



Issue 233: Wednesday, September 20, 2006

In This Issue

- Page 1 Telecom Overview: Prepping for Luck
Page 5 The Telecom Connection Portfolio

Telecom Overview: Prepping for Luck

We've all been at some social event where someone is recounting their "luck" in buying XYZ stock that is now several times what the person paid, and looking to go much higher. For me, luck is the intersection of preparation and opportunity, and now is the time to prepare for the advent of wireless broadband access, or WiMAX -- short for Worldwide Interoperability for Microwave Access.

I started doing my homework on WiMAX about a month ago, and the [recent announcement](#) by **Sprint** (S) that it will implement the technology next year only confirmed my suspicions. WiMAX is no longer a science project, and "fixed" WiMAX (the stationary form of the technology) is obviously out of the beta testing stage and available in the marketplace. Therefore, before WiMAX enters the phase of rapidly accelerating growth, it's time to take a look at it -- understand what it is and is not, assess its strengths and weaknesses, and put our arms around its potential market.

Wireless Broadband Moves to Main Street

Today, virtually every airport, every Starbucks, every hotel, a host of fast-food restaurants and many of our homes have Wi-Fi service, or wireless LAN (local area network) Internet access, via the IEEE 802.11 standard for the technology. (The IEEE, or Institute of Electrical and Electronics Engineers, is a professional organization that develops standards for this industry.) If we haven't used Wi-Fi ourselves, we've all seen individuals pounding away on their notebook computer that's seemingly unconnected to anything. Wi-Fi comes in a number of flavors today, but the current high-end version is capable of wireless connectivity speeds of about 54 Mbps (that's bits, not bytes), and the signal is capable of traveling up to 90 meters, depending upon local conditions.

Think of WiMAX as Wi-Fi on steroids! WiMAX, or IEEE 802.16, at this point comes in two flavors, fixed/portable (Rel. 2004) and mobile (Rel. 2005). WiMAX is intended to deliver speeds of many tens of Mbps, like Wi-Fi, but over distances measured in tens of kilometers. As with everything, there are trade-offs between speed and distance, but just thinking of WiMAX as a wireless "last mile" will suffice.

Fixed/portable WiMAX (Rel. 2004) is essentially the same as today's Wi-Fi. By portable, the name simply means you can migrate from one fixed position LAN to another; you're not chained to your

(Continued on the next page)

PLEASE SEE IMPORTANT LEGAL DISCLAIMER ON LAST PAGE



desktop or family room by a wire. The Yankee Group, a technology research and consultant firm, has estimated that there are several hundred municipal wireless projects in the U.S. alone, and it is apparent that those not started with WiMAX will ultimately migrate to the technology because of its advantages.

A number of commercial installations of fixed/portable WiMAX are in place today. They run the gamut of applications, and the technology is fanning out even to relatively remote areas. Cities as diverse as Cheyenne, Wyo., to Cali, Columbia, are using WiMAX for backhaul services -- backhaul is the high-speed transfer of data from aggregation points; it's like wholesale vs. retail -- public safety and/or emergency services. Service providers like **Axtel** (AXTLF.PK), a Mexican telecommunications company, are rolling out WiMAX to provide wireless Internet access at high speeds; and wire-line provider **Telmex** (TMX), another Mexican telco, is considering it as a vehicle to extend access in areas with limited copper lines.

Mobile WiMAX (Rel. 2005), however, is substantially less "evolved" than the fixed implementation. As the name implies, this standard was agreed upon in 2005 and the first beta tests are only in the planning stage. While Rel. 2005's "throughput" -- the rate at which a network can transmit or receive data -- is expected to be slower than Rel. 2004, depending upon the speed the consumer is traveling (like your cellular phone, WiMAX has to be capable of supporting the connection and cell-site handoffs at hundreds of miles/hour), right now the estimates are a function of computer simulations rather than any real world experience. So these projections must be taken with the proverbial grain of salt. Even so, you can be certain that the issues and logistics will be worked out, and commercial installations for Rel. 2005 will likely evolve from the installed base of Rel. 2004.

Advantages Spur Adoption

WiMAX brings two important elements to the wireless broadband landscape that should accelerate its acceptance.

- It allows existing service providers to extend access in regions that lack well-developed wire-line infrastructure. Although economic issues will always be a determining factor for growth in developing markets, the successful experience with cellular phones in markets like India demonstrates that there is sufficient diversity in personal income to support services at levels above rock-bottom rates.
- While WiMAX is not necessarily a replacement for 3G (the latest mobile technology) data services within the cellular arena, it can be. Consequently, with higher speeds than those offered by 3G today or within the very near term, coupled with higher levels of spectral efficiency, WiMAX offers service providers a competitive alternative to 3G or 3.5G services. (Spectral efficiency is a measure of the amount of data (in bits) that a user is able to transfer per unit of radio frequency spectrum.) That competition should drive down costs on both sides and should accelerate demand.

(Continued on the next page)



Issue 233: Wednesday, September 20, 2006

Depending upon whose market statistics you're looking at, there are now anywhere between 200 million and 250 million wireless access users globally, with the overwhelming majority being in the Wi-Fi sphere. Those users will migrate over to WiMAX as the service becomes more commonplace. From my perspective, we will begin to see that acceleration in 2007.

The Intel Connection

At this juncture, it is impossible to say with any degree of certainty which companies are the winners and losers in this game of "mine is bigger, faster, more flexible than yours is." However, there is one similarity to the Wi-Fi experience, and that is **Intel** (INTC).

Intel essentially made Wi-Fi happen in its own time frame. The giant chipmaker recognized a potential market as well as all of Wi-Fi's very real problems. By spending hundreds of millions on research and development (R&D) plus market development, Intel created an almost seamless transition to the Wi-Fi world for its customers. The shift was accomplished via the company's concentrated effort to work with service providers, systems integrators, hardware OEMs and many others to solve the implementation problems before the marketing push. The payoff was an accelerated adoption of Wi-Fi and booming sales of notebooks supporting the Intel Centrino (i.e., Wi-Fi enabled) platform, which were substantially higher-margin products.

Intel is again one of the founders of the WiMAX Forum, along with **Motorola** (MOT) and **Samsung**, and is driving the adoption of the technology in ways very similar to Wi-Fi. The Forum is a consortium of vendors dedicated to the development of WiMAX; there's also a Wi-Fi forum (and a lot of others).

Here again you can be certain that these companies' motives are not altruistic. Nonetheless, I do not want to leave the impression that I necessarily believe Intel is a big winner in WiMAX because there will be a number of players on the chipset side, Intel being only one of them. In fact, at this juncture, I believe it's really too early to speculate on who the winners and losers are; the WiMAX industry hasn't really transacted enough business, in my opinion, to make that determination. But as I mentioned previously, that point is getting closer.

The one hurdle that has been much discussed in the media is that of intellectual property rights, or IPR. A number of WiMAX players have voiced claims to essential patents, most notable of which has been **Qualcomm** (QCOM). On the other side of the issue, the WiMAX Forum has publicly stated that its objective is to limit total royalties to about 5% of customer premise equipment (CPE).

I can tell you with 100% certainty that, at this point, no one knows the answer to this question about IPR. More importantly, we are unlikely to have any definitive answer for sometime to come.

(Continued on the next page)



Issue 233: Wednesday, September 20, 2006

Make Your Own Luck

The bottom line for investors is that it is now time to start doing your homework. To get started:

- When you see an article, read it -- or start a file and save it for a latter period.
- Go to the [WiMAX Forum Web site](#) and look at its documentation -- yes, it's biased, but you can still learn from it.
- Look at the trade rags to see who's doing what to whom.

From all of this you'll start to get a better idea of who the players are, who looks interesting from your perspective and who might not last in the WiMAX environment. Then, when the opportunity arises, you'll be prepared to demonstrate how "lucky" you can be as well.

I'll also stay abreast of the evolution of WiMAX, and revisit this topic when developments warrant.



Issue 233: Wednesday, September 20, 2006

The Telecom Connection Portfolio

Company Name	Date Initiated	Cost Basis per Share	Number of Shares	Amount Invested	Current Price	% Gain/Loss	IxTC at Buy Date	IxTC Return
Apple Computer AAPL	02/09/2006	\$ 63.79	800	\$ 51,030.00	\$ 75.26	17.99%	203.51	1.76%
AudioCodes AUDC	11/12/2003	\$ 10.53	1800	\$ 18,959.00	\$ 9.82	-6.77%	170.79	21.25%
Ciena CIEN	05/04/2006	\$ 4.17	3000	\$ 12,510.00	\$ 4.21	0.96%	223.04	-7.15%
Cisco Systems CSCO	02/07/2005	\$ 18.08	600	\$ 10,845.00	\$ 23.27	28.74%	184.29	12.37%
Citrix CTXS	04/27/2006	\$ 39.43	500	\$ 19,717.00	\$ 36.28	-8.00%	218.90	-5.40%
Cypress CY	09/14/2006	\$ 16.16	2000	\$ 32,320.00	\$ 15.85	-1.92%	202.16	2.44%
eBay EBAY	11/25/2005	\$ 40.25	1000	\$ 40,247.00	\$ 26.14	-35.05%	189.11	9.51%
Corning GLW	02/15/2006	\$ 24.46	1000	\$ 24,460.00	\$ 24.35	-0.45%	203.35	1.84%
Google GOOG	02/09/2006	\$ 356.92	200	\$ 71,383.00	\$ 397.00	11.23%	203.51	1.76%
Motorola MOT	06/17/2004	\$ 21.40	1500	\$ 32,095.00	\$ 25.25	18.01%	179.63	15.29%
MRV Communications MRVC	08/20/2003	\$ 2.50	6400	\$ 16,000.00	\$ 2.44	-2.40%	150.78	37.35%
Microsoft MSFT	09/26/2002	\$ 25.33	3000	\$ 75,991.00	\$ 27.18	7.30%	92.19	124.63%
Research In Motion RIMM	03/02/2006	\$ 76.25	(200)	\$ 15,249.00	\$ 88.89	-16.58%	211.26	-1.97%
Sun Microsystems SUNW	10/02/2003	\$ 3.66	1700	\$ 6,222.00	\$ 5.16	40.98%	159.65	29.72%
Tellabs TLAB	09/08/2004	\$ 8.41	2200	\$ 18,492.00	\$ 10.29	22.42%	172.12	20.32%
Texas Instruments TXN	09/14/2006	\$ 31.76	550	\$ 17,468.00	\$ 32.34	1.83%	202.16	2.44%
Verizon VZ	10/19/2005	\$ 31.64	250	\$ 7,910.00	\$ 36.67	15.90%	178.50	16.02%

(Model Portfolio performance continues on the next page)



Issue 233: Wednesday, September 20, 2006

The Telecom Connection Portfolio – Performance

Total Average Return	0.64%	Performance results listed here reflect values of stocks as of the close of the most recently completed trading day, and do NOT take into account dividends paid, interest earned or commissions. Results are updated overnight and posted prior to the market open the following business day. Sales are taken from the most recent purchase of that stock unless otherwise stated. The 2006 YTD Return figures reflect changes since the beginning of 2006. The Total Average Return figures reflect changes since inception on 9/26/2001.
2006 YTD Return	9.59%	

Nasdaq Telecom Index Performance

	Portfolio Inception	Open Level	Current Level	% Gain/Loss Since Portfolio Inception	2006 YTD Return
Nasdaq Telecom Index (IXTC)	8/14/2001	270.32	207.09	-23.39%	12.16%

At the time of publication, Mr. Faulkner was long: CY, INTC, TXN.

To see the full Telecom Connection model portfolio, including closed positions, visit <http://www.thestreet.com/k/tc/portfolio.html>.



Issue 233: Wednesday, September 20, 2006

Contact Info

► **Customer Service:**

Please email members@thestreet.com, or call 1-866-321-TSCM (8726) Mon. – Fri. 8 a.m. to 6 p.m. ET; or outside the U.S. and in Canada, call 1-212-321-5200.

► **Reader Feedback and Questions:**

Please [send an email](#) directly to Mr. Faulkner. Again, please direct all account-related inquiries to customer service.

Legal Information

This information is confidential and is intended only for the authorized Subscriber. Please notify us if you have received this document in error by telephoning 1-866-321-TSCM (8726).

Robert Faulkner, writer of *The Telecom Connection*, is a regular contributor to *RealMoney*, the premium subscription site of TheStreet.com. TheStreet.com, Inc. is a publisher and has registered as an investment adviser with the U.S. Securities and Exchange Commission. *The Telecom Connection* contains Mr. Faulkner's own opinions and is provided for informational purposes only. You should not rely solely upon *The Telecom Connection* for purposes of transacting securities or other investments, and you are encouraged to conduct your own research and due diligence, and to seek the advice of a qualified securities professional, before you make any investment. None of the information contained in *The Telecom Connection* constitutes, or is intended to constitute a recommendation by Mr. Faulkner or TheStreet.com, Inc. of any particular security or trading strategy or a determination by Mr. Faulkner or TheStreet.com, Inc. that any security or trading strategy is suitable for any specific person. To the extent any of the information contained herein may be deemed to be investment advice, such information is impersonal and not tailored to the investment needs of any specific person.

At the time of publication, Mr. Faulkner will be restricted in transacting for his own benefit in securities discussed in *The Telecom Connection*. Specifically, for securities mentioned in *The Telecom Connection* that Mr. Faulkner does not hold at the time of publication, he may enter orders to purchase such securities only after the hour of 10:30 a.m. ET on the trading day following the date on which the security is discussed in *The Telecom Connection*.

For securities that Mr. Faulkner holds at the time of publication of an issue of *The Telecom Connection*, Mr. Faulkner will not be permitted to sell the position until one month from the date the security was first recommended for purchase in *The Telecom Connection*.

For securities that Mr. Faulkner has held for at least one month following the date the security was first recommended for purchase, and which Mr. Faulkner now recommends for sale, he may enter orders to sell such securities only after the hour of 10:30 a.m. ET on the trading day following the date on which the security is recommended for sale in *The Telecom Connection*.

If you enter orders to buy or sell securities after 10:30 a.m. ET, it is possible that Mr. Faulkner may have purchased or sold such securities at a price more advantageous than the price you will obtain.