

## **COMPANY TO WATCH: XTENDWAVE EXTENDS DSL**

*10-31-2007*

---

Oct 31, 2007 -- Xtendwave - a small 35-person semi-stealth startup with its center in the great state of Texas led and staffed by a bunch of former Texas Instruments (TI) wizards - thinks it's invented one of the golden fleeces of broadband. It's taken the wraps off of a technology it says could dish up xDSL to 99 percent of American homes, using today's existing central offices and copper at a fraction of the massive costs envisioned by most rural broadband proponents.

Among the implications of the technology, called Xtendwave, and assuming (of course) that it works: Millions or even billions in Universal Service Fund (USF) money could be saved in bringing broadband to remote areas. In urban areas, virtually all broadband "blackout" areas would be eliminated. Alternately, carriers eventually will be able to use the same technology to put an afterburner on their xDSL and sell faster service. The technology also could put a crimp in demand for satellite broadband by bringing broadband into the hinterlands, and it also takes a bit of the shine off some of the speed advantages of fiber to the user (FTTx) although, somewhere down the track, Xtendwave hints it expects to have versions of its technology for fiber and wireless broadband.

And another killer: There's going to be a version that works on cable infrastructure. Given the shaky basis of DOCSIS3 and the fact that, in the United States, cable broadband still holds a dominant market share that bears watching.

In a nutshell, Xtendwave says it can deliver broadband over standard existing copper infrastructure as far as 27,000 feet from a phone company's central office. It says it can dish up 1.5 Mb/s at 22,000 feet. And it can deliver at least some service - indeed, better than the 200 Kb/s that the FCC laughingly defines as broadband - at distances well beyond 27,000 feet.

"Xtendwave extends the reach, relevance and lifespan of existing copper networks so that phone companies can deliver an affordable broadband connection to every household that currently has a dial tone," claims Xtendwave Chairman Mort Aaronson.

### The Technology

Broadband Business Forecast spoke with Aaronson, who's based at corporate

headquarters in Denver, for an exclusive look inside the company, which has been working, more or less in stealth mode, on perfecting its technology for almost six years now. Aaronson explains the long quiet period like this: "We kept it quiet until we were ready to show something and had patents."

As it turns out, the basic technology involved isn't a radical new discovery. Xtendwave is using a form of wavelet technology. "That's been used for over 100 years, predominately for signal processing," Aaronson points out. "We didn't invent a new body of science." Rather, the Xtendwave team simply figured out a new way to use wavelets. "They use algorithms that can adapt the shape and packing of wavelets in real time," he adds.

That technique, which Xtendwave is calling Adaptive Filter Bank Modulation (AFBM), results in more efficient use of bandwidth. In the case of xDSL it "allows copper to act like a two-way mechanism, like fiber does," he tells us.

Essentially, what the technology is doing is filtering out the interference that can truncate both the speed and distance over which the signal can be transmitted - though there is still a trade-off in terms of the balance between faster and further. Then again, all forms of broadband have that, in one way or the other.

Xtendwave's technology is being implemented as a chipset that gets added to a standard line card that slips into a Digital Subscriber Line Access Multiplexer (DSLAM). Aaronson says his company doesn't have final silicon yet - that will come after the company feels its design is rock solid and (it hopes) it's booked its first order, which he says could be in just another month or so.

Xtendwave is well-past the simple demo board stage and for some time now has test equipment it's been using to show manufacturers how the technology works. The newest is a portable demo kit that such service providers as telcos can slip into a rack in their central office in order to test out the technology. The demonstration equipment passed a critical proof point roughly a year ago, when it was sent to third-party test lab tekVizion Labs, which reported achieving (over a single copper pair) 1.5 Mb/s over a distance of 22,000 with a bit error rate of zero. And even at 27,000 feet, throughput is still at least 386 Kb/s, Aaronson adds.

## The Market

As for those who might argue 386 Kb/s isn't really broadband any more, Aaronson points out that "we still have 42 million people in the United States who don't have access to broadband at all, who are going to think 386 Kb/s is screaming."

And while most of those people do live too far from a central office or some sort of extender such as a mini-DSLAM in a curbside box to get xDSL, "less than 1 percent of the phone lines in the United States are over 25,000 feet" away from a central office or other extender, Aaronson notes. Of course, that's just in the United States, which is hardly the entire world market. "There are approximately 800 million copper lines in the world

where this chip set would allow broadband access," he continues. And the telco serving every one of those is a potential customer for line cards that include the Xtendwave chip set.

As for competing technologies for those relatively remote, U.S. rural homes, Aaronson doesn't see much competition. "Fiber is never going to go there. The Universal Service Fund isn't going to give them money for fiber to the home," he says. "Wireless isn't going to be the answer, either."

And making Xtendwave's potential market even bigger, he says the technology will work over cable company infrastructure. "This is going to make a very interesting story on the cable side," Aaronson says. "It's going to get them the same kind of bandwidth throughput advantages as we can get on copper."

#### Xtendwave In A Nutshell

Headquarters: 9330 Amberton Parkway, Suite 1240,

Dallas, TX 75243

Phone: 469/916-6595

Web Site: [www.Xtendwave.com](http://www.Xtendwave.com)

Founded: 2001

Employees: 35

Financing: \$10 million of first-round equity and debt

Product(s): Digital signal processing (DSP) chips for more efficient use of broadband bandwidth.

Target Market(s): Initially, xDSL distance extension market.

#### BBF's Take On The Situation

Xtendwave is hardly the first company about which we've written that has come up with a technique to extend the reach of broadband or the speed or both. But it is claiming one of the farthest reaches - indeed, the farthest - that we've heard so far, without the use of repeaters, to deliver megabit-class speeds.

Of course, the young company still has to deliver on its promise - it doesn't have working silicon yet, just demo kits. And while that shouldn't be a problem, it's still a key proof point without which the company is gone in a flash.

One reason we're not that worried, though, is the fact that the key R&D team of Xtendwave is in Dallas and includes a brain trust from TI, which is where the very first flood of digital signal processors emerged from. One of the young company's trio of "Senior Technology Advisors" is Pradeep Shah, who rose to the rank of TI Fellow. For those not familiar with the Fellow concept, it was created by TI as a way for brilliant scientists to have a promotion track similar to that followed by marketers without having to leave the lab and sully their hands with selling the products. Dennis Robbins, another TI alumnus and now an Xtendwave "Senior Technology Advisor," from 1997 through 2000 managed the worldwide manufacturing operations for TI's analog and mixed-signal products, with the rank of vice president. The third is Louis Libin, who among other things worked for General Electric/NBC as director of technology and CTO for 13 years.

Aaronson and Xtendwave's top executive offices are based in Denver because that's where he was most recently the CEO of Ricochet wireless broadband, the pioneering but ill-fated wireless internet service provider (WISP) he bought out of bankruptcy and salvaged. And as the vast majority of those who live in Denver will tell you, moving to Dallas is not an option...even if he does live in a neighborhood where, he says, Qwest can't provide him with decent DSL service.

<http://www.tradingmarkets.com/.site/news/Stock%20News/769631/>