

# Options Expand For High-Speed Internet

## With Swifter Downloads, DSL Now Vies With Cable

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**T**he race between phone and cable companies to offer faster Internet service is giving consumers a wider variety of options for watching Web videos, playing online games and working from home.

Because of their fatter wires, cable companies until recently had the upper hand in delivering faster connections, leaving phone companies to compete in the broadband business by offering lower prices. But as companies such as AT&T Inc. and Verizon Communications Inc. have upgraded their networks, they've made speeds available to consumers that they previously sold mainly to business customers. Cable companies have had to pick up their own speeds to stay ahead.

Broadband speeds typically are measured by how many bits of data pass through a connection per second. In the early days of dial-up connections, the average "down" speed, at which bits flowed from the Internet into a computer, was about 56 kilobits, or 56,000 bits, per second. Today some operators are offering as many as 50 megabits, or 50 million bits, per second.

AT&T, whose fastest speed was 1.5 megabits per second three years ago, raised it to three megabits in 2004 and six megabits in April. Comcast, the country's largest cable operator with more than 21 million subscribers, has increased speeds four times in the past three years and now offers most customers six megabits.

Broadband speeds are picking up especially in regions with fierce competition. In parts of the New York area, where Verizon and Cablevision Systems Corp. are in a head-to-head battle, Verizon last week cranked up its fastest connections to 50 megabits per second. The move came just weeks after Cablevision gave its customers in the region a free bump to 15 megabits from 10 megabits and also came out with a 30-megabit offer.

Faster connections are growing in importance as more people use the Internet for such demanding tasks as downloading and viewing movies, playing multiplayer games that involve sophisticated graphics or working with large files from the office. A two-hour movie that would take almost two hours to download on a 1.5 megabit connection, for example, would take a little more than three minutes to download on a 50-megabit service, according to Verizon.

But the higher speeds typically cost extra. Verizon's charges for its 50-megabit service range from \$90 in New York to \$140 a month in New Jersey and Connecticut. Cablevision charges \$40 to \$60 for its 30-megabit service

and close to \$200 for a 50-megabit service, which it doesn't heavily advertise.

Most major cable companies' standard Internet packages have download speeds of up to seven megabits per second for about \$42 a month. Telephone companies, which offer "digital subscriber line," or DSL service, typically offer speeds of 1.5 to six megabits for \$20 to \$30 a month. Some slower DSL service sells for as little as \$13 a month, with AT&T currently offering a 384 kilobit to 1.5 megabit connection for that price. BellSouth Corp. offers four speed options ranging from \$25 for a 256 kilobit link to \$47 for up to six megabits.

Higher speeds also may not be for everyone. The standard speeds that most cable and phone companies offer are all that most consumers need for watching videos, downloading most files, instant-messaging and other customary uses, industry analysts say. Making phone calls over the Internet, for example, requires only 90 kilobits per second, according to AT&T. Watching streaming video with standard-definition TV quality off the Internet needs only two to three megabits, according to AT&T.

"Once you get over 10 megabits, your average consumer will have no idea of any difference," says Maribel Lopez of Forrester Research, a consulting firm in Boston.

Gamers are more likely than average users to crave maximum speed. In some games, connection speed can make the difference between shooting an opponent and getting shot.

Upload speeds, meanwhile, also have been steadily rising as consumers use the Internet more for swapping photos, videos and music or zapping their latest projects back to the office. Time Warner Inc.'s cable division, for example, offers download speeds up to seven megabits and uploads speeds of up to 786 kilobits on its mainstream service, compared with three megabits downstream and 384 kilobits upstream just a few years ago.

Broadband speeds in reality often can be slower than their advertised maximum rates, a fact buried in the fine print of phone- and cable-company material. Cable customers, for example, share pipes with their neighbors so their speeds are going to be slower at, say, 8 p.m., when many are using the Internet than at 3 a.m. DSL speeds are influenced by the distance between the customer's home and the company's nearest equipment hub.

Also, when consumers buy an extra-high-speed connection, they're only buying speed between their home and a local distribution point. The speed at which they get a movie, file or song could also be slowed by congestion on the sender's Web site or in the backbone parts of the Internet. Indeed it is the backbone piece that is at the heart of the "net neutrality debate" currently going on in

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Washington, D.C., with cable and phone companies wanting to preserve the ability to charge content providers for priority delivery.

Major phone companies have been challenging cable operators for speed supremacy in areas where they've spent billions of dollars to add fiber-optic cable to their networks. Verizon has gone as far as stretching fiber optics all the way to customers' homes in some areas. AT&T isn't going that far, but its network improvements have allowed it to offer faster speeds in a growing number of neighborhoods.

Verizon says that its new 50-megabit service will let customers stream full-screen movies and download enormous business files that may contain such things as medical images and computer-aided designs. They'll also be able to play videogames with no lag time, the company said in a recent statement.

But cable companies aren't waiting to be overtaken and are either increasing their own speeds in tandem with a phone company, like Cablevision is doing, or are offering new services. Comcast, for example, now offers a feature called Powerboost that automatically juices connection speeds at no charge when customers download large files.

Some telecom companies say they see no need to offer the kinds of speeds that Verizon and Cablevision are offering to their residential customers. "It isn't a problem for us to deliver those speeds," says Mark Harrad, a spokesman for Time Warner's cable operation. "We don't see the consumer demand."

—Stacy A. Anderson contributed to this article.