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Turning the Desktop PC Into a Talk Radio Medium

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Talk radio is coming to desktop computers.

Within a few weeks, a Virginia-based entrepreneur plans to begin broadcasting a weekly 30-minute radio talk show on Internet, the global computer network that links together more than 10 million scientists, academics, engineers and high-tech industry executives.

Listening to such a program via computer instead of a radio might seem merely a digital curiosity. But many computer scientists and telecommunications experts believe it signals the first step in a transformation in which national and even global computer networks will fiercely compete with -- or even replace -- traditional television and radio networks that broadcast over the air or transmit by cable. Listen Now, Listen Later

Many desktop computers, including some of the less expensive models found in the home, now have speakers and software that permit sound effects. When the new program, to be called "Internet Talk Radio," makes its debut, Internet users will be able to obtain it as a file of computer data, just as they might "download" from the network a research report, data about a scientific experiment or any of thousands of other data files.

Listeners with sufficiently sophisticated gear can listen to the program as it is transmitted or choose to store the data in their computers and play it later. Listeners with less sophisticated equipment can hear it only after the data have been received and stored. Either way, the program will be divided into segments, so those Internet users who wish can select only parts of the program listed in a menu -- taking the book reviews, for instance, while passing up the week's news.

"We're not all going to start listening to radio on our computers yet," said Paul Saffo, a computer industry analyst at the Institute for the Future, Menlo Park, Calif. "But this is pregnant with possibilities. It's proof that the era of mass media is past." For the 'Real Time' Crowd

Initially, the new digital radio program will be targeted at the programmers and technically minded researchers who spend their days sitting in front of advanced computers writing or manipulating software and who have the high-speed connections to Internet that permit listening to the program in "real time" as it is received, while continuing to do other tasks on the machine.

But the new multimedia technology is viewed as gradually having a much broader audience as computer networks evolve from primarily a means of carrying business or scientific data into a new digital medium that will increasingly compete with conventional media like television, radio and newspapers.

There are no technical reasons why a video version of a program could not be carried on Internet, except that some portions of the network do not currently have sufficient carrying capacity. Those limitations are likely to disappear, however, as more of the network links are upgraded to fiber- optic circuits under efforts like Vice President Al Gore's "data superhighway."

"It's a brilliant idea," said Nicholas Negroponte, director of the Media Laboratory, a computer research center at the Massachusetts Institute of Technology. "All of these guys -- newspapers, radio or television -- are really in the same business. We've always thought video or audio or data are different businesses. But today, when you radiate bits, those bits don't have to have a specific medium attached to them."

Blending the power of the computer with conventional radio or television could create an intriguing new media that will give viewers or listeners more control over what they receive while allowing them to interact with the media in a manner not now possible. Conceiveably, any Internet user could create his own

audio or video program and and make it available on the network, just as the creator of Internet Talk Radio plans. 'Random Access Radio'

The program is the brainchild of Carl Malamud, a 33-year-old economist and writer in Alexandria, Va., who helped pioneer a computer network for the board of governors of the Federal Reserve Board. Mr. Malamud is the author of a number of technical books on computer networks.

Attempting to capture the "feel" of popular radio programs such as National Public Radio's "All Things Considered," Mr. Malamud said he believed that he could successfully aim a commercially financed show at engineers and technically minded computer-network users by filling a gap left by the trade newspapers.

"I call this random access radio," he said. "Our listeners can start, stop, rewind, or otherwise control the operation of the radio station."

Mr. Malamud said the program already had three commercial sponsors: Sun Microsystems Inc., the computer work station manufacturer; O'Reilly & Associates, a technical book publisher, and Computer Literacy, a Silicon Valley bookstore chain.

The program will be aviable to network users in the United States, Europe and Japan.

Each weekly half-hour program, which will be taped and transmitted later, will be built around an interview with a person widely known in the computer network field -- or, as Mr. Malamud said he was dubbing the section, the "Geek of the Week." He said the main feature would be accompanied by a number of smaller segments that would include computer network news, gossip, book reviews and even restaurant reviews sent in by users of the computer network.

"My view is that desktop broadcasting is an easy thing to do," he said. A Presidential Feed

"Internet Talk Radio" is based on a series of emerging technologies being used experimentally by many Internet users. They have been recently experimenting with digital video conferencing, telephone calls and even music broadcasting over the computer network.

For example, during President Clinton's visit last week to the Silicon Valley computer maker Silicon Graphics Inc., a digitized version of the video feed of the event to the news media was simultaneously transmitted to employees so they could watch from their computer work stations. The same digital data stream was also accessible to Internet users with hardware sufficient to receive it.

The data file comprising the entire half-hour program will require 15 million bytes of computer storage space, the equivalent of about 15 good-sized novels. Such a file, while a mere morsel for a powerful work station, would occupy a significant portion of most home computers' storage capacity. Getting Started

Listening to the program as it is being transmitted requires a computer network capable of supporting a stream of data of 64,000 bits a second -- a rate that is higher than conventional personal-computer modems but well within the reach of standard office computer networks, which can send data at speeds of up to 10 million bits a second. A less sophisticated computer with a modem that receives data at 2,400 bits a second would require almost 14 hours to receive the entire program. But more sophisticated and lower-cost technology expected to be on the market soon would make such broadcasts available on home computers.

"Internet Talk Radio" will be transmitted in an audio format that has become a standard in the world of high-powered work stations. For personal computers, assuming they are equipped to handle sound, various adapter products on the market would allow the program to be heard.

Mr. Malamud said that his files would initially contain only audio, but there is no limitation against adding additional computer instructions to expand the power of the digital audio.

"I'm looking at equipment that lets me put signals that would do things like allow you to move to the beginning of the next question or the next time the speaker changes," he said. "Another possibility is to run multiple sound tracks for translations or annotations of an interview."

Mr. Negroponte said the rapid growth of the Internet was largely being ignored by the big players in publishing and broadcasting. Internet has expanded so quickly that even network officials cannot say with precision how many users there are. The best estimates indicate a global audience of more than 10 million computer users routinely exchange information and read electronic mail using the network.

"The big players are asleep at the wheel," Mr. Negroponte said. "This network is growing 15 percent each month. It's not just hackers anymore."