

First White Spaces Network Brings Broadband Internet to Rural America

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For the first time in the U.S., unused TV broadcast channels freed up by the transition to digital TV are being used to wirelessly deliver high-speed Internet connectivity to business, education and community users. These unused frequencies are commonly referred to as TV white spaces.

Under an experimental license granted by the [Federal Communications Commission](#) (FCC), Spectrum Bridge designed and deployed a wireless TV white spaces network to distribute broadband Internet connectivity in Claudville, Virginia. To ensure that Claudville residents can make the most of this new high-speed connectivity, Dell, Microsoft and the TDF Foundation contributed state-of-the-art computer systems and software applications to the local school, as well as the town's new computer center. As a result, Claudville residents have already begun to reap the benefits of joining the online community.

“Earlier this year, Jonathan Large, a member of the Patrick County Board of Supervisors, testified before the Subcommittee I chair about the need for broadband service in rural communities like Claudville,” said Congressman Rick Boucher, Chairman of the Subcommittee on Communications, Technology and the Internet. “I am pleased that Spectrum Bridge, Dell, Microsoft and the TDF Foundation are presenting an innovative and promising solution by providing high-speed Internet services to the residents of Claudville through white space technology. I hope that Claudville will become a model for delivering broadband services to more rural communities in a cost-effective manner in the future.”

TV white spaces are vacant channels in the television band and are ideal for sending broadband signals across long distances and for penetrating walls, trees and other objects. These TV white spaces hold enormous potential for expanding broadband access, particularly in rural and other underserved areas.

“Our students and teachers did not have access to computers or broadband connectivity until now,” said Jerry Whitlow, administrator of Trinity Christian School. “The advantages these new technologies bring to our classrooms will be numerous, including expanded research and information resources, greater understanding of important world events and access to new distance learning opportunities.”

The TV white spaces network is providing the “middle mile” link between the wired backhaul and the WiFi hot spot networks deployed in Claudville’s business area as well as the school. The same network is also providing last mile broadband connectivity directly to end users.

Signals delivered over TV white spaces can cover large areas and are unlicensed in keeping with a November 2008 FCC decision, so device-makers and network operators using TV white spaces frequencies take precautions to prevent interference with licensed television broadcasts. To ensure that the use of TV white spaces in Claudville does not cause interference with local TV signals, the network is controlled by Spectrum Bridge’s intelligent TV white spaces database system. This database assigns non-interfering frequencies to white spaces devices, and can adapt in real time to new TV broadcasts, as well as to other protected TV band users operating in the area.

“Due to its availability and range, TV white spaces have proved to be a very cost-effective way to distribute [high-speed Internet](#) in this heavily forested and hilly rural community,” said Peter Stanforth, CTO of Spectrum Bridge. “The non-line of sight conditions, coupled with long

distances between radios, would have posed significant challenges to existing unlicensed alternatives. TV white spaces could prove to be invaluable to those striving to bring broadband access to underserved and unserved rural communities.”

TV white spaces hold promise for other rural communities in Virginia and throughout the country, as well as underserved areas, such as some inner cities. The rapid adoption of TV white spaces rules will allow industry to respond to government initiatives that seek increased broadband penetration on the state and national levels.

To discover what white spaces channels are available in your area, the Web site ShowMyWhiteSpace.com offers a free search tool that lists all open white spaces channels at any address in the U.S. This site also contains white spaces news and information, as well as links to FCC documents and other valuable white spaces resources.

Source: Spectrum Bridge Inc.

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