

Wimax: Transforming the Economic Landscape...and Forging a New Breed of Millionaires!

Trinity Investment Research

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The reason you're reading this report is because you are a member of *Untapped Wealth* and you have the desire to make a lot of money. My co-editor, Eric and I have been talking non-stop about a "new breed" of technology that will change the world we live in. The technology is called WiMax and a little known company that goes by the name of Clearwire Technology (CLWR) is the first company to take the technology public. I will cover Clearwire thoroughly, but first, you need to know about WiMax, the technology.

The technology is best described by the WiMax Forum (formed in June 2001 to promote conformance and interoperability of the IEEE 802.16 standard, officially known as WirelessMAN) as "a standards-based technology enabling the delivery of last mile wireless broadband access as an alternative to cable and DSL."

In layman's terms, WiMAX would operate similar to WiFi, but at much higher rates of speed, over further distances, and for a greater number of users. WiMAX could "potentially erase the suburban and rural blackout areas that currently have no broadband Internet access because phone and cable companies have not yet run the necessary wires to those remote locations."

A WiMAX system consists of two parts:

A WiMAX tower, which is similar in concept to a cell-phone tower — A single WiMAX tower can provide coverage to a very large area — as big as 3,000 square miles.

A WiMAX receiver — The receiver and antenna could be a small box or PCM-CIA card, or they could be built into a laptop the way WiFi access is today.

A WiMAX tower station can connect directly to the Internet using a high-bandwidth wired connection. It can also connect to another WiMAX tower using a line-of-sight, microwave link. This connection to a second tower (often referred to as a backhaul), along with the ability of a single tower to cover up to 3,000 square miles, is what allows WiMAX to provide coverage to remote rural areas, where hi speed broadband has never been able to penetrate.

Through line-of-sight antennas, the WiMAX transmitting station will send data to WiMAX-enabled

computers or routers set up within the transmitter's 30-mile radius (2,800 square miles coverage). This is what allows WiMAX to achieve its maximum range.

The biggest difference isn't speed...it's distance! WiMAX outdistances WiFi by miles, it leaves it in the dust. WiFi's range is about 100 feet. WiMAX will cover a radius of 30 miles with wireless access. The increased range is due to the frequencies used and the power of the transmitter.

WiMAX Could Boost Government Security

In an emergency, communication is a predominant factor for government officials at any level. In order to try to resolve the cause of specific problems, find out what happened, assess the damage and potential injuries, coordinate rescue and or cleanup operations. A refinery explosion or terrorist attack could sever the cables that we, as a society, heavily rely on, from connecting leaders and officials to vital information networks they need to potentially save lives.

WiMAX could be used to set primary and back up communications systems that would be nearly impossible to destroy with a single attack because they would be protected and isolated. A handful of WiMAX transmitters would be set up in range of strategically constructed command centers, but as far from each other as possible.

Each transmitter would be in a bunker hardened against bombs and other attacks. No single attack could destroy the entire WiMax infrastructure; essentially, the officials in the command centers would remain in communication all the time, no matter what the circumstances may be, unlike with fixed line communication, which is used now, and can be damaged with a single pinpoint attack.

Hooking Up WiMax In Your City

A town wide or city wide blanketed coverage of wireless Internet access sounds fantastic, right? However, when we get down to it, companies aren't just going to go around setting up WiMAX base stations out of the sheer kindness of their hearts. Who's going to foot the bill for WiMAX?

In short, this totally depends how it will be utilized. There are two ways WiMAX can be implemented:

As a zone for wireless connections that single users go to when they want to connect to the Internet on a laptop (the non-line-of-sight "super WiFi" implementation); or

As a line-of-sight hub used to connect hundreds of customers to a steady, always on, high-speed wireless Internet connection.

Under the “super WiFi” plan, cities would foot the bill to construct WiMAX base stations that will be set up in key areas for business and commerce alike, and then allow people to use them for free.

This is already being done in the form of WiFi, but instead of putting in a bunch of WiFi hot spots that cover a few hundred square yards, a city could pay for one WiMAX base station and cover an entire financial district.

This could entice different businesses to move to those locations, thus increasing the commerce in these areas.

Then again, we may see some companies set up WiMAX transmitters and then make people pay for access as they would for any high-speed connection, whether it is DSL or cable.

Regarding WiFi strategies, it is very similar, but a much wider area would be covered. Instead of hopping from one hot spot to another, WiMAX-enabled users could have Internet access anywhere within 30 miles of the WiMAX base station. Let’s see WiFi do that!

These companies might offer unlimited access for a monthly fee or “pay as you go” plans that charge on a per-minute or per-hour basis.

This high-speed wireless idea has the potential to be far more revolutionary and highly explosive in all parts of the country, including rural areas, which haven’t been able to see high-speed net access without spending an arm and a leg to hook up satellite broadband.

If you have high-speed Internet access now, it probably goes something like this:

The cable (or phone) company (whether you use DSL or Cable internet) has a line that runs into your home; This line goes to a cable modem, and another line runs from the modem to your computer; If you have a home network, it goes to a router and then on to the other computers on the network; and finally,

You pay the cable company a monthly fee, which reflects the expense of running cable lines to every single home in the neighborhood, you are helping foot the bill in the big picture.

The likely WiMAX Scenario Coming to a Town like Yours would be something like this:

An Internet service provider (ISP) like America Online, Earthlink or Net Zero, sets up a WiMAX base station 10 miles from your home;

You would buy a WiMAX-enabled computer, thanks to Clearwire and their contract with Intel (they will soon

be standard), or upgrade your old computer to add WiMAX capability (most likely an Intel chip); and you would then get a special encryption code that would give you access to the base station, sort of a log on. The base station would send data from the Inter-net to your computer, for which you would pay the provider a monthly fee.

The cost for this service could be much lower than current high-speed Internet-subscription fees because the provider never had to run cables. (I have already heard reports of WiMax only costing \$20-\$28 per month)

If you have a home network like most Americans, things wouldn't be much different than status quo.

Your WiMax enabled router would receive information from the base station, from there the router would then send the data to the different computers on your network. You could possibly combine WiFi with WiMAX by having the wireless router send the information to the different stations as well.

WiMAX is coming and poses a threat to all ISPs in existence. "The WiMAX protocol is designed to accommodate several different methods of data transmission, one of which is Voice Over Internet Protocol (VoIP). VoIP allows people to make local, long-distance and even international calls through a broadband Internet connection, bypassing phone companies entirely. If WiMAX-compatible computers become very common, the use of VoIP could increase dramatically. Almost anyone with a laptop could make VoIP calls."

Intel executives have called WiMax one of the biggest potential disruptive technologies in the world. With WiMax, Intel aims to duplicate its successful Wi-Fi strategy.

We're not the only ones who are raving about this technology. Chip builder, Intel has the same big picture idea as we do; so much so they have invested \$600 million in Clearwire! Check out this excerpt from an article printed in *businessweek.com*

"Intel's goal is to help build a nationwide service that equips notebook PCs for fast Web access and Internet-based calling over vast swaths of the U.S."

INTENSE RACE. The surprise announcement of Intel's second investment in Kirkland (Wash.)-based Clearwire in recent years is a big shot in the arm for WiMax, a technology that blankets large areas with wireless broadband.

It's likely to accelerate efforts by big-name wireless carriers to offer competing technology. "The U.S. is now going to get a high-speed wireless broadband network sooner than it would have," says Intel Executive Vice-President Sean Maloney, who spoke to BusinessWeek in an interview."

From The Company's Most recent 10-K Filing:

“We build and operate next generation mobile broadband networks that provide high-speed residential and mobile Internet access services and residential voice services in communities throughout the country. Our 4G mobile broadband networks not only create a new communications channel into the home or office, but also provide a broadband connection anywhere within our coverage area.

As of December 31, 2009, we operated in 61 markets in the United States and Europe, covering an estimated 44.7 million people. We had approximately 642,000 retail and 46,000 wholesale subscribers as of December 31, 2009. As a result, we believe we are the largest operator of next generation wireless broadband networks in the world. Our networks in the United States operate in 57 markets covering an estimated 41.7 million people. Internationally, as of December 31, 2009, our networks covered an estimated 3.0 million people in Ghent and Brussels, Belgium, Dublin, Ireland and Seville, Spain. In January 2010, we launched 4G services in Malaga, Spain.

We are the first mobile broadband service provider to launch service in the United States based on the 802.16e standard, which we refer to as mobile WiMAX. The mobile WiMAX standard facilitates fourth generation wireless services, which are commonly referred to in the wireless industry as 4G mobile broadband services. In our 4G markets, we offer our services both on a retail basis and through our Wholesale Partners, including Sprint, Comcast, Time Warner Cable and Bright House. We operated 4G mobile broadband networks in 27 of our markets in the United States as of December 31, 2009, covering an estimated population of 34.5 million people, with approximately 392,000 retail subscribers and 46,000 wholesale subscribers in those markets. These markets include, among others, Atlanta, Baltimore, Charlotte, Chicago, Dallas, Honolulu, Las Vegas, Philadelphia, Portland, Oregon, San Antonio and Seattle.

As of December 31, 2009, our other 34 markets continued to operate with a legacy network technology based on a proprietary set of technical standards offered by a subsidiary of Motorola, Inc, which we refer to as Motorola. This pre-4G technology offers higher broadband speeds than those generally offered by traditional wireless carriers, but lacks the mobile functionality of our current 4G technology. In 2009, we converted 16 of our legacy markets in the United States to 4G mobile broadband under the CLEARtm brand, and we intend to upgrade the majority of our remaining legacy markets in the United States to 4G technology over the next year.

Our primary focus is expanding the geographic coverage of our 4G mobile broadband networks in the United States to take advantage of our more than 44 billion MHz-POPs of spectrum in the 2.5 GHz band. We are currently engaged in the development and deployment of markets throughout the United States. For 2010, we have plans to develop and launch 4G mobile broadband networks in large metropolitan areas in the United States, including Boston, Houston, New York, San Francisco and Washington, D.C. We currently expect that the combination of our existing 4G markets, our new market deployments and existing market conversions will allow us to cover as many as 120 million people with our 4G mobile broadband networks by the end of 2010. However, our actual network coverage by the end of 2010 will largely be determined by our ability to

successfully manage ongoing development activities, including the acquisition, zoning, permitting and construction of over 10,000 sites, and our performance in our launched markets.

We regularly evaluate our plans, and we may elect to pursue new or alternative strategies which we believe would be beneficial to our business. These may include among other things, modifying the pace at which we build our 4G mobile broadband networks, augmenting our network coverage in markets we launch, changing our sales and marketing strategy and/or acquiring additional spectrum. We also may elect to deploy alternative technologies to mobile WiMAX, if and when they become available, on our networks either together with, or in place of, mobile WiMAX if we determine it is necessary to cause the 4G mobile broadband services we offer to remain competitive or to expand the number and types of devices that may be used to access our services. Whether we pursue any such plans or strategies may depend on our performance in our launched markets and our access to any additional financing that may be required.

Services

As of December 31, 2009, we offered our services primarily in 57 markets throughout the United States and in 4 markets in Europe. Our services today consist primarily of providing wireless broadband connectivity, and, as of December 31, 2009, in 56 of our domestic markets, we also offered fixed VoIP telephony services. Our retail services are offered under our CLEAR brand in our 4G markets and under the Clearwire brand in our legacy markets, and we offer 4G mobile broadband services in each of our 4G markets through our Wholesale Partners. Domestic sales accounted for approximately 88% of our service revenue for the period ended December 31, 2009, while our international sales accounted for approximately 12% of service revenue over the same period.

While we serve a large variety of subscribers, we believe that the majority of our subscriber base can be divided into the following broad categories:

- subscribers who require a portable or mobile high-speed Internet connection;
- subscribers who value the flexibility of a portable or mobile wireless broadband service;
- subscribers who desire a simple way to obtain and use high-speed Internet access at a reasonable price; and
- subscribers who are dissatisfied fixed or mobile with other service offerings, often because of perceived or actual poor quality of service, slow speeds, price, the requirement to participate in undesired bundled offers, difficulty of installation or unsatisfactory customer service.

We offer our subscribers a number of Internet and voice services, including mobile access, as our primary service offerings. We also plan to eventually offer value-added services through partnerships with device

manufacturers/developers, value-added application developers and content development companies. Unlike existing cellular networks, applications over our 4G mobile broadband network are Internet Protocol-based with open Application Programming Interfaces, which can be accessed on a variety of electronic devices. We believe this approach should encourage the continual creation of new applications and the services to support them.

CLEARtm Mobile Broadband Services

As of December 31, 2009, we offered our CLEARtm branded retail services over our 4G mobile broadband networks in 27 markets. We offer our CLEAR subscribers choice and simplicity in our service offerings, which can be combined in multiple ways to meet the subscribers' specific needs. These offerings include day passes, service contract and no-contract plans, and bundled services. Our mobile plans consist of a daily pass for a fixed fee, limited use monthly plans where subscribers purchase a specified amount of data usage (e.g., 200 megabytes or 2 gigabytes) for a fixed price (with surcharges for excess data use) and unlimited monthly plans that do not limit the amount of data usage, subject to our acceptable use policies. Our residential plans offer subscribers different maximum download and upload speeds at various price points. The business services we currently offer also include faster upload speeds for a fixed Internet access service and plans that bundle multiple mobile subscriptions. Additionally, we offer bundled packages that allow subscribers to pick and choose from among the mobile and residential plans, as well as our VoIP telephony service, enabling them to access the Internet when and where they need it.

We also offer a dual mode device that enables subscribers to access both our 4G mobile broadband networks and networks operated by Sprint. Under the commercial agreements with Sprint, we have the right to offer our subscribers access to Sprint's CDMA and EVDO Rev. A networks, which will expand the geographic area in which our subscribers that elect to purchase this access will be able to receive service while we are building our network.

We also intend to offer a variety of premium services and content over our 4G mobile broadband network. We are currently focused on voice services as our primary premium service. As of December 31, 2009, we offered VoIP telephony services on a fixed basis to our subscribers' homes and offices in 26 of our 27 4G markets, and we intend to offer fixed VoIP in all new markets that we launch. We are currently offering a service plan that provides subscribers with unlimited local and long distance calling, including calls within the United States, Canada, and Puerto Rico, for a fixed monthly fee, with various promotional discounts available. The VoIP service may also be purchased in a bundled offering with our other services. Our VoIP telephony service permits calls outside these countries on a charge-per-call basis. Our VoIP telephony service package includes enhanced calling features such as voice mail, call waiting, 3-way calling and caller ID. Our service is also E911 compliant and offers number portability. In addition, our VoIP subscribers can set a range of telephony options online, such as call forwarding and call blocking. We provide optional email notification of voicemail messages through which a subscriber may choose to receive a voicemail message attached as a file to an email message. Our VoIP telephony service is facilities-based, which means that the service is provided across our

network and switches through infrastructure we control. We believe this allows us to deliver better average call quality than is generally available on non facilities-based VoIP systems, while using less data capacity.

Our subscribers generally make their payments through an automatic charge to a credit or debit card or bank account. In addition, in our CLEARtm markets, we have implemented a point of sale system that allows our subscribers to make cash payments, and we expect that we may offer additional forms of payment in the future as we target new customer segments.

Clearwire Pre-4G Mobile Broadband Services

As of December 31, 2009, we offered our pre-4G service in 30 markets in the United States and 4 markets in Europe. We believe that our subscribers in our legacy markets are attracted to our wireless broadband services primarily because our existing networks combine certain features of cable modem, DSL and cellular networks into a single service offering at an attractive price.

To use our Clearwire wireless broadband services in our legacy markets, our subscribers must obtain one of our residential modems or PC cards. Our subscribers generally lease a residential modem from us or a PC card, each for a monthly fee, in our United States markets. We also offer modems and PC cards for sale to those subscribers who prefer to own rather than lease. We require subscribers under our “no contract” payment plan to purchase a modem or PC card in order to subscribe for our broadband services. We offer subscribers a choice of service plans designed to accommodate users that require greater access speeds or more email addresses and web hosting accounts. Subscribers may sign up for long-term service contracts or choose month-to-month plans.

As of December 31, 2009, we offered our VoIP telephony services in all of our 30 domestic legacy markets. We continue to explore options for deploying residential voice services in our international markets, but we do not have specific plans to deploy VoIP telephony services in those markets in the near term. In our legacy markets, we are currently offering a single service plan that provides subscribers with unlimited local and long distance calling, including calls within the United States, Canada, and Puerto Rico, for a fixed monthly fee, with various promotional discounts available.”

In the end, the choice is clear. WiMax is on the forefront of a disruptive technological revolution.