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F.C.C. to Promote a Trading System to Sell Airwaves

By STEPHEN LABATON

WASHINGTON -- As the airwaves grow ever more congested with modern wireless communications, the federal government is developing plans to open up the spectrum by, in effect, treating its frequencies as commodities to be bought and sold as routinely as pork bellies or soybeans in the open market.

Officials at the Federal Communications Commission say they are preparing rules that would create a trading system in which telecommunications companies of all kinds, from old-fashioned radio stations and telephone companies to purveyors of wireless Internet services, could bid for underused slivers of the spectrum that are already under the control of other companies.

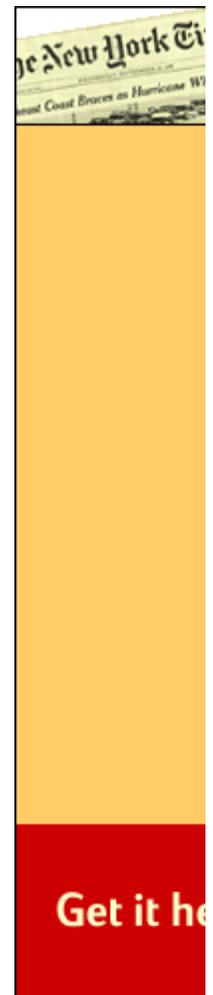
It would be a radical overhaul of the rules governing one of the most valuable, if intangible, forms of property in the new economy: the rights to transmit electronic signals at specific radio frequencies that constitute the spectrum. It would also have profound implications, not only for the telecommunications industries, but for consumers as well.

Under the current system, the federal government licenses each user and regulates what frequencies and signal power can be used. Most times these rights have been sold to the industry, although the oldest license holders got them for free. But they have never been bought and sold in a secondary market like so many bushels of grain.



The Associated Press

William Kennard of the Federal Communications Commission.



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With the proliferation of cell phones, pagers, satellite services and other wireless devices, the communications agency's top officials have warned that demand is so outstripping supply that it may lead to what they call a spectrum drought, making the scarce spectrum even more valuable to haves and have-nots alike.

Right now, for instance, the agency reports that the volume of traffic on the Internet is doubling every 100 days, a stunning increase considering that telephone traffic has traditionally risen about 5 percent a year. As consumers increasingly reach the Internet through wireless connections, like cell phones and handheld computers, experts fear the heavy use of the airwaves will begin to create bottlenecks and interference that could greatly frustrate the further development of the technology.

"What a tragedy it would be if, right as we're on the verge of the Internet migrating to inexpensive handheld devices and offering real hopes of truly democratizing the technology, the movement would be stymied by overloading the spectrum," William E. Kennard, the chairman of the Federal Communications Commission, said in an interview on Friday.

Kennard, who has been pushing the agency to consider what rules need to be changed to help deregulate the spectrum to foster a new market, said the FCC was just beginning to enable the licensees who own the rights to a given slice of the spectrum to make money from any surplus they have, like parts of the airwaves they may not be using 24 hours each day.

The plan began to take effect last week and will take many months to complete. In a little noticed [announcement](#) last Thursday, the FCC released rules for an auction this spring of a slice of the spectrum used by public safety organizations, including police departments and hospitals, as well as railroads.

Described by Kennard as "putting our toe in the water," the rules will reserve some of the frequencies to be auctioned to "guard band managers." They would be able to lease and trade the frequencies they win at the auction to commercial companies or private wireless users, setting up a system that opens the door to brokers who could help match buyers with sellers.

Another auction this year for even more valuable frequencies, those being vacated by broadcasters as they convert to digital television, is also being prepared in a way intended to encourage new spot markets. These frequencies, considered beachfront property by the industry, can be used for a wide variety of technologies beyond television, including cell phone and Internet communications.

If the idea works, the trading of spectrum futures could benefit the telecommunications companies that own licenses and other

companies that cannot function without obtaining access to the airwaves. And consumers, in theory, would benefit from more capable communications devices and cheaper bills.

Just as the trade in physical commodities allows farmers to hedge against abrupt swings in price and enables consumers to count on steady supplies, economists and communications experts say a new approach that treated scarce frequencies as a commodity would allow new and older technologies to continue to flourish.

In theory, officials and economists say, the secondary market would be beneficial to consumers in several ways. Economically, it would create a more efficient and predictable way of matching supply and demand, and therefore would result in lower costs for using any equipment that makes use of the spectrum, like cell phones and pagers.

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Technologically, it offers the hope of better reception for consumers who have begun to encounter greater interference as the spectrum has become overloaded.

"There is a severe spectrum shortage," said Peter Cramton, an economics professor at the University of Maryland who as chairman of the [Spectrum Exchange Group](#), a Washington company, is involved in a private effort to auction parts of the UHF television spectrum in conjunction with the broadcast auction.

"Consumers want better services," Cramton said. "They want high-speed data. They want a connection every time they place a call on their cell phones, not three-quarters of the time. The needs for users right now are great."

Officials at the Federal Communications Commission described a variety of ways a commodity market in the spectrum would work.

-- News organizations covering political conventions or the Olympics would be able to buy contracts to use a piece of the spectrum during the event to give them extra capacity to beam pictures, sound and data back to their headquarters.

-- A large metropolitan airport congesting the local airwaves around it with everything from air traffic transmissions to car rentals and cell phone users would be able to reserve space from other spectrum users who are not fully using their space during peak hours.

-- Nationwide cell telephone companies would be able to buy and sell pieces of the spectrum in different regions of the country depending on the available supply and the demands of their customers.

Kennard and executives of some companies that are involved in

creating markets for fiber-optic cable use said they envisioned a secondary market that could be set up by brokers on the Internet, much the way a secondary market exists for reserving the excess capacity of fiber-optic cable. They said the market would exist on a Web site listing what is available from licensees to trade to other companies who would want to buy or lease space, an eBay for telecommunications companies.

Companies like [Arbinet Communications](#), [Enron](#) and [The Williams Cos.](#) now act as brokers to essentially buy and then sell unused telephone time on fiber-optic cables.

At a telecommunications conference sponsored by Credit Suisse First Boston in New York last week, executives from some of the companies now involved in trading unused telephone time said that the FCC's proposal held great promise, but that it would take time to develop.

"The beauty of wireless is that the current system for trading it is so inefficient," said Eric L. Rabb, managing director of [AIG Telecom](#), a unit of the American International Group that acts as a broker for access to time on fiber-optic cable. "What we apply now to the wired world we can apply to the wireless."

Officials at the FCC say they are planning a forum this spring on ideas and rules changes for encouraging spot markets for the spectrum.

"Just through our licensing records we already have the most comprehensive list of potential sellers," Kennard said. But even as it seeks comment on changing the rules, he said, the agency is beginning to take steps beyond just the way it structures spectrum auctions to encourage the new marketplace.

This week, for instance, the agency plans to begin writing rules for a new technology that could have a profound effect on a secondary market. The technology is known as digitally defined radio, and it would allow new kinds of radios and cell phones with special software to seek out different and broader frequencies than current radios and phones.

The military has expressed interest in digitally defined radio because it would enable radios to avoid being jammed by an enemy by searching for a clean signal. But other companies are also developing products that rely on the technology.

By making broader use of the spectrum, digitally defined radio would also encourage telecommunications companies who are not using all of their licensed frequencies to their full capacity to lease their underused portions in a secondary market.

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