



Success Brief

Intel® WiMAX Wireless

Broadband Technology



“At the end of 2003, we signed a protocol with Turk Telekom to supply ADSL broadband service to all schools. Unfortunately, this wasn’t possible since Turk Telekom’s infrastructure does not provide solutions at every place, especially in rural areas. We began to investigate alternative technologies and determined WiMAX to be the economical and logical solution.”

Prof. Nizami Akturk

General Director of Education Technologies

Ministry of Education, Turkey

WiMAX Makes it Easy and Affordable to Reach New Markets

WiMAX is a high-capacity wireless broadband solution that makes it feasible—and profitable—for service providers to offer services to smaller, emerging, and remote markets. With widespread industry support, the WiMAX broadband wireless standard delivers a cost-effective solution to service providers and their customers in diverse segments, including enterprise, consumer, and public service markets.

WiMAX technology enables connection speeds comparable to Digital Subscriber Line (DSL), cable modems, and T1 connections, and WiMAX can be deployed in just days, making it substantially less expensive than other alternatives such as Integrated Services Digital Networks (ISDNs). In addition, WiMAX networks can cover geographic regions far larger than 802.11 or Wi-Fi, and are therefore suitable as Point-to-Multipoint “last-mile” networks and backhaul solutions.

With WiMAX, service providers can quickly and cost-effectively connect millions of new customers to a fast, reliable broadband solution. Service providers are already benefiting from deployment of 802.16-2004 networks for fixed WiMAX applications, which deliver a full range of communication capabilities—including VoIP, Internet and intranet access, and distance education/video—to new and emerging markets worldwide.

Measures of Success: Turkey’s Leading Broadband Service Provider Finds Success with WiMAX

Efforts to improve education in Turkey have been hindered by the lack of broadband Internet access at many of the nation’s schools. Turk Telekom has more than two million Asymmetric Digital Subscriber Line (ADSL) subscribers, but when the Ministry of Education asked Turk Telekom to expand its service to reach more of the nation’s schools, the company recognized the need for a different broadband solution.

The broadband connectivity problems for Turk Telekom were especially challenging in rural areas and suburbs. The lack of copper infrastructure in some areas—along with distance problems between customers and local exchanges for ADSL applications—led the company to deploy a trial WiMAX broadband wireless solution in six village schools and a sugar factory in the city of Yozgat.

The results were impressive: high-speed data rates, strong NLOS and LOS performance, high service quality, and effective VoIP support. As the largest service provider in Turkey, Turk Telekom now has a broadband market share of more than 95%, and the company plans to use WiMAX technology as a complementary wireless broadband technology to ADSL, as well as offering broadband mobility services with WiMAX.

WiMAX technology has enabled Turk Telekom and the Ministry of Education to move forward with plans to bring a full range of fixed, nomadic, and mobile applications to the country, helping prepare the nation’s children for a brighter, more prosperous future.

For more information, please visit www.turktelekom.com.tr/eng_default.asp.



What's WiMAX?

World Interoperability for Microwave Access, Inc. (WiMAX) is a standardized wireless technology also known as the IEEE 802.16-2004 standard. The fixed version of WiMAX allows for non-line of sight (NLOS) connections, and serves end users at fixed locations or nomadic users moving at pedestrian speeds. Engineered to deliver last-mile wireless broadband access, as well as providing a cost-effective backhaul solution for cellular and Wi-Fi, WiMAX offers service providers a better service and business model than existing broadband wireless technologies.

Greater range, lower equipment costs.

While most existing wireless technologies, such as 802.11 or Wi-Fi, are range-limited to within a few hundred feet around the base station, WiMAX systems can deliver services over large geographical areas, and so are suitable as point-to-multipoint "last-mile" networks. Because WiMAX is based on international, vendor-neutral standards, service providers can choose among the hundreds of vendors in the WiMAX ecosystem, leading to economies of scale as the technology becomes more widely deployed.

Fast, cost-effective deployment

WiMAX deployment takes just days—not the months often associated with other broadband solutions. The cost savings of self-install customer premises equipment (CPE), as opposed to truck rolls, also helps to keep deployment costs low. In addition, the NLOS coverage of WiMAX means operators and service providers can rely on greater coverage predictability, thus ensuring higher installation success rates.

The Future of WiMAX

Intel believes broadband wireless technologies will help bring the next billion users to the Internet by providing new broadband wireless services in established markets and by enabling broadband services in previously underserved and emerging markets. More than 35 service providers have deployed commercial fixed WiMAX networks

using Intel-based CPE equipment. In addition, Intel is actively engaged with many of the more than 175 service providers worldwide that are preparing for both fixed and mobile WiMAX trials and deployments.

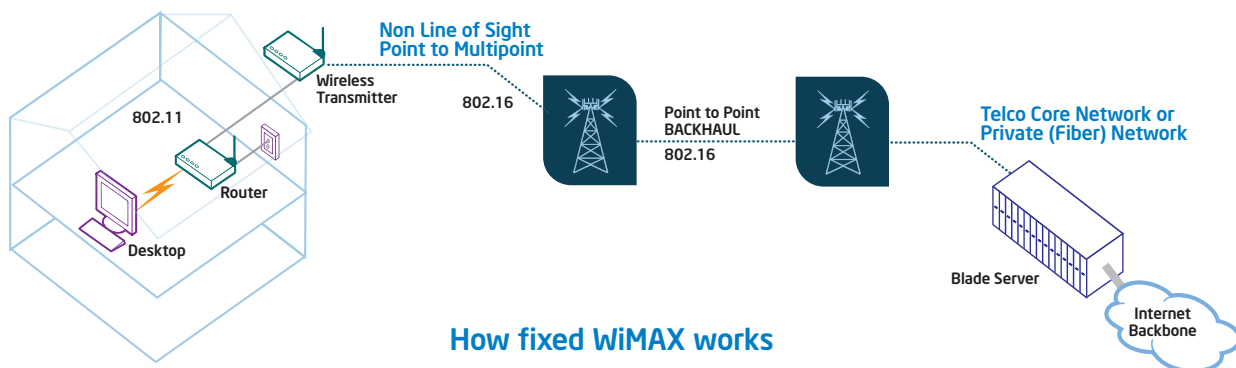
Because WiMAX technology can support both fixed and mobile broadband wireless applications, operators and service providers can win customers today by deploying fixed WiMAX, and then increase revenue and prevent future churn by rolling out mobile and nomadic WiMAX services. With the imminent availability of CPE using Intel's Rosedale 2 silicon, which supports both 802.16-2004 and 802.16e-2005, service providers will be able to deploy WiMAX networks today and later upgrade to a mobile network with an over-the-air software update. Rosedale 2 offers service providers the opportunity to get into the WiMAX market now, acquire customers, and still future-proof their networks for mobile WiMAX.

Intel and the WiMAX ecosystem, including the WiMAX Forum™, have made great progress. With more than 370 Forum member companies, the ecosystem continues to grow—offering service providers an extensive choice of certified and interoperable products from numerous equipment vendors. Intel continues to work with a growing community of developers, laying the path to Intel® Centrino® mobile technology integration and mass-market adoption for fixed and mobile WiMAX.

How Do I Learn More?

Service providers such as Turk Telekom are already successfully integrating Intel® technologies and providing WiMAX service to customers throughout the rest of the world, changing lives and bringing the future to every region. To learn more about WiMAX, visit www.intel.com/go/wimax.

The WiMAX Forum is an industry-led, nonprofit corporation formed to promote and certify interoperability of broadband wireless products. Member organizations and details can be found at www.wimaxforum.org/about/roster.



How fixed WiMAX works

Solution provided by: Turk Telekom

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