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January 16, 2000

MEMORANDUM FOR GENE SPERLING

FROM: TOM KALIL

RE: BACKGROUND BRIEFING ON THE INTERNET

This memo is an effort to distill for you some information on Internet and high-tech to prepare you for your dinner on January 20th. It includes information on:

- I. Glossary of terms (there are at least 13,000 computer and Internet-related terms – this just covers a few).
- II. Big picture Qs and As (how does the Internet work, why is it important, etc.)
- III. Internet-related policy Qs and As
- IV. Industry and expert opinion about the future of the Internet
- V. Factoids
- VI. Points that you may wish to make

There may be a few additional Qs and As that I need to provide to you.

After you've had a chance to read this – please let me know what else you need – both short-term and long-term.

Glossary of terms

Attention economy: The argument that in today's economy – what is scarce is people's attention.

B2B: Abbreviation for “business-to-business” electronic commerce. Although it does not get as much press, it is rapidly becoming much larger and more important than its retail counterpart – **B2C** – or business-to-consumer.

Bandwidth: The measure of a network's ability to transmit information – measured in “bits per second.”

Bit: The smallest element of computer storage – it is either a “0” or a “1.” Short for “binary digit.”

Broadband: A network capable of transmitting more information, as opposed to a narrowband connection. The most likely (near-term) ways to access the Internet at broadband speeds are a cable modem (provided by upgraded, 2-way cable systems), and DSL (digital subscriber line – provided by local telecommunications companies). Other possibilities include wireless, satellite, and fiber-to-the home.

28-56 kilobits per second	Dial-up connection – how most people use the Internet. Good for text, some graphics, AM quality radio.
500 kilobits – 2 megabits/second	Broadband connection for homes. CD-quality audio, can start to handle video.
45 megabits/second	Connection that a large business might have
1 gigabit/second and above	Next Generation Internet and Internet2 – can handle HDTV

Browser: The software used to explore the World Wide Web. Marc Andreessen developed the first graphical Web browser in 1993.

Byte: 8 bits – the amount of memory required to store a letter or a number.

Community of Interest: The Internet makes it easier to form “communities” that are based on shared interests as opposed to solely geography. Whether the ties that are formed by chatting and exchanging e-mail messages are strong enough to be called a community is hotly debated by social scientists. Web sites try to combine community, content, and commerce. A consumer might go to a parenting Web site, learn about what baby stroller is best by reading reviews from other users of the Web site, and then order the best one online.

Convergence: Somewhat fuzzy notion. Usually means that a number of services (Internet, television, radio, telephone) can or will be delivered over one network – because all of these services are digital.

Digital: Information represented as 0s or 1s – could be a phone conversation, an e-mail message, software, music, video, graphics, an electronic document, etc. An advantage of digital information is that it can be copied and stored almost perfectly an unlimited number of times.

Disintermediation: Idea that the “middle-man” will be cut out and buyers and sellers will interact directly. Although this is happening – you also have the emergence of new intermediaries – that provide services like comparison-shopping.

Domain name: The Internet address of an organization – such as “whitehouse.gov” or “amazon.com.”

Dot.com: Generic name for Internet start-ups.

E-business: Concept initially promoted by IBM – but now widely accepted by industry. The notion is that the Internet and information technology will transform not only the way a company buys and sells (e-commerce) – but all aspects of its business operations.

Extranet: A network that allows a firm to be linked securely (using encryption) to suppliers, customers, and other partners.

Information appliance: Not all of the devices that are connected to the Internet will be computers. “Information appliance” is a generic term used to describe lower-cost or specialized devices that might be connected to the network. An example is “WebTV” – now owned by Microsoft – which sells for \$100 - \$200.

Intranet: An internal network that a company or an organization uses to share information or handle internal business processes.

IP – or Internet Protocol: The single most important technical standard of the Internet. This standard breaks data into chunks called “packets” – and provides the information needed to move the data from point A to point B. You will often see this combined with another important Internet standard called Transmission Control Protocol (TCP/IP).

Killer app: The use or application of a new technology that spurs wide adoption of a new technology. The killer application of the personal computer was the Lotus spreadsheet – the first killer app of the Internet was e-mail.

Knowledge Management: New business fad – based on the observation that the information and expertise of its employees is one of the most valuable assets a company has. An example of a KM application is an “expertise map” that allows employees to find out “who knows what” within a firm.

Metcalf’s Law: Observation by Bob Metcalfe (developer of an important networking technology called Ethernet) that the value of a network increases with the square of the number

of people who are connected to it. If you have the only fax machine in town – it is not very useful. Economists refer to this as the “network effect.”

Moore’s Law: Observation by Gordon Moore (founder of Intel) in 1965 – that the number of transistors on a computer chip has been doubling – every 12-18 months. This prediction has proved to be true – and explains why computers have gotten better, faster and cheaper year after year.

Portal: A company like Yahoo that seeks to become the first place that consumers go to use the Internet. Portals are providing an increasingly wide range of services – such as a directory of web sites, search engines, free-email, personalized news, personal calendar, etc.

Router: Networking equipment used to transmit data. Cisco dominates this market.

Server: A computer that is used by an organization to support the activities of multiple individuals. For example, a “Web server” is a computer that might allow millions of people to download information or purchase something online. A **client** is a computer or software program used by an individual.

Ubiquitous computing: Also called pervasive computing. The notion that computing will not just be on your desk-top – but everywhere.

World Wide Web: An Internet application developed by Tim Berners-Lee at the European Laboratory for Particle Physics in 1989. It allows people and organizations to publish information on the Internet – and anyone with access to the World Wide Web to download that information. This is the application that really caused the Internet to take off because it gave “point and click” access to information.

I. Big Picture Qs and As

Q. How does the Internet work?

- At the heart of the Internet is a set of standards for moving data from point A to point B.
- The most important of these is the Internet Protocol. This breaks data (such as an e-mail message) into chunks called packets.
- Think of an Internet packet like a postcard. The postcard contains both a message and an address. Specialized computers (called routers) act like the post office – they look at the (destination) address on the packet and figure out where to forward it to.
- The Internet is a “network of networks.” If I subscribe to MCI and you subscribe to AOL, we can be sure that our Internet Service Providers have some mechanism for exchanging traffic, either directly or indirectly.
- What makes the Internet useful is a whole series of applications software and standards that build on the basic service that the Internet provides (moving data from point A to B.) These include:
 - E-mail;
 - World Wide Web;
 - Chat and instant messaging;
 - Internet news groups (postings by people around the world on a particular subject)
 - Real-time audio and video;
 - Phone calls over the Internet

And many, many, others.

Q. What’s different and special about the Internet as compared to broadcast (radio, television) and telecommunications networks? Why do people call it the biggest change in human communications since the printing press?

- It allows for individuals to be both producers as well as consumers of information, as opposed to broadcast technology. *New Yorker* press critic A.J. Liebling once remarked that “Freedom of the press is guaranteed only to those who own one.” The Internet allows anyone with access the equivalent of a printing press – although no guarantee that anyone will pay attention.
- It allows “many to many” communication (e.g. a group of people participating on a Internet newsgroup or mailing list), as opposed to the “one to many” communication of broadcast television and the “one to one” communication of the telephone. This makes it easier to form communities based on shared interests as opposed to geography. There are over 100,000 public Internet mailing lists and newsgroups, and many more private ones.

- The most important standards are in the public domain and are not owned by anyone company. This promotes competition and consumer choice.
- Anyone can develop a new application or service for the Internet, and if it is popular, it will spread like wildfire. This accounts for the extraordinarily rapid rate of innovation on the Internet. Compare this to the telecommunications network, where essentially only a few phone companies can introduce new services (e.g. call waiting, voice mail, caller ID, etc.)

Q. Why does the U.S. have a commanding lead in the Internet industry?

- The Internet happened in the U.S. before it happened in the rest of the world – which gave U.S. companies a “time to market” advantage.
- The U.S. has world-class research universities – a great source of new ideas and talent. Many successful Internet and computer companies are a direct outgrowth of university research.
- The U.S. has lower telecommunications costs (no per minute charges for local service and a competitive long-distance market).
- U.S. economy and culture promote and encourage entrepreneurship (willingness to take risk, tolerance of failure, well-developed venture capital markets, huge financial rewards from stock options and equity – which is called “upside” in Silicon Valley).

Q. Why do some analysts believe that there is an “Internet bubble?”

- In past waves of technological innovation (railroads, computers, hard drives, biotechnology), investors fund lots of “me too” companies going after the same market. Inevitably, there is a period of consolidation and shake-out, and companies either go under or are acquired. A few companies do very well, but many more do not. Of the 1,200 technology-related IPOs since 1980, 5 percent have created 86 percent of the wealth.
- A recent analysis of 133 leading Internet stocks tried to calculate the possible size of the Internet bubble. The analysis assumed 5 years of hyper-growth, after which these stocks would be evaluated more like traditional high-tech companies, with an average P/E ratio.
- The June 1999 market capitalization of these companies was over \$400 billion! Even assuming that these companies grow at 50 to 65 percent per year – the size of the bubble could be \$130 billion - \$260 billion.

- Middle America could wind up holding much of the bag – since the “smart money” (venture capitalists, institutional investors) may have sold its stock, or bought it at a fraction of its current price.

Q. Why has the Internet and high-tech in general been a priority for the Administration?

- The IT industry **is driving U.S. economic growth**. In the last three years, IT has accounted for almost 1/3 of U.S. economic growth. Declining prices in the IT industry have lowered inflation by almost a full percentage point - and have helped the U.S. economy maintain this terrific combination of rapid growth, low unemployment, low inflation, and higher productivity.
- The **IT industry is generating high-wage, high-skill jobs**. Wages in the IT sector are almost 80 percent higher than the private sector average.
- **Information technology is changing the way all companies do business**. IT now accounts for 1/2 of business investment. Companies are using IT to tailor their products and services to the needs of individual customers, forge closer relationships with their suppliers, and deliver just-in-time training to their employees. Customers can name a price they are willing to pay for a hotel or airline reservation - and force companies to compete for their business. Business-to-business e-commerce in the U.S. alone could reach \$1.4 trillion by the year 2003.
- **The Internet is becoming a new communications medium in addition to a commercial marketplace**.
- **We are just at the beginning of the Information Revolution**. Although 200 million people are connected to the Internet, half of the world's population has never made a phone call. Only 1.4 million American households have broadband Internet access. And there is every reason to believe that the incredible improvements in our ability to store, process and move information will continue for at least another 20 years. For example, the nanotechnology initiative will support long-term research that could allow us to make transistors out of individual molecules -- and store the equivalent of the Library of Congress on a chip the size of a sugar cube.
- **These technologies have the potential to deliver social as well as economic benefits**. Using distance learning, working adults can acquire new skills at a time, place and pace that is convenient for them. Telemedicine can improve the quality of health care in under-served rural communities. Technologies such as speech recognition and text-to-speech can allow people with disabilities participate in the workforce, and lead more independent lives. And IT can make help government at all levels more open, responsive and efficient.
- **Personal interest of the Vice President** -- long-standing interest and support for the "information superhighway" long before anyone outside of the research community was taking it seriously.

III. Internet-related and high-tech Qs and As

Q: What are the Administration's views on having legal protections for privacy on the Internet?

The President and Vice President are committed to making sure that Americans have effective privacy and other consumer protections when they go online. Unless individuals have confidence in how they will be treated online, the full potential of the Internet will never be realized.

The issue we all face is how to obtain the protections, so that they are developed in Internet time and well-suited to the new medium. Our judgment has been that we should support self-regulatory privacy efforts, and the results this year have been encouraging. In early 1998, only about 15% of the significant commercial web sites had a privacy policy. In a study done this spring, that figure had risen to 67% -- remarkable progress in one year, and due in large measure to the work of Secretary of Commerce Daley, Federal Trade Commission Chairman Pitofsky, and others to encourage the private sector to put good practices in place.

These steps are encouraging, but we need to keep a close eye on how privacy protections develop on the Internet. For instance, only 10% of the commercial sites that were in the spring survey had all of the key privacy protections -- notice, choice, access, security, and enforcement. We have to do better.

Q: But aren't legal protections needed for privacy, at least in some circumstances?

Yes. There are certain sorts of especially sensitive information, where we have seen abuses and where we should protect privacy as a matter of law. For example:

- *Children online.* Last year the President supported and signed the Children's Online Privacy Protection Act of 1998. Before that law was passed, we saw abusive practices by some web sites, which essentially used very young children as informants about their parents. Under the new law, sites aimed at children under the age of 13 must get verifiable parental consent before they gather and use personal information received from the children.

Medical privacy. Every American has a right to know that his or her medical records are protected at all times from falling into the wrong hands. And yet, as more and more of our medical records are stored electronically, the threats to our privacy have greatly increased. Recently, the President announced comprehensive proposed regulations for the protection of medical records. The President and Vice President have also called upon Congress to pass additional legislation that would fill gaps in our current authority, such as to cover all paper records and all employers.

- *Financial privacy.* The new financial modernization law, passed by Congress last week, will provide protections that go well beyond existing law, such as clear notice of how institutions share financial data, the right to block sharing or sale outside a financial

institution's corporate family, and new and significant enforcement provisions. When the President put forward his financial privacy plan this May, the financial modernization bills that Congress was drafting contained almost none of these protections. So, the new law reflects a real improvement over the status quo. But we will not rest. We will continue to press for even greater protections -- especially for effective choice about whether personal financial information can be shared with affiliates.

Q. Should the Internet remain tax-free?

The President and Vice President supported the Internet Tax Freedom Act, which established a 3 year moratorium on new taxes on Internet access and electronic commerce, and also created a Congressional Advisory Commission to look at the long-term issues raised by e-commerce.

We don't want to prejudge the work of the Commission, but the Administration is committed to finding a solution to this issue that will allow the Internet and e-commerce to flourish, but without stripping states and localities of the revenue they need to educate our children and fight crime.

[Note: We are tentatively thinking about supporting a permanent (or at least 5 year) moratorium on Internet access taxes and multiple or discriminatory taxes, and a "standstill" on any changes in the definition of nexus while states and localities develop and adopt a uniform law on sales and use taxes.]

Q. What kind of protection does the government offer from Internet fraud?

The government offers the same consumer protections against fraud online as it does offline. The Federal Trade Commission Act gives the Federal Trade Commission (FTC) the tools it needs to act in the interest of all consumers to prevent deceptive and unfair acts or practices. The FTC Act prohibits unfair or deceptive advertising in any medium. In fact, the FTC is aggressively prosecuting fraudulent practices and misleading ads in the online marketplace under existing consumer protection laws. The FTC has brought over 100 enforcement actions ranging from garden variety pyramid schemes and miracle cure health care products to technologically sophisticated scams.

Q. Are you concerned about the "digital divide"? What are you doing about it?

Yes, the Administration is very concerned - information technology should bring us together - not result in further polarization of our society.

To address the digital divide, the President and Vice President have worked to:

- Connect every classroom to the Internet, and provide our children with modern computers, technology-savvy teachers, and high-quality educational software;
- Increase support for Community Technology Centers in low-income neighborhoods.

- We will be announcing additional “digital divide” issues in the President’s FY2001 budget, and the President will be leading a “New Markets” tour that will focus on the digital divide in the spring.
- Market forces and technology will also help bridge the digital divide -- because computers are continuing to get faster and cheaper every year.

Q. Do we need to rewrite the Telecom Act to encourage residential broadband deployment?

No. We think that the Telecom Act is beginning to work. Cable companies, phone companies, new entrants, satellite companies, etc. are all competing with one another. Competition will lead to lower prices, more customer choice, and faster deployment of the technology. For example, cable companies report that they will be able to reach over half of U.S. households by the end of 2000.

IV. Industry and expert views about the future of the Internet and information technology

1. Internet is inherently unpredictable – we will continue to be surprised by its uses.
2. Continued rapid growth in:
 - Number of people connected to the Internet (now at 200 million – could be 1 billion by 2005)
 - Volume of e-commerce (especially business-to-business)
 - Quantity of information accessible on the Web
3. Continued declines in the cost of storing, processing, and transmitting information.
4. Wider variety of things connected to the Internet – not just computers but Web-phones (combination digital cell-phone, personal organizer, Web device), information appliances, household appliances, sensors, etc. More goods become “intelligent” (the refrigerator that knows when it needs to be fixed, and sends a message to the manufacturer.)
5. Greater penetration of broadband networks to home – less frustrating to download information, ability to support multimedia applications like video and CD-quality, always on “Internet.”
6. More and more voice traffic migrates to the Internet.
7. Greater use of encryption because of recent changes in government policy, and expiration of some key patents.
8. Transformation of different sectors of the economy that adopt it – and emergence of new business models and business processes. Examples:
 - Mass customization – companies allow you to tell them exactly what kind of good or service that you want – and don’t manufacture and ship it until you request it.
 - Real-time auctions or “name your price” increasingly replaces fixed pricing.
 - Real-estate: Customers enter price-range, number of rooms, importance of school performance, crime rate, etc. and get back a list of homes on the market that meet their requirements. Customers can also take a 3-D tour of the house before visiting.
 - Health: More informed decisions by consumers because of access to consumer health information. An “electronic patient record” under the control of the patient. Reduced

administrative costs because of electronic connections between consumers, physicians, hospitals, HMOs, employers, Medicare/Medicaid, labs, etc.

9. Examples of emerging computer and Internet technologies:

- Intelligent agents that can perform simple tasks like find me the cheapest airline ticket to Ann Arbor, page me if the departure time changes, etc.
- Speech recognition (eliminate the need for a keyboard)
- Natural language understanding (computers that can disambiguate between multiple sense of the same word through context – very hard, may not happen)
- Video-on-demand – every video can be downloaded and played back – no more trips to the video-store (been predicted for a long time).
- Much better tools for collaboration and for supporting distributed teams.
- Multicast – selective broadcast of information – could lead to an infinite number of video-channels
- Authentication – ability to prove that you are who you say you are using digital signatures or some other technology

10. Possible downsides

- Erosion of privacy – tracking of people’s “mouse-clicks” on the Internet
- Digital divide
- Cyber-terrorism or collapse of system (equivalent of brown-outs or black-outs)
- People increasingly disconnected from reality
- Access to inappropriate material, cyber-stalking
- Fraud and other cyber-crimes
- Economic disruption (fewer retail dollars spent on “Main Street”)
- Control of Internet by a few major companies

VI. Facts about the Internet, Information Technology, and electronic commerce

1. 201 million people online – worldwide

- As of September 1999, there were 201 million people online.

2. 109.9 million people online in the U.S.

- As of September 1999, there were 109.9 million people online in the United States.

3. 1 billion people could be online as soon as 2005

4. One-third of U.S. economic growth accounted for by IT industry

- Between 1995 and 1998, the IT industry (computer and communications hardware, software, and services) accounted for 35 percent of the nation's real economic growth.

5. Jobs in IT industry pay almost 80 percent more than average private sector wages

- In 1997, jobs in IT industries paid 78 percent more than the average private sector wage - \$52,920 compared to \$29,787.

6. As of December 1999 -- there are 9.5 million sites on the World Wide Web, up from 50 in early 1993

7. The number of computers connected to the Internet has increased from 1.3 million in 1993 to 56.2 million in July 1999

- The number of computers connected to the Internet has increased from 1.3 million in January 1993 to 56.2 million in July 1999.

8. U.S. e-commerce is projected to grow to \$1.4 trillion by 2003

- By one estimate -- U.S. business-to-business e-commerce is projected to increase from \$43 billion in 1998 to \$1.4 trillion. Some estimates are even higher.

9. Information technology has reduced inflation by almost a full percentage point

- In 1996 and 1997, falling prices in the IT sector brought down overall inflation by 0.7 percent points, helping us control inflation and keep interest rates low in a period of historically low unemployment.

10. **17 million American households will shop online in 1999**
 - 17 million American households will shop online by year end, with total retail sales of \$20.2 billion.
11. **In 1998, Americans sent or received 3.4 trillion e-mail messages**
 - In 1998, Americans sent or received 3.4 trillion e-mail messages, compared to 107 billion pieces of first class mail.
12. **Percentage of classrooms in public schools connected to the Internet has increased from 3 percent in 1994 to 51 percent in 1998**
 - The percentage of classrooms in public schools connected with the Internet has increased from 3 percent in 1994 to 51 percent in 1998. This percentage will continue to grow as more schools take advantage of the "e-rate." The percentage of public schools with Internet access has increased from 35 percent to 89 percent during the same period.
13. **In 1997, the United States had more than 6 times as much venture capital flowing into information technology and communications companies as the European Union and Japan combined**

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April 8, 2000

MEMORANDUM FOR GENE SPERLING

FROM: TOM KALIL

RE: BACKGROUND ON BROADBAND

Definition

- There is no one universally accepted definition of broadband - but generally it refers to a network capable of sending and receiving data at much higher speeds than today's "narrowband" connections.
- Network speeds (or bandwidth) is measured in "bits per second." Today, most people connect to the Internet using an ordinary phone line and a modem with a bandwidth of 28 to 56 kilobits per second. A broadband connection to the Internet might provide speeds of hundreds of kilobits per second or even megabits (millions of bits) per second.
- Large businesses have been able to purchase broadband connections to the Internet for a while. It has only been within the last few years that cable companies and telecommunications companies have started to market broadband services to the home at a price that is affordable for more consumers.

Importance of broadband

Broadband is important for a number of reasons:

- Broadband networks can support a wider range of applications -- such as video-conferencing, video streaming, CD-quality audio, 3-D graphics, and lightning-fast download of software programs and computer files. Trying to do these applications over a "narrowband" connection to the Internet is painful or impossible. Video is likely to be jerky or the size of a postage stamp. Downloading a large picture is like watching paint dry -- a phenomena known as the "World Wide Wait."
- Broadband can be "always on." That means that people are more likely to use the Internet than if they have to spend the time to dial-up to their Internet Service Provider. It also means that more devices in the home can be connected to the Internet (e.g. burglar alarms, refrigerators that can alert their manufacturer when they are in need of maintenance, etc.)
- Broadband is important for business. If broadband is either not available or prohibitively expensive in a particular region of the country, businesses will find it difficult to compete. Businesses need higher speed connections to connect to their customers and suppliers.
- Widespread deployment could have broader social benefits as well -- supporting applications such as telemedicine, distance learning, and telecommuting.

Price and level of access

- Generally, broadband access to the Internet costs at least \$40 - \$50/month, compared to narrowband access to the Internet, which costs roughly \$20/month, and be even cheaper for customers that are willing to make a multi-year commitment to a single Internet Service provider. There can also be one-time equipment and installation charges.
- The FCC estimates that of the 105 million households in the U.S.:
 - 50 million households can purchase broadband from at least one provider (typically a cable company or a local phone company)
 - Tens of millions of households have a choice of two providers
 - A few million households have a choice of 3 or more
- As of the end of 1999 - an estimated 1-2 million households had actually purchased broadband Internet access.
- Estimates of how quickly for broadband access will increase vary widely. I have seen estimates of 16.6 to 28.6 million high-speed Internet access subscribers by 2004.

Different kinds of broadband

Market research firms that DSL and cable modems will be the dominant broadband technology over the next 3-4 years, but that satellite and wireless could play a significant role as well.

1. Digital subscriber line (DSL)

- Typically deployed by the local phone companies (SBC, Bell Atlantic) - and the competitive local exchange carriers (CLECs) that compete against them by leasing parts of their network.
- Major advantage is that it uses the existing copper phone lines that are now used to carry voice traffic.
- Major disadvantage is that not all phone lines are capable of handling DSL. For example, a phone line that is longer than 12,000 - 18,000 feet from the residence to the "central office" (the place where telecommunications companies locate their equipment). Note that this is particularly a problem for rural areas.
- Note that local phone companies have been able to charge their business customers much more for high-speed Internet access (hundreds or even thousands of dollar per month). To be able to maintain these price differentials -- they have marketed a service to residential customers that is "asymmetric." That means that residential consumers can download a lot of information, but their ability to send information is limited. Phone companies would argue

that most residential customers have this usage pattern. Their critics argue that the phone companies are marketing this service to protect their profit margins from their business customers.

2. Cable modem

- Uses the cable network to deliver high-speed Internet access -- which is a combination of fiber and coaxial cable.
- Advantage is that cable networks pass most American households -- and that by 2001 -- up to 71 million households will be passed by cable systems that are "two-way capable." Cable companies had to upgrade their networks to support high-speed Internet access.
- Disadvantage of cable modems is that the bandwidth of cable networks for Internet access is shared between subscribers. The more subscribers you have, the less bandwidth each customer has.

3. Wireless and satellite

- There are a variety of wireless and satellite alternatives as well. They are not expected to penetrate the market as quickly as DSL and cable modems, although they could be important in some rural markets.
- Hughes offers a service called DirecPC. It uses a satellite link to provide broadband downstream -- but customers have to use a regular phone line for upstream communication. There are other satellite companies that are beginning to market 2-way broadband satellite service.
- MCI and Sprint are beginning to do trials of a wireless service called MMDS (Multichannel Multipoint Distribution System). MMDS is a fixed service -- as opposed a mobile service like cell phones. It uses a tower -- and has a maximum range of 35 miles in all directions.

4. Fiber-to-the-home

- The ultimate in broadband would be running optical fiber all the way to the home, or at least to the curb. There are not many companies deploying fiber-to-the-home systems at this point because of the expense.

Public policy issues

1. Promoting competition for broadband services using the Telecommunications Act of 1996

- Passage of the Telecommunications Act of 1996 helped to spur competition in the market for broadband services because it imposed certain requirements on the local phone companies like Bell Atlantic, SBC, and US West known as ILECs (incumbent local exchange carriers). ILECs are required under the act to allow their competitors to:

- Lease parts of their network (known as unbundling);
- Interconnect with their network (interconnection);
- Locate equipment in their central offices (colocation).
- All of this spurred the development of competitive local exchange carriers (CLECs) -- who are able to provide high-speed Internet access without building out a whole new network. Covad is an example of a CLEC. Some of these companies literally would not exist were it not for the Telecommunications Act of 1996.
- The Administration has been a supporter of the Telecommunications Act and its continued enforcement.

2. Deregulation of ILECs

- The central bargain of the Telecommunications Act of 1996 is that ILECs would be allowed to enter the long distance market after they took steps to open up their own (local) market.
- So far, only one ILEC (Bell Atlantic) and has received permission from the FCC to provide long distance in one state (New York). Even this is not going smoothly, because Bell Atlantic is finding it difficult to transfer customers from Bell Atlantic to AT&T and other phone companies that are trying to enter the local market.
- Because Internet traffic crosses long-distance boundaries, the ILECs can't be Internet Service Providers without teaming up with another ISP for the long-distance portion of the Internet traffic.
- ILECs are arguing before the Hill that they should be allowed to provide Internet access, and that the restrictions on their ability to provide long-distance service should not apply to the Internet.
- Long-distance companies and CLECs have argued that if ILECs are allowed to provide Internet service before opening up their local market -- they will have no incentive to open up their market in the future. The Administration has generally found the argument of the long-distance companies and CLECs to be more persuasive.

3. Open access to cable networks

- Under the Telecommunications Act of 1996, cable companies don't have the same obligations to open up their network as the local phone companies do. They were regulated as cable companies as opposed to "common carriers."
- For several years, some Internet Service Providers (including AOL) argued that cable companies should have to open up their networks -- so that customers could have a choice of

ISPs. Their argument was that cable companies would monopolize the Internet -- and fundamentally change its open nature.

- They were not successful at the federal level in convincing the FCC, the Administration, or the Congress that this was a good idea. They did convince some cities to impose "open access" requirements on cable systems - and these are currently in the courts.
- The Administration took the view that customer choice of Internet Service Providers was a good goal, but that the market was likely to lead to this outcome because of competition between cable modem, DSL and wireless technology. The FCC was also opposed to imposing new regulations on cable companies before there was any real evidence of a problem (cable monopolies over high-speed Internet access) - given that there were so few subscribers of high-speed Internet access. The FCC did say that they would continue to monitor developments in the marketplace. There was also a concern that new regulations imposed on cable companies would increase uncertainty and deter investment in upgrading cable systems.
- This issue has quieted down in recent months for several reasons:
 - AOL and Time Warner merged. AOL stopped lobbying for "open access" legislation, although they said that they would open the Time Warner cable network to other Internet Service Providers.
 - AT&T (which purchased the TCI cable system) said that they would make arrangements to provide access to third-party Internet Service Providers in 2002. [TCI had an exclusive arrangement with a high-speed Internet access company called @Home. AT&T inherited this exclusive arrangement when they bought TCI -- but this contract will expire in 2002.]
- Consumer and public interest groups continue to express concerns -- and note that the AT&T and AOL flip-flops demonstrate the importance of not making policy on the basis of corporate interests.

Significant Research Conclusions

As cable, telephone, wireless and satellite all race to provide broadband access to data-hungry homes and small businesses, confusion and controversy have erupted over the capabilities, costs, and implementation schedules of various delivery schemes.¹ Following are the significant research conclusions that we will develop further in the main body of this report.

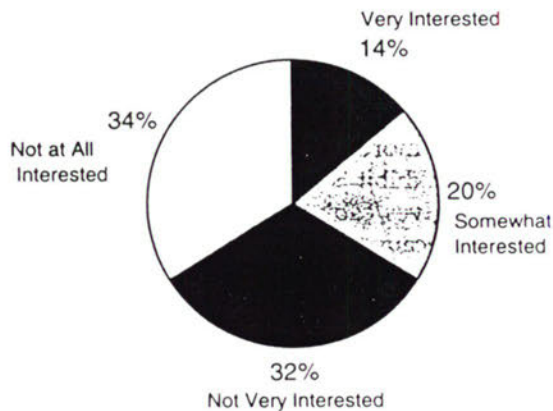
Broadband Data Demand Is Explosive; Market Is Supply Constrained for Next 24 Months

Over the next 24 months, the rollout of all broadband platforms will be "supply constrained" because of provisioning and addressability limits. This will make the next two years a land grab — already underway — for the best broadband customers. Demand is there: A survey of online consumers conducted for this report shows that a third are interested in high-speed service (see Exhibit 1), and interest increases rapidly with familiarity (see Exhibit 2).

Cable and DSL Advantaged in Residential Market Over Wireless

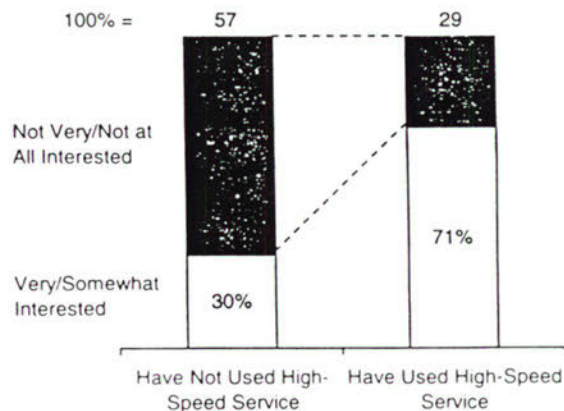
The first broadband battle has already begun as providers race to sign up high-value customers. Together, cable and DSL have an early start and the potential for bundled multiproduct broadband offerings that are expected to leave satellite and wireless behind, as shown in Exhibit 3. Cable is likely to stay ahead thanks to its early start, technical advantages, and its control of data displays on televisions in non-PC households.

Exhibit 1 Level of Consumer Interest in High-Speed Internet Access



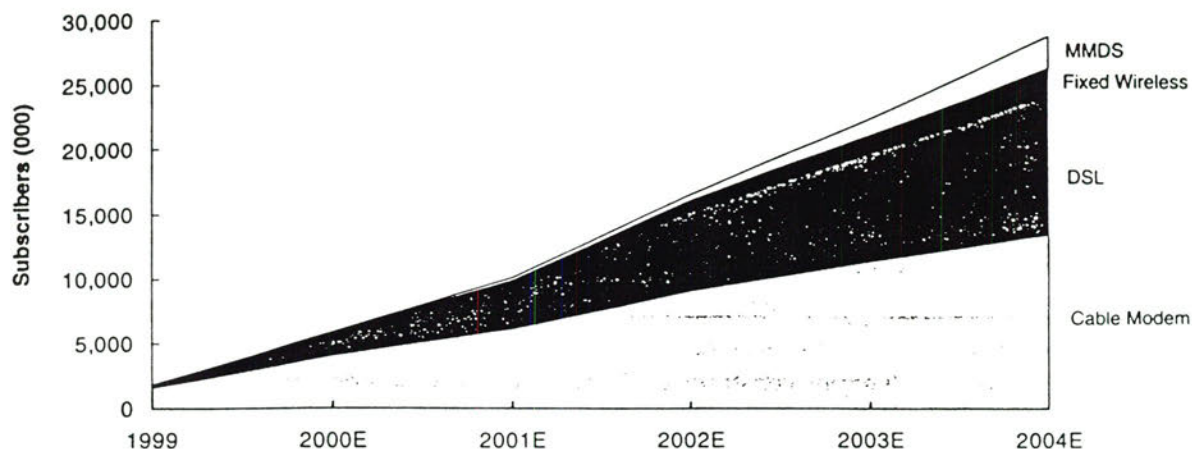
Source: Primary market research.

Exhibit 2 High Speed Familiarity Increases Interest



Source: Primary market research.

¹ Throughout this report, "broadband" refers to the full potential of a pathway to the home or small business, while "video," "high-speed data" and "phone" refer to specific products offered over the broadband pathway. In addition, unless otherwise stated, "DSL" refers to services sold by ILECs and "cable" to services sold by MSOs, including AT&T.

Exhibit 3**Residential Subscribers by Service**

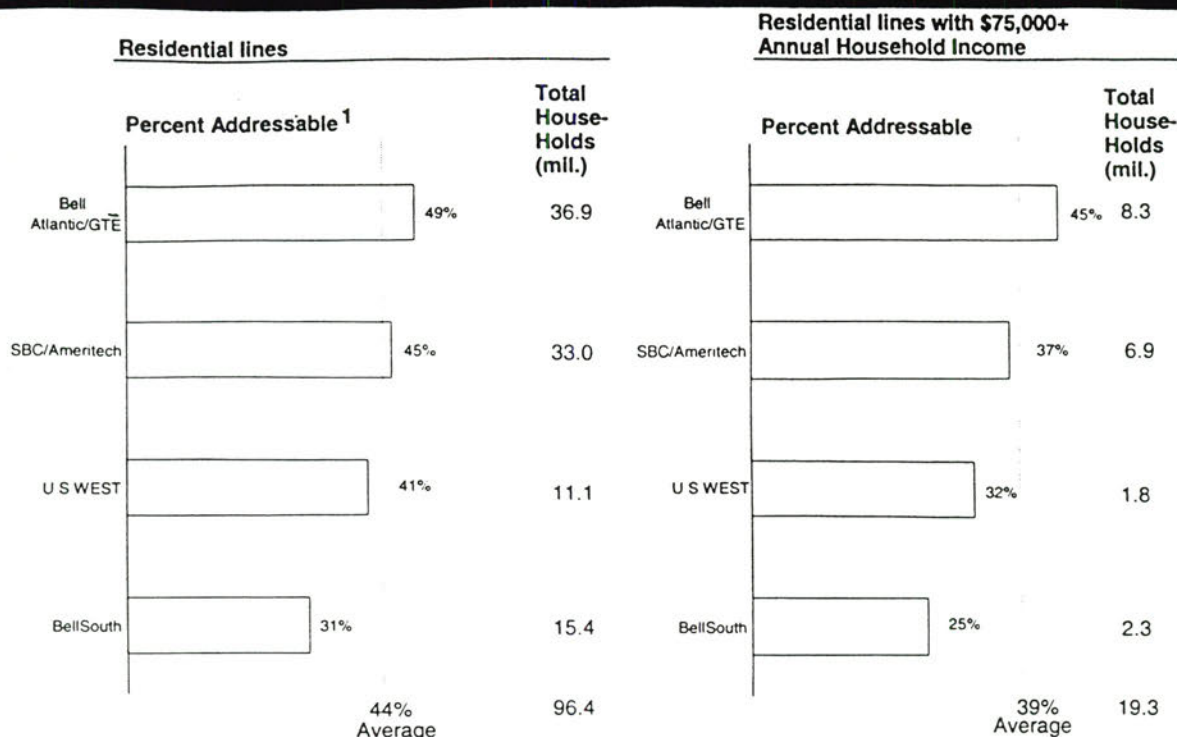
Source: Bernstein/McKinsey analysis.

DSL Hurt by "Upgrades" Over Last 20 Years

Legacy plant issues (loop lengths, the presence of non-compatible electronics) currently constrain DSL addressability to an estimated 44% of residential access lines, as seen in Exhibit 4. Efficiency-oriented upgrades to telephone plant make those systems far less tolerant of DSL than short-runs of old copper plant. Digital loop carrier equipment used in upgrades and new subdivisions far from the central office will need to be replaced. Variations in RBOC strategies will reflect the fact that, on average, some companies (like Bell Atlantic) have copper rich plant and short runs between the home and central office, while others (like BellSouth and U S WEST) have either more fiber, longer loops or both. Repair and upgrade of the national telephone plant for nonvideo DSL are expected to take some \$9.5 billion in incremental capital expenditures (SBC has already committed \$4 billion), with the option for later upgrades to carry video over DSL costing another \$10 billion.

DSL Disadvantaged in Areas with Best Customers

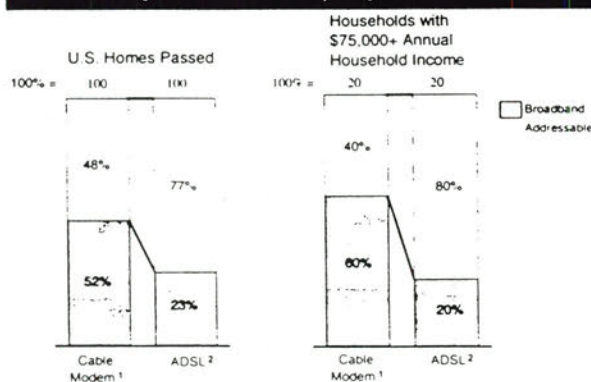
Long copper runs and non-DSL compatible line electronics have resulted in affluent customers being significantly more addressable by cable modem than DSL given upgrades to date, as Exhibit 5 shows. Not only is that bad for the phone companies because it gives cable a head start for the high-speed business, it is also a problem because high speed seems to be a distinctive product, making it a credible wedge for cable to sell a broader bundle. While most potential high-speed data customers surveyed said they would rather buy high-speed data service from the ILEC, as shown in Exhibit 6, problems the ILECs face in reaching those customers give cable a chance to get into consumers' homes to provide high-speed data and then try to convert them to cable telephone service, which won't be far behind in many markets.

Exhibit 4**Current DSL Addressability Less Than 50% of All Households**

¹ Addressable defined as within 12,000 feet of central office and not served by DLC.

Note: Based on typical distance restriction for ADSL; exact distance cut-off varies by carrier, but typically between 10,000 and 12,000 feet.

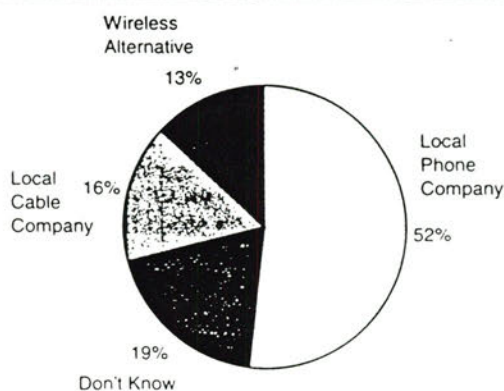
Source: U.S. Census Bureau and McKinsey/Bernstein analysis.

Exhibit 5 Broadband Availability Higher for Cable Than DSL — Year-End 1999 (million households)


¹ Passed by upgraded two-way plant as of year-end 1999.

² Served via upgraded CO, loop length less than 12,000 feet, not served by DLC.

Source: U.S. Census Bureau, ILEC and MSO upgrade reports, and Bernstein/McKinsey analysis.

Exhibit 6 Phone Company Preferred High-Speed Data Provider


Source: Primary market research.

Cable Data EBITDA Higher But Wholesale Strategy Makes DSL Margins Better

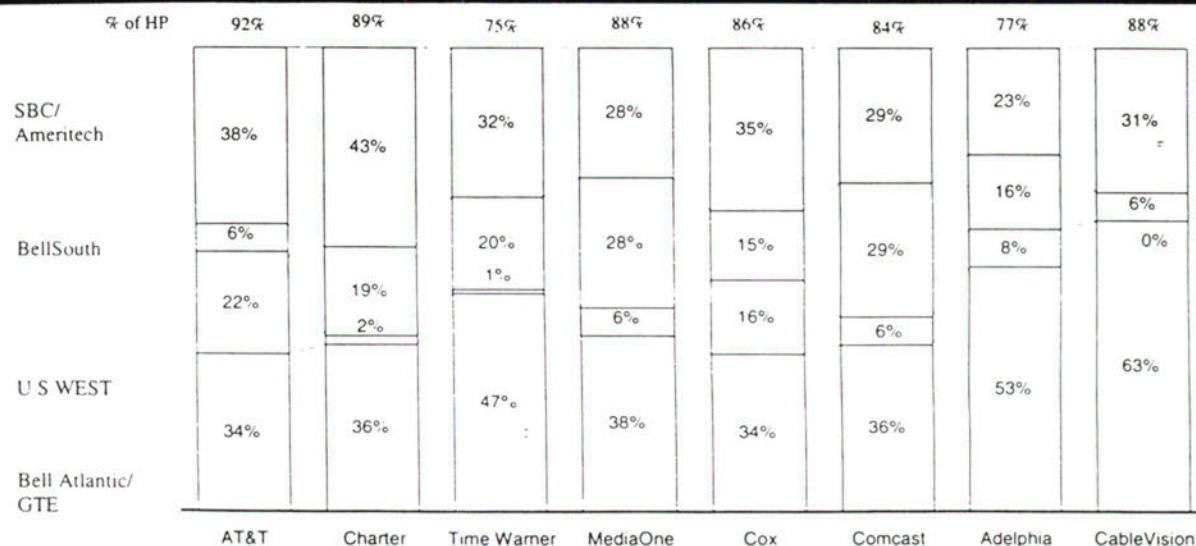
Cable data is expected to deliver some \$2.4 billion in EBITDA on \$5.6 billion in revenues in five years versus DSL's \$2.0 billion in EBITDA on \$4 billion in revenues.¹ The ILEC strategy of wholesale DSL service to companies like AOL reduces revenues, but shifts significant costs for content, hardware, and customer service to the retailer, while also driving penetration. Overall, the impact of residential data is more significant on cable's revenue stream, which is only about a third that of the ILECs; ILECs will benefit from the growing revenue trend as they sprint from their tiny current base toward a close second place. On a cash-cost basis, DSL margins are in the 45-50% range for data, while cable data is in the low 40% range. Results vary greatly by company depending on geographic locations, current state of plant, and aggressiveness of competitors. Exhibits 7 and 8 provide a study of the competitive overlaps of ILEC and major cable companies.

Cable Is Scalable for Data But Heavy Penetration Will Cost More Than Expected

While cable has the advantage in deployment speed, the engineering and economics of its upstream path will require more capital than generally anticipated to handle mass loads of customers. In most cable systems, upstream signals must travel over frequencies lower than 45 MHz (because of "on" channel requirement for Channel 2), out of a total system capacity of at least 750 MHz. Thus, while cable is easily scalable in the downstream direction, if more than 20-25% of homes use cable data for current Web applications, additional return path investment will be required. This could require an additional \$3 billion cumulative capital investment by cable by 2003 (assuming 80% of homes are upgraded, and an average 20% penetration by 2003). Still more upstream capacity will be necessary at a cost of approximately \$50 per home passed or more if cable must meet a serious move by ILECs into upstream-hogging video applications. AT&T is already experimenting with 50 home nodes instead of 500, so that at 25% penetration of data, only 12 households are sharing the 20 Mbps of upstream capacity — giving each about the same average throughput as a T1-speed DSL line.

Exhibit 7

Degree of Consumer Overlap Between MSOs and ILECs (percent of overlapping homes)



Source: Bernstein/McKinsey estimates.

¹ Based on Bernstein assumption that average residential high-speed data pricing moves from \$40 per month in 1999 to \$29 in 2004, and average small business high-speed data pricing moves from \$65 per month in 1999 to \$43 in 2004. For additional details, see the following chapter: "The Economics of Broadband Data."

Exhibit 8

Degree of Consumer Overlap Between ILECs and MSOs
(percent of overlapping lines)

% of Total Lines	75%	68%	74%	74%
Adelphia	9%	7%	8%	9%
Charter	6%	6%	7%	9%
Comcast	9%	17%	18%	11%
Cox	8%	0%	8%	5%
Cablevision	5%	6%	2%	9%
MediaOne	10%	2%	16%	26%
Time Warner	28%	61%	32%	31%
AT&T	25%		9%	
	Bell Atlantic/GTE	U S WEST	BellSouth	SBC/Ameritech

Source: Bernstein/McKinsey estimates.

MMDS and Fixed Wireless Unlikely to Be Significant in the Near Term

By all accounts, wireless will not be a factor in the residential broadband market until at least 2002 (see Exhibit 3). AT&T is expected to use Fixed Wireless in markets without cable deals — about 50% of the U.S.— and provide medium-speed data as part of a telephone bundle, while industry groups spearheaded by Sprint, MCI WorldCom, and Cisco will be attempting to develop industry standards and improved technology for MMDS customer premise equipment and network infrastructure. Recent developments such as the FCC's approval of two-way service, Sprint and MCI WorldCom's recent investments, and the development of new signal processing and RF technology have significantly brightened the outlook for the "wireless cable" industry, but both it and, to a larger degree, Fixed Wireless have significant downstream speed limitations and upstream scaling problems. Neither is likely to offer substantial competition to DSL and cable in the near term. Instead, both will primarily address residential customers in markets and areas where advantageous climates and topographies permit "filling in" holes that cable and DSL find less economical to serve. Fixed Wireless will find its footing more as a low-priced voice play, with medium-speed data a low-cost add-on.

Combination Platforms, New Consumer Equipment, and Overbuilders Provide Longer- Term Residential Competition

With widespread adoption of two-way broadband satellite (Ka-band) and digital television (DTV) still at least five years away, combinations of satellite or DTV with other return routes and high-density storage in the home could provide a path for ILECs and others to leapfrog cable's head start in broadband delivery within the next two years. However, these complementary strategies are likely to suffer from operational complexities, particularly in the back office and service areas, and are likely to pose very difficult economic problems for partners trying to decide whose offering takes the deep discounts necessary to compete with cable's bundled services. High-density storage at the television set threatens cable and broadcast programmers by technically permitting the replacement of network-sold

commercials with those sold by other distributors. Overbuilds appear to be gaining momentum and pose a threat to DSL and cable where they are deployed.

Free Set-Top Boxes Could Give Cable Larger Edge; AOL Can Help

Acquiring broadband customers once the early adopter/latent demand phase ends will be costly. Having a multiservice-capable box in the home could enable efficient cross-selling of additional services. Over the next five years, e-commerce and media revenues are likely to subsidize the rollout of cable broadband set-top devices, with cable operators providing widespread "free" boxes with e-commerce and some Web applications built in, and allowing cable easily to upsell to phone or high-speed data. Such availability of set-top boxes would undercut RBOC broadband efforts by providing cable with a marketing and delivery vehicle that combines television, PC, and phone capabilities. Video-oriented DSL offerings (VDSL) at that time will be limited by insufficient bandwidth and still-too-long access lines to reach a critical mass of homes. If cable can significantly subsidize digital boxes, cable could win over early DSL subscribers with a free, "all services" set-top product offer (or, at a minimum, compete with telephone for television-based e-commerce business in DSL households). This is consistent with AOL's contention that it can provide a significant boost to conversion from slow-speed dial-up service to any high-speed service by easily upselling AOL subscribers to broadband.

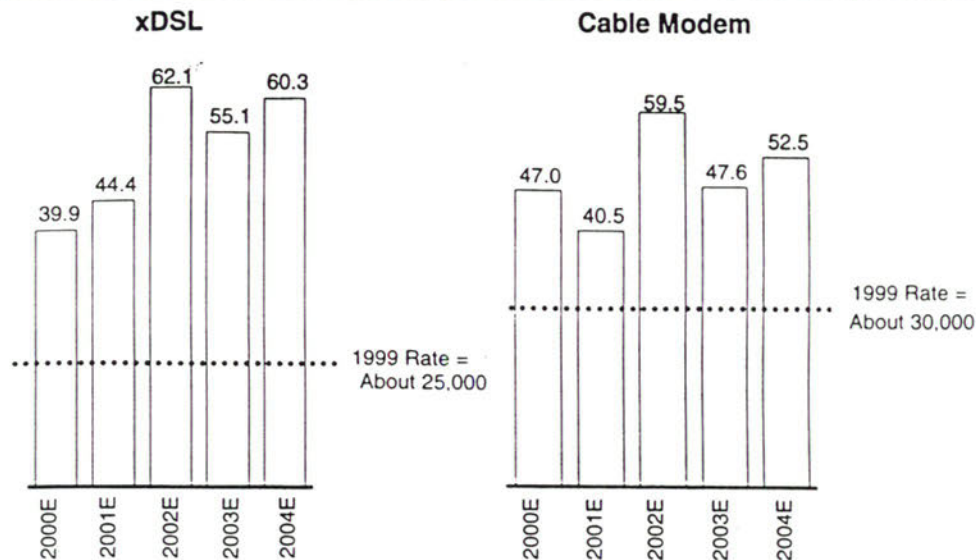
Self Provisioning Could Be Key for Residential Winner

Forecast provisioning capabilities of DSL and cable modems lag expected demand, with DSL lagging significantly, as shown in Exhibit 9. To meet the demand — and the company business plans — it is crucial that a large number of subscribers utilize "self-provisioning," or install-it-yourself. We estimate that within five years fully 60% of residential high-speed cable and DSL services will be installed in the home by the consumer through the inclusion of equipment in new PCs, or "take home" programs that involve in-store or over-phone training and support. Having one platform materially exceed the other on self-provisioning will affect rollout and competitive positioning. To date, progress has been slow and field evidence suggests both cable and DSL will typically require multiple truck rolls for some time. If DSL's self-provisioning problems can be overcome, AOL could leverage its existing subscriber base to the great advantage of DSL.

Seismic Shifts: AOL Merger with Time Warner

As we go to press, the strategic merger of AOL and Time Warner has just been announced. The deal represents just the kind of shift in the broadband landscape that puts the access battle into a broader perspective. Assuming that the merger is consummated, the resulting company will have extensive consumer content assets and access connections to Time Warner's nearly 20 million cable households — 85% of which are upgraded for two-way service. Obviously, this raises a large potential challenge for other companies active in either content or access, and may drive similar strategic counter moves. Above all else, AOL's decision is the strongest evidence to date that cable offers the broadest set of broadband assets available today. With AOL now aligned more closely with cable, DSL faces the challenge of competing in many markets without the benefit of AOL as a *de facto* exclusive resale partner. Thus, the AOL-Time Warner deal indicates not only that cable is the advantaged platform today (as we observe elsewhere), but also that it is likely to remain advantaged *vis-à-vis* DSL and other platforms in the future.

Exhibit 9

Rate of Provisioning Required to Meet Demand Forecast
(000 provisioned units per week)

Source: Interviews, corporate reports and Bernstein/McKinsey analysis.

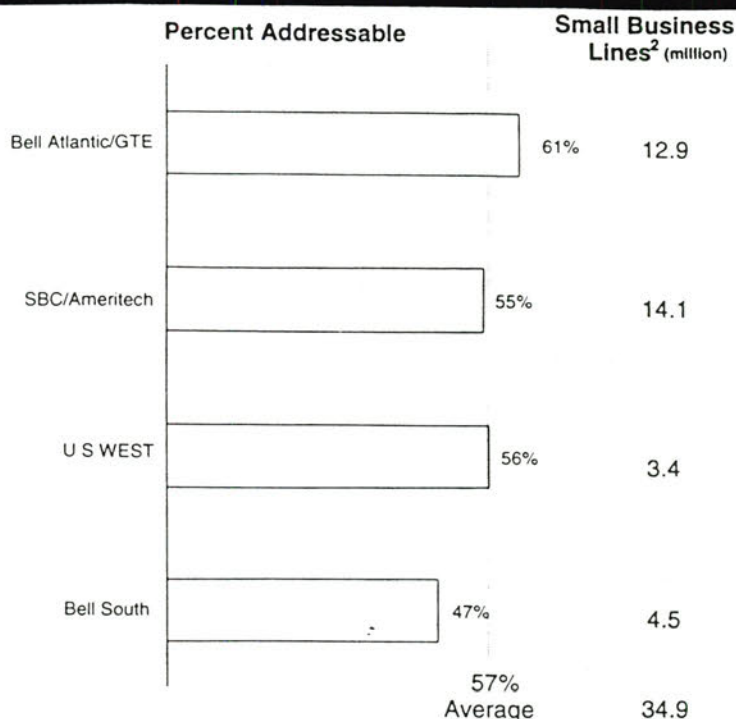
Telephony Market Shares Threatened

Voice services will emerge as a critical component of the broadband story. For incumbents such as the ILECs and AT&T, broadband is as much about securing legacy voice revenue streams as it is about new opportunities in data. The cable telephony outlook has remained frustratingly unclear to date, as MSO JVs with AT&T remain elusive and technology continues to be developed. We believe, however, that a major push by MSOs into telephony is inevitable by the end of next year, as IP trials make rapid progress and AT&T pursues a multifaceted strategy that will include wireless and unbundled network elements (UNE) in addition to cable. In particular, long distance entry for Bell Atlantic and other RBOCs will ratchet up the pressure on AT&T to roll out cable telephony as part of a broadband bundle. On the ILEC side, as regulators methodically improve the ability of DLECs, CLECs, and IXC to access ILEC networks, we expect increased competition for local services. In particular, voice-over-DSL (VoDSL) will be an important opportunity for DSL attackers to add significant revenues for little incremental cost, especially in the small-business market where DSL-based data service is rapidly taking hold and voice revenues are attractive. In response, ILECs will accelerate DSL deployments to preempt cable and telco attackers. Even savvy cable companies may elect to resell DSL to establish a data foothold in difficult-to-upgrade markets.

DSL Platform Advantaged in Small Business Market

In the small business market, DSL has the most potential to serve as the major distribution platform for broadband services. DSL currently is able to reach nearly 60% of small businesses (see Exhibit 10). The shared nature of the cable data service is particularly unsuited to the kinds of high-duty-cycle applications that small businesses will require in the future. However, DSL competition will become intense as regulatory developments and improvements in OSS interfaces make it increasingly easy for DLECs, CLECs (some even cable owned), and IXCs to access DSL-qualified unbundled

loops. Although high-speed data will serve as the entry application, as VoDSL technology comes online, DSL data providers will be able to attack the local voice market with very low incremental costs. MMDS may begin playing a more significant role in some small business markets in 2002 and beyond.

Exhibit 10
**DSL Addresses More Than 50% of All Small Business Lines
(Percent Currently Addressable¹, Million Small Businesses)**


¹ Addressable defined as within 12,000 feet of the central office and not served by DLC.

² Businesses with less than 100 employees (about 7.5 million firms).

Note: Based on typical distance restriction for ADSL; exact distance cut-off varies by carrier, but typically between 10,000 and 12,000 feet.

Source: Bell Atlantic, U S WEST, literature reviews and McKinsey/Bernstein analysis.

**Unlimited Mandated Access
Major Risk Factor for Cable
Value**

Judicial, legislative, and regulatory initiatives by RBOCs and ISPs (including AOL) to gain access to cable lines are seen as recognition of cable's strength, particularly in relation to the television set. Should unlimited mandated access come to pass instead of business agreements between data and cable companies, then cable's basic business proposition would be called into question. Cable is relying on a combination of video, data, and phone services to restore top line growth. Cannibalization of any, or all, through transmission of competitive streaming video, IP phone, and data products would significantly undermine returns.

Progress on the Presidential Directives

On July 1, 1997, President Clinton issued the first of two directives designed to implement the strategy laid out in *A Framework for Global Electronic Commerce*. Under this directive, the President assigned thirteen specific tasks to various cabinet agencies. Last year, with the release of the Working Group's *First Annual Report*, the President assigned responsibility for five new initiatives to implement the Administration's strategic vision for electronic commerce. Progress on both sets of directives are outlined below:

A. 1998 Presidential Directives

1. High Speed Internet Access

The Secretary of Commerce, in appropriate consultation with the Federal Communications Commission, shall encourage the deployment of advanced telecommunications capabilities for all Americans while preserving the vibrant and competitive free market that exists for the Internet and other interactive computer services. These agencies shall work with the Office of the United States Trade Representative to help ensure the elimination of foreign trade barriers to the deployment of advanced telecommunications capabilities.

Access to high speed Internet services – what has come to be called “broadband” access – is critical in order to realize the full benefits of the Internet. Widespread deployment of broadband services ultimately will allow people to send video, audio, text and images with virtually no delay and at an affordable price. People

thousands of miles apart will be able to share virtual-reality experiences and work together on business, education or medical projects. A single service company or a single hookup could provide real-time high-fidelity music, videoconferencing, telephone, television and radio programs. Broadband networks also will promote new entertainment options, such as movies-on-demand, and enable more sophisticated approaches to distance learning, telemedicine and home health care, e-commerce, and community networking.

Our emerging digital economy thus increasingly demands broadband networks, which in turn create jobs and demand for networking equipment, appliances, and software. Deployment of these networks is important for our nation's economic prosperity and advancement of Americans' standard of living.

The Administration has long championed competition as the basic means of achieving widespread deployment of broadband services. The Telecommunications Act of 1996 reflects that approach, providing for accelerating deployment of advanced telecommunications networks by opening all telecommunications markets to competition. In addition, the Act requires the Federal Communications Commission (FCC) to ensure that in all regions of the nation, Americans have “access to advanced telecommunications and information services,” and to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capabilities to all Americans.” (18)

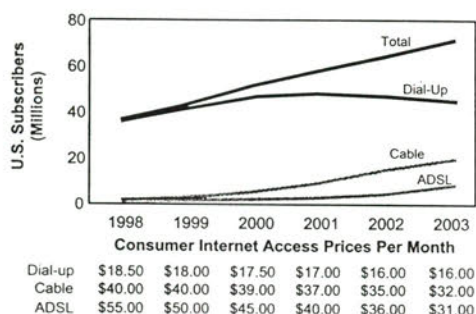
Over the past year, the Administration has identified, advocated, and adopted policies that are: (1) accelerating the deployment of broadband networks to homes, businesses, and non-profit institutions; (2) fostering a competitive market for broadband networks and services that is resulting in greater customer choice, more affordable prices, and continuous innovation, and is reducing the need for government regulation; (3) promoting the availability of broadband networks to all Americans by encouraging faster deployment to areas that otherwise would be underserved; and (4) maximizing the economic and social benefits associated with broadband networks by promoting broadband applications.

and audio is creating the demand for broadband networks.

The Telecom Act established a framework that has spurred investment in broadband networks and services by all industry segments, using a variety of technologies. Companies have invested tens of billions of dollars in a broadband backbone and long-haul infrastructure. AT&T has built more than 40,000 route miles of fiber and is investing billions to boost its capacity and improve its network. (19) MCI quadrupled the speed of its Internet backbone in 1996 and doubled that capacity in 1997. (20) Competitive local exchange carriers have invested heavily (\$15-\$20 billion) in fiber rings and broadband technologies such as ATM, and frame relay to boost capacity. (21) Incumbent local exchange carriers have responded by increasing their investment in broadband facilities.

There also has been considerable investment in providing broadband connections to end-users. The majority of large businesses and many medium-sized businesses already can obtain access to broadband communications via one of the many technologies—from wireline to terrestrial wireless to satellite—capable of carrying broadband communications. The Federal Communications Commission (FCC) concluded in February 1999 that, as a whole, large and medium residential broadband markets are at an earlier stage of development. The availability of and investment in broadband technology—cable, digital subscriber lines (xDSL), and other technologies that are potentially capable of delivering small office/home office (SOHO) and residential broadband—have been increasing during recent years. The first regular, sustained commercial offerings of broadband for residential customers occurred in 1996. The FCC estimates that in February 1999 there were at least 375,000 customers subscribing to broadband, which represents a residential penetration of four percent. (22) As shown in Table 1, only a limited number of existing broadband technologies—primarily cable and xDSL—are *currently* capable of

Consumer Internet Access Penetration



Source: Forrester Research, Inc.

The Administration's pro-competitive market driven approach to broadband deployment is producing the desired results. The Telecommunications Act of 1996 opened up monopoly telecom markets and allowed for the emergence of new competitive players. As competition emerges between telephone companies and cable companies, between wireline and wireless providers, companies are investing in and building out high speed, broadband networks of the future. Competition among equipment suppliers and service providers is driving the innovation that is extending the reach of these technologies, lowering their prices, and making them easier to install and use. Increased use of the Internet and other electronic networks to transmit data, video,

cost-effectively delivering broadband over the last mile to the SOHO/residential markets. But, taken together, these two technologies today are capable of delivering broadband to a large share of U.S. homes.

millions of homes by the end of this year. The FCC Cable Services Bureau's October 1999 report on *Broadband Today* cited predictions that 78 million Americans would have access to broadband technology by 2008. (28)

Table 1: Characteristics of Competing Broadband Access Technologies

Technology	Fixed Cost to Prepare Network	Variable Costs to Deploy	Speed (Mbps)	Coverage	Reliability	Time Frame for Deployment
XDSL	Negligible	\$350 - \$700 per user	0.5—27	~ 70 -75 percent of lines	High	Today
Cable Modem	~\$500/home passed; ~30 Bil. Total	~\$250 per user	10—30 (shared)	~30 percent of U.S. Homes	Medium	Today
LMDS	~1 Mil. Per cell for antenna	~ 500 per user	10	Terrestrial line of sight limits	Low—rain LOS are issues	2—5 years
Satellite	~ \$10 Bil. (global)	\$1000's per user for receivers	< 1	Global	Medium - atmospheric issues	~ 5 years
Fiber to Home	Very High - \$1000's per home	\$500 - \$1,000 per user	No real limit	Terrestrial lines	High	> 5 years

Notes: LOS=line of sight.

Source: Primarily Uterberg 1999. Also Solomon, Smith Barney, 1999.

Data reveal considerable investment in deployment of cable and xDSL to residential users. Currently, there are over 91 millions homes in the United States passed by cable, (23) and cable that can support two-way cable modem transmissions passes about 12 million homes. (24) The industry has spent or announced plans to spend \$9 billion to upgrade the cable infrastructure to state-of-the-art systems. (25) One estimate is that 63 percent (26) of all cable systems will be broadband-ready by 2001.

Analysts estimate that 70 to 75 percent of U.S. homes and businesses can be reached with xDSL given the current state of the technology. (27) Local exchange carriers have announced aggressive programs for deploying xDSL to tens of

The Administration has advocated policies to ensure that all competitors can enter these markets and that new competitors have access to facilities that are necessary for competition to flourish. At the same time, the Administration has supported policies that would eliminate regulation that could inhibit the deployment of new facilities or disadvantage any particular market participant or technology. Thus, the Administration supported the continuing unbundling of network elements that were critical for the provision of broadband services by new entrants, but recognized that the presence of alternative sources of supply and the rise of effective competition should lead to the elimination of such regulatory requirements. Similarly, the Administration supported "wholesale" discounts by incumbent telephone

companies of broadband services allowing Internet Service Providers to broaden the market for high speed services. The FCC recently has required incumbent telecommunications companies to allow new entrants to have access to the "spectrum" required for the provision of broadband data services in the wires that they control to the home.

Considerable attention has been focused on the question of "open access" to broadband delivery over cable. At the heart of this issue is consumer choice and competition at all levels of the marketplace. We believe that competition should be encouraged in all markets and support the principle that customers should have choice in both their content and their Internet access provider. Our Administration has long recognized the importance of the open characteristics of the Internet. Anyone with a laptop computer and a modem can publish on the Internet, making it much easier for people to be producers as well as consumers of information. The Internet allows people to engage in "many-to-many" communication opposed to solely "one-to-many" communication. This has created an explosion in the number of communities that are based on shared interests as opposed to geography. Moreover, the decentralized nature of the Internet accelerates innovation and entrepreneurship. Anyone with a good idea for a new application can post it on the Internet, where it can spread like wildfire. We must maintain what is special, valuable and unique about the Internet, even as it evolves to support broadband applications. The Administration hopes that the continued promotion of pro-competitive policies and market forces will achieve these goals.

The Telecommunications Act of 1996 is also helping to bring broadband networks and services to our communities through the E-rate program. More than a million classrooms and libraries are wired and connected to the Internet. Many of those schools and libraries have broadband connections. Schools and libraries are

providing an important source of access to computers and the Internet for members of the community, as well as generating demand for advanced telecom services.

Ensuring that broadband networks reach underserved communities is an important goal of the Administration. In September 1999, the National Telecommunication and Information Administration (NTIA) co-sponsored a conference on economic development, and examined efforts to bring advanced networks and the concomitant economic benefits, such as jobs and services, to underserved communities, including inner cities as well as rural areas. Currently, the NTIA and the Department of Agriculture's Rural Utilities Service (RUS) are conducting an assessment of deployment of advanced telecommunications services, with particular emphasis on rural America compared to more densely populated areas. This assessment was initiated at the request of ten United States Senators from states with significant rural populations and areas. The report will be completed by early 2000.

RUS is one example of a program that has facilitated significant deployment of advanced telecommunications in rural areas. In 1993, President Clinton signed legislation which mandated that RUS-financed infrastructure be capable of supporting data rates of one million bits per second. Since then, the deployment of fiber optic cable has doubled so that fiber represents nearly one of every ten miles of plant in RUS financed systems. From then through 1998, RUS has financed over \$1 billion in fiber optic facilities and \$725 million in digital switching systems and enhanced feature software. In fiscal year 1999, RUS added nearly half a billion dollars of rural infrastructure financing. To facilitate the flow of investment to rural America, RUS has streamlined procedures to reduce loan processing and fund advance times.

The Department of Commerce, and the FCC are working with USTR to ensure that broadband access is deployed in foreign

countries so that both the United States and foreign countries can realize the full benefits of multi-media applications. Competition and market-based principles will pave the way for people across the globe to tap the full potential of broadband services. The principles of the WTO, as discussed in a later section, establish the underlying infrastructure upon which broadband applications can be accessed on a global basis. Encouragement of rapid development of high capacity international undersea cables, wireline facilities, satellite systems, and terrestrial wireless infrastructure are necessary to support the widest range of broadband offerings around the world.

2. Consumer Protection

The Secretary of Commerce, in consultation with the Federal Trade Commission and other relevant agencies, shall foster appropriate consumer confidence in electronic commerce by working to ensure effective consumer protection online. This shall include exploring opportunities for global cooperation to enforce consumer protection laws and facilitating partnerships between industry and consumer advocates to develop redress mechanisms for online consumers. These agencies shall work with the Office of the United States Trade Representative to help avoid the creation of foreign trade barriers while protecting the interests of consumers.

"We must give consumers the same protection in our virtual mall they now get at the shopping mall."

President Clinton,
November 1998

The electronic marketplace offers consumers unprecedented choice and twenty-four hour accessibility and convenience. It gives established marketers and new entrepreneurs low-cost access to a virtually unlimited customer base. With these

benefits, however, also comes the challenge of ensuring that the virtual marketplace is a safe and secure place to purchase goods, services, and digitized information. Consumers must be confident that the goods and services offered online are fairly represented and the merchants with whom they are dealing — many of whom may be located in another part of the world — deliver their goods in a timely manner and are not engaged in illegal business practices such as fraud or deception. Consumer confidence also requires that consumers have access to fair and effective redress if they are not satisfied with some aspect of the transaction. U.S. Government policymakers and law enforcement officials are working to ensure consumer confidence in the virtual marketplace by enforcing existing legal protections and encouraging private sector leadership

Last spring, Secretary of Commerce William M. Daley challenged industry to work with consumer representatives to develop effective consumer protection practices, including codes of conduct for business-to-consumer electronic commerce and alternative, easy-to-use mechanisms for consumer dispute resolution, redress and enforcement. This approach recognizes that as e-commerce expands to encompass more international business-to-consumer transactions, alternative, easy-to-use mechanisms for consumer dispute resolution, redress and enforcement can help to ensure strong and effective consumer protection in the online environment and obviate the need for immediate resolution of the difficult issues surrounding jurisdiction and choice of law.

The Administration is pleased to see a number of significant responses to this challenge. In June of this year, the Better Business Bureau's online division, BBBOnLine, announced a project to develop a *Code of OnLine Business Practices* (www.bbb.org). BBBOnLine is working with industry, consumer representatives and government to develop a code to provide online merchants with guidelines to implement

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WARREN'S CABLE REGULATION MONITOR

March 13, 2000, Monday

SECTION: THIS WEEK'S NEWS

LENGTH: 610 words

HEADLINE: OPEN ACCESS RIVALS DEBATE NEXT MOVES IN BROADBAND BATTLE

BODY:

Proponents and opponents of opening high-speed cable lines to rival ISPs kicked off Legg Mason telecom investors conference Thurs. with spirited debate over whether federal govt. should intervene in emerging broadband market. While FCC and NCTA officials vigorously defended Commission's current hands-off approach, OpenNet Co-Dir. Gregory Simon provoked biggest reaction by predicting that such other major cable operators as Comcast, Cox and Charter will likely follow lead of AT&T and proposed AOL-Time Warner union in promising to offer multiple ISPs to high-speed online subscribers. Once AOL and AT&T actually open their lines to other ISPs, he said, "they'll start pressure for everybody else to open" as well.

Simon, who's spending much of his time lobbying Md. and Montgomery Co. policymakers for open-access regulations, said he's also looking for AOL Time Warner to carry other ISPs by end of year. He sees combined entity moving relatively quickly to end its exclusive contracts with Road Runner, slated to expire at end of next year, because of AOL's strong desire to place its new broadband service on cable systems. If AT&T tries to block that move through its pending acquisition of MediaOne Group, co-owner of Road Runner with Time Warner, "then they're begging for trouble from the Justice Dept.," he said.

Comment by Simon came amid fresh speculation that Justice Dept. might make AT&T divest its stake in either Excite@Home or Road Runner in exchange for approval of MediaOne purchase. Excite@Home and Road Runner are by far leading cable high-speed services, controlling more than 1.7 million of estimated 2 million cable-modem subscribers in U.S. and Canada. In written statement, AT&T reiterated its intent to "honor its current contract with Excite@Home, including its exclusivity provisions." While AT&T said it "remains open to any discussions" with rival ISPs "regarding possible commercial relationships" once Excite@Home exclusive deals start expiring in 2002, it stressed that it "does anticipate a long-term relationship with Excite@Home."

With both sides awaiting key decision in Portland case by U.S. Appeals Court, San Francisco, FCC Cable Bureau Chief Deborah Lathen disputed contention by open-access proponents that broadband market needs regulation. "We have not seen any signs of a market failure that would justify regulation at this point," she said, citing open-access pledges by 2 biggest MSOs and emergence of DSL, wireless cable and satellite systems as high-speed rivals to cable. "We see competition flourishing and thriving." In light of AT&T and AOL-Time Warner moves, Lathen said she thinks "we'll see parties put more meat on the bone."

David Olson, dir., cable communications and franchise management for Portland, predicted "a tremendous number of local govts." will mandate open-access provisions for their cable franchises if U.S. Appeals Court, as he

expects, upholds Portland ruling: "It's simply going to happen because it's the obvious thing to do, it's the right thing to do." He said communities are taking action because of FCC's unwillingness to set market rules. "Because of federal inaction," he said, "the battle is being left to be fought hand-to-hand, city hall to city hall."

Daniel Brenner, NCTA senior vp-law & regulatory policy, said open-access regulatory attempts continue to flounder in Canada more than year after rules were mandated there. Citing surge in DSL rollouts in recent months, he argued that cable-modem deployments have proven to be spur to competition. He also contended that companies like GTE are calling for open-access regulations to slow down cable-modem rollouts.

LANGUAGE: ENGLISH

LOAD-DATE: March 14, 2000

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Divider Title: _____

Talking Points for Year 3 Roll Out of E-rate

Background

- In its first two years, the **E-Rate** has funded over **\$4 Billion** of services and infrastructure to bring modern telecommunications to schools and libraries throughout the country.
- Schools in rural and poor neighborhoods, those neighborhoods most likely to be on the wrong side of the Digital Divide, receive priority funding.
- **78% of public schools** (over 68,000) received E-Rate funding.
- **Over 72,000 schools** (public and private) received E-Rate funding.
- **As of 1999, 63% of school instructional classrooms** have connections to the Internet – a tremendous increase from **1994** when only **3%** of classrooms were connected.
- **51% of public libraries** in the nation have received E-Rate funding.
- After two years of the **E-Rate**, libraries have increased their **connections to the Internet by 48%**.

Year 3 Applications

- In the third year of the E-Rate, over **\$4.7 billion** in discounts was requested.
- Nearly **\$3.3 billion or 70%** of the funds requested are for **internal connections**.
- Approximately **\$1.1 billion or 23%** seek **telecommunications services** discounts.
- Approximately **\$360 million or 7%** seek **Internet access** discounts.
- **Urban** schools and libraries account for **\$3.43 billion or 73%** of the total discounts requested.
- **Rural** schools and libraries submitted applications for **\$1.28 billion or 27%** of the total discounts requested.
- The nation's **poorest schools and libraries** – those which have from 75 to 100% of their children eligible for the federal free and reduced lunch program – account for **23.5% or \$1.1 billion of all discount requests**.

- By contrast, the nation's **wealthiest schools and libraries** – those which have less than 20% of their students eligible free and reduced lunches – account for **9.1% or \$431 million of all discount requests**.

Year 3 Funding

- We expect that the program will be **funded to the annual cap** for Year 3.
- We plan to **fully fund** all priority one service requests – **telecommunications and Internet access** – this year. Approximately **\$1.43 billion** in funding will go to support **priority one services**.
- USAC expects to be able to **fully fund at least the 90% bracket for internal connections** this year. If we can only fund this bracket:
 - Without including consortia applications, over **5100 urban** public schools, nearly **2800 rural** public schools, **160 public libraries** and nearly **500 private schools** will be eligible to receive internal connections discounts.
 - About **36% or \$266 million of rural** school and library funding requests for **internal connections** will be granted.
 - **Urban** schools and libraries will receive **nearly 23% or over \$586 million** of requested **internal connections** funding.
 - A number of **large urban consortia** requests, which account for **39%** of all internal connections requests in the 90% bracket, will be eligible for funding, including:
 - \$105.9 million from the New York City Board of Education
 - \$32.9 million from Memphis City School District, Tennessee
 - \$27.8 million from Highland Park Schools, Michigan
 - \$23.9 million from the New York State Office of Technology
 - \$18.4 million from Muskegon Heights Schools, Michigan
 - \$13.8 million from Boston Public Schools, Massachusetts
 - \$13.2 million from Covert Public Schools, Michigan
 - \$12.9 million from Atlanta Public Schools, Georgia
 - \$12.7 million from Philadelphia Public Schools, Pennsylvania
 - \$12.5 million from San Juan, Puerto Rico
 - \$12.5 million from Compton Unified School District, California
 - \$12.0 million from San Antonio Independent Schools, Texas
 - \$10.4 million for New York State Office of Children and Family Services
 - \$10.1 million for WEB DuBois Charter School, Fresno, California
 - \$8.8 million from Miami-Dade County Public Schools, Florida

- \$8.3 million from Roosevelt Elementary Schools, Phoenix, Arizona
- \$8.2 million from Paterson School District, New Jersey

Three **large rural** applications, which account for only **5%** of all internal connections in the 90% bracket, will be eligible for funding:

- \$22.6 from the Puerto Rico Department of Education
 - \$11 million from Lee County Public Schools, Marianna, Arkansas
 - \$10.1 million from Jasper County Schools, Ridgeland, South Carolina
- **If USAC determines that they can fund down to the 80%-89% bracket for internal connections, these numbers increase dramatically:**
 - **Rural** school and library applications seeking **another 27% or \$200 million** would be eligible for internal connections funding. This means that a **total of 63%** of rural school and library internal connections applications, representing **\$466 million** in requested funding, would be eligible for funding.
 - **Urban** school and library applications representing an **additional 47% or \$1.2 billion** would be eligible for internal connections funding. This means that a **total of 70%** of urban school and library applications, seeking **\$1.7 billion** in internal connections monies, would be eligible for funding.

Year 3 Process

- USAC plans to again issue funding commitment letters in waves. This year there will be anywhere from **7 to 9 waves** depending on when the funding cap announcement is made. USAC aims to send out the **final wave by late May**.
- USAC plans to utilize a standard process each week for sending out funding commitment letters:
 - **Mondays:** the funding commitment **letters will be prepared**.
 - **Tuesdays:** **notification** of funding commitments will be sent **to Congress**.
 - **Fridays:** letters to applicants will be **mailed** and posted to the SLD **website**.
- The announcement date will be _____.
- The announcement will be made by _____ in _____.



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Stats *in Brief*

Internet Access in U.S. Public Schools and Classrooms:
1994-99

NCES 2000-086

Stats in Brief present information on education topics of current interest.

Stats *in Brief*

INTERNET ACCESS IN U.S. PUBLIC SCHOOLS AND CLASSROOMS: 1994–99

February 2000

In 1994, the White House's National Information Infrastructure (NII) initiative challenged the nation's schools and classrooms to connect to the Internet by the year 2000. In that year, the U.S. Department of Education commissioned the National Center for Education Statistics (NCES) to track the rate at which public schools and classrooms were meeting this goal. Since 1994, NCES has surveyed nationally representative samples of approximately 1,000 public schools in the fall of each academic year on Internet access and, since 1996, on the types of Internet connections used.

How much progress have public schools made connecting to the Internet?

The most recent survey of Internet access indicates that public schools in the United States have nearly reached the goal of connecting every school to the Internet. The percentage of public schools connected to the Internet has increased each year, from 35 percent in 1994 to 95 percent in 1999 (table 1).

In earlier years, access to the Internet varied by school characteristics. In some previous surveys, for example, secondary schools, schools with lower concentrations of students in poverty (as measured by eligibility for free or reduced-price lunches), and suburban schools were more likely to have Internet access than other schools. By 1999, these differences had disappeared; all schools, regardless of level, poverty concentration, and metropolitan status, were equally likely to have Internet access.

How much progress have public schools made in connecting classrooms?

In 1994, 3 percent of all U.S. public school instructional rooms¹ were connected to the Internet, by 1999, 63 percent were connected. Classroom connectivity is expected to continue to grow due to the allocation of funds through the Education rate (E-rate) program, which was established to make services and technologies in telecommunications available to schools and libraries at discounted rates based upon

the income level of the students in their community and whether their location is urban or rural. The poorest applicants receive the largest discounts (90 percent) and rural communities receive up to a 10 percent additional discount. As of November 22, 1999, \$1.9 billion² has been committed to E-rate programs throughout the nation.

Differences by school characteristics remain regarding Internet access in instructional rooms (table 1). For example, 39 percent of instructional rooms had Internet access in schools with high concentrations of poverty (71 percent or more students eligible for free or reduced-price lunches), compared with 62 to 74 percent of instructional rooms in schools with lower concentrations of poverty. The percentage of instructional rooms with Internet access in public schools with high concentrations of poverty did not increase between 1998 and 1999, while there were increases in the percentage of connected instructional rooms in schools with lower concentrations of poverty.

What is the ratio of students per computer?

According to the President's Committee of Advisors on Science and Technology (1997, 21), 4 to 5 students per computer is the ratio "that many experts consider to represent a reasonable level for the effective use of computers within the schools." In 1999, the ratio of students per instructional computer in public schools was approximately 6, the same as 1998 (not shown). Overall, within types of schools, ratios of students to instructional computer stayed the same or decreased slightly between 1998 and 1999.

The ratio of students per instructional computer *with Internet access* decreased from 12 to 9 from 1998 to 1999, although differences remain across schools with different characteristics (table 1). For example, medium-sized and large schools had more students per computer with Internet access than small schools, 9 and 10 students compared to 6 students. Schools located in cities had more students per computer with Internet access (11) than schools in rural areas (7). The largest differences occurred in schools with

¹ Instructional rooms include classrooms, computer and other labs, library/media centers, and any other rooms used for instructional purposes.

² The "Year 2 Funding Commitment Data" was found at the Schools and Library Division (SLD) of the Universal Service Administration Company website, <http://www.sl.universalservice.org/apply/fcyear2/national.asp>.

Table 1.—Percent of public schools with Internet access, percent of instructional rooms with Internet access in public schools, and ratio of students per instructional computer with Internet access, by school characteristics: Selected years 1994 to 1999

School characteristics	Percent of public schools with Internet access				Percent of instructional rooms with Internet access in public schools				Students per instructional computer with Internet access	
	1994	1996	1998	1999	1994	1996	1998	1999	1998	1999
All public schools	35	65	89	95	3	14	51	63	12	9
Instructional level ¹										
Elementary	30	61	88	94	3	13	51	62	13	11
Secondary	49	77	94	98	4	16	52	67	10	7
Size of enrollment										
Less than 300	30	57	87	96	3	15	54	71	9	6
300 to 999	35	66	89	94	3	13	53	64	12	9
1,000 or more	58	80	95	96	3	16	45	58	13	10
Metropolitan status										
City	40	64	92	93	4	12	47	52	14	11
Urban fringe	38	75	85	96	4	16	50	67	12	9
Town	29	61	90	94	3	14	55	72	12	8
Rural	35	60	92	96	3	14	57	71	9	7
Geographic region										
Northeast	34	70	90	94	3	10	39	56	13	9
Southeast	29	62	92	98	2	10	51	60	12	10
Central	34	66	90	93	3	19	61	70	10	7
West	42	62	86	95	5	15	51	68	14	10
Percent of students eligible for free or reduced-price school lunch										
Less than 11 percent	40	78	87	94	4	18	62	74	10	7
11 to 30 percent	39	72	94	96	4	² 18	53	71	11	8
31 to 49 percent	33	62	94	98	2	² 12	61	68	11	9
50 to 70 percent	31	53	88	96	4	² 12	40	62	16	10
71 percent or more	19	53	80	90	2	² 5	39	39	17	16

¹ Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

² Revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Advanced Telecommunications in U.S. Public Schools, K–12*, NCES 95–731; *Advanced Telecommunications in U.S. Elementary and Secondary Public Schools, Fall 1996*, NCES 97–944; *Internet Access in Public Schools and Classrooms, 1994–98*, NCES 1999–017; and Fast Response Survey System, “Survey on Internet Access in U.S. Public Schools, Fall 1999,” FRSS 75, 1999.

varying concentrations of poverty. Schools with the highest concentration of poverty had 16 students per instructional computer with Internet access, compared to 7 among schools with the lowest concentration of poverty.

How are public schools connecting to the Internet?

Over the years, changes have occurred in the type of network connections used by public schools and the speed at which they are able to connect. In 1996, dial-up network connections were used by almost three-quarters of public schools (not shown). By 1999, more schools were using faster dedicated-line network connections. Sixty-three percent of the nation's public schools were connected to the Internet by dedicated lines, 14 percent used dial-up connections, and 23 percent of schools used other connection types, which included ISDN, wireless connections, and cable modems (table 2). Secondary schools (77 percent) and schools with the lowest concentration of poverty (72 percent) were more likely to connect to the Internet using dedicated lines than elementary schools (60 percent) and schools with the highest concentration of poverty (50 percent).

How are public schools funding advanced telecommunications?

Measuring funding is difficult as schools receive support for advanced telecommunications programs from a myriad of sources. Because of the complexity of this issue, measuring actual funding amounts was considered beyond the scope of this survey. However, the survey did list several potential sources of support and asked whether the school received hardware, software, or funding from the sources. About 9 out of 10 public schools reported receiving support from their school district, and 72 percent from state or federal government programs (figure 1). About a third of schools reported receiving support from parents and parent organizations, and about the same percentage received support from businesses. Fifteen percent of schools received support from teachers or students while 5 percent received support from other programs or individuals (not shown). School administrators were also asked to indicate the primary source of support. Schools most frequently cited the school district (58 percent), followed by state and federal programs (32 percent). This primary support was related to the school's poverty concentration: for example, state and fed-

Table 2.—Percentage of public schools that use the following types of connections when connecting to the Internet, by school characteristics: Fall 1999

School characteristics	Types of network connections to the Internet		
	Dedicated line ¹	Dial-up connection	Other connection types ²
All public schools	63	14	23
Instructional level ³			
Elementary	60	15	25
Secondary	77	6	17
Size of enrollment			
Less than 300	64	21	15
300 to 999	63	12	26
1,000 or more	67	10	23
Metropolitan status			
City	62	15	23
Urban fringe	62	10	27
Town	64	13	24
Rural	66	18	16
Geographic region			
Northeast	60	16	24
Southeast	53	18	29
Central	68	14	19
West	70	9	21
Percent of students eligible for free or reduced-price school lunch			
Less than 11 percent	72	7	21
11 to 30 percent	65	10	24
31 to 49 percent	65	11	24
50 to 70 percent	63	21	17
71 percent or more	50	23	26

¹ Dedicated-line connections include T1/DS1, fractionalized T1, 56Kb, T3/DS3, and fractionalized T3 lines.

² Other connection types include ISDN, cable modem, wireless connections, and other types of network connections.

³ Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

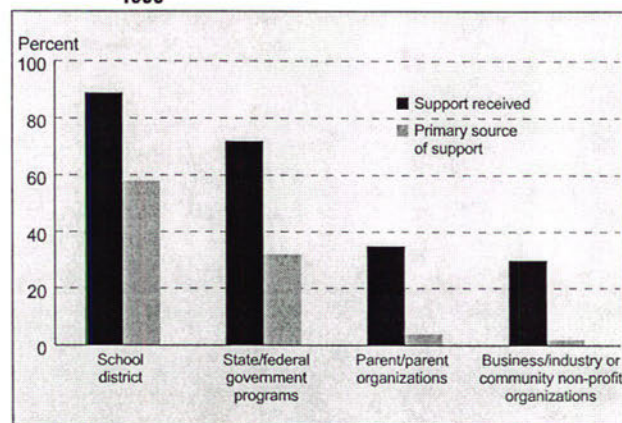
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1999," FRSS75, 1999.

eral government programs were cited as the primary source by 48 percent of schools with the highest concentration of poverty compared to the 14 percent of schools with the lowest concentrations of poverty; the school district was the primary source for 43 percent of highest poverty schools compared to 78 percent of schools with the lowest poverty (not shown).

Related Information

This survey is part of an overall effort of NCES to track the access and use of technology in schools and classrooms. More information from the series of public school surveys on advanced telecommunications and Internet access (1995,

Figure 1.—Percent of public schools that received hardware, software, or funding for advanced telecommunications from the following programs, organizations, or individuals and the primary source of support: Fall 1999



NOTE: Data were also collected for schools receiving hardware, software, or funding from teachers or students, and other sources.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999.

1996, 1997, 1998, and 1999, see references) can be obtained from the U.S. Department of Education. In addition to collecting information from public schools, NCES surveyed private schools about advanced telecommunications in 1995 and 1998 (1997 and 2000, see references). NCES has also collected information on teacher training in advanced telecommunications; a report on this topic is scheduled to be released in summer 2000.

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Stats in Brief present information on education topics of current interest. All estimates shown are based on samples and are subject to sampling variability. All differences are statistically significant at the 0.05 level. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, or other systematic error.

This **Stats in Brief** was prepared by Catrina Williams. To obtain standard errors or definitions of terms for this Issue Brief, or to obtain additional information about the Fast Response Survey System or the FRSS telecommunications surveys, contact Edith McArthur at NCES, 202-219-1442. To order additional copies of this Issue Brief or other NCES publications, call 1-800-424-1616. NCES publications are available on the Internet at <http://www.NCES.ed.gov/pubsearch>.

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April 9, 2000

MEMORANDUM FOR GENE SPERLING

FROM: TOM KALIL

RE: BACKGROUND ON "3G" AND WIRELESS DATA

What is 3G?

"3G" refers to the 3rd generation of wireless technology.

- The **first generation** was analog cellular phones.
- The **second generation** is digital cellular phones that have limited bandwidth for data - usually 14.4 kilobits/second. (The current Sprint PCS service is an example of 2G.)
- The **third generation** will allow broadband wireless - up to 2 megabits/second in a fixed environment and 384 kilobits/second in a mobile environment.

Currently, no one is providing 3G service -- the most likely scenario is that telecommunications companies will deploy an evolutionary "2.5G" service that is faster than 2G to see if there is really a market demand for high-speed wireless data.

What are the applications of wireless data?

- Two-way, mobile e-mail. Many executives I know now send and receive e-mails during meetings.
- Putting a "micro-browser" in a smart cell phone to download information. People might get alerts on news stories, stock quotes, traffic delays, changes in airline flight times, etc. that are of particular interest to them.
- Mobile commerce. Allows for spontaneous purchases. For example, one of Amazon's customers reported buying a CD during a concert she enjoyed.
- Voice recognition. One of the limitations of a mobile handheld device is the lack of a keyboard. Companies are developing the technology to navigate the Web and perform transactions using voice recognition and text-to-speech.
- Electronic wallet. People in Finland can buy a Coke by beaming electronic payment at a vending machine.
- Location-based information services. Someone walking around a new city might want directions to the nearest Chinese restaurant still accepting reservations.

- Wireless modem. Business users want to be able to take their lap-top or PDA anywhere, and be connected to their information and files as if they were in the office.
- "Dick Tracy" watch. With enough bandwidth, mobile video-conferencing is possible, although it's not clear what the demand for the service would be.

Standards battles

The standards battles between the U.S. and Europe are a confusing "alphabet soup."

- For 2G, the EU picked one standard, called GSM. The U.S. -- in comparison, allowed multiple standards to compete in the U.S. market -- including TDMA, CDMA, and GSM. (Qualcomm developed CDMA technology).
- For 3G -- the Europeans tried to convince the ITU (International Telecommunications Union) to harmonize on Wideband-CDMA (W-CDMA) as the single standard for 3G. The Europeans picked a technology that would make it easier to evolve from the technology that they are currently using (GSM). Qualcomm and the U.S. industry pushed for another another variant of CDMA called cdma2000.
- The U.S. Government was concerned that the Europeans were using standards as a means of (a) keeping U.S. technology out of the European market; and (b) giving European wireless companies an advantage by making the European technology the "de facto" global standard.
- In November 1999, the U.S. was successful in getting the ITU to embrace multiple standards, as opposed to picking one.
- The U.S. is also trying to convince European governments to allow telecommunications companies that obtain licenses to provide 3G services using multiple technologies, as opposed to just W-CDMA. Europe has agreed to this, but it's not clear that European telecom companies will in fact use technologies other than W-CDMA.

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Radio Comm. Report

March 27, 2000, Monday

SECTION: Pg. 22

LENGTH: 1585 words

HEADLINE: Setting the record straight: The U.S. is Europe's equal on wireless technology

BYLINE: David L. Aaron

BODY:

One press article after another has asserted that the European Union's single standards regime for wireless services has given Europe an enormous "lead" over the United States. These stories, however, do not present a complete picture regarding the global leadership of the U.S. wireless industry—a leadership advanced through innovation, increased wireless usage and market-driven standards.

Innovation

U.S. wireless firms are undeniably responsible for some of the most significant technical innovations in this field, including extensive contributions to the development of third-generation standards for wireless communications. U.S.-developed technology is at the heart of three of the five technical standards for 3G endorsed in November by the International Telecommunication Union, a treaty organization of the United Nations that is coordinating the worldwide process to establish global 3G wireless standards through a project dubbed "IMT-2000." These innovations are a direct result of the free competition that U.S. policy promotes.

Code Division Multiple Access technology, a product of the freely competitive U.S. marketplace, was the first-to-market second-generation wireless technology to introduce high-speed data capability, coming on line in mid-1999. Comparable speeds on Global System for Mobile communications networks, the only second-generation technology licensed in Europe, will not be introduced for at least several more months. In addition, Qualcomm Inc., the developer of CDMA, continues to be a technology leader, recently announcing a product that enables data rates from a moving vehicle more than 10 times faster than the parameters specified for 3G, years before 3G systems have even been built. U.S. and European industry groups are co-developing high-speed data applications that will serve as their stepping stones to 3G.

Moreover, U.S. firms are competing head-to-head with European firms for wireless contracts. Motorola Inc. is the world's second-largest supplier of GSM handsets, and Motorola, Lucent Technologies Inc. and Nortel Networks all have significant sales of GSM systems. In addition, U.S. firms have developed the simplified browsers and servers that wireless carriers in the United States, Europe and elsewhere are embracing for the up-and-coming wireless Internet. Thus, even as Europe attempts to achieve its longstanding objective in terms of 3G technology hegemony, U.S. manufacturers are innovating across all standards, are competing for each and every contract and are by no means

slouches or followers.

Growing usage

Finland, coincidentally home to mobile phone leader Nokia, is typically cited as the most "wireless" country in the world. However, Finland is actually a bit of an anomaly, with wireless penetration double that of most developed markets. The U.S. average penetration level of 30 percent is comparable to the European average. In fact, overall U.S. penetration exceeds penetration in three out of four of Europe's largest cellular markets-the United Kingdom, France and Italy. And in most major U.S. cities, wireless penetration has reached 50 percent. The high cost and mediocre quality of European basic telephone service relative to the United States makes wireless service more attractive to European consumers than wireless service is to Americans. In the United States, most local phone service is provided on a flat-rate basis, with the result that Americans seldom consider the cost of a local phone call. In Europe, on the other hand, local phone service is metered, meaning that each local call and each minute costs the user incrementally. In Finland, for example, most local calls cost approximately 8 cents per minute during business hours. At the average U.S. rate of home usage of 1,200 local minutes per month, that would amount to \$96 per month for local telephone service-well over three times the average American monthly residential local phone bill! So why not use your mobile phone?

Secondly, greater wireless usage should by no means be equated with greater technological prowess. Short messaging service and wireless e-mail, often touted as examples of European leadership, are neither highly sophisticated nor high-speed services. They do fill an unquestionable communications void, since Internet connectivity is so low in Europe that sending an e-mail to a mobile phone is often the only way to be sure that it reaches the intended recipient. The oft-cited example of paying for sodas from vending machines via wireless phones, incidentally independent of the Internet, is not a highly marketable application. Interestingly, the biggest users of these services are the technologically savvy users in the 16-26 age bracket.

Standards

It is true that European technology is predominant in today's global wireless market-but let's be clear about the fundamental reason behind this. It is because the Europeans imposed, by law, a single European standard for second-generation (digital) wireless systems, GSM, which replaced a hodgepodge of incompatible first-generation analog wireless telephony systems. Although the initial purpose was to ensure cross-border compatibility within Europe, this policy has long since served purely protectionist purposes. After developing GSM in the closed home market, the Europeans took GSM on a global road show. This was so effective that there are only a handful of countries around the world to this day where GSM and CDMA operators compete head-to-head. Clearly, European industrial policy strategists intent on perpetuating the EU's standards success into the next wireless generation have one aim-promoting European industrial hegemony in European and global markets. Thus, it was the EU's protectionist standards regime, not the comparative virtues of GSM technology or the needs of consumers, which propelled GSM to the top. The true test of technological superiority would be if all technologies were allowed to compete on a level playing field and operators were given the opportunity to select their preferred technology based on commercial considerations.

U.S. policy favors neither a single standard nor multiple standards. The United States favors market-driven, rather than government-imposed, standards, deferring to the market and open private standards-setting procedures to determine the appropriate mix and variety of standardization. This market-driven standards policy has supported U.S. leadership in virtually every sector of the high technology revolution sweeping the world. This policy drove the initial commercialization of CDMA technology, which the Europeans subsequently recognized as superior by adopting it as the basis for their next-generation wireless standard. This is what Secretary of Commerce Daley and other U.S. Cabinet officials have aggressively advocated with the European Commission over the last year and half.

Japan and competition

So how competitive will U.S. companies be as 3G technology is rolled out in global markets? Japan provides a good example, since years ago, the Japanese market was generally viewed as closed to foreign standards. The Japanese eventually learned that this exclusionary practice was highly risky, when they were notably unsuccessful in exporting Japanese wireless technology. U.S. wireless technologies have been allowed to compete freely in Japan throughout most of the 1990s. Challenges from competitors launching CDMA technology in mid-1998 prompted NTT DoCoMo, the world's largest cellular operator, to accelerate the roll out of its "i-Mode" wireless Internet service. As a result, Japan actually has the most commercial experience to date with high-speed wireless data and wireless Internet-i-Mode has proven highly popular with consumers since being introduced early in 1999, with more than 3 million subscribers in just 9 months. Japan has already approved two standards for 3G services, and in 2001, NTT plans to launch the world's first 3G network. Both Lucent and Motorola will supply equipment for NTT's network. Also of note is NTT's announcement that it will establish a research and development base in California to strengthen its Internet technology and to promote 3G services in the United States.

In conclusion, global leadership in wireless technology has been shared between the United States and Europe for the past two decades and will likely continue to be shared for years to come. Each country brings important contributions to the table. However, it is essential that all players have a seat at the table as we develop and begin to use the next-generation wireless technology. In this new era, being a leader in cellular technology will not necessarily assure leadership in delivering IP-based systems for next-generation networks. Such leadership will stem from survival in a highly competitive market environment. Perhaps the most positive outcome of the 3G debate, albeit via an arduous path, has been the ensuing dialogue and significant technical harmonization which makes it possible for all current operators to evolve their existing networks to the next generation. Hopefully, the global wireless industry will finally embrace the premise that free market principles grow the market for everyone's benefit.

David L. Aaron is undersecretary of commerce for International Trade. He is the head of the International Trade Administration and is responsible for formulating and providing leadership for U.S. trade policy.

UPSIDE today:

So Where is the Wireless Web?

by Dee McVicker
February 11, 2000

Wireless data is hot. You can't open a magazine without reading about microbrowsers on cell phones or turn on a television without seeing an advertisement for the Internet-in-your-pocket.

Japan is blasting away, with all jets driving, toward the new wireless Internet. As far back as October 19, 1998, NTT Mobile Communications Network Inc. (NTT DoCoMo, Tokyo), Japan's leading mobile operator, piloted a cellular network that joined together the cell phone and motion video.

Expected to launch commercially in March 2001, the network and others like it will give birth to a new wireless-communications era. For NTT DoCoMo's 3 million "i-mode" cell-phone subscribers (roughly 10 percent of the company's total customer base), for example, it will mean wireless high-speed Internet news, banking, video streaming, travel reservations, Web radio, and a slew of other services.

But here in the U.S., matters are not proceeding at the same headlong rate. Most wireless carriers are still smarting from their enormous (and painfully recent) investments in upgrading their network to support digital services (PCS). There is also some concern that the data market will bloom slowly -- a prediction that may become a self-fulfilling prophecy.

The long and short of it is that next-generation cellular data services will happen on this continent, but it will be at least a three-to-six-year engagement before they do.

Data That Grabs You

Few cellular operators can ignore the importance of data. In major cities, up to eight wireless-network operators now compete for business. Data transmission represents a new source of revenue extraction from their customer base. Even though data currently represents less than 2 percent of wireless traffic, according to Datacomm Research, a cursory look at the 40 percent growth of messaging in Europe during 1999 (to a whopping billion messages sent per month, according to The Yankee Group) indicates that wireless data services have profit potential.

Most observers expect that wireless data services will evolve in much the same way the landline Internet grew. E-mail and other text messaging services will come first. "I think in the North American market, what hasn't had any widespread adoption yet is messaging. Whether it's done through e-mail and browsers or through SMS, I think that is going to be an initial step that will get people used to wireless data devices," says Larry Paulson, president of Product Line Management for Nokia (NOK) CDMA handsets, Dallas, Texas.

Eventually, the goal is "third generation," or 3G, devices (digital cell phones were the second generation) that will deliver data rates of up to 2 Mbps. Just for comparison, current cellular-network transfer rates plod along at 9.6 Kbps or 14.4 Kbps, at best, which is OK for e-mail and some of the new Internet services being lauded by cell-phone carriers. Phone.com's (PHCM) Wireless Application Protocol (WAP) microbrowser is helping squeeze the Web into these pipes, but that's a stopgap measure.

In the long term, 3G will bring about full mobile multimedia -- video streaming and audio streaming, plus location-based services that will be able to notify a traveler there's a concert in which he'll be interested in the city he's visiting, for example.

Every Call Is a Winding Road

Any and all of these nifty data services will require investment in hardware and software upgrades. How much, when, and how fast will depend on the operator's existing transmission equipment. Network operations are currently divided into three technology families, code division multiple access (CDMA), time division multiple access (TDMA), and global system for mobile communication (GSM).

Each is facing a multigenerational path to higher data rates: a two-and-a-half generation (2.5G) modification followed by a third-generation (3G) modification. TDMA and GSM operators can take the 2.5G step with Ericsson's general packet radio service (GPRS), which will give them up to 115 Kbps, and then step up to 3G with enhanced data rates for global evolution (EDGE), which will bump them up to 384 Kbps and even, in some cases, 2 Mbps. CDMA operators can step into 2.5G with Qualcomm's cdma2000 1X, for up to 307 Kbps, and then step up to 3G with cdma2000 3X, which will give them up to 2 Mbps. 2-Mbps Wideband-CDMA (W-CDMA) is also a 3G option for GSM and CDMA operators.

Part of what is making it hard for U.S. wireless operators such as GTE Wireless (GTE) to immediately commit to 3G is their reluctance to give up a cash cow. "If we gave you 800-kilobit packet-data service as a user, we could fit 100 voice calls into that same bandwidth," explains Keith Radousky, vice president of engineering for BellSouth Cellular Corp. (BLS), Atlanta, Ga., which is also deploying 2.5G modifications as a soft step into 3G. Voice currently makes up the majority of operator income. "So there's a question of opportunity loss," he adds.

Japan's NTT DoCoMo doesn't have the same concern, one reason why it's not hesitating to jump into 3G. Japanese and European operators running out of bandwidth can license new spectrum for 3G; U.S. operators cannot.

The marriage between high-speed data and voice is a longer shot for U.S. network operators, because the operators already occupy the 2GHz band that other countries are now licensing for 3G. Moreover, U.S. PCS operators are running voice over this band -- very profitably, thank you -- so operators are already vested in existing infrastructure.

Taking Baby Steps

Some believe that the world of high-speed wireless data will come quickly and to a broad range of customers. Of the operators we spoke to, AT&T Wireless (T) is the farthest up on the high-speed staircase. AT&T runs a TDMA network, and it will start major deployment of EDGE in 2003, which will net it the transfer rates necessary for quality video and advanced high-speed data.

AT&T will test GPRS (TDMA's 2.5G step) internally in order to get its operations ready for EDGE. AT&T Wireless Services tracking stock, to be offered in May 2000, is expected to round up \$10 billion in capital, which will no doubt help pay for that lead. The company disclosed plans to spend \$3.5 to \$4 billion this year to boost capacity and improve service quality.

AT&T Wireless has relatively aggressive plans. It's betting that although data services will appeal initially to power users, third-party companies that want to provide advanced services (stock quotes, retail services, and the like) to a broader range of consumers will

help jump-start adoption.

"3G will be primarily a horizontal offering," predicts Rod Nelson, senior vice president and chief technology officer for AT&T Wireless. "The early adopters will be businesses that want to give their mobile workers access to their corporate data. Pure consumer offerings based on portals, music, audio, and video applications will emerge at nearly the same time."

But many carriers are skeptical. GTE Wireless's Randy Crouse, assistant vice president of Technology Planning and Implementation for the Irving, Texas-based operator, doesn't share AT&T's blue-sky vision. He says he's heard all the talk about "people running up and down the street with streaming video cameras at 2 megabits, but it's just not clear yet how that will shake out." Not surprisingly, GTE Wireless is taking the more conservative, 2.5G approach with its 6.9 million subscribers.

"Two-and-a-half generation is going to provide the proving ground. If there's more take-up of 2.5G, if they deliver the kind of usage and subscriber growth that people are hoping for, it will help make the business case for 3G. But there are a lot of steps along the way before we get serious about 3G," points out Mark Lowenstein, senior vice president of Global Wireless Practice with The Yankee Group, Boston, Mass.

To these uncertainties add the hidden costs of converting even to 2.5G. Operators have to turn their voice business model into a data business model, with all the billing and logistical nightmares that follow -- the business equivalent of a Buddhist converting to Catholicism.

"All the back-end support, all the financial reporting, all the marketing, all the distribution, billing -- all those things are voice-centric," comments BellSouth Cellular's Keith Radousky. What operators are doing now is starting to move "from voice to data. It really is the first step to becoming a data company."

Silver Lining

Happily for access providers, moving to a data-oriented infrastructure offers them benefits, too. For example, 2.5G will bring operating efficiencies to operators so they can offer more access time to data subscribers. That's going to be a big step in the matrimony of the Internet and cell phones, because it gets operators past that hurdle they're now facing with high-overhead, session-based access.

The operator with the most to gain from 2.5G is Sprint PCS (PCS), a company investing mightily in making its name synonymous with the term wireless Web. John Yuzdepski, vice president of Product Management and Development for Sprint PCS, Kansas City, Mo., says upgrading to 2.5G will essentially bridge the gap between what was good for voice -- that is, session-based traffic -- and what is more ideal for IP.

He explains, "When you pick up the handset and dial a number, you open a circuit between yourself and me. We're using up the same amount of bandwidth whether we're talking right now or not."

That may be OK for checking e-mail twice a day but becomes a problem when cell-phone users start cruising the Web as they do at home on landlines. Hence, Sprint PCS's 2.5G upgrade to cdma2000 1X.

"It allows us to create more capacity. It allows us to move to new billing paradigms. It allows us to move to more of a store-and-forward system, as well as optimizing the network. So the really big impact is on the network side, and on the user experience," says Yuzdepski.

More important, cdma2000 1X will also give Sprint PCS double the voice capacity -- the next best thing to new spectrum.

So, despite the current hype surrounding Internet-anything, cellular carriers' move to high-speed data services will more likely be a slow march than a quick sprint.

"I think we're going to go in small steps," says Radousky. "We have a very specific plan for our delivery of data services, and it doesn't involve the industry coming out with this huge 384-type service right out of the chute."

Battle of the Standards

Battles over technology standards are commonplace, but it's not every catfight that manages to get the governments of several countries involved.

Ericsson (ERICY) and Qualcomm (QCOM) develop the majority of transmission technology for network operators' base stations as well as the technology for their respective cell phones to pick up transmissions from those base stations.

San Diego, Calif.-based Qualcomm, with 1999 revenues of \$3.9 billion, is the digital-cellular-network phenom whose CDMA technology all but owns the digital market in the U.S.

Stockholm, Sweden-based Ericsson, with reported 1999 revenues of \$22 billion, connects over 40 percent of the world's mobile callers, as the maker of TDMA, GSM, and CDMA base stations and cell phones.

The trouble started during the debate of the International Telecommunication Union (ITU) on its International Mobile Telecommunications 2000 (IMT-2000) initiative, intended to bring about third-generation (3G) cellular audio, video, and high-speed Internet applications.

Ericsson and Qualcomm proposed different CDMA variants. Qualcomm's proposal was a better alternative for the majority of U.S. CDMA operators migrating to high-speed data, and Ericsson's proposal was a better alternative for its customer base in Japan and Europe, which accounts for more than half of Ericsson's revenue.

The quarrel became so heated that it prompted governments to get involved in what was quickly escalating into trade tensions between Europe and the United States. At the heart of the debate were CDMA intellectual-property rights.

A December 1998 letter signed by U.S. Secretary of State Madeleine Albright and Federal Communications Commission Chairman William E. Kennard urged the European Commission, Brussels, Belgium, not to impose unnecessary 3G obstacles or "barriers to trade."

Finally, the ITU stepped in and announced that it would disqualify all CDMA proposals from its IMT-2000 initiative if the two companies didn't hold their fire.

Eventually, Qualcomm and Ericsson resolved their differences, coincidentally right around the time one of the strangest unions in recent history took place. Ericsson purchased Qualcomm's terrestrial-infrastructure business in May 1999.

Not long after, in November 1999, the ITU recommended transmission specifications for all countries and CDMA, TDMA, and FDMA technologies on the evolutionary path toward 3G, including two "harmonized" CDMA standards from Qualcomm and Ericsson.

The set of IMT-2000 specifications will fit the 3G wireless migration path of the Americas as well as the new-spectrum licenses of Asia and Europe, although it hardly fits anyone's definition of one single global standard.

Smart Phones

For every step up the high-speed migration path, phone manufacturers Nokia, Motorola (MOT), and Ericsson plan to come out with progressively more feature-rich phones, starting in early 2001.

Subscribers will need to upgrade or replace phones to get more-advanced features. But according to Nokia which makes TDMA and CDMA phones for the worldwide market, the current life expectancy of a mobile phone is just two years -- upgrades which have about the same life span as the carriers' upgrade steps to 3G.

There could be a premium market for multimode phones as well, because the ITU's global standards are not globally compatible with each other after all. U.S. cell-phone users traveling abroad will need either a multimode phone or some sort of adapter for their phones to work with some other countries' cellular networks.

Smart Chips

The complexity of these phones will require smarter and better chips, and lots of them. In December of 1999, Qualcomm agreed to sell its handset business to Kyocera, so it wouldn't have to "wrap the plastic" around what it expects will generate enough volume to keep its profits on the rise: chipsets.

Qualcomm is working on next-generation chipsets that will have global positioning for push-type, location-specific messaging and voice-recognition capability for hands-free user interaction. It unveiled a 3G handset prototype in October that offered voice command for all major functions plus a video display for when 3G comes about.

Motorola is also working toward smarter phones. "As you've seen from the PC world, mobile chipset technology will be very fast," says Dr. Valy Lev, corporate vice president and director of 3G, Advanced Technology and Software Operations for Motorola's Personal Communications Sector, Libertyville, Ill.

The math for these companies is simple: Carriers will continue to subsidize phone sales. Datacomm Research, a research firm in Chesterfield, Mo., predicts that 330 million smart phones will be sold per year by 2003.

There's also room for PDAs, specifically Palm Pilots, of which there are now 5 million worldwide. Before it announced its spin-off from 3Com Corp. (COMS), Palm announced a partnership with Sony (SNE) to develop audiovisual applications based on its platform.

It also began licensing its Palm OS to cell-phone manufacturers Qualcomm, Motorola, and Nokia as well as Handspring, a handheld-device manufacturer. Datacom Research predicts that 36 million PDAs will be sold in 2003.

Dee McVicker of Gilbert, Ariz. is a freelance writer specializing in broadcasting, information technology and telecommunications.

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April 9, 2000

MEMORANDUM TO GENE SPERLING

FROM: TOM KALIL

SUBJECT: INTERNET TAXATION ISSUES

Background on Commission

- The Advisory Commission on Electronic Commerce had its last in-person meeting on March 20-21 in Dallas, Texas. A final meeting, by teleconference, was held on Thursday, March 30.
- Unfortunately, members of the business community and state and local representatives were not able to agree on a consensus position that garnered the necessary two-thirds vote.
- At the Dallas meeting, the business proposal received 11 of 19 votes, 2 short of the required two-thirds for recommendations to be submitted to Congress. State and local representatives objected to the business proposal on a number of grounds.
 - First, the proposal would create a number of "nexus carve-outs" or further tax collection exemptions. For example, the proposal would allow a company to have an affiliate in a state, take product returns in a state and do repair and warranty services in a state -- without having to collect that state's sales tax.
 - Second, under the proposal, sales of digitized goods *and their functional equivalents* would be exempt from tax for 5 years. Thus, under the proposal, downloaded software, music and books would be exempt from sales tax, *as well as "physical" books, music CDs and software diskettes, whether purchased on-line or in person.*
 - Third, the business proposal includes significant restrictions on the imposition of state income tax.
- Governor Leavitt and other state and local representatives were willing to agree to some provisions of the business proposal, but thought that on the whole the business proposal went much too far. The Administration agreed, and unfortunately, even after extensive negotiations, we could not find a compromise on the more extreme elements of the plan.
- After the failure of negotiations on a consensus package, the Administration determined that rather than vote on individual items in isolation, the Administration would present its comprehensive position at the beginning of the Commission. We continue to argue for:
 - A permanent ban on Internet access taxes;

- Continued moratorium on multiple and discriminatory taxes on e-commerce (haven't specified how long);
- Simplification of state and local sales taxes over the next two years;
- Revisiting the issue of the application of the sales taxes to sales over the Internet after states and localities have completed their simplification;
- Simplification of state and local taxes on telecommunications;
- A permanent ban on customs duties on electronic transmissions.

Background on Hill action and Administration response

- Republicans have been blasting the Administration for abstaining on votes and being "allied" with the pro-tax forces (state and local government, "brick and mortar" merchants).
- McCain and Hastert are reportedly considering a five-year extension of the moratorium in the Internet Tax Freedom Act, which is currently scheduled to expire in 2001.
- The impact of this would be largely symbolic -- since ITFA only prohibits Internet access taxes and "multiple and discriminatory" taxes on e-commerce.
- There is really only one overlap between ITFA and the issue of state and local sales tax. ITFA defines "discriminatory tax" to include any tax that a state requires an out-of-state seller to collect solely because the seller's web sites can be accessed from the taxing jurisdiction.
- However, the press and the politicians don't seem to know that it is *Quill* that is preventing states and localities from imposing a "duty to collect" on remote sellers, not the ITFA, or they aren't making this clear.
- In a *WSJ* article today -- Hastert is clearly trying to trump Gephardt by calling for a longer moratorium. Hastert is calling for 5-year extension of the current moratorium - which is set to expire in 2001. Gephardt called for a permanent ban on Internet access taxes and a 2-year extension of the "multiple and discriminatory" ban.
- Of course, any legislation that started out as a simple extension of ITFA could acquire some of the nexus carve-outs that the business commissioners advocated in the report.
- Cox and Wyden are calling for a permanent moratorium on Internet access taxes and multiple and discriminatory taxes.

- NGA would prefer that nothing happen legislatively this year - or that if there is an extension of the ITFA, that it be linked to Congressional authorization of the state and local simplification process.

Next steps

- Treasury has produced an options memo. There may be a value in having us weigh in early with support for a limited package. The Senate Commerce Committee is expected to hold hearings next week, and could mark up the bill immediately.

Background on Internet Tax Freedom Act

- Length of moratorium is 3 years from date of enactment - until October 21, 2001.
- Moratorium covers:
 - All new state and local taxes on **Internet access**
 - Any state and local taxes that **discriminate** against e-commerce. "Discriminatory tax" includes any tax that a state requires an out-of-state seller to collect solely because the seller's web sites can be accessed from the taxing jurisdiction.
 - Any **multiple** state and local taxation.
- Advisory Commission on Electronic Commerce has 19 members. Administration has 3 votes. Two-thirds agreement is required for any finding or recommendation to be in the report.

Q. What did the Administration think about the outcome of the Advisory Commission?

- We were disappointed that the Commission was unable to reach a real consensus on the issues. There was a strong effort to do so, and the Administration worked up until the last hour of the last day in an effort to forge a consensus.

Q. What is the Administration's position on Internet taxes?

- We want to allow the Internet and electronic commerce to flourish, but we don't want to deprive states and local governments of the revenue they need to fight crime and educate our children.
- We believe that the most appropriate course of action would be the following:
 - A permanent ban on Internet access taxes;
 - A continued moratorium on multiple and discriminatory taxes on e-commerce;
 - Simplification of state and local sales taxes over the next two years; and
 - Permanent ban on customs duties on electronic transmissions (e.g. software downloaded over Internet)
 - Revisiting the issue of the application of the sales taxes to sales over the Internet after states and localities have completed their simplification.

Q. What is the Administration's position on phasing out or repealing the 3 percent telecom excise tax?

Phase out of this tax is a worthy policy objective and should be considered, but must be weighed against other worthy objectives including other proposed tax reductions. It must also not be allowed to threaten the important priorities of maintaining fiscal discipline, paying down the national debt, extending the solvency of Medicare and Social Security, and maintaining core government functions such as health care and education.

[Note: Eliminating the telecom excise tax would cost \$52 billion over 10 years.]

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Cyber-security base memo
March 9, 2000

Talking points

- President takes the issue of cyber-security very seriously -- our digital economy must be built on a strong and secure foundation.
- That's why the President:
 - Proposed a \$2 billion budget for "critical infrastructure protection" in FY2001 - a 16 percent increase from FY2000
 - Convened a White House summit in mid-February on cyber-security in mid-February in the wake of the "denial of service" attacks that blocked many high-profile Web sites.
- The Administration believes that:
 - We need to address cyber-security through a public-private partnership
 - We need to make computer networks more secure and resilient, while protecting privacy and civil liberties.

Background

- Under PDD-63 - the NSC has led a long process to develop a National Plan for Information Systems Protection -- which was released on January 2000.
- This plan was developed on the theory that our IT infrastructure makes us particularly vulnerable to cyber-attack. The most vital sectors of our economy -- power generation, banking and finance, transportation and emergency services - are all increasingly dependent on Internet and telecommunications systems.
- Elements of the FY2001 budget proposal include:
 - Increased support for R&D -- including a new \$50 million Institute for Information Infrastructure Protection;
 - A cyber "burglar alarm" to warn against attacks on federal government systems
 - Analyzing the vulnerabilities of federal agencies
 - Establishing a Partnership for Critical Infrastructure Security with the private sector
 - Working to recruit and retain experts in security in the federal agencies

- The cyber-security summit in mid-February was called in part because of the "denial of service" attacks on high-profile Web sites. A "denial of service" attack is the functional equivalent of flooding someone's telephone with telephone calls. The private sector agreed to do a better job of sharing information on cyber-attacks, vulnerabilities, and "best practices." The President was very careful to say that this was a wake-up call -- not an "electronic Pearl Harbor."
- It's important to know that *USA today* ran a front-page story on March 9th alleging that the government (National Infrastructure Protection Center) did not act quickly enough to spread information about the denial of service attacks.

Upcoming events

- Podesta is supposed to report to the President by April 1 on agency efforts to respond to "denial of service" attacks.
- Administration is reviewing proposals by the Justice Department to strengthen law enforcement. For example - DOJ would like to be able to obtain a single court order for electronic communications that cut across multiple jurisdictions. The Administration does not have a position on these issues yet -- we need to make sure that privacy is protected. Peter Swire is leading an inter-agency process on this.

Q. Is cyber-security a government responsibility?

- This has to be an area of shared responsibility with the private sector -- they own and operate the telecommunications and Internet infrastructure.
- There are some important things that the government can do:
 - Protect our own systems
 - Enforce the law
 - Conduct R&D
 - Encourage sharing of information within the private sector
- But we clearly the private sector has a major responsibility here.

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Divider Title: _____

April 9, 2000

MEMORANDUM TO GENE SPERLING

FROM: TOM KALIL

SUBJECT: INTERNET PRIVACY BASE MEMO

Talking points

- The Administration is committed to making sure that Americans have effective privacy and other consumer protections when they go online. Unless individuals have confidence in how their personal information will be treated online, the full potential of the Internet will never be realized.
- The issue we all face is how to obtain the protections, so that they are developed in Internet time and well-suited to the new medium. Our judgment has been that we should support self-regulatory privacy efforts on the Internet -- although there are some areas that are so sensitive that we have supported legislation (children's privacy, medical records, financial).
- We've made some real progress. In early 1998, only about 15% of the significant commercial web sites had a privacy policy. In a study in the spring of 1999, that figure had risen to 66% -- remarkable progress in one year, and due in large measure to the work of the Administration to encourage the private sector to put good practices in place.
- But as the President said in a speech before the Aspen Institute in March 2000, the private sector needs to do more. The same 1999 survey found that only 10 percent of the commercial sites had all of the key privacy protections.

General Background

- As part of our e-commerce initiative, Administration began to challenge the private sector to adopt a self-regulatory approach to Internet privacy.
- As a result, companies began to adopt privacy policies, and to sign up for organizations like TRUSTe and BBBOnline. These organizations provide a company with a "seal" -- and also offer a mechanism for handling consumer complaints and dispute resolution. In early 1998, only about 15% of the significant commercial web sites had a privacy policy. In a study in the spring of 1999, that figure had risen to 66%. More than 2,500 companies have joined a "privacy seal" organization, or have applications pending.
- In his speech at the Aspen Institute on March 3rd, the President challenged the private sector to improve the quality of their privacy policies. Ideally, privacy policies should address the following so-called "fair information principles":

- **Notice** about what information is collected and how it will be used;
 - **Choice** about whether personal information will be shared with third parties;
 - **Access** to the information that the site has collected, including the right to check it for inaccuracies; and
 - **Security** of the information during its transmission and storage.
- The Administration is also engaged in negotiations with the European Union on privacy that have been led by David Aaron. The basic agreement would create a "safe harbor" on privacy. U.S. companies doing business in Europe could sign up to these principles -- which would be deemed to provide "adequate" privacy protection under the standards of the EU Directive on Data Protection. The U.S. and the European Commission reached an agreement on March 14th -- but it has not yet been ratified by the Member States. The agreement also does not cover the financial sector -- since the EU is waiting to see what the U.S. will do in the area of financial privacy.
 - Some consumer and privacy groups do not believe that self-regulation goes far enough -- and believe that the Congress should support legislation. However, there is no consensus on the Hill about what that legislation should look like -- so they are not likely to do anything this year.

Areas where the Administration has supported legislation or regulation

Children online. In 1998, the President supported and signed the Children's Online Privacy Protection Act of 1998. Before that law was passed, we saw abusive practices by some web sites, which essentially used very young children as informants about their parents. Under the new law, sites aimed at children under the age of 13 must get verifiable parental consent before they gather and use personal information received from the children.

Medical privacy. Every American has a right to know that his or her medical records are protected at all times from falling into the wrong hands. And yet, as more and more of our medical records are stored electronically, the threats to our privacy have greatly increased. Congress failed to act, so the Administration proposed regulations for the protection of Medical records under HIPAA.

Financial privacy. The new financial modernization law, passed by Congress last year, provides protections that go well beyond existing law, such as clear notice of how institutions share financial data, the right to block sharing or sale outside a financial institution's corporate family, and new and significant enforcement provisions. The Administration is continuing to press for even greater protections.

DoubleClick controversy

- DoubleClick is a leading provider of Internet-based advertising. DoubleClick tracks the individual Internet users at the Web sites by putting something called a "cookie" file in the user's computer. As a user visits Web sites that utilize DoubleClick technology - DoubleClick is able to gain information on the user's viewing activities and ad responses.
- DoubleClick originally represented that the information of all of the Internet users targeted by its ads would be anonymous.
- Then DoubleClick acquired Abacus Direct -- which has 88 million buyer profiles compiled from 2 billion catalog purchasing agreements. DoubleClick then said that it would combine the "personally identifiable information" it had from Abacus with the information it was collecting from Web sites that are part of the DoubleClick Network.
- This announcement was very controversial -- and led to several lawsuits and investigations. On March 2nd, the CEO of DoubleClick reversed himself, saying: "It is clear from these discussions that I made a mistake by planning to merge names with anonymous user activity across Web sites in the absence of government and industry privacy standards. We commit today, that until there is agreement between government and industry on privacy standards, we will not link personally identifiable information to anonymous user activity across Web sites."
- On March 8th, DoubleClick announced that they were making Bob Abrams (former New York AG) the head of their privacy board.

Upcoming events

- FTC is doing another survey of privacy policies -- will be used to evaluate the progress of self-regulation.
- Commerce and FTC are in discussions with the Internet advertisers (including Double Click) to see if an effective self-regulatory regime can be developed.

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Divider Title: _____

April 14, 2000

MEMORANDUM

**TO: JOHN PODESTA
GENE SPERLING
JACK LEW
CHUCK BRAIN**

**CC: DAVID BEIER
SALLY KATZEN**

**FROM: SARAH ROSEN WARTELL
LISA KOUNTOUPES
JOEL WIGINTON**

RE: LETTER TO DIGITAL SIGNATURES CONFEREES

ISSUE PRESENTED

Senate Democrats have asked that the Administration send a letter along the lines of the attached draft letter from Secretaries Summers and Daley to the Digital Signatures Conferees. They are seeking the Administration's endorsement of their views, which were reflected in a letter from all 45 Democratic Senators to the Conferees (copy also attached). The Administration letter has completed OMB clearance and does not require formal West Wing clearance; however, we thought this a good occasion to ensure you are comfortable with our current strategy on this legislation.

We would suggest that the letter be sent early next week, while members are out of town. While the conferees will not formally meet until the first week in May, each chamber's conferees' staffs have been meeting and we expect them to all meet together over the recess to try to work out an agreement. As you know, there is serious consideration being given to using this conference report as a vehicle to move the Bankruptcy bill. The Senate Democrats are eager for our letter to arrive soon. The letter has been carefully drafted not to anger bill proponents. Nonetheless, we would warn in advance the House Democrats and the Republicans who appear open to working with us that the letter was coming and why it is being sent.

The letter to conferees indicates the Administration's support for removing legal barriers to electronic commerce. Specifically, it states our support for both: (1) **contract formation provisions** that ensure that contracts shall not be denied legal effect or enforceability solely because electronic signatures or records were used in their

formation; and (2) **appropriate records provisions** regarding the legal validity of electronic records (e.g., notices, disclosures, and other records retained in electronic form). (Recall that, in the House, we supported an alternative without any records provisions, volunteering only to work constructively to develop “appropriate legislation.”) At the same time, the letter makes clear that the legislation should maintain current consumer protections for paper transactions in the electronic world and should not relax or strengthen them. Finally, the letter endorses the five principles set forth in the Democratic Senators’ letter (which were developed in conjunction with the Administration) and notes that **“the legislation produced by the conference must incorporate the principles articulated in that letter in order to gain the Administration's support.”**

We worked closely with Senator Daschle as the five principles in the Democratic Senators’ letter were developed. Various approaches may work to satisfy these objectives. The principles were reflected in a draft of the bill released by Senator Wyden and Leahy developed with our heavy assistance. We have discussed that draft extensively with industry representatives. While they have raised important technical issues, we believe that final language could be crafted that meets the Democrats’ principals and the industry’s objectives in seeking legislation. We cannot provide assurance, however, that all the Republicans active in the Conference Committee will be willing to met these objectives fully. Moreover, we have reason to believe that many Senate Democrats, notwithstanding their letter, want to support the final conference product regardless of how well it addresses these concerns. Nonetheless, **we believe the letter and principles are drafted to give us necessary flexibility.**

The Senate Democratic letter was developed, in part, to increase the Administration’s and the Senate Democrats’ leverage in conference. They sought to demonstrate Democratic solidarity. Thus, they chose not to include language that some members had sought (especially Senators Sarbanes and Leahy), but which others said reflected too high a bar. **The Senate Democrats believe that a comparable statement from the Administration is now essential to maintain that leverage.**

One of the issues that we decided not to raise in the principles is preemption, which are the primary concern of State Governors, Attorneys General, and Legislatures. Under the Uniform Electronic Transactions Act (UETA), States have the authority to exclude certain consumer protection requirements from their State law’s coverage. California excluded many requirements, especially in the insurance area, and it provoked industry to seek the House bill’s provision preempting State law entirely unless the State adopts UETA exactly in the form adopted by the National Conference of Commissioners on Uniform State Laws. The legislation also would bar States from imposing any record retention requirements (i.e., mandating the form in which firms must retain their electronic records for access by regulators). States have written letters, but have not yet engaged effectively. **We are sympathetic to their concerns, but have limited leverage to protect Federal requirements and, thus, cannot make preemption our fight.**

LEGISLATIVE BACKGROUND

The Conference Committee will be made up of five house members (3-2) and 17 Senate members (10-7). Senator Abraham has had the lead in the Senate thus far and wants an accomplishment this year. He and Senator McCain seem open to at least some of the ideas that are important to us, especially as some in industry argue that they should accommodate our concerns in order to quickly complete this conference. Senator Wyden wants a bill, but the other lead Senators – Hollings, Sarbanes, and Leahy – might seek more changes than the traffic will bear and criticize us for insisting on too little. Chairman Bliley seems open to resolving the legislation amicably, but clearly wants ownership; Representative Markey wants to help us find a way to get changes that are important to us (despite his support for the House legislation in its current form) but will not fall on his sword if unsuccessful. There is no conferee whose interests are perfectly aligned with ours, although Wyden and Markey are closest. Both would put up little resistance if simply presented with the House bill, but both seek improvements aimed at addressing reasonable consumer concerns.

No one is sure what role Senator Gramm will play. Hollings and Leahy staff report that they are working cooperatively with the other Republicans, but Gramm's staff are unwilling to consider some of the ideas that the Senate Democrats are promoting, even where industry seems willing or even enthusiastic. Reportedly, Gramm has chastised lobbyists for even talking to the Democrats and the Administration. Gramm and Abraham have released a set of principles of their own and have drafted a bill. Wyden, Leahy, and McCain are working to see if aspects of that version can be incorporated in order to bring Gramm along. But Gramm's staff's recommendation that he chair the Conference (Bliley will be the Chair) has created an interesting dynamic that may work to our advantage with the House Republicans. However, all should be forewarned that Senator Gramm's concurrence with the approach that we and other Democrats favor may be difficult to obtain.

POLICY OBJECTIVES FOR CONFERENCE

Our policy objectives are described below (in order of priority). We recognize that we will be unable to get all of our concerns met and are already working on alternative language where concerns have been raised by industry. We hope to convince a Republican (ideally Bliley in consort with Markey) to offer much of our revised approach as a compromise. If advanced by a Democrat, it will not survive. In the Senate, there is some hope that Leahy and Wyden will reach agreement with McCain and Abraham on an approach that we would find satisfactory.

1. Enhance legal certainty and avoid unnecessary litigation by authorizing regulators to provide interpretive guidance.

House bill: The bill is self-executing. As such, no agency has the ability to interpret its provisions. Moreover, it is unclear whether agencies can interpret aspects of their statutes that are modified by this bill. So, for example, if a statute requires that a

disclosure be provided at a particular time, in a particular form, and it is now provided electronically, questions can arise whether or not the time and form requirements have been met or were modified in some way by this act.

Proposal: We argued that interpretive authority is essential, both to prevent creative interpretations that allow predatory practices and to provide industry certainty. Without it, they might face class action lawsuits by parties alleging that requirements of underlying statutes were not met.

Industry response: Industry is supportive, provided language is clear that interpretations cannot create exceptions to the Act's requirements. They also seek language to encourage regulators to adopt consistent interpretations. These changes are fine.

2. Ensure Effective Consumer Consent to the Replacement of Paper Notices with Electronic Notices.

House bill: Provides that, if a statute requires that a notice or disclosure be in writing, that requirement can be satisfied by an electronic record (e.g., e-mail, or posting the notice on a website), if the consumer affirmatively consents, after being notified of the hardware and software requirements for access to and retention of the record. Moreover, the House bill creates an affirmative obligation (not imposed in the paper world) for the consumer to notify the provider of any change in their email or electronic location.

Proposal: To ensure equivalent treatment, we propose to eliminate the new duties for the consumer. Moreover, we recommend that the consumer be informed of the specific types of records that they are consenting to receive electronically and the right to receive the record in paper (if they have the right under law and the business gives that as an option). And we propose that the consumer's consent be provided electronically from the same email account or other electronic method of access, so as to demonstrate that the consumer has the capacity to receive notices electronically. For most consumers, a recitation of necessary hardware and software requirements will be confusing; many could consent when in fact they would be unable to access their own records. We also propose that, if the company changes its technology requirements so there is a material risk the consumer will be unable to read the notices, a new consent must be obtained.

Industry Response: While some complain about the burden, most acknowledge this would create a more effective form of consent. However, technical issues have been raised about ensuring this works not only for email accounts but also for web-based transactions. We think we can draft alternative language to resolve that concern. Industry also complains about the burden of obtaining new consents and we are far less likely to get much on that issue.

3. Ensure that Electronic Records are Accurate and Relevant Parties Can Retain and Access them.

House bill: Says that, if a statute requires that contract or record be retained, the requirement can be met by retaining an electronic record, if it accurately reflects the information in the contract or record and remains accessible for as long as the statute requires.

Proposal: We suggest technical changes to ensure the information is accessible to the consumer and others entitled by law, not just to the company. We are also concerned that some technologies may make it impossible to determine whether or not something is an accurate version of the original record, but we recognize that nothing could be guaranteed to be “unalterable.” So we propose a middle ground: the record should be preserved in a form that “provides assurances of the accuracy and integrity of the ... record substantially equivalent” to those assurances provided by a written record.” Thus technology could adapt.

Industry response: Technical drafting issues but no substantive objection.

4. Avoid unintended consequences in areas outside the scope of the bill by providing clear federal regulatory authority for records not covered by the bill’s “consumer” provisions.

House bill: While most of the attention has been given to bill provisions that affect consumer transactions, there are other cases where federal law establishes requirements for notices and disclosures provided between private parties. For example, workplace safety and hazardous waste transportation notices.

Proposal: We propose that federal agencies be able to supercede the bill’s requirements if they affirmatively act, after passage of this law, because they believe that electronic delivery could undermine the intention of the underlying requirement. Thus, OSHA could act issue new regulations requiring that hazard notices be physically posted in certain places, because electronic notice would not suffice for safety purposes.

Industry response: No objection raised thus far, although we expect they may request that there be some standard met before agencies can supercede the bill’s requirements. Alternatively, the Gramm-Abraham draft may address the problem by narrowing the scope of the bill to not cover these types of notices.

5. Avoid facilitating predatory or unlawful practices.

House bill: No specific provisions. Consumer groups are especially worried about predatory lenders and scam artists. They fear they will bring a laptop into the home of a vulnerable person and trick or coerce them into foregoing the right to receive paper records and notices that might warn them against the transaction or at least provide a way to trace the scam after the fact. Too many of these people may not have computers of

their own and will never have the ability to access and retain the records they “receive” electronically.

Proposal: We would take some solace from the availability of interpretative authority and the requirement that the consent be provided using the same email account or other mechanism to which notices will be sent, demonstrating consumer access. The Wyden-Leahy draft also contained a provision that would make a consumer’s consent ineffective if induced in an unfair or deceptive manner.

Industry response: The industry violently opposes the Wyden-Leahy language, which they view as creating new “unfair and deceptive acts and practices” (UDAP) authority. (Under current law, Federal banks and thrifts are only subject to UDAP if the Federal Reserve first determines that a practice is unfair and deceptive. They never have.) We will propose instead a savings clause, clarifying that nothing in this bill affects any existing federal or state UDAP authority. But this will be most difficult to get and we may need to simply argue that the interpretive authority gives us the ability to protect against predatory practices.

6. Other.

Federal Government Interests: We also proposed changes to: (1) ensure that the SEC retains authority to impose requirements necessary to protect investors; (2) exempts federal government contracts; (3) allows the Federal government to impose requirements for contracts that it guarantees; and (4) preserves federal record keeping and other requirements, when implemented by the states, as under the environmental laws. We have received no objections to these provisions, although we suspect that there will be a fight about the SEC issue, in which the SEC will have to engage.

DECISION

Proceed as proposed _____ Let’s discuss _____

Attachments:

Draft Daley/Summers Letter to Conferees
Letter from Senate Democrats to Conferees



Ruth M. Samardick
04/13/2000 06:19:45 PM

Record Type: Record

To: David Tseng/OPD/EOP@EOP, Melissa G. Green/OPD/EOP@EOP, Elliott H. Baer/OPD/EOP@EOP,
Jamie H. Ginott/OPD/EOP@EOP

cc:

Subject: H-1B Fee

I'm looking into a "performance based" fee as per Lofgren's suggestion. Looks like we can both accomodate and give her the credit. INS already agreed to a "premium" processing fee, which would be refunded if they didn't produce as promised. This fee was included in the 2001 budget. So, the model has already been developed and the \$ generated determined sufficient. I think we could come up with a creative design which sets base, unrefundable fee (for training), plus fee contingent on acceptable service.

Premium Processing Fee: This fee which would ensure "premium service" would be voluntary for business-related applications and would not impact family based applications. Improved service includes: guaranteed processing within 15-days for business cases, fax capability for resolution of evidentiary issues and access to an ombudsman to quickly rectify processing errors. The proposed voluntary fee is \$1,000, on top of the existing application fee for business visas.

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H-1B Fee Revenue & Distribution

	Current Fee \$500 107,500 cap		Hatch/Abraham \$500 245,000 cap		OLD Smith \$1,000 107,500 cap		Dreier/Lofgren \$1,000/\$500 200,000 cap	
	2001 Percentage	2001 Revenue	2001 Percentage	2001 Revenue	2001 Percentage	2001 Revenue	2001 Percentage	2001 Revenue
Job Training Activities	56.3%	47,742,400	36.2%	68,056,000			25%	56,125,000
DOL	56.3%	47,742,400	36.2%	68,056,000			25%	56,125,000
DOC								
Incumbent workers								
Educational Activities	36.2%	30,697,600	56.5%	106,220,000	92.5%	131,350,000	65%	145,925,000
Low-Income (NSF)	28.2%	23,913,600	30.7%	57,716,000			15%	33,675,000
Merit-based (NSF)	4.0%	3,392,000			88.5%	125,670,000		
K-12 Reform (NSF)	4.0%	3,392,000	23.3%	43,804,000	4.0%	5,680,000		
K-12 Grad Teach (NSF)								
Loan Forgiveness (Ed)							33%	74,085,000
Upward Bound (Ed)							17%	38,165,000
Gear-Up (Ed)								
GAANN								
Digital Divide								
Admin./Enf. Activities	7.5%	6,360,000	7.5%	14,100,000	7.5%	10,650,000	10%	22,450,000
INS	1.5%	1,272,000	1.5%	2,820,000	1.5%	2,130,000	2%	4,490,000
DOL	6.0%	5,088,000	6.0%	11,280,000	6.0%	8,520,000	8%	17,960,000
Fraud (INS & State)								
Total	100.0%	84,800,000	100.2%	188,376,000	100.0%	142,000,000	100%	224,500,000
5 year receipts fee time period		248,400,000 1999-2001		599,600,000 1999-2002		305,600,000 1999-2001		913,100,000 1999-2003

	Option 1 \$1,500		Option 2 \$1,500		Option 3 ✓ \$1,500		Option 4 \$1,500	
	2001 Percentage	2001 Revenue	2001 Percentage	2001 Revenue	2001 Percentage	2001 Revenue	2001 Percentage	2001 Revenue
Job Training Activities	35%	137,602,500	45%	176,917,500	50%	196,575,000	56.3%	221,343,450
DOL	20%	78,630,000	25%	98,287,500	25%	98,287,500	56.3%	221,343,450
DOC								
Incumbent workers	15%	58,972,500	20%	78,630,000	25%	98,287,500		
Educational Activities	35%	137,602,500	30%	117,945,000	(25) 23%	90,424,500	36.2%	142,320,300
Low-Income (NSF)	7%	27,520,500	7%	27,520,500	5%	19,657,500	28.2%	110,868,300
Merit-based (NSF)	8%	31,452,000	8%	31,452,000	10%	39,315,000	4.0%	15,726,000
K-12 Reform (NSF)							4.0%	15,726,000
K-12 Grad Teach (NSF)	10%	39,315,000	5%	19,657,500	5%	19,657,500		
Loan Forgiveness (Ed)								
Upward Bound (Ed)	5%	19,657,500	5%	19,657,500	3%	11,794,500		
Gear-Up (Ed)			5%	19,657,500				
GAANN	5%	19,657,500						
Digital Divide								
Admin./Enf. Activities	30%	117,945,000	25%	98,287,500	(25) 27%	106,150,500	7.5%	29,486,250
INS	20%	78,630,000	15%	58,972,500	15%	58,972,500	1.5%	5,897,250
DOL	5%	19,657,500	5%	19,657,500	7%	27,520,500	6.0%	23,589,000
Fraud (INS & State)	5%	19,657,500	5%	19,657,500	5%	19,657,500		
Total	100%	393,150,000	100%	393,150,000	100%	393,150,000	100.0%	393,150,000
5 year receipts fee time period		1,521,050,000 1999-2003		1,521,050,000 1999-2003		1,521,050,000 1999-2003		1,521,050,000 1999-2003

The cap is held constant in each option at 200,000.

*The fee level is held constant in each option. It exempts colleges, universities, and non-profits from the fee.

*All of the options assume a cap increase through 2003.

H-1B Legislation

Key Issues

1. H-1B Cap

- X *There should be a limit on the number of H-1B visas, and there should be no exemptions from that cap.*
- X *Set-asides for Master's or Higher Degree.* Include a set-aside within the cap for workers with a master's degree or higher. Phase-in the increase – 40% in 2001, 45% in 2002, and 50% in 2003.

Justification. Currently, approximately 40% of H-1B workers have a master's or higher degree. The set-aside should increasingly target visas towards higher skilled workers.

- X *Set-asides for Higher Education.* If included, should be within the cap (either as a fixed number or a percentage).

2. Registry Date and NACARA Parity

- X Include the Administration's proposals on the registry date and NACARA parity in the bill.

3. H-1B Fee Level and Distribution

- X Increase the fee level to \$2,000 per petition.

Justification. Employers currently pay \$500 per petition. Given the substantial increase in the cap, the requirement for an on-line application system, and the permanent extension of stay for H-1B workers due to the backlogs at INS and DOL, the fee should be increased to adequately fund administration and enforcement, as well as additional training and educational activities for U.S. workers. As structured in current law, the \$2,000 fee would apply to all petitions (initial status, extension of stay, and changing employers) with the exception of colleges/universities, and non-profit and Government research organizations.

- X Revise the fee distribution – 50% for training activities in DOL, 25% for educational activities, and 25% for INS and DOL to cover a portion of the administration and enforcement of employment-based immigration programs.

Justification. The first and primary policy for increasing the availability of high-skilled workers must be focused on increasing the education and training of U.S. workers. The bipartisan Workforce Investment Act (WIA) of 1998, being implemented by DoL, establishes a comprehensive system to provide workers with the information, advice, job search

assistance, education, training and support they need to get and keep good jobs, and that provides employers with skilled workers. The infrastructure for that system is now in place, and the creation of a parallel structure would be duplicative and wasteful.

In addition, given the H-1B program is a “feeder” program for the permanent employment-based program and these programs are operated and enforced by the same staff and equipment, it is appropriate to allow the agencies to fund administrative and enforcement costs related to other employment-based programs with this fee. Without such funding, backlogs will dramatically increase and fraud will go undetected.

4. Extension of Attestation Requirements and DOL Investigative Authority

- X Extend these requirements through the length of the cap increase – e.g., if the cap increase is until FY 2002 then these provisions would be extended until October 1, 2002.

Justification. The Administration fought hard for increased protections for U.S. workers. These protections should be extended through the length of the cap increase. Currently, the provisions sunset in October, 2001.

5. Internet Recruitment

- X Allow Internet recruitment to be an acceptable form of recruitment, but not the exclusive form of recruitment.

Justification. Employers filing a petition for permanent employment must take a number of steps to prove good faith recruitment of U.S. workers. H-2A, H-2B, H-1C, and H-1B dependent employers and willful violators of H-1B must also recruit U.S. workers. Allowing Internet-only recruitment would gut current worker protections by allowing an insufficient test of the U.S. labor market prior to seeking foreign workers. In addition, it would unfairly disadvantage those on “the other side” of the digital divide who seek equal opportunity to apply for these jobs. Lastly, accepting Internet-only recruitment in the immigration context may set a precedent for other employment-related issues such as affirmative action and non-discrimination.

H-1B Legislation Other Issues

1. One-time Protection Under the Per Country Ceiling and Extension of Stay due to Lengthy Processing

- X Limit one-time protection and extension of stay to applications that are filed within the 1st three years the worker is in the country on an H-1B visa; **OR,**
- X Limit one-time protection and extension of stay to H-1B workers that have already applied for adjustment of status as of the effective date of the bill.

Justification. Providing unlimited protection for these workers would create a back-door permanent employment-based immigration program. Recognizing that inadequate government processing has contributed to this problem, providing relief that effectively mitigates the impact on the labor market is appropriate.

2. Technical Issues

- X Include a provision that makes the processing of "failure to select" cases (when a U.S. worker is passed over for a foreign worker) consistent with citizenship status discrimination cases.

Justification. Under current law, a worker must go through a very complicated process. First, the worker must first file a claim with DOJ for a reasonable cause determination. If that is approved, the worker then files with the Federal Mediation and Conciliation Service for findings of fact. If found, the worker is sent back to DOJ for relief. Amending the current law to provide for administrative hearings instead of arbitration is desirable because it would provide consistency in the procedures and evidentiary standard used to resolve these similar causes of action and would be more cost-efficient.

- X Include the Administration's FY 2001 permanent alien labor certification (ALC) fee proposal -- \$1,500 per ALC application.

Justification. Given employers are sponsoring these workers for permanent employment in the U.S., it is appropriate to require a fee to fund additional training and educational activities, as well as administration and enforcement.

- X Application of Internet Based Technologies. If included, provide at least 18 months for INS and DOL to establish an Internet based system.

- X W-2 Forms. A provision requiring employers to provide copies of W-2 forms to DOL creates unnecessary burden on employers and DOL, without providing a benefit.
- X Clarify DOL's current enforcement authority under the permanent alien labor certification (ALC) program.

Justification. This is very important for DOL's re-engineering efforts to be a success.

3. Per Country Ceiling

- X Include a provision to require DOS, in 3 years, to study the impact this provision has on U.S. immigration policy; **OR** sunset this provision with the length of the cap increase.

Justification. Given this provision basically lifts the per country/area ceiling in a calendar quarter, it is important to evaluate the long-term impact this provision will have on U.S. immigration policy.

Revised 4/12/00 8:55am

TO: GENE SPERLING

FROM: ED MONTGOMERY
Acting Deputy Secretary of Labor

Per your conversation with Secretary Herman yesterday, attached is a draft H-1B white paper on innovative training programs and usage of the H-1B fee. Please advise of any comments or concerns.

cc: Ruth Samardick

DRAFT April 12, 2000 8:55am

RESPONDING TO INDUSTRY DEMANDS AND RAPID CHANGE

Introduction

Americans are enjoying the strongest economy in a generation. Given the strong economy, it is not surprising that employers across the county have said that they cannot find enough qualified workers. Soaring demand for technology-related workers in particular has been highly publicized. Americans who want to work and progress need skills to ensure that they can take advantage of the new employment opportunities our economy is creating.

One Key Response: H-1B Technical Skill Grant Program

The American Competitiveness and Workforce Improvement Act of 1998 (ACWIA) was enacted October 21, 1998. It authorized the use of a portion of the employer H-1B application fee that went into effect December 1, 1998 to finance a H-1B Technical Skill Training Grant Program. This training program is designed to help American workers – both employed and unemployed -- acquire the requisite skills in occupations that are in demand, particularly in industries such as information technology and health. These grants provide funds to consortia of business, labor, community-based organizations and local Workforce Investment Boards.

- Fees are deposited on a quarterly basis and credited to the H-1B training account.
 - The first deposit in Treasury by the Immigration and Naturalization Service was January 1999 for funds received in December 1998.
 - Treasury's first distribution to DOL occurred in late January 1999, totaling \$1.8 million.
 - A second distribution in mid-April 1999 added \$12.1 million to the H-1B training account.
 - A third distribution on July 19, 1999 added \$14.4 million for a total of \$28.3 million.
- By July 1999, sufficient funds had accumulated in the H-1B training account so that OMB could approve and DOL could announce the first round of competitions.
- Many H-1B petitions for non-immigrant workers were submitted by employers after the enactment of ACWIA, but before the December 1 user fee start date, in order to avoid paying the fee. This resulted in less funds and a longer waiting period before petitions with user fees were processed.
- Any time a new competitive grant program is set up, DOL consults with interested groups for help in refining the rules and parameters for the competition. The Department of Labor used the time before July 1999 to consult with key stakeholders, including businesses, trade and industry groups, labor organizations, Congressional staff, community- and faith-based organizations, community colleges and others.

- On August 16, 1999, the Department of Labor announced the first round solicitation for H-1B technical skill training, indicating that about \$25 million would be available for grants. (Subsequent competitions will make larger amounts available.) This first round competition closed on November 1, 1999. On February 10, 2000 the Department of Labor announced 9 first-round grant awards totaling \$12.4 million.
- Building on the foundation of the first round of grant awards and incorporating lessons learned and streamlined processes, future rounds are moving more rapidly.
 - The Department of Labor announced March 29, 2000, the availability of an estimated \$40 million for a second round solicitation. Proposals are due June 5, 2000 and awards will be announced in August 2000. The \$40 million includes a current availability of about \$29 million, as well as \$11 million in projected funds.
 - The Department will announce a third round of competition in September. Proposals for this round will be due in October 2000, and awards for this round will be announced in November 2000.
- Additional rounds of competition for H-1B skill training grants will continue as long as funds become available.

Innovative Responses to Skills Shortages in Department of Labor Programs

DOL has funded a number of innovative projects as a result of the first round H-1B Technical Skills Grant competition under ACWIA. They include:

- **The Workplace, Inc.** (Bridgeport CT) - This project proposes a system of employer certified skills centers in southwestern Connecticut to train people in identified occupations that are high skill and in short supply. Workplace Inc. views the current "Emerging Technologies Model" of jobs as very different from the traditional "Business Model". In the traditional pyramidal model, entry-level low-skill jobs at the bottom rung predominated. In the newer model, there are far more high skill jobs with relatively few lower skilled workers to upgrade into the higher levels of employment. The objective is to measurably reduce the need for H-1B visas in the southwest Connecticut area.

The project proposes to use skill standards established under the aegis of the National Skill Standards Board (NSSB) and will formally certify individuals meeting those standards. A number of area businesses, community organizations and educational institutions are involved; in particular, Pitney Bowes will provide classrooms, instructors, materials and equipment.

- **Regional Employment Board of Hampden County, Inc.** (Springfield MA) -The grantee, with twelve core partners -- including two One-Stop Career Centers, two

Community colleges, Telitcom Development Corporation (a business-led economic development entity) and Northeast Center for Telecommunication Technology (designed and funded by the National Science Foundation) – is establishing an information and telecommunication technologies workforce development project called IT Squared. Training will occur in IT occupations such as Telecommunications Software Engineers, Cable and Installation (Teledata) High-Level Technicians, and Systems Developers. Creative approaches to the delivery of training will include distance learning via creation of a “virtual” campus for on-demand technical training courses. This method will be combined with campus classroom training and work site internships.

- **NOVA (CA) Private Industry Council (Sunnyvale CA)** - The consortium of business, training, and service organizations includes NOVA, two community colleges, Opportunities Industrialization Center West, University of California Santa Cruz Extension, Joint Venture: Silicon Valley Network, California Employment Development Department, Sun Microsystems, and Cisco Systems. The goal is to equip about 200 individuals with high level technical skills to bridge the “digital divide.” A diverse population from some of the poorest neighborhoods in Silicon Valley, participants will receive one-on-one assistance from counselors/training coaches. A new program called STEP (Systems Administration Training and Employment Program) designed by a team including representatives from Sun Microsystems, Cisco Systems, NOVA and local community colleges will enable individuals to become certified systems administrators in less than one year.
- **The Philadelphia Workforce Development Corp (PWDC)** - In partnership with 60 health care employers, 25 nursing schools, the One Stop Career Center system, and the largest union-based trainer in the country (District 1199C Training and Upgrading Fund of the National Union of Hospital and Health Care Employees, AFSCME, AFL-CIO.), PWDC is launching a comprehensive training initiative designed to address the growing shortage of skilled nurses in the Philadelphia area. In addition to training, the project will offer the full range of supportive services – such as career counseling, testing, assessment, and job placement – provided by the Training and Upgrading Fund and other funding sources.

The Department of Labor has also launched a number of other complementary and creative activities to address the skill shortages issue. They include:

- **Bell Atlantic Multi-state Recruitment for Technical Skills:** The Department of Labor’s partnership with the Bell Atlantic Corporation to recruit employees for technical occupations represents an emerging model of public/private collaboration to address skill shortages. The goal is to recruit as many as 2000 new employees for technical and customer representative jobs across 10 states in the Bell Atlantic Corporation’s New England and Mid-Atlantic regions. The State and local workforce development systems in these regions are the primary recruitment resource for the Bell Atlantic Corporation.

This private/public partnership is based on a mutual commitment to address skill shortages by reaching into the domestic labor market through the public workforce investment system. The partnership is a model of how to meet the challenges associated with a large-scale, multi-State response to skill shortages through building a long-term private/public working relationship. It does not involve a Federal grant to the Bell Atlantic Corporation.

The Bell Atlantic Corporation has rigorous standards for entry level hiring because entry-level employment is the threshold of a career ladder leading to high-paying technical and professional jobs which are supported by extensive employer-sponsored training. A product of this collaboration will be evaluation and technical assistance resources that can be used throughout the workforce development system to serve employers with similar multi-State recruitment needs.

- **Communication Workers of America Military to Work Project** – Military personnel can access this program through the Transition Assistance Program. This Internet program (<http://www.cwajobs.com>) allows transitioning service members and veterans to self-register, take an assessment test, and receive an evaluation of their technical abilities. The program is intended to help users determine the best job match for their skills, interest, and career goals for high technology jobs within the telecommunications industry. Cisco Systems joined the program in January 1999 and provides a sophisticated on-line assessment test.

Many telecommunications companies, including At&T, Lucent Technologies, and PacBell are partnered with CWA and provide CWA information on available jobs. CWA personnel match the service member applications with the appropriate jobs and forward their resumes to the applicable company. Service members who have the aptitude but require additional training are directed to apprenticeship and skill certification programs. In collaboration with Stanly Community College, Cisco Systems also has included an on-line distance learning component that includes assessment and training for computer literacy, computer technology, and to become a Cisco Certified Network Associate (CCNA). Six occupations are available to job seekers: cable installation technician, network technician, personal computer support and applications assistant, local area network/wide area network technician, central office technician; and customer service representative.

- **MetroTech:** On March 23 the Department of Labor announced a \$20 million grant to a regional consortium consisting of Maryland, Virginia, and the District of Columbia to address skills shortages in the Metropolitan region. Known as Metrotech, it is a unique program providing information technology training to 3,300 individuals – primarily dislocated workers – in region. The three jurisdictions collaborate to recruit interested Informational Technology (IT) employers by customizing training and by matching newly skilled workers with jobs. This operational grant builds upon the successful pilot efforts of a smaller planning grant given to the jurisdictions in late 1998, including “repeat business” from local employers.

Metrotech – because it brings together employers, workers, and government – helps meet of both industry and workers and also matches a 21st century challenge with a 21st century solution. It focuses on a coordinated response within in the Greater Washington Metropolitan area – one of the fastest growing locations for technology companies, many with significant workforce needs. By working with technology industry employers to identify job openings and the specific skills needed to meet the demands of those positions, the jurisdictions are better equipped develop recruitment and training strategies to meet these needs. It serves as a model for regions using a multi jurisdictional, public and private sector partnership to meet the training needs of workers while addressing the skills demands of industry.

Working closely with participating employers, curricula are developed by local educational institutions or current curricula are approved by employers to meet a specific the employers' specific hiring needs. Training will provide workers with core competencies required in the high tech field and uses specific training modules geared towards specific employers. Private sector contributions also help finance training, mentoring and other project activities and services. Ninety percent of the trainees are expected to enter employment with the collaborating employers.

- **AOL:** This project -- while still in the developmental stage – will demonstrate the capacity of the public workforce development system to successfully meet the recruitment and initial screening needs of an employer with multiple occupations in multiple locations. Consistent with this goal, the effort will prepare job seekers to meet the needs of high technology occupations that offer solid career and economic potential. The Department of Labor will help State and local workforce investment boards assist AOL as a key source of recruitment. The partnership is expected to focus initially on helping AOL in two call centers across the country and one technical facility located in Herndon VA. Over 1,000 job seekers are expected to be employed through this cooperative effort during the first 12 months of project operations. The Labor Department/AOL partnership will operate with the relevant States and local communities responsible for One-Stop service delivery systems.

AOL will provide detailed information on job requirements and competencies. Local workforce investment boards and One-Stop centers will devise service delivery strategies and referral protocols that make the most sense for both job seekers and AOL. At each local site, the Department of Labor, AOL, and local workforce investment officials will collaborate by identifying "single points of contact" for AOL at the local, State and federal levels.

- **Fort Campbell TN Career Advancement Center (CAC)** - Since 1996, the Fort Campbell CAC has provided employment and training services to over 1,400 soldiers at Fort Campbell,

their dependents and area residents with the goal of providing qualified, well-trained workers for area employers. The Fort Campbell CAC represents a partnership among the North Tennessee Workforce Board, the Department of Labor, the U.S. Army, the National Leadership Institute, the Workforce Excellence Network, and area employers and training providers.

Workforce Investment Act of 1998

The bipartisan Workforce Investment Act of 1998 provided the framework for a workforce preparation and employment system designed to meet both the needs of the Nation's businesses and the needs of job seekers and those who want to further their careers. This system, which will become fully effective July 1, 2000, gives new responsibilities to States and local communities to design and manage training and employment programs at the local level where the needs of customers are best understood. It gives business leaders the opportunity to develop a strategy to address skill shortages through their leadership position on the workforce investment boards. In this capacity, they can play an active role in ensuring that the infrastructure is created that prepares people for current and future jobs. Key components of the Act will:

- Enable customers to easily access the information and services they need through the "One-Stop" system,
- Empower adults to obtain the training they find most appropriate through Individual Training Accounts, and
- Ensure that all State and local programs meet customer expectations.

The bipartisan WIA also provides the authority for a state of the art, quality information system that helps American workers and companies navigate the labor market and exercise informed choice in their workforce decisions. There are several components to this system:

- **America's Job Bank** – the biggest and busiest job market in cyberspace; 1,750,000 job vacancies from every State; new jobs added daily; simple to use..
- **America's Talent Bank** – where more employers find people they need; lists 700,000 resumes; allows job seekers to post resumes electronically.
- **America's Career InfoNet** – the information source for smart career decisions; has national State and metro labor market data; employment trends, wages, and more; millions of employers listed by industry.

- **America's Learning Exchange** – lifelong learning resources at your fingertips; lists 200,000 courses, 5,000 training providers; training, education, technology for career advancement and development.
- **O*Net** – information source for employers, students, job seekers, career counselors and others on job requirements and worker competencies.

In Fiscal Year 2000 roughly \$4.5 billion will be invested in Title I of WIA to support formula-funded services. Congress recognized in ACWIA the need to build a single, unified skill development system under WIA. Thus, it specifies as eligible applicants for the H-1B Technical Skill Training Grants Program Private Industry Councils under the Job Training Partnership Act, local Workforce Investment Boards established under the WIA – or regional consortia of these bodies. As the Department of Labor helps States and local communities implement WIA, it is building and strengthening partnerships among Workforce Investment Boards, businesses, schools, labor unions, public agencies, and community-based and faith-based organizations that can help meet local and regional demands for high-skilled workers.

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by Side Analysis H-1B Legislation

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Views

H-1B Cap

Current Law

FY 1999 = 115,000
FY 2000 = 115,000
FY 2001 = 107,500
FY 2002 = 65,000
FY 2003 = 65,000
FY 2004 = 65,000

S. 2045 Hatch/Abraham

FY 1999 = 115,000
FY 2000 = 115,000 + 80,000 = 195,000
FY 2001 = 107,500 + 87,500 = 195,000
FY 2002 = 65,000 + 130,000 = 195,000
FY 2003 = 65,000
FY 2004 = 65,000

H.R. 3814 Smith

FY 1999 = 115,000
FY 2000 = 115,000 + 45,000 = 160,000
FY 2001 = 107,500
FY 2002 = 65,000
FY 2003 = 65,000
FY 2004 = 65,000

H.R. 3983 Dreier/Lofgren

FY 1999 = 115,000 + approx. 20,000*
FY 2000 = 115,000
FY 2001 = 200,000
FY 2002 = 200,000
FY 2003 = 200,000
FY 2004 = 65,000

*Estimate of INS overage.
Within the '01, '02, and '03 caps:
1. 10,000 visas are set-aside for institutions of higher education and other research organizations; and,
2. 60,000 are set-aside for nonimmigrants with a master's or higher degree (or its equivalent).

Additional visas provided that are not counted against the cap:

1. visas for institutions of higher education and other research organizations (est. 10,000 visas); and,
2. visas for nonimmigrants with master's or higher degree from a U.S. institution within the period 90 days prior and 180 days following the filing of the petition (est. maximum 40,000).

The 45,000 additional visas provided in FY 2000 are contingent on the employer meeting certain requirements. For example, demonstrating that there was a net increase in total wages paid to U.S. workers during the previous tax year.

Increase the set-aside for workers with a master's or higher degree. Suggest phasing-in the increase - 40% in 2001, 45% in 2002, and 50% in 2003. (Change needed in Dreier/Lofgren & Hatch/Abraham)

Delete the cap exemptions for high education and workers with a master's or higher degree, but include set-asides within the cap. (Change needed in Dreier/Lofgren & Hatch/Abraham.)

Permanent Employment Visas

The annual permanent employment visa cap is 140,000 plus any unused family visas from the previous year.

Per country ceilings

Visas are subject to a limit of 7% per country or 2% per dependent area. For example, the maximum number of visas available for India in a fiscal year is 9,800. In addition, the maximum number of visas issued in a quarter may not exceed 27% of the total available for the year.

Lifts the 7% per country/ 2% area limit in calendar quarters in which the number of visas available exceeds the number of qualified immigrants.

No such provision.

Lifts the 7% per country/ 2% area limit in calendar quarters in which the number of visas available exceeds the number of qualified immigrants.

Add Administration's proposals on late amnesty and NACARA.

Sunset this provision with the length of the cap increase (e.g., in Dreier/Lofgren until October 1, 2003). (Change needed in Dreier/Lofgren & Hatch/Abraham)

Limiting fall across for certain countries

The INA provides special rules related to the per country/area limits.

Lifts special rules related to the per country/area limit.

No such provision.

Lifts special rules related to the per country/area limit.

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Side Analysis B Legislation

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	Current Law	S. 2045 Hatch/Abraham	H.R. 3814 Smith	H.R. 3983 Dreier/Lofgren	Views
<i>One-time Protection Under the Per Country Ceiling (for H-1B)</i>	The maximum length of stay for an H-1B nonimmigrant is 6 years.	Allows an H-1B nonimmigrant to apply for an extension of stay (beyond the 6 year limit) until their application for a permanent employment visa has been processed.	No such provision.	Allows an H-1B nonimmigrant to apply for an extension of stay (beyond the 6 year limit) until their application for a permanent employment visa has been processed.	Limit this provision to applications that are filed within the 1 st three years the worker is in the country on an H-1B visa; OR, limit the provision to H-1B workers that have already applied for adjustment of status as of the effective date of the bill.
<i>Extension of H-1B Stay due to Lengthy Processing</i>	The maximum length of stay for an H-1B nonimmigrant is 6 years.	Provides an exemption from the 6 year limit to H-1B nonimmigrants who have had a labor condition application or a petition for permanent employment filed on their behalf for at least <u>one year</u> . The AG shall extend the H-1B's status in one-year increments until a final decision is made.	No such provision.	Provides an exemption from the 6 year limit to H-1B nonimmigrants who have had a labor condition application or a petition for permanent employment filed on their behalf for at least <u>six months</u> . The AG shall extend the H-1B's status in one-year increments until a final decision is made.	Same as above.
<i>Recapture Unused Permanent Employment Visas</i>	The annual permanent employment visa cap is 140,000 plus any unused family visas from the previous year.	No such provision.	No such provision.	Beginning in FY 2001, increases the permanent employment visa cap by the number of unused employment visas in FY 1999 (approx. 98,000) and FY 2000 (approx. 40,000 - 50,000). This number is reduced for fiscal years after 2001.	
<i>Internet Recruitment by employers who are required to recruit U.S. workers</i>	Employers filing a petition for permanent employment must take a number of steps to prove good faith recruitment of U.S. workers. H-2A, H-1C, and H-1B dependent employers and willful violators of H-1B must also recruit U.S. workers.	No such provision.	No such provision.	Provides that DOL must accept Internet recruitment efforts and the use of the Internet as an exclusive recruitment tool when determining whether the employer has met the recruitment obligations. The employer must post on a web site designated by DOL (for example, America's Job Bank).	Revise this provision to allow Internet recruitment to be an acceptable form of recruitment, but not the exclusive form of recruitment. (Change needed in Dreier/Lofgren. Hatch/Abraham does not have an Internet recruitment provision.)

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	Current Law	S. 2045 Hatch/Abraham	H.R. 3814 Smith	H.R. 3983 Dreier/Lofgren	Views
<i>Application of Internet Based Technologies</i>	No such provision.	No such provision.	No such provision.	Requires, not later than one year after enactment, the AG and Secretary of Labor to establish an Internet web-based system that will permit access to on-line information about the status of a pending application. The AG and Secretary of Labor shall consult with the Technology Advisory Committee (established in the bill) during this effort.	Extend the time period to establish an Internet based system from 12 months to 18 months. (Change needed in Dreier/Lofgren. Hatch/Abraham does not have an on-line application requirement.)
<u>Additional H-1B Provisions</u>					
<i>Increased Portability</i>	An H-1B nonimmigrant cannot move between employers unless the new employer has an approved petition.	Allows an H-1B nonimmigrant to accept employment with a new employer upon the filing of a new petition for the worker. The H-1B nonimmigrant can continue working while the petition is being processed.	No such provision.	No such provision.	Add a provision to extend these requirements through the length of the cap increase - e.g., in Dreier/Lofgren until October 1, 2003. (Change needed in Dreier/Lofgren & Hatch Abraham
<i>Extension of Attestation Requirements and DOL Investigative Authority</i>	Currently, dependent employers and willful violators (as defined by ACWIA) are subject to non-displacement and recruitment requirements. In addition, DOL has investigative authority in certain circumstances.	Extends these requirements until October 1, 2002.	No such provision.	No such provision.	
<i>Recovery of Visas Used Fraudulently</i>		Provides that visas shall be issued in the order in which petitions are filed. In addition, restores visa numbers that have been determined to have been fraudulently obtained.	No such provision.	No such provision.	
<i>W-2 Forms</i>	No such provision.	No such provision.	No such provision.	Requires employers to file H-1B nonimmigrant W-2 forms with DOL. Effective after October 1, 2000.	Delete this provision. (Change needed in Dreier/Lofgren. Hatch/Abraham does not have a \

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Current Law

H-1B Visa Count

INS counts the number of visas based on petition approvals. (Set forth in regulation, not law.)

Anti-Fraud Provisions

S. 2045
Hatch/Abraham

No such provision.

No such provisions.

y Side Analysis
B Legislation

H.R. 3814
Smith

Requires the Secretary of State to maintain records on the number of visas issued.

Requires the following:

- (1) specialty workers and fashion models obtain status only via the H-1B program (no other visa);
- (2) full-time employment (defined as not less than 35 hours per week);
- (3) at least a bachelor's degree or higher in the specific occupation – clarifies that the term “or higher” includes a foreign equivalent degree – experience is no longer counted toward meeting the degree requirement (as is current practice);
- (4) an anti-fraud fee of \$100 (as described in the fee section below); and,
- (5) that the employer meet additional requirements: the employer must either be a college/university, governmental agency, non-profit, or place of business that is licensed. In addition, the employer must either be a government entity or have aggregate gross assets of at least \$5 million.

H.R. 3983
Dreier/Lofgren

No such provision.

No such provision.

DRAFT

Views

2 requirement.)

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Side Analysis
H-1B Legislation

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Current Law

S. 2045
Hatch/Abraham

H.R. 3814
Smith

H.R. 3983
Dreier/Lofgren

Views

H-1B Fee

Imposes a \$500 per petition fee on employers for: (1) an initial petition, (2) an extension of stay (first time), and (3) changing employers. Exempts colleges /universities and nonprofits from the fee. The fee sunsets on October 1, 2001. The fee is distributed as follows:

- (1) Job training (DOL) -56.3%;
- (2) Low-income scholarships (NSF) - 28.2%;
- (3) Additional NSF Uses - 8%;
- (4) DOL Administration - 6%; and,
- (5) INS Administration - 1.5%.

Extends the current fee for an additional year (expires October 1, 2002). Redistributes the H-1B fee revenue (as reported in Cmte):

- (1) Job training (DOL) - 36.2%;
- (2) Low-income scholarships (NSF) - 30.7%;
- (3) K-12 Grants (NSF) - 25.8%;
- (4) Systemic Reform (NSF) - 2.5%;
- (5) DOL Administration - 6%; and,
- (6) INS Administration - 1.5%.

*Adds to 102.7%.

[Produces an estimated \$351 million in additional revenue.]

Increases the fee to \$1,000. The fee still expires on October 1, 2001. Redistributes the H-1B fee revenue:

- (1) Merit-based scholarships (NSF) -- 84.5%;
- (2) Additional NSF Uses - 8%;
- (3) DOL Administration - 6%; and,
- (4) INS Administration - 1.5%.

[Produces an estimated \$57 million in additional revenue.]

Creates a \$250 expedited processing fee for eligible employers - the revenue is deposited into the Examinations Fee account (not the account with the H-1B fee revenue). [Estimated \$6 million.]

Creates an anti-fraud fee of \$100 - applied to petitions for new workers or petitions to change employers. The fees would be deposited into a separate account. Distributes the fee as follows:

- (1) 20 % for DOJ anti-fraud activities;
- (2) 20% for DOJ to remove deportable H-1B nonimmigrants;
- (3) 40% for State anti-fraud activities; and,
- (4) 20% for DOJ/State joint efforts. [Estimated \$14 million.]

Increases the fee to \$1,000 as of October 1, 2000. It is unclear from the drafting how long the fee is in effect - presumably until 2003. The increased fee only applies to new applications; extensions of stay and change of employers pay \$500 per petition. Redistributes the H-1B fee revenue:

- (1) Job training (DOC) - 25%;
- (2) Low-income scholarships (NSF) - 15%;
- (3) Loan forgiveness for teachers (Educ) - 33%;
- (4) Upward Bound (Educ) - 17%;
- (5) DOL Administration - 8%; and,
- (6) INS Administration - 2%.

[Produces an estimated \$640 million additional revenue.]

Increase the fee level to \$2,000 per petition. (Change needed in Dreier/Lofgren & Hatch/Abraham.

Revise the fee distribution. See the attached recommended distribution.

Add language that allows DOL and INS to spend the fee on activities related to the administration of the permanent ALC program in addition to the H-1B program. (Change needed in Dreier/Lofgren & Hatch/Abraham.)

by Side Analysis H-1B Legislation

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S. 2045
Hatch/Abraham

H.R. 3814
Smith

H.R. 3983
Dreier/Lofgren

Views

Current Law

Miscellaneous Provision

*NSF Study and
Report*

*Miscellaneous
Provisions*

Requires an NSF study to assess the labor market needs for workers with high technology skills over the next 10 years.

Requires NSF to study the divergence in access to high technology ("digital divide") and report on its findings within 18 months after enactment.

No such provision.

No such provision.

Add a provision that stated that D has enforcement authority under a permanent ALC program. (See the DOL draft language implementing the FY 2001 Budget fee proposal. Change needed in Dreier/Lofgren & Hatch/Abraham.)

Add a provision that makes the processing of "failure to select" consistent with citizenship status discrimination (when a U.S. worker is passed over a foreign worker) consistent with citizenship status discrimination. (See DOJ draft language. Change needed in Dreier/Lofgren & Abraham/Hatch.)

Add the Administration's FY 2000 proposal -- \$1,500 per ALC application. (Change needed in Dreier/Lofgren & Hatch/Abraham.)



Ruth M. Samardick
04/12/2000 04:49:29 PM

Record Type: Record

To: Melissa G. Green/OPD/EOP@EOP

cc:

Subject: revised House mark-up report

Smith's bill was passed by the Immigrations Subcommittee by voice vote.

Sheila Jackson-Lee offered hers as a substitute, but it was deemed non-germaine due to jurisdiction. (Smith left out all the fee provisions, including only a \$100 enforcement fee, so as to avoid jurisdictional problems.)

Lofgren offered a new substitute. It was different than her last -- haven't seen it but I'm told it included Late Amnesty & Nacara. It was deemed non-germaine as well. In her later remarks regarding her substitute, **she claimed that Clinton commended her on her work on the Dreier/Lofgren bill.** Lofgren's remarks also included sharp criticism of the INS.

A Goodlatte amendment, requiring physical therapists to have qualifications similar to those of U.S. therapists, was adopted.

There was implicit agreement that there will be a full-committee markup.

Several members made remarks in favor of late amnesty and Nacara, including Conyers, Berman, Barney Frank, Shiela Jackson-Lee and Bill McCollum of Florida.

Canady and McCollum both spoke of the need to supplement the agricultural workforce as well, referring to the H-2A program.

Summary of the New Technology Worker Temporary Act

Additional Visas

.. fy 2000, 2001, 2002 No cap on the number of visas available

Conditions

In 2001-02, additional requirements to be met for those visas above current law are as follows:

The petitioning company must demonstrate that it has:

- a) increased its number of American employees over the last year (disregarding spun-off divisions),
- b) increased the total compensation to American employees over the last year, and
- c) increased the average compensation to American employees over the last year.

The high-tech companies that are calling for more H-1Bs visas are growing at a fast rate, hiring all the Americans they can find, and sharing their extraordinary profits with their employees. These companies need additional H-1B aliens in order to keep up these growth rates and to continue to provide new opportunities for American workers. The H-1B quota increase is intended to benefit these companies.

However, companies that are laying off large numbers of American employees or slashing their salaries should not have the opportunity to use an H-1B visa worker.

Final regulations implementing all provisions of the American Competitiveness and Workforce Improvement Act of 1998 must be in effect.

The 1998 compromise H-1B legislation (the American Competitiveness and Workforce Improvement Act) increased the annual H1B cap and at the same time added safeguards for American workers. While the extra visas became immediately

available, the substantive protections have never been implemented because the Administration has never issued final regulations. Thus, the 1998 compromise has not been carried out.

Additional Requirements for All H-1B Visas

H-1B visas will only be available to aliens who will be paid over \$40,000 a year (unless working at universities).

High-tech companies need H-1B visas to employ ““the best and the brightest”” aliens.

Employers shall provide to the Labor Department in electronic form specified information about each H-1B alien employed (including name, country of origin, academic degree, job title, start date and salary level). The Labor Department shall make such data available on the Internet.

The H-1B program will become completely transparent when information on the use of the program becomes widely available to Americans. This will increase the confidence of the American people in the program. It will also provide information about the demand for technology worker visas.

Fraud Prevention

H-1B aliens must work full time (other than those employed at universities).

Employers currently can petition for part-time workers. Companies doing this may be marginal operations that have trouble meeting the requirements of the H-1B program.

Companies filing H-1B petitions that do not have assets of \$250,000 must provide documentation of their business activity such as a copy of a lease, business contracts, and tax ID numbers.

Under current law, there are no minimum requirements for an employer to file an H-1B petition. H-1B petitions are sometimes filed by questionable companies that have few, if any, assets. These may be ““front”” companies set up solely to apply for H-1B visas to circumvent the family reunification process or are marginal companies whose level of business activity may be insufficient to pay the

required salary to an H-1B alien.

□ The provision of current law that allows aliens to substitute work experience for a degree is eliminated.

Current provisions encourage overstated and specious claims as to work experience. Assuring that H-1B professionals have college degrees will assure that only well-qualified true professionals will come here to work. The alien of extraordinary skills who does not have a college education can come on an “O” temporary visa.

When an alien applies for an H-1B visa based on a degree from an educational institution outside of the United States, it must be verified by a consular office or its designee located in the country where the degree was granted.

The H-1B program is vulnerable to fraudulent claims of foreign degrees -- counterfeit diplomas from real and fictitious foreign universities and diplomas from institutions not meeting the standards of an American college education. The individuals most able to verify foreign degrees are Department of State officers working in the countries where the diplomas are supposedly or they can consult private credentialing services working for the State Department.

An H-1B petition must be filed on behalf of any alien who is coming to the United States to work in a specialty occupation regardless of the source of the alien's pay.

Current Department of State regulations for “B” visitor visas permit the issuance of visas to certain aliens “normally classifiable as H-1B.” Employers who pay aliens from a source outside the U.S. can use this provision to avoid labor attestations and other requirements of the H-1B program designed to protect U.S. workers.

Employers must submit to the Department of Labor each year the “W-2” wage withholding statements for their H-1B employees.

This provision will help enforce current provisions of the law.

H-1B petitioners must pay a special fee (\$100). The funds will be earmarked for H-1B anti-fraud work and split evenly between the INS and the State Department.

The anti-fraud efforts of the Department of State and INS with respect to the H-1B program often falter for lack of resources. The anti-fraud fee would provide more funding for field investigations and joint inter-agency anti-fraud projects. It would also provide funding to pay for deportations of aliens who were admitted to the country based on a fraudulent H-1B application.

State Department Tabulation of H-1Bs

The Department of State would be responsible for counting H-1B visas.

The INS has consistently had problems tabulating usage of the H-1B program. The Department of State, conversely, has been keeping records for the various numerically limited immigrant visa categories for more than 40 years without problems.

Extension of Expiring Provisions

Provisions of the American Competitiveness and Workforce Improvement Act of 1998 that expire after fy 2001 will be extended through fy 2002.

If we are extending additional H-1B numbers through 2002, we should also extend the expiring worker protection provisions from the American Competitiveness and Workforce Improvement Act.

Standards for Issuance of H-1B Visas

Aliens seeking H-1B visas to teach American students must demonstrate proficiency in English.

We should not subject students in college to teaching assistants who cannot speak English well.

Clinton Presidential Records Digital Records Marker

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Divider Title: _____

**THE U.S. – CHINA WTO ACCESSION DEAL:
A CLEAR WIN FOR U.S. HIGH TECHNOLOGY, GREATER OPENNESS
AND U.S. INTERESTS
*APRIL 4, 2000***

Information Technology Has Helped Transform The U.S. Economy And Fuel Record Growth. Information technology (IT) has made a crucial contribution to the new economy, helping to fuel record growth, higher wages, and changes in the way business is done. IT accounts for only 8% of total jobs, but has been responsible for nearly one-third of U.S. economic growth. Declining IT prices have lowered the overall inflation rate by nearly one percentage point. Wages in the IT industry are 77% higher than the private sector average.

Access To China's Growing Market Is Vital To Maintaining U.S. Global Leadership In Information Technology.

- U.S. high technology industry exports to China have increased over 500 percent between 1990 and 1998. U.S. exports of communications equipment grew over 900% from 1990-1998. China's information technology equipment market is estimated to be growing at 20-40% annually.
- Some analysts predict China will become the world's second largest personal computer market by the end of this year, and the third largest semiconductor market by 2001.
- China is the world's fastest growing telecommunications market. Each year, China installs enough phone lines to replace networks the size of Pacific Bell. By the end of 1999, China boasted approximately 40 million cellular subscribers. Only the U.S. telecommunications market is expected to be larger by the end of 2000.
- In 1999 alone, the number of Chinese Internet users quadrupled, jumping from 2 million at the beginning of the year to 9 million. Growth predictions put Internet users at over 20 million by the end of 2000.

Opening China's Information Technology Market Will Help Integrate China Into The Global Economy And Fuel An Information Revolution In China. The WTO Agreement will make the tools of communication cheaper, better, and more widely available. It will enable Chinese businesses and consumers to connect and integrate with the global economy and advance China's integration into that economy. It will increase the flow and exchange of information among Chinese and between China and the outside world, in ways and such volumes that no amount of censorship or monitoring can totally control. This cannot help but promote the right kind of change in China.

China's Accession To The WTO Will Open China's High Technology Market To U.S. Firms, While Granting Permanent Normal Trade Relations Would Simply Maintain The Market Access Policies We Already Apply To China. China made significant, one-way market-opening concessions across the wide range of high technology products and services. The United States made no market opening concessions. China will eliminate information technology tariffs by 2005, grant trading and distribution rights by 2003, open its internet and telecom markets to investment and services, and provide stronger protection of intellectual property. This will allow the United States to participate in building China's information infrastructure. The Agreement also eliminates distortive investment practices such as local content, forced technology transfer and export performance requirements that can displace U.S. jobs. **The Only Way For Americans to Benefit From This Agreement Is For Congress To Grant China PNTR.**

- **China Will Eliminate Tariffs And Quotas On Information Technology Products By 2005.** Chinese tariffs on information technology products currently average 13%. Upon accession to the WTO, China will adopt the Information Technology Agreement, which eliminates import duties on these products. China will eliminate two-thirds of its tariffs by 2003 and the remaining one-third by January 1, 2005. China will eliminate quotas immediately upon accession.
- **American High-Technology Companies Obtain Trading And Distribution Rights For The First Time.** Currently, U.S. companies' ability to do business in China is strictly limited because the right to engage in trade (importing and exporting), and to engage in distribution services (wholesaling, retailing, transporting, repairing, warehousing, servicing) is restricted to a small number of companies with specific government authorization. China has committed to allow any entity to import most products, including high-technology products, into any part of the country, and will allow U.S. firms to establish, own and operate distribution services within three years of accession. This will allow our businesses to export to China from here at home, and to have their own

distribution network in China, rather than being forced to set up factories there to sell products through Chinese partners.

- **China Will Allow Foreign Investment In All Telecommunications Services For The First Time.** China now prohibits foreign investment in telecommunications. With WTO accession, it will permit 50 percent foreign equity share participation for value-added services (including, for example, electronic mail, voice mail, Internet, on-line information and data base retrieval, and enhanced/value added facsimile services) and paging services two years after accession, 49 percent foreign equity share for mobile voice and data services (including all analogue/digital cellular and personal communications services) five years after accession, and for domestic and international services (including, for example, voice, facsimile, intra-company e-mail, voice and data services) six years after accession. Geographic restrictions will be eliminated for paging and value added services two years after accession, for mobile voice and data services in five years, and for domestic and international services in six years.
- **China Will Adopt WTO Norms For Telecommunications Regulation.** China has agreed to implement the pro-competitive regulatory principles embodied in the WTO Basic Telecommunications Agreement. These include access to the public telecom networks of incumbent suppliers (i.e., interconnection rights) under non-discriminatory terms and at cost-oriented rates, as well as an independent regulatory authority. China has also committed to technology-neutral scheduling, which means that any basic service may be provided through any means of technology (e.g., cable, wireless, satellites).
- **The Agreement Will Provide Strong Protection For Intellectual Property Rights:** China has agreed to implement the Agreement on Trade Related Aspects of Intellectual Property Rights immediately upon accession and with no transition period. The TRIPs agreement is the best vehicle to combat piracy of U.S. software and create a healthy environment for the development of China's software industry. Under the TRIPs agreement, the U.S. software industry will be better able to enforce its intellectual property rights in Chinese courts and administrative tribunals.
- **The Agreement Contains Strong Provisions Against Unfair Or Market-Distorting Chinese Trade.** The Agreement guarantees our right to the special antidumping methodology we apply to non-market economies for 15 years after China's accession to the WTO. China has also agreed to a twelve-year product specific safeguard that ensures that the U.S. can take effective action in case of increased imports from China that cause market disruption in the United States. This applies to all industries, including high technology, permits us to act based on a lower showing of injury, and to act specifically against imports from China. After twelve years, current U.S. safeguard provisions -- Section 201 -- will remain available to address increasing imports.
- **China Will Eliminate Practices That Cost American Jobs And Technology.** China will abolish requirements that U.S. companies transfer their technology in order for U.S. companies to export or invest in China. This will better protect U.S. competitiveness and the results of U.S. research and development. In addition to implementing the WTO's Agreement on Trade-Related Investment upon accession, China will eliminate trade and foreign exchange balancing, local content and export performance requirements and refuse to enforce contracts containing those requirements. China will not condition import licenses and investment approval on performance requirements of any kind, including offset and technology requirements or the existence of a competing domestic producer. All this will make it significantly easier for American companies to export to China from the United States, rather than having to set up in China in order to sell products there.
- **State-Owned And State-Invested Enterprises Will Compete On Commercial Terms.** In this Agreement, China pledged that state-owned and state-invested enterprises will make purchases and sales solely on commercial terms, and will provide U.S. firms the opportunity to compete on non-discriminatory terms. These enterprises comprise a significant portion of the Chinese electronics industry and this Agreement provides rights to combat against discrimination against U.S. companies.
- **The United States Will Continue To Maintain Our Strong Export Control Policies And Laws.** Nothing in this Agreement affects our export control laws or policies, or our ability and conviction to enforce them.