Broadband Business Forecast
Charting Broadband's Smartest Marketplace Opportunities

Power To The People: Broadband Electrified

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Broadband power line (BPL) technology finally has come of age technologically, after years of struggling to overcome such technical and physical difficulties as isolating high-voltage electricity from the signal fed to a computer or other electronic equipment.

This year - 2004 -- will be the first full year in which BPL delivery of broadband will be available commercially to enough users to be even a little blip on the broadband market radar. Last year BPL's market share, and number of users outside of field trials, was a simple zero.

"The sound you hear right now is the BPL world cracking open," says Bill Simons, director of marketing at Amperion.

Industry executives and investors who have started pouring buckets of money into the technology already are drooling over some predictions that BPL could be the Number Two method of broadband access in some markets, displacing either cable or DSL, depending on the geographic area.

"In some markets, this is going to be Number One," adds Simons, in a display of bravado befitting a startup in a new and untested niche of a technology dominated by powerful, established competitors.

Amperion lays claim to powering the first commercial deployment of broadband over powerline in America, an honor it says it earned when PPL [PPL] in Allentown, Pa., started selling broadband access based on Amperion gear late last year. Indeed, Simons is a bit ticked off that arch-competitor in the BPL market Current Technologies has just gotten acclaim for being first. Cinergy [CIN] reportedly is offering BPL to customers in Cincinnati and other places using Current's hardware.

Ah, Current Technologies' general counsel Jay Birnbaum retorts, but his company's technology is pure broadband over power. Amperion uses a hybrid technology, where broadband is carried to the power pole but enters the home using Wi-Fi. So that makes Current the first pure-play BPL vendor to supply an ISP that's gone commercial.

Finally, Real Business

The sniping aside, the simple fact is that real live consumers in at least a couple of places now can buy broadband access delivered via power lines, rather than buying DSL, cable or other forms of broadband access. The fact that there are two competitors, with more in the wings in field testing, makes BPL start to sound like a real business.

"I'm happy to see the competitors. One company is rarely strong enough to create an industry," says Simons. "I think that we're a very strong competitor." He then can't resist another stab at Current, adding, "I think we're the largest."

For those who haven't been following BPL developments - and shame on you if you're in the broadband market and you haven't - the competing technologies start with Amperion's use of Wi-Fi to go around such problematic situations as bridging electric distribution transformers.

Amperion cites such issues as safety, making sure there is an air gap between medium- and low-voltage power lines. It also calls Wi-Fi the most cost-effective way to do the job, and by using wireless access for the last link to the home, users aren't tied down to a power line. On the other hand, that also means Amperion's technology is limited to whatever speeds Wi-Fi can deliver. On its Web site, Amperion talks about speeds as fast as 24 Mbps for its technology. However, the truth is that, in the home, the best users typically see is somewhere between 2 Mbps and 5 Mbps. That speed will jump sometime in the second quarter, when Amperion starts using 802.11(a) and (g) technology, expected to yield between 20 Mbps and 22 Mbps in true usable speed to end users.

In contrast, Current uses BPL all the way to the home, having developed technology to go around power transformers with no wireless links at all. The result is that "you have broadband access at every outlet in the house," says Birnbaum. All one has to do is plug is a Home-Plug modem, which generally costs about $30 wholesale and retails for between $40 and $50. Arguing that Wi-Fi suffers range limitations and difficulty in penetrating some structures, Birnbaum snipes that "Wi-Fi does not give you ubiquity, it gives you mobility." Current's technology, by the way, typically yields a bit more than 3 Mbps to the end user, just about the same as Amperion. What a surprise.

Power Prices

Neither Amperion nor Current set the prices; that's done by the companies that use their technology to deliver broadband. To no one's surprise, there's little difference in pricing, no matter which technology is used. The companies rolling out BPL are asking between $30 and $40 per month, typically selling access in 1 Mbps, 2 Mbps or 3 Mbps tiers. That's already about equal to, or below, DSL and cable pricing, and of course the BPL market is still in its birth pangs. BPL proponents say we ain't seen nothing yet on how low BPL pricing per Mbps will go.

As for just how many people really can get BPL, and how many have chosen it, those numbers right now are both miniscule and somewhat hazy.

At Cinergy, the first utility to roll out using Amperion's technology, there were two 100-home pilots last year that have been converted to commercial deployment, and "our goal is to pass 250,000 homes in the first three years," Birnbaum says. How many of those will sign up is, of course, unknown, and he won't reveal the business plan.

"If they all signed up, we would be very happy, but we certainly don't expect that to happen," he says. "We're looking to get a healthy market share. Let's leave it at that."

Current's Cinergy rollout is expected to be followed by one at Pepco [POM] in the Washington, D.C., area. Pepco's plans still are secret, but the utility is said to be in the process of upgrading the BPL equipment it used for a pilot into what is needed for full commercial deployment.

Birnbaum won't disclose the identity, but confirms Current is currently negotiating with yet another power company for a rollout, and he says, "I suspect by the end of the year you will see another half a dozen announcing commercial deployment."

Meanwhile, at Amperion, Simons is estimating the total industry passes about 30,000 homes in North America right now. As for how many are using the service, he says, "a lot of business plans I've seen talk about 10-percent penetration, and a lot of customers are exceeding their numbers." So that would mean there are maybe 3,000 or 4,000 users in all of the United States, including the two commercial deployments and trials, as of today. That a miniscule 0.01 percent market share.

A year from now, Simons estimates, the number of homes passed will easily be 10 times what it is now and, one assumes, so will the number of users. A year after that - most people aren't willing to make public estimates -- BPL market share could break into the single digits.

And that's not the whole market. How many of those homes sign up isn't even important to some of the utilities toying with BPL. They're more interested in the potential for using BPL to monitor the power grid, yielding granular information about every power feed on a grid down to a single home. Such information, some believe, could have avoided last year's Northeast power black out.

The potential is so great that some utilities, such as New York's Con Edison [ED], have been playing with BPL for years. ConEd had started to install a test bed in lower Manhattan back in 2001. The test was disastrously curtailed by the events of 9/11, which destroyed the test site. A new test bed currently is in operation in Westchester, north of New York City, and it is said to be working well. So far ConEd has only tested BPL on overhead power lines, but soon it will test it on lines in the warren of underground tunnels beneath Manhattan.

ConEd is using technology from Ambient. It's also a part owner of Ambient. The utility insists it has no plans to deliver broadband to homes using its system - among other things, ConEd owns a subsidiary that delivers DSL, so it would be competing with itself - and it is only interested in using BPL to monitor its power lines. Of course, there are some secret talks right now with an ISP that would rent capacity on a ConEd BPL network.

In any case, when BPL finally does get to the home or business, it is going to meet a good friend in a growing number of cases - in-home powerline networks. The technology, now based on the Home Plug standard, has been kicking around since the late 1980s but it finally has begun making some market penetration after its 2002 entrance. The one- millionth Home Plug kit is slated to ship in another few weeks, says Cameron McCaskill, vice president of sales and business development at Intellon, which lays claim to a 95-percent market share of the chips used by the roughly 20 companies now making home-plug hardware. That gives home plug perhaps a 1-percent market penetration worldwide, mainly in Europe, with still-trivial penetration in the United States and elsewhere.

We'll take a deeper look at the in-home powerline broadband market in our next issue.