

WiMAX

Taking Wireless to the MAX

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The second operator will be both free from the technological constraints of copper local loop and the installation times of the incumbent, as well as in control of how much capacity to install where and when, and which mix of services to offer to which customer. WiMAX therefore promises to vitalize the competition between incumbents and second operators.

Longer-term extension of WiMAX to voice services and then to mobile services would strengthen this competitiveness even further, and broaden it to make WiMAX an alternative to mobile voice and 3G data services. There is little remaining need for regulation of telecoms, as with “fair” competition throughout the network, normal consumer protection laws should be adequate.

Incumbents

Mobility vastly increases the potential revenue and profit margins to be derived from fixed wireless, opening up customer bases on a national scale, supporting new applications such as interactive gaming at high speed, and giving WiMAX operators the chance of providing a service that is differentiated from DSL and cable even in urban areas. But all classes of operators are only just beginning to study the economics of investing in WiMAX, which will depend on the cost of CPE as well as infrastructure cost. The other key consideration on the infrastructure front is where to mount the base stations. This is where cellular operators have an advantage over their wireline cousins, because they already have a network of towers and other real estate on which to position WiMAX access points. For companies without a 3G license or those that are daunted by the cost of rolling out UMTS or EV-DO, the argument for deploying WiMAX as a parallel, high-speed network on existing infrastructure can be compelling. The biggest example of this thinking is Nextel in the United States, with its broadband wireless trials aiming to supplement its ageing iDen cellular network, but there will also be strong opportunities for regional and tier-2 cellular companies in many areas of the world.

The advantages are enhanced still further for cellular companies when they can access base stations that integrate broadband wireless, cellular networks, and backhaul for both technologies in one structure. This will shift the economics of running two parallel networks for tier-2 cellular companies and potentially outweigh the tier-1 carriers’ fears of hurting 3G revenues with such a system. The importance of such integration is illustrated by the entry into the WiMAX community of

companies specializing in multi-network or software-defined base stations.

Equipment Vendors

First, the vendors must try to get their products into the market at an early stage, and try to prevent non-WiMAX BWA solutions from gaining too strong a foothold to dislodge. Such non-WiMAX solutions are being driven by operators that need to increase their revenues and offset the decline in conventional telephony and Internet services, by moving into high-speed, data-optimized mobility. This existing demand is a powerful attractive factor for the makers of broadband wireless equipment.

Second, until recently, mobility was the preserve of a few specialist vendors, many of whom have now shifted into the WiMAX camp and are promising migration paths to 802.16e — Navini and NextNet being good examples. All long-term WiMAX players must take up mobility very seriously as it has the potential to be the biggest opportunity of their lifetime.

Third, another promising area is the CDMA and GSM networks' upgrade paths to the future mobile 802.16e specification. One of the vendors recently acquired by Alvarion, interWave, offers a similar solution, "network-in-a-box," which collapses the functionality of all three — a softswitch, base station controller, and mobile switching center elements — into a single rack for GSM applications. This provides a turnkey solution for carriers, and will be valuable in markets in which budgets are tight, especially rural or developing regions where populations may be sparse and carriers small.

Regulators

BWA technologies and their applications are in their early stages of development, and their potential economic and social benefits appear to be considerable. These new technologies and applications, however, are emerging in many different situations, often outside the operational landscape of traditional telecommunications services, and with new types of participants from both the private and public sectors.

BWA initiatives may be seen as disruptive and can hit unintended roadblocks in the form of local regulations and lack of understanding of their potential. Conversely, proper government support and incentives

can accelerate their successful implementation at little cost and with significant immediate economic and social benefits for the poor.

Each country presents unique characteristics and conditions with respect to BWA deployment, from a geographic, social, economic, regulatory, and telecommunications infrastructure standpoint. There are, however, several regulatory and economic factors that regulatory authorities should keep in mind while performing their duties. We will discuss some of the key issues that have a direct bearing on the success of BWA initiatives as well as the resultant sustained balanced economic development.

Encouraging the Aggregation of Demand for Bandwidth

One of the most important factors of success for wireless ISPs is a rapid increase of initial demand for connectivity, which allows for a faster breakeven on operating expenses. This can be achieved through initial aggregation of demand based on applications for local public services such as schools, universities, health services, and public administration. Business, agriculture, and private uses will inevitably add to the mix once service is available. In many underserved areas, it is likely that initial viable aggregation will occur through the deployment of wireless Internet kiosks operated by small entrepreneurs.

Identify, Promote, and Establish National Consensus

The success of any public technology initiative, including BWA deployment, depends heavily on a generally supportive environment, a prerequisite of which is that policymakers, the public and private sectors, and the local media have adequate awareness about benefits and other key issues relevant to the technology in question. Raising awareness and building a national consensus about the benefits of low-cost broadband wireless Internet infrastructure solutions is therefore an important step.

Identifying leading applications, which may drive the initial use of wireless Internet infrastructure and distribution, will further develop support for wireless Internet solutions among key constituents. Governments should also encourage local public services to use the infrastructure of local wireless ISPs. Local governments may also inventory those applications that may contribute the most to bridging the