



Upcoming WiMAX Deployments to Watch: VMAX Telecom

The Company

VMAX Telecom, a joint venture between 3G mobile carrier Vibo Telecom Inc. and broadband wireless telecom equipment maker Tecom Co., is one of six major WiMAX spectrum holders in Taiwan. Having participated in the government's 2007 hybrid beauty contest/auction licensing program, VMAX won a 6-year license for 30MHz of spectrum in the 2.5 – 2.69 GHz band (2660 – 2690MHz) in which to deploy WiMAX to Taiwan's northern region. The terms of this license agreement originally gave VMAX (and each of the other 5 license winners) 18 months to build its infrastructure. The licenses were divided by region, with 3 licenses for Taiwan's northern half, and three in the south.

Within 2 weeks of securing its license, VMAX moved to secure necessary strategic partnerships. This included building a partnership with a license holder in the Southern portion of Taiwan to ensure VMAX's customers could access service all across the country. VMAX has stated that despite competitive concerns, it plans to build relationships with all of the license holders to provide complete continuity of service to its customers. During this time VMAX also secured funding from a variety of sources, including a major infusion from Intel Capital.

Network Rollout

VMAX invested a significant amount of energy into choosing the appropriate infrastructure vendors with which to work. After careful consideration of technologies, company track records, and the economy, VMAX decided to pursue a multi-vendor strategy and work with both Alvarion and Samsung on its 802.16e Mobile WiMAX deployment. The network will first be rolled out in Taipei, with an initial planned deployment of 200 – 250 base stations, which should allow VMAX to meet the goal of 70% coverage of the city's population set by the National Communications Commission (NCC). From there VMAX will continue to expand within Taipei and then fan outward, with a goal of covering the entire northern region of Taiwan in two to three years.

The northern Taiwan region defined in the government's licensing scheme is smaller geographically than the southern region, but still contains about half of the Taiwanese population. It holds the highest concentration of the country's high tech and industrial sectors, and therefore also contains the portion of the population with the largest appetite for data

services. These factors, along with a mixed geography ranging from rural and mountainous to dense urban areas, has led VMAX to believe that it will eventually need 1500-2000 base stations to provide the high powered mobile services that it desires.

Services and Devices

VMAX has two primary targets: consumer internet services, and consumer mobile data services. It will offer enterprise services as well; however, its main focus is the consumer. WiMAX is proven to be an easy technology for consumers to install, and is also proven as a strong replacement for DSL services. In Taiwan the most popular ADSL speeds are currently 256K DL (downlink)/64K UL (uplink), 1MB/256K, and 2MB/256K. In total these service levels account for approximately 70% of the ADSL market. VMAX on the other hand expects to offer average speeds of 1-4MB DL and 0.5-1MB UL at a competitive price. By offering this home internet service, with the promise of voice services in the near future, VMAX seeks to gain significant market share in Taipei.

VMAX will also use its WiMAX network to target those who use HSDPA or other mobile data services. There are currently five 3G mobile operators in Taiwan, four of which are WCDMA, and one that uses CDMA. These operators promise data speeds of between 1.8 – 3.6 mbps, but the actual user experience is less than satisfactory due to limited and shared bandwidth. Due to cost consideration, the 3G operators are severely limited in capacity because of their backhaul, which is less than 4mbps on the average to each of their base stations via E1 connections. VMAX claims that this results in the user experiencing average speeds of 300-400Kbps (depending on locations and network traffic). In order to offer HSDPA at higher average speed, 3G operators would need to increase the number of E1 connections to the back of the base station, which is expensive; and even with 4 E1 connections in the back of each base station it will only get about 8mb total. VMAX has much stronger bandwidth in the back of its base stations - averaging between 10-50MB of backhaul. This infrastructure will allow VMAX to pursue services that cannot realistically be offered on the slower 3G networks. VMAX is betting that its superior bandwidth and speed alongside competitive pricing and, most importantly, mobility, will be more attractive to Taipei's technologically savvy mobile data users and give VMAX a potent advantage in the Taiwanese broadband market.

In addition to what will likely be fierce competition between WiMAX operators and mobile operators, VMAX also sees cooperation between these competitors as likely. A situation in which there are 5 mobile operators and 6 WiMAX operators in a market such as Taiwan cannot last forever, so expect to see deals made between competing operators.

VMAX plans to have a wide selection of available devices by the end of 2009. It will begin with a portfolio similar to Clearwire's – this includes embedded notebooks, WiMAX dongles, dual-mode dongles, and Wi-Fi/WiMAX CPE. In the second half of 2009 VMAX expects to see dual mode devices similar to the HTC 4G Max (offered in Russia on the Yota Mobile WiMAX network). Devices such as these will likely be Wideband CDMA/WiMAX, and Wi-Fi-WiMAX, with the possibility of tri-mode devices as well.

Although one view of WiMAX's value is that it allows for a full retail model that will help operators divorce themselves

from paying heavy subsidies; VMAX, like some other operators, has not yet ruled out subsidies completely. VMAX will attempt to avoid situations in which subsidization becomes necessary, and in the Taiwanese device market – which has firmly put its support behind WiMAX – this will likely be possible.

Market Opportunity & VMAX Vision

Taiwan has a population of approximately 23 million people, with 11 million residing in the North. This high tech, heavily industrialized region of Taiwan is the ideal starting ground for VMAX's WiMAX network. WiMAX technology enjoys the full backing of the Taiwanese government and electronics industry. In addition to looking for a 4G mobile network in its cities, the Taiwanese government also fully supports the WiMAX operators' efforts to bridge the digital divide in rural areas (of which the North has many). All in all this paints a rosy picture for well-funded VMAX. However with 2 other WiMAX operators deploying networks and 5 incumbent 3G operators to compete with, success is by no means guaranteed.

VMAX has the vision to use its Mobile WiMAX network to bring 4G services to Taiwan, and to bridge the digital divide in rural areas. This will involve fierce competition with other WiMAX operators, mobile operators, and DSL providers alike. However, VMAX understands the potential pitfalls and is examining the best ways to enter the market with attractive solutions that will lure people to WiMAX services without beginning a price war. It will continue to focus on the value that its WiMAX network can deliver, and the unique solutions it can provide.



“With this kind of bandwidth and technology you will have the ability to do things we haven't even dreamed of yet. When you have this speed, it will just come naturally.”

– Teddy Huang, CEO, VMAX Telecom.