

Fixed Wireless Can be a Fix for Broadband Access

Fixed wireless enables fiber-like high-speed broadband access while bypassing legacy network issues.

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While demand for broadband continues to grow, access to it can be a long, frustrating process, especially when such demand requires access through legacy copper networks which can create technological or timing issues. Fixed wireless, however, is one option that enables fiber-like high-speed broadband access while effectively bypassing troublesome legacy network issues.

Fixed wireless is a last-mile access technology that effectively extends a provider's fiber network by using wireless spectrum and equipment. To understand the advantages fixed wireless technology brings to customers and carriers alike, and what to consider when looking for a provider that uses fixed wireless technology to deliver end-to-end solutions, businesses should take a closer look at how a handful of carriers are maximizing the air waves to deliver value, speed and network reliability directly to customers' locations.



Connecting through the air. In addition to transmitting signals underground, XO Communications delivers on its promise of providing businesses reliable services at reduced costs by transmitting signals through the air.

How Fixed Wireless Can Satisfy the Demand for Broadband

Taking a look at the current telecommunications landscape, it is easy to see that there is a bandwidth bottleneck in the last mile, and why customers are urging carriers to find solutions to open the pipes. As of 1998, only an estimated 3 percent of the more than 750,000 commercial buildings in the U.S. were directly connected to fiber – the most flexible, bandwidth rich access technology – leaving the remaining 97 percent to find other options. As a result of a consistent decline in the annual growth of domestic fibered buildings, today the number of buildings connected directly by fiber has barely reached 5 percent.

However, broadband usage continues to increase rapidly as companies turn more

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and more to online communications services to support e-business strategies, transmit data-heavy files, or conduct online research. As of 1999, 3.49 million businesses were using broadband to share business critical information to customers, employees and vendors alike, and that number is expected to climb to 11.3 million over the next three years (eMarketer). Small- to medium-sized businesses (SMBs), which are now beginning to exploit cheaper access methods such as high-speed fixed wireless, are accelerating broadband adoption faster than ever before.

Although fiber will continue to be integral to telecommunications networks for both the access and backbone segments, economics will prevent fiber from being anywhere near the ubiquitous access solution that was once believed. Fiber construction to a building typically requires 3 - 6 months for permitting and construction and can typically cost anywhere between \$150,000 - \$300,000 for completion. Even with businesses that can afford the wait or cost, many providers are turning to fixed wireless as a fast and simple alternative to fiber for some customers. In fact, by 2003, some analysts believe broadband wireless networks will service at least 45 percent of U.S. businesses, accounting for 70 percent of an estimated \$7.4 billion in service revenues. It is no surprise that the gap between the lack of network availability and increasing demands for better, faster, cheaper access is driving the telecommunications industry to find solutions to reach more customers. And fixed wireless is at or near the top of that list.



Fixed Wireless Advantages

The fixed wireless technology offers an assortment of advantages: speed to market, reliability, flexibility and savings. Because the technology relies on line-of-sight microwave transmissions, no street construction is required to deliver service.

Microwave receivers are placed atop buildings to send and receive signals ranging from DS-3 and up to OC-3 speeds, with OC-12 applications expected to follow. Once an agreement is signed with building-owners, customers have been able to receive high-speed voice and data services via fixed wireless technologies much faster than through the typical fiber build scenario. And as a customer's bandwidth needs grow, wireless applications can often be quickly adapted to meet specific needs.

Fixed wireless also can provide SONET-like reliability because the fixed wireless network can be configured as a SONET ring. If the signal is disrupted in any one

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direction, electronics attached to the wireless equipment seek to automatically reroute the transmission to preserve the connection. For businesses that require critical communications functions, a combined fiber/fixed wireless solution can offer additional redundancy. In the unlikely case that the fiber network is actually severed, the business' communications services can be adapted to reroute to the fixed wireless application, transitioning the communications services to the redundant broadband wireless connection.

Fixed Wireless Limits

Even though the benefits of using fixed wireless services as part of one's total telecommunications solution are clear, it is important to realize that pure-play fixed wireless carriers may not be able to provide the best solution for a business's needs.

Carriers that invest in only one technology may lack the flexibility and freedom to choose from a variety of service delivery solutions. As the customer's needs grow and change, such carriers may lack the network support and product range needed to adapt to customer's needs. Additionally, bandwidth and distance limitations for fixed wireless technologies in an end-to-end network scenario have required pure-play fixed wireless carriers to rely on their competitors to supply critical metro and long-haul network components in order to meet the customer's service needs. Lack of control over a supplier's network elements combined with dependence upon a supplier's customer service and network quality performance can create obvious installation and service issues for businesses.

Conversely, carriers that own and control the entire communications transmission through the last mile on their own multi-faceted networks have a variety of distinct advantages including greater accountability for quality, reliable service, and greater flexibility in the tools used to deliver broadband services.

A Place for Fixed Wireless Technologies

Even with some of the pure fixed wireless carriers encountering difficulties, industry experts continue to believe in the technology. Analysts at Morgan Stanley Dean Witter believe the overall broadband market will reach \$42 billion next year, a quarter of which will come from wireless broadband. At that time, they suggest an estimated 45 percent of businesses in the U.S. will get their bandwidth from fixed wireless networks.

However, it is important to remember that fixed wireless technology, although vital to many businesses in need of connectivity to broadband networks, is merely one part of the complete telecommunications puzzle. With legacy copper networks continuing to dominate the U.S. telecom infrastructure, businesses continue to search for better alternatives. Additionally, as new services such as DSL-type access options and Ethernet services are deployed over the technology, businesses that are able to gain access to broadband via this technology will wonder what they ever did without their "fix."

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