

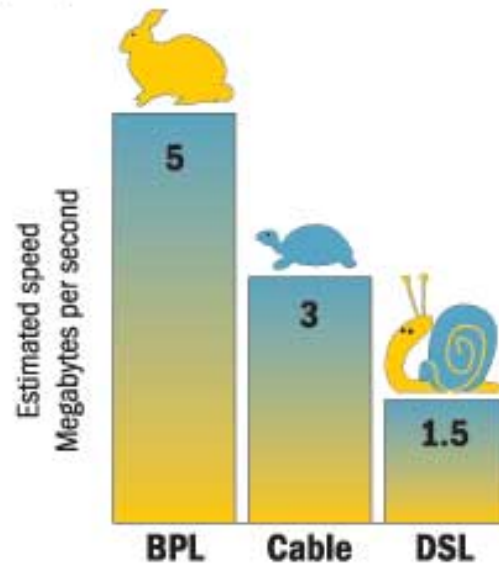
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BPL offers faster Web connection

Josh Bosack Jan 18, 2005

High-speed Internet

Estimated speed of a new type of Internet connection using conventional power lines in comparison to current high-speed connections of DSL and Cable.



Source: Verizon, Adelphia, Pouyan Amirshahi

Jeremy Drey/Collegian

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Collegian Staff

Margo Brown (sophomore-advertising and English) said she feels spoiled because she has high-speed Internet in her dorm.

That's because Brown is from Dushore, a rural area about an hour west of Scranton, and she has to use dial-up to connect to the Internet at home, she said.

"When I go home, I can't be online for long and download music," she said. "It's a pain."

For those students like Brown who don't have access to high-speed Internet at home, a new technology using existing power lines that is currently being researched by Penn State engineers could change that.

Mohsen Kavehrad, W.L. Weiss professor of electrical engineering and director for the Center for Information and Communications Technology Research, and Pouyan Amirshahi (graduate-electrical engineering) have created a model for broadband over power line (BPL).

BPL is an alternative to high-speed Internet connections such as Digital Subscriber Lines (DSL) and cable, Amirshahi said.

In theory, their research based on computer simulations shows it is possible to get a gigabit per second on a medium-voltage power line using BPL, Kavehrad said.

This compares with about 1.5 megabits per second (Mbps) on DSL connections and two to three Mbps on cable connections, although speeds can vary with each line, according to Verizon's and Adelphia's Web sites. There are 1,000 megabits in one gigabit.

Amirshahi said his cable Internet service in State College connects around one Mbps.

"BPL can deliver at least four to five Mbps to an individual house," he said.

The group's research is not finished yet, Kavehrad said. AT&T, which funded their initial study, has given them power lines and modems to conduct actual measurements, which will begin soon, he said.

Kavehrad said he thinks BPL will have an impact in rural areas where high-speed Internet technology is not available.

For instance, people who wish to use DSL connections must live within a certain distance from the origin of the phone line.

"The best way to build up the economy is to build rural areas with technology," he said.

Amirshahi said he believes BPL would be great for poor countries because they already have power lines, but DSL and cable lines are too expensive to set up.

The main drawback with BPL is that the power lines can more easily broadcast interference, Kavehrad said.

BPL could interfere with signals such as those that ham radio operators use, Amirshahi said.

However, both are confident that with more research a solution to the interference problem can be found.

BPL trials have been underway in Manassas, Va., Menlo Park, Calif., and Cincinnati, Kavehrad said.

Current Communications offers BPL to a few neighborhoods in Cincinnati, Amirshahi said.

According to the company's Web site, www.current.net, consumers can purchase varying speeds from one Mbps up to three Mbps.

BPL uses a modem that the user plugs into an electrical outlet that connects to the computer using an Ethernet cable, Amirshahi said.

Earlier this month the researchers presented their research results at the IEEE Consumer Communications and Networking Conference in Las Vegas, he said.

During that conference, their paper was accepted for presentation at the International Symposium on PowerLine Communications, which will take place in April in Vancouver, Amirshahi added.

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