



Broadband Wireless: The Right Fit for Rural/Small Markets

By John Celentano, market development manager for broadband wireless in rural/small markets, TESCO Technologies

Broadband wireless systems offer the best fit for delivering high-speed Internet service in rural and small markets, especially where telephone, cable and Internet Service Provider (ISP) wired networks run out. Here's why.

Built for Speed

Broadband wireless is 4G (4th Generation). WiMAX, and soon-to-be-available Long Term Evolution (LTE), are optimized for high-speed Internet access mainly in stationary or portable applications at 50-100 Mb/s download speeds; digital voice is a value-added feature. 2G/3G cellular systems -- GSM/UMTS and CDMA/EV-DO -- were designed for highly mobile voice services with data handling added through technology upgrades; most 3G data connections are well under 20 Mb/s.

Flexible Deployments

Constructing broadband wireless infrastructure in rural/small markets is different from engineering cell sites on major networks in populous urban centers and adjacent suburbs. For rural/small markets, a high-capacity application could involve a small town and its surrounding community, typically with more than 100 users per base station within a several-mile radius of the base station. A low-density application, generally with less than 100 users per base station, could serve households and farms that are miles away from the base station. Each application can be configured with different antenna arrays and even different radios that have excellent propagation characteristics for high-speed broadband connections over long distances. By contrast, a number of short-range 3G cell sites would be required for the same data coverage.

Lower Capex per Household

Connecting customers with high-speed Internet access requires less capital expenditure (capex) per household at a specified data speed with 4G broadband wireless than with either 3G cellular, or broadband wireline technologies such as digital subscriber line (xDSL) or fiber cable platforms (FTTx). This is important for rural carriers serving small groups of customers spread over many square miles. Broadband wireless capex runs several hundred dollars per household. 3G cellular capex per household is greater because more cell sites are needed to maintain the same data speeds over the same number of customers. xDSL capex is competitive if customers are close to the central office, but increases greatly over long loop lengths typical in rural markets. FTTx systems can deliver high-speed Internet connections, but installing the fiber-to-the-home (FTTH) drives corresponding capex to several thousand dollars per household. More important, broadband wireless backhaul using point-to-point microwave radio is more capital efficient in rural applications than copper or fiber cables.

The Importance of Broadband Wireless

Customers demand it. We live in the Internet age. Today, customers use their handsets and mobile devices not only for voice but for text, e-mails, file transfers, pictures and video clips, and generally surfing of the Internet. More important, customers expect reliable, anytime access to any of these media, regardless of where they live.

Our government wants it. Broadband is a priority for the Obama administration that is developing a National Broadband Plan intended to stimulate economic development and job creation, and to drive efficiencies in education, healthcare, energy, and national security.

Rural/small markets need it, too. The technology and the money are available to extend broadband technology into these so-called 'underserved' and 'unserved' areas of the country. Billions in broadband stimulus funds available under the American Recovery and Reinvestment Act are a commitment to make broadband widely available across the country to citizens, and public and private organizations alike.

In the end, broadband wireless solutions offer the best technology and investment fit for high-speed Internet connections in the rural/small markets.

800.472.7373
www.tessco.com/go/stimulus