

## Why Wi-Fi is often so slow

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A number of Internet service providers, including Comcast Corp. [CMCSA -0.71%](#) and Verizon Communications Inc., [VZ +0.58%](#) have recently upped the maximum speeds of broadband they offer residential customers to as much as 305 megabits per second.

And Google Inc. [GOOG +1.07%](#) is testing a high-speed network in Kansas City that would offer a speed of one gigabit—equal to 1,000 megabits—per second, which the company boasts would allow a person to download a season of "30 Rock" in 30 seconds.

But the widespread use of home Wi-Fi networks could undercut these efforts. While such networks give people a wireless connection to the Web, they significantly reduce the speed available.

Most customers get little more than 50% of the capacity promised by their Wi-Fi routers, says Dr. Alex Hills, a professor of electrical and computer engineering at Carnegie Mellon University who built the first big Wi-Fi network. That speed is further slowed if multiple people try to use a network, he says.

When Alex Boote moved into a house this summer with four friends and 26 Internet-connected devices, he quickly discovered that sharing Wi-Fi could be more difficult than sharing living space.

If Mr. Boote, a 23-year-old research assistant in the Washington, D.C. area, connected his TV to the router with a cord, he could surf the Web fast enough to stream all the Netflix Inc. [NFLX -1.77%](#) programs he wanted.

When he instead used his home Wi-Fi network, it was a different story. With so many others on the network, a "Game of Thrones" episode streamed from the Web would frequently sputter and stop.

"The picture would be pretty pixilated and loading times were minutes instead of the seconds that you get when you plug it right into" the router, Mr. Boote said.

The average U.S. home that subscribes to broadband has six Internet-connected devices per home, according to Parks Associates.

When Internet service providers "talk about these gig-per-second speeds, it's more for marketing purposes," says Dr. Paul Liao, the former chief executive of CableLabs, a nonprofit technological research consortium of cable operators. "Nobody probably can get a gigabit per second...unless you connect directly to the router or the modem."

Google concedes that its Wi-Fi will be much slower than its wired connection. Comcast, Verizon and AT&T Inc. [T +0.04%](#) say the speeds they advertise are for wired connections and acknowledge that a number of factors affect Wi-Fi speeds. These include the power of the router, its placement in a house, the amount of airwave interference from other gadgets like baby monitors and microwaves, and the number of users on the network.

A big part of the problem, experts and industry executives say, is that most Americans have older routers whose maximum theoretical speed is 54 mbps. Those provide "real world" speeds far below the fastest wired broadband speeds offered.

Newer models allow for faster speeds but both Comcast and Verizon say they don't yet offer Wi-Fi routers to customers with "real world" speeds that match the fastest broadband speeds the companies offer.

A Google spokeswoman said the company has built a router that has "real world" speeds of 300 mbps. But that is still below the gigabit top speed on its planned service.

Verizon says its latest router offers a real-world speed around 85 mbps, according to the company's tests, compared with Verizon's top Internet speed of 300 mbps.

Comcast on Tuesday will start offering new routers, the fastest of which the company says has "real-world" speeds of 200 mbps, according to its tests. But that is still below Comcast's top broadband service of 305 mbps, to be released in some northeastern markets starting Tuesday.

Broadband providers for the most part will offer these improved routers only to people who ask—or new customers, as they are more expensive.

"There's a point where you want to be ahead of the market, but not obnoxiously ahead of the market," says John Schommer, director of broadband product development at Verizon Communications' FiOS,

Some consumers have come up with their own solutions. Some go out and buy faster routers than the ones supplied by their Internet service providers.

Others get more involved. Jim Waddle, a 47-year-old molecular biologist in Dallas, ran into trouble with his AT&T Internet once his family—including a wife and three kids—grew to have five computers, five iPhones, three iPads, an Apple TV and two high-definition TVs.

On a typical evening, he could be engaged in remote sessions from his labs while his wife accessed medical records, his son did online gaming, and his other two children watched iTunes shows off the Apple TV or clips off YouTube. "The connection was dropped all the time; it was driving me crazy," Mr. Waddle said. He fixed the problem by buying about \$400 of Apple Inc. AAPL +0.24% devices that enhance the in-home wireless connection.

Mr. Boote and his friends, who subscribe to 15 megabits-per-second Comcast broadband in addition to TV, bought two "powerline adapters," which extend the range of their Wi-Fi signal by tapping into electrical power lines inside the house.

Devices, like an Xbox or TV, can be plugged into the adapter via a cord to provide similar high speeds to what they would get if connected directly to a router.

With two such adapters for their Internet-connected TVs and Xboxes, Mr. Boote and friends stream video faster from those electronics—but the other devices around the house still face the same lags.

**Fonte: The Wall Street Journal, 18 Sept. 2012. [Portal] Disponível em: <[http://online.wsj.com/article/SB10000872396390444233104577595881760532986.html?mod=WSJ\\_hpp\\_LEFTTopStories](http://online.wsj.com/article/SB10000872396390444233104577595881760532986.html?mod=WSJ_hpp_LEFTTopStories)>. Acesso em: 18 Sept. 2012.**