

Clinton 'information highway' is no infrastructure program

by John Hoefle

There is a joke making the rounds of New York cab drivers. The cabbie asks the rider: "Have you heard about Clinton's new infrastructure program?" Rider: "What about it?" Cabbie: "We're going to build an information highway." Rider: "What's that?" Cabbie: "You know . . . fiber optic cables everywhere. You will be able to eat by watching a hamburger on TV three times a day."

The reference is to the new nationwide computer network proposed as part of the \$30 billion infrastructure package announced in President Clinton's economic program.

On Feb. 22, President Clinton, Vice President Al Gore and Clinton's national science adviser Jack Gibbons, went to Silicon Valley in California, to announce the "Technology for America's Economic Growth: A New Direction to Build Economic Strength," which features a plan to link the country's businesses, schools, libraries, hospitals, and government agencies by a network of high-speed computerized "information highways." Technically, such computer nets are communications infrastructure that can benefit the physical economy. So why the jokes?

First, the overall administration infrastructure proposal is too small for the desired effect of creating high-technology jobs through rebuilding the decaying physical infrastructure of the economy. Second, Gore, known as the "tekkie" in the administration because of his affinity for computers, has been asserting that the computerized information network *is equivalent* to hard infrastructure and tangible goods, such as bridges, ports, rail, and by implication, hamburgers.

A nationwide computerized network of the sort proposed by the administration and the computer manufacturers, would be useful as an adjunct to a functioning industrial economy. But it can never *replace* an industrial economy, because it is overhead; the money spent on such a project must be deducted from the real profits of the physical economy.

The Clinton administration has not shown that it compre-

hends the difference between overhead and production, judging by Gore's remarks on Feb. 22 to the employees at Silicon Graphics, a computer manufacturer in Mountain View, California. At the beginning of the Industrial Revolution, infrastructure meant such things as "deepening ports," he said. Later, infrastructure came to mean such things as "extending the railroads to carry goods, for example, coal, to places for use by consumers." But today, Gore said, infrastructure means building a computer network to "move information." Clinton claimed that the program would strengthen the economy and keep the United States "on the cutting edge of change."

What is it?

The "information highway" would consist of a nationwide high-capacity computer transmission grid or "backbone," a sort of electronic interstate highway system, which would connect the major metropolitan centers and provide for the rapid movement of all sorts of computer data. The network would be built in stages, to eventually include most of the businesses, public institutions, and homes in the United States. Proponents say it will revolutionize the way Americans live, by opening up new possibilities for work, study, and play.

With the capability for nearly instantaneous transfer of large amounts of data, businesses could link their computers in ways not now feasible, allowing close tracking of sales, inventory, and financial conditions. Businesses would be able to exchange data with their customers, allowing them to eliminate much of the delay inherent in paperwork. For example, a retailer's computer could automatically notify a supplier when stocks run low, making the "just in time" delivery more efficient.

Proponents of the plan envision users gathering a wealth of information on almost any subject from a terminal in their home, office, or library. With access to so much information at your home, proponents say, the distinction between home

and office blurs. With your office computer, and with the capability of video conferences with your co-workers and business associates, much of the work now done from the office could be done from the home.

Telecommuting

Under the Federal Clean Air Act which took effect in late 1992, all companies with at least 100 employees in certain cities, must reduce their commuter ranks by 25% by 1996. Absent serious mass transit alternatives, these companies must do so either by cutting the number of employees, getting employees to use car pools, or allowing employees to perform some of their work from home. In response, many state and local governments, and a growing number of businesses, are establishing telecommuting programs for their employees.

There are already some 7 million "telecommuters" in the United States, and the number is rising by nearly 20% a year, according to Link Resources. These telecommuters spend an estimated \$4.5 billion a year on personal computers, faxes, and phone services for their home offices. The costs to the employers and the telecommuters vary, as some companies provide the equipment, and others require the employees to buy their own.

Bell Atlantic, one of the regional Bell telephone companies, has a model of the "intelligent home" of the future in the Cascades development in Loudoun County, Virginia. The centerpiece of the home is an interactive video system that is a combination computer, telephone, and cable TV. Bell Atlantic is wiring 6,000 homes, businesses, and schools in Cascades with fiber optic cables, to create a small-scale version of the information highway. Cascades residents are supposed to telecommute to work, order groceries, pay bills, and play interactive video games with neighbors all from home.

Post-industrial society

The Clinton-Gore plan is based upon a proposal by the Computer Systems Policy Project (CSPP), founded in 1989 by the chief executive officers of many of the nation's biggest computer manufacturers (Apple Computer, AT&T, Compaq, Control Data Systems, Cray Research, Data General, Digital Equipment, Hewlett-Packard, IBM, Silicon Graphics, Sun Microsystems, Tandem, and Unisys). The CSPP proposal calls for the government to create a National Information Infrastructure Council, headed by Gore, to push for the development of information technology as a replacement for what CSPP head John Sculley, chief executive of Apple Computer, calls "that old industrial model."

The essence of the CSPP's position was presented by Sculley at Clinton's economic summit meeting in Little Rock, Arkansas on Dec. 14, 1992. "I believe that we're at a turning point in the world economy today, not unlike what we saw at the time we had a transformation from the agricultural economy in the 19th century to the industrial economy that we've had for most of this century," Sculley said.

Replacing this "old industrial economy" and its mass production and consumption, Sculley said, will be a "new economy" of decentralized work and custom-made products, capable of competing on a global scale. To effect this transformation, Sculley said, we mean the "reorganization of work itself. This means the re-engineering of the way that work actually gets done to be more productive in the new economy. But there's a major problem, and that is that most Americans don't know what this new economy is and they don't realize how much of an impact it's going to have on their lives in the years ahead."

If you are one of the millions of former industrial workers, whose life has already been "re-engineered" by this post-industrial nonsense, you should have a pretty good idea of what this means.

Not everyone is happy with the government's plans to build and operate such a system. Leading the fight against it are long-distance phone companies such as AT&T, which would prefer to build and control the system themselves, and various advocates of free enterprise, who see the government's plan as the implementation of an "industrial policy" designed to help American industry. What a lot of the fight boils down to is, who will get the government research funds to develop the information highway hardware and software, and who will control the income from the implementation and servicing of the network.

Internet

A version of the information highway already exists, in the form of Internet. Construction on Internet began in 1969, financed by the Department of Defense to link universities, research labs, and military installations working on various defense-related projects. With the computer boom of the 1970s and 1980s, Internet grew into a matrix of more than 9,000 interlocking networks connecting some 100 countries, offering on a smaller scale many of the services planned for the new network.

The problem with Internet, is that it operates over ordinary phone lines, which are not capable of handling the volume of data required for the new network. That problem was addressed by the High Performance Computing Act of 1991, sponsored by Gore, which authorized \$2.9 billion in financing over five years for the development of a National Research and Education Network. One of NREN's tasks will be to raise the capacity of Internet's backbone from 45 million bits of data per second, to 3 billion bits per second.

For the new information highway network to perform as advertised, it must be based on fiber optic technology. Fiber optic cables can transfer data at the speed of light, far faster than electrons can travel over copper wire. Critics say the fiber optic system would be too expensive, and urge that the new system be based upon Integrated Services Digital Network, which would increase the capacity of the existing copper wire grids.