Wi-Fi via White Spaces

Editor's Note: It will be very interesting to see how development of this portion of the spectrum is conducted. Blind, reckless greed-driven development or a well-planned roll-out? I am very interested in how well OEMs comply with device interference requirements.

(Technology Review [1]) – Long-range, low-cost wireless Internet could soon be delivered using radio spectrum once reserved for use by TV stations. The blueprints for a computer network that uses "white spaces," which are empty fragments of the spectrum scattered between used frequencies, will be presented today at ACM SIGCOMM 2009, a communications conference held in Barcelona, Spain. TV stations have traditionally broadcast over lower frequencies that carry information longer distances. However, with the ongoing transition from analog to digital broadcasts, more unused frequencies are opening up than ever.

By tapping into these lower frequencies, it should be easier to provide broadband Internet access in rural areas and fill in gaps in city Wi-Fi networks. For example, the spectrum between 512 megahertz and 698 megahertz, which was originally allotted to analog TV channels from 21 to 51, offers a longer range than conventional Wi-Fi, which operates at 2.4 gigahertz. "Imagine the potential if you could connect to your home [Internet] router from up to a mile," says Ranveer Chandra, a member of the Networking Research Group at Microsoft Research behind the project.

The FCC ruled last November that companies could build devices that transmit over white spaces but also gave strict requirements that this should not interfere with existing broadcasts, both from TV stations and from other wireless devices that operate within the same spectrum. Chandra and his colleagues designed a set of protocols, which they call "White Fi," to successfully navigate the tricky regulatory and technical obstacles involved with using white spaces.

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