



airband
beyond broadband

WIMAX: NAVIGATING BETWEEN HYPE AND REALITY

In the telecom industry, it can be difficult to distinguish the next disruptive technology from flash-in-the-pan ideas. But as the demand for broadband grows, most experts agree that the key to unlocking its true potential lies with the wireless technology called WiMAX.

WiMAX, which stands for Worldwide Interoperability for Microwave Access, is a standards-based technology that overcomes the limitations of legacy wired and wireless networks to cost effectively deliver a unified stream of voice, data, and video at high bandwidth levels over longer distances. While the ultimate impact of WiMAX remains to be seen, its ease of deployment promises to take wireless broadband from a niche market to mainstream acceptance.

MOVING BEYOND WI-FI

The advent of WiMAX dates back to 1999, when the Institute of Electrical and Electronics Engineers (IEEE) working group 802.16 was charged with developing a standard to make wireless networks more powerful. The group's goal was to far surpass the capabilities of Wi-Fi, the standard that today is widely used for wireless local area networks in homes and coffee shops. Wi-Fi offers only a short-range signal for Internet users within a few hundred yards, and is not designed to deliver the bandwidth or quality of service necessary to support a large number of users with voice or video.

WiMAX shatters the restrictions of Wi-Fi, taking wireless access beyond a personal convenience to a business-class service. When deployed via microwave radios atop buildings and towers, the technology allows service providers to blanket a much larger coverage area (in miles, not yards), with enough bandwidth to service hundreds of subscribers. For the first time, WiMAX enables even large business customers to take advantage of wireless broadband as their primary source for data, VoIP, video, disaster recovery, and other enterprise applications.

A DUAL VISION FOR WiMAX

Recognizing WiMAX's potential to change the communications landscape, the industry group known as the WiMAX Forum was formed in 2001 to promote the standard and certify related products. While potential uses for WiMAX will continue to emerge, the Forum envisions two distinct phases of adoption: fixed WiMAX first, followed by nomadic WiMAX longer term.

Fixed WiMAX

Fixed WiMAX is already a reality. Equipment developed for European markets was first to be certified by the WiMAX Forum and carriers have been offering WiMAX-enabled service for some time now. Equipment for use in the United States is still awaiting certification, but that's not stopping service providers from deploying "pre-WiMAX" (or WiMAX-ready) equipment, which can deliver the benefits of WiMAX before it receives the Forum's official stamp of approval.

Nomadic or Mobile WiMAX

Existing wireless 3G networks aren't able to meet the public's growing appetite for broadband, and WiMAX provides an alternative to provide mobile users with high-speed voice, data and video. A widespread nomadic WiMAX network could, for example, enable users to maintain a high-speed data connection on a laptop while riding in a vehicle, or download large files to a cell phone quickly. While certain technologies currently exist to offer similar services, coverage is limited and the costs are prohibitive for most users.

While complete adoption of mobile WiMAX is probably several years away, momentum is building with the buy-in of major industry players. Intel, Motorola, and Samsung are building WiMAX modems and handsets; and service providers including Sprint-Nextel have announced are making major investments to upgrade their wireless networks with WiMAX technology.

However, as with any emerging technology, lofty expectations should be tempered with realism. Despite strong industry support, the speed of adoption and true impact of mobile

WiMAX is still unknown. The massive hype but relatively slow adoption of Bluetooth is a recent example of how over-exuberance can lead to disappointing results.

THE WiMAX ADVANTAGE

The impact of WiMAX in fixed wireless networks is more immediate, and is already providing businesses with tangible benefits over other broadband solutions.

- Quality of service: Carriers can deliver varying levels of service, such as data, voice and video, which can be separated into Virtual LANs (VLANs). This ensures that the most critical services are always delivered first. This issue has been the main reason that carriers have not been able to provision business-quality voice services over wireless networks in the past.
- Increased scalability: Networks can support shared data rates of up to 30 Mbps – up to ten times that delivered by legacy networks. This provides businesses with cost-effective access to higher bandwidth levels, which will become increasingly important as more services are delivered over a single broadband connection.
- Enhanced security: WiMAX supports AES (Advanced Encryption Standard) and 3DES (Triple Data Encryption Standard) to provide stronger protection against theft of service, eavesdropping, and other security threats.
- Greater reliability: In general, the technology is more robust and will improve network performance. In particular, WiMAX equipment manages spectrum much more efficiently in a more automated fashion to eliminate potential interference issues.
- Broader coverage: An increasing number of businesses will be within reach of each base station. Carriers can manage the modulation of their radios to both overcome previous line-of-sight limitations and increase coverage radius beyond the 3-5 mile density typically targeted.

In addition to its superior service capabilities, WiMAX is also a vendor-neutral standard. This will provide carriers with greater flexibility in sourcing interoperable equipment from different vendors to maximize both the efficiency and the performance of their networks. Because WiMAX products for the U.S. have yet to be officially certified, true interoperability has yet to reach fruition. But this is of little concern to customers, who can realize WiMAX's many other benefits today.

LEADING THE CHARGE

As the largest provider of fixed wireless broadband for businesses in North America and an active member of the WiMAX Forum, Airband is taking an aggressive approach to deploying pre-WiMAX equipment in all new markets as well as upgrading existing infrastructure.

As a result, Airband is leveraging its scalable last-mile network to provide not only data, but a complete package of VoIP, security and remote data protection services – all over one wireless connection. For mid-sized enterprises especially, WiMAX presents an affordable means of consolidating all of their services with one provider to level the playing field with even the largest corporations.

The true implications of WiMAX's mobility and interoperability may still be hazy, but the advantages of higher performance and overall value for fixed wireless customers are as clear as day. One way or another, WiMAX is in it for the long haul.

For more information please visit www.airband.com or contact us at 866-AIRBAND.