home." Today, PCs are in thirty-one percent of U.S. homes and DEC has a new chairman. When cellular telephone service was first being proposed in 1980, AT&T estimated there would be no more than one million mobile telephone subscribers by the year 2000. They also went along with the decree that had those cellular franchises end up in the hands of the Bell operating companies. Today, there are more than twelve million subscribers and AT&T just spent $17 billion to get back into the business which it thought had a limited niche market in 1980.

The lesson is that there is very little we in Washington can do to out-guess or out-forecast the market. Even the market players often are not very good at it, so we should not try either. If we didn't get that lesson from the historical examples I used, just watch the landscape we see today: the Bell Atlantic-TCI deal, the Alexandria-Bell Atlantic case on First Amendment grounds, overturning the cable television restriction, British Telecom's attempted investment in MCI, the U.S. West-Time Warner deal, Southwestern Bell's acquisition of cable systems in suburban Virginia, QVC and Viacom's battle for the hand of Paramount, and there are more players every day. I used to pick up the business section of the paper, and maybe there would be one article that affected our industry. Now, one could spend a good part of the day reading the press addressing what is happening in this industry.

That is going to be the environment we're working in. I can assure you it is of major importance to this administration. To succeed, we will need to work with people in the industry, in the academic community, in the public interest community, in short, with all of you.