



CITIES GO WIRELESS

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By offering wireless Internet to their residents, cities across the United States are joining in the growing telecommunications battle over the future of the Internet.

For many in the United States, a high-speed Internet connection is becoming a way of life.

The broadband or high-speed Internet connections that were once found only in universities and businesses can now be found in more than 37 million locations, including homes, libraries and schools. According to the Federal Communications Commission, this number is up from only 7 million in 2000.

Currently the U.S. Congress, giant telecommunication and Internet content providers are debating how to upgrade the nation's communications infrastructure to accommodate the growing demand for high-capacity Internet connections.

In most communities across the country people can only subscribe for high-speed Internet connection through their cable or phone company. Many believe that this "broadband duopoly", or dual monopoly, is responsible for the high cost -- at least \$35 a month -- of broadband across the country.

In an effort to narrow this digital divide, communities and cities across the country are turning to a wireless alternative.

One if by land, two if by air

Most Internet users access the World Wide Web through a landline. Landlines directly connect individual computers to an underground network of wires that branch from a central trunk. These connections are owned and operated by telephone and cable companies.

Because of the high cost of installing this infrastructure, landline Internet connections are usually found in large cities and suburbs where Internet users live close together.

Wireless Internet uses antennas to broadcast and receive signals that provide Internet to users without the use of wires; since wireless networks require less physical infrastructure they are comparatively inexpensive to set up.

The antennas receive their signal from a large wired source, similar to the landlines. But instead of passing this signal along via wires, the antenna, or node, broadcasts the signal to nearby computers.

This wireless technology, known as wireless fidelity or WiFi, first became popular in coffee shops, colleges, offices and hotels.

Bringing WiFi to more users

In recent years the development of wireless mesh networks has made it possible to provide wireless Internet access across a larger area.

Mesh networks use nodes to repeat the wireless signal to other nodes. These nodes create a tightly knit and flexible network that can cover a wide area. Nodes on mesh networks are programmed to find the quickest route to all the nearby nodes. So if some of the nodes are damaged in a storm and go offline, the network can compensate for this loss and automatically shift the data flow.

Because mesh networks are relatively cheap, a large number of communities have built WiFi networks that are free to the public. These free WiFi community networks can be found in places like Austin, Texas; Lawrence, Kan.; and Champaign-Urbana, Ill.

Sascha Meinrath started the Champaign-Urbana Community Wireless Network, or CUWiN, in 2000. Originally, he planned to make the local school's Internet connection available to students at home after school hours.

The wireless technology allowed the organizers to cover a large portion of the city, including the college campus and local library.

Meinrath said the local WiFi network is a common good, in the same way a park benefits everyone.

The digital divide

Anaheim, Calif. was the first major city in the country to be completely covered by WiFi. The home of Disney Land, Anaheim has more than 300,000 residents and is located 28 miles southeast of Los Angeles.

John Nicoletti, Anaheim's manager of external affairs, said the city decided to offer wireless Internet because it gives the city "a competitive advantage among cities."

He also said he believes the lower cost of WiFi will "level the playing field across all socio-economic status levels."

The low cost of mesh networks enabled a local millionaire to throw a 700-square-mile WiFi blanket over part of rural Oregon, providing access for people who never had it before.

In Champaign-Urbana, the WiFi network has partnered with the Tribal Digital Village to connect the Mesa Grande Reservation to the Internet for the first time.

Matthew Rantanen of Tribal Digital Village says the impact of WiFi on tribal communities, some of which don't even have telephones, has been huge. Students are now able to pull information and pictures from the Internet for their school reports. "Previously the children made drawings and charts by hand," he said.

-- *Compiled by Bryan Hayes for NewsHour Extra*

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