

## European Fixed Network Operators Shouldn't Focus on WiMAX Before 2008

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Fixed network service providers considering the deployment of WiMAX solutions in Europe must content themselves with a few niche market opportunities until 2008. At that time, equipment pricing and interoperability should reach the level required for wider adoption.

### **What Is Driving Service Provider Interest in WiMAX?**

The business case for widespread WiMAX adoption is not yet clear. Certainly there are opportunities, but on a cost-performance basis alone, other technologies, such as DSL and cable modem (where available), continue to offer a more-competitive route to market. The business case for WiMAX adoption is currently poor in most urban environments, except where public intervention is available, and where adoption is focused more on rural or semiurban environments with limited fixed infrastructure. The labor cost of deploying networks will be a big "swing factor" in building the business case in the lower-wage countries of Central and Eastern Europe (CEE). Most deployments to date have been by alternative operators, although some small rural deployments are also being carried out by incumbents where existing infrastructure is not suitable for DSL or other broadband services.

### **Early Adoption Is by Local Government and in Rural Environments**

Increasing demand for broadband access is creating a requirement for solutions that provide connectivity in locations not readily covered by cable or DSL. Demand is coming from several sources, including public-sector bodies — education authorities, county councils and transport authorities — for turnkey solutions that provide this capability. WiMAX has been touted as a possible solution, and indeed example networks do exist, such as that found in the U.K. town of Brighton.

The Brighton network, however, has an atypical business model because the local council has effectively underwritten the launch of the service provider Metranet by becoming an anchor customer for the service, which now covers 90 percent of the city with pre-standards WiMAX cells. The business model adopted by the service provider uses high installation charges to effectively cover the cost of the WiMAX base station and customer premises equipment used to connect to the network. This allowed the network to be built out on a commercial basis, without breaking EU rules regarding market distortion or market subsidies from the public purse. The interest from the local government perspective is to ensure competitive communications infrastructure for the local economy. Brighton had a particular need for a high-bandwidth symmetrical service because much of the telephony local loop infrastructure is built on aluminium pairs, rather than on copper. These suffer from higher attenuation, making them unsuitable for symmetric digital subscriber line (SDSL) services.

There is a second, sustainable market for Metranet: delivering high-speed Internet and point-to-point connections to businesses as an alternative to E1 circuits and in competition with SDSL. With the local authority making the initial setup of the network feasible, subsequent business users benefit from commercial terms not dissimilar to those of SDSL, while the provider's business model remains at least self-funding. With the capital investment for the customer location recouped in the installation, the monthly ongoing charge for connectivity can be priced competitively with SDSL. Some vendors then provide differentiation through lower network contention or higher-standard connection speeds than would typically be offered in an SDSL environment.

In general, urban environments are unlikely to offer the same return on investment to service providers as existing fixed network infrastructure, such as DSL. Rural settings will certainly prove less expensive to connect using wireless technology rather than laying new fixed infrastructure. In some cases, this may be done by public bodies either building their own ad hoc networks and

bypassing traditional providers altogether, or fostering the creation of new service providers whose focus is on ubiquitous broadband for the local community, as was the case in Brighton. This makes a case for pre-emptive network development by commercial providers where a customer need can be identified. For instance, in the early days of deploying DSL in the U.K., the incumbent BT asked local residents in rural exchange areas to sign petitions for DSL. When 200 signatures were obtained, the exchange was DSL-enabled. A similar approach could be used to cautiously build out WiMAX availability.

In countries with relatively low population densities, commercial providers of WiMAX have certainly developed, if not exactly flourished. In Austria, WiMAX Telecom has used an initial launch of its services in rural areas as a springboard to launch in urban areas, and it has now expanded into Slovakia and Croatia. WiMAX Telecom offers a range of asymmetrical business and residential services, with a usage-based pricing model and a telephony option (this despite quality of service [QOS] limitations with current WiMAX solutions). Likewise, in Spain, various small-scale rollouts have begun by the former incumbent Telefonica and other operators, which are focused on rural and wider suburban areas. None of these has a significant number of users compared with the traditional fixed network operations in the same countries; the largest has only a few tens of thousands.

There are, of course, issues to consider in any deployment of WiMAX. At low penetration levels, the cost of the base station itself has a significant impact on the overall network cost, and additionally the network is likely to require ongoing maintenance for small numbers of users. Some cable operators may see WiMAX as an attractive alternative to upgrading old cable infrastructure to two-way, but this will increase the complexity of their networks and of their service offer, necessitating a separate WiMAX device in the home to the existing set-top box and removing the opportunity for delivering a tightly integrated triple-play offer. Unless future wireless network variants are capable of delivering higher discrete capacity to individual users (either through increased overall bandwidth or through more-directional antenna design) to allow replacement of the cable path in densely populated areas, this market is likely to be limited to isolated users. Wherever DSL is available, its pricing will be the benchmark for investment decisions.

## Geographic Opportunities

In many parts of Europe, notably in CEE, fixed-line and cable penetration remains relatively low, and existing fixed networks are of poor quality. In such locations, mobile phones have become the preferred form of voice communication, and it is natural to expect that wireless data technologies will have more initial success in these markets. It is primarily the high labor costs of installing a fixed network that make WiMAX less expensive to use, although laying any new fixed broadband network will also be slower. Operators such as Ceske Radiokom, focused on business services in the Czech Republic, have also benefited from the slower build-out of DSL-enabled exchanges in the country, giving the company opportunities in a wider range of locations.

Hurdles to overcome in the countries of CEE include the following:

- Assuming fully utilized equipment, the hardware costs of supplying uncontented 2-Mbps bandwidth to an enterprise are actually much higher for WiMAX than for SDSL, although by 2007 this differential will have reduced (see "Market Forecast: WiMAX, Worldwide, 2005-2010"). In the lower-wage countries of the region, such as Romania, the business case for WiMAX is more marginal because fixed networks are generally built above ground, and the labor costs are a much-lower part of the overall cost, such that the combined cost of cabling and network equipment may be lower for fixed network installations based on commodity equipment than for WiMAX solutions.

- The other issue facing service providers here is the trade-off between attracting sufficient users to the service and keeping prices, and therefore margins, at an acceptable level. As with the Global System for Mobile Communications (GSM) mobile phone market, in which countries such as the Czech Republic are now reaching 100 percent penetration level, it is likely that third-generation (3G) networks will have a big influence on the shape of services used in much of CEE. Customers will continue to need a voice line, so the choice will become one of upgrading an existing GSM service to 3G or taking on an additional subscription for a WiMAX-based service offering.
- Longer term, for WiMAX to be competitive it not only will need to be priced accordingly, but also will need to incorporate the benefits of mobility found in the 3G environment. That means waiting for networks that meet the 802.16-2005 (formerly 802.16.e) standard for Mobile WiMAX. Tested, interoperable devices based on this standard may not be available until 2008.

## Long-Term Success in the Business and Consumer Markets

Service displacement opportunities exist for WiMAX across Europe, such as in the 2-Mbps E1 market for business customers, although here WiMAX may need to compete against technologies such as SDSL. Likewise, wireless backhaul for GSM operators represents an opportunity, although many such operators are likely to build this capability in-house rather than source it from an alternative provider.

For WiMAX to become widely adopted in the consumer and small-business market in Europe, service providers must look beyond attractive niches and be able to answer the question, "What does it take to make a DSL or cable customer churn?" There are a number of key issues here:

- Price — The price of WiMAX services, including the initial installation price, must be comparable to DSL and cable prices. Because these are falling in most major markets, this gap is not getting any smaller.
- Connectivity speed — While this is not in itself a customer winner, to remain competitive (in terms of "features" and in terms of benefits that can be enabled) WiMAX must match mainstream consumer broadband service speeds. This means a minimum of 8 Mbps today (and, increasingly, 20 Mbps or more, in markets where asymmetric digital subscriber line 2+ has become the standard).
- Service offering — The range of services delivered — triple or quad play — will become entry-level stakes for service providers in the next few years, and so WiMAX providers must have the technology and the service capability to deliver an integrated service solution.
- QOS — This is already critical for business services and will become equally important in residential dual or triple play, so clearly QOS will be an important feature of any WiMAX solution provided to mainstream customers.
- Service-level agreements (SLAs) — SLAs are set to become the new service differentiator for many applications. WiMAX will have to overcome the inherent issues of a wireless solution (variable signal strengths and so forth) to deliver robust SLAs for many types of customers.

While service providers have control over some of these areas, much depends on readily available, low-cost, interoperable equipment, pushing back the point at which WiMAX *could* be widely adopted by at least 2008.

## Commercial Services Need Interoperable Equipment

While it may be feasible for a defined, bounded network, such as that run at the behest of a local public body, to use pre-standards equipment, for commercial launch there is a clear requirement to have not only standards bedded down but also interoperability figured out. Previous attempts at launching early in the cable (Data Over Cable Service Interface Specification [DOCSIS] and EuroDOCSIS) and DSL environments have proved costly for the operators concerned, with user equipment often being replaced before it has been fully amortized. The version of WiMAX closest to interoperability is 802.16-2004, a fixed wireless variant. Most operators would do well to hold out until the next iteration of WiMAX, 802.16-2005, is available. This will provide semimobility at relatively high speed, increasing the flexibility of applications supported and providing a counter to the competitive position of 3G mobile networks. It is, in any case, some notion of mobility that is driving much of the demand from the public sector, and the early-adopter WiMAX network infrastructure will be kept to limited fixed point-to-point and point-to-multipoint applications, with future installations being based on Mobile WiMAX (802.16-2005). 802.16-2005 certification testing will not start until later in 2006, and interoperability trials mean that tested, certified equipment won't be available until sometime in 2007 at the earliest.

### Bottom Line

WiMAX faces an uphill struggle to achieve widespread market penetration. It will continue to play catch-up with other wired and mobile technologies for several years to come. However, WiMAX is ideally suited for several market opportunities, such as broadband fill-in, enterprise E1 and mobile backhaul. European service providers would do better to focus on these niches until 2009 and avoid attempts to create ubiquitous service offerings (either fixed or semimobile) on a super-regional or national basis.

### RECOMMENDED READING

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"Market Forecast: WiMAX, Worldwide, 2005-2010"

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