Goodbye Downloads, Hello Latency

Fiber internet is the only medium that will provide consumers and businesses with unlimited speeds.

By Mark Scifries / *Pavlov Media*

I am often asked about capacity on the internet, especially download and upload speeds. What people are really wondering about is the idea that if the world has limits, then the internet must have limits – right? The thinking goes like this: "I don't need this capacity now. What would I use it for?" Or more broadly, "What policy would ensure everyone has equal access, and no one has too much?"

Both questions have faulty premises because with fiber internet, people can have it all – and no, there isn't such a thing as too much.

DOWNLOAD REALITIES

Let's start with a little history for perspective. When I started using computers, 300 baud modems were common (watch "War Games" if you don't know what they look like). Downloading a megabyte of data took days sometimes because even though a modem said 300 baud, the dang thing didn't work. Nowadays, a typical website averages far more than a megabyte, and with video ads becoming commonplace, 50 to 150 megabytes is the norm. When files were this size in the 1980s and 1990s, people hand carried 50 to 150 floppy disks on a "network" called "sneakers." Shoes and feet were the networks. The point is, download speeds are associated with time only if they're observable. If there's enough time for the spinning clock to show up, a download happens.

Experiment with me. Take a single photo with your smartphone. Plug your USB 3.1 cable into your phone, then copy one file from your phone to the computer. Technically, you downloaded the picture, but you didn't think of it as a download because it was fast – pretty much instantaneous. That's because USB 3.1 is 20 Gbps. The next generation of USB 4.0 is 40 Gbps. USB 4.0 is 40 times faster than gigabit service to your home and 80 to 160 times faster than standard cable modem service. Back to the experiment. Now select all your images, and download all the photos from your phone to your computer. If the clock starts showing progress, you are downloading.

Download speeds are relevant only if you have time to notice them. If you don't see the copy, it is now effectively visual latency. With ultrafast connections, such as USB 3.1 or USB 4.0, you don't notice them, and you appreciate that the download clock became irrelevant. If an image is copied subconsciously (a second or less) and you didn't think about it, you're experiencing higher speeds, and faster peak speeds equal an improvement in latency.

A MATURING INTERNET

The internet is growing up. There were mechanical limits on DSL and coax. The upper spectrum of copper systems created limits on maximum capacity and speed on these technologies. Mechanical limits of speed or power do *not* limit fiber. Fiber does not obey the same laws of physics for voltage, current or resistance.

The fiber industry is at a turning point on computer chips and is releasing 10 Gigabit XGS-PON this year in mass production. In the next few years, it will release 25G PON. These products represent such advancements that copper-based cable modems will be in a museum within the next 10 years.

The limit is the broadband industry's collective imagination and how it imagines marketing internet products with no physical limitations. The legacy copper-based companies first will defend the entrenched technologies, claiming safer or better or claiming that people don't need so much capacity. That's total nonsense.

Consider again your phone connected to USB 3.1 on your computer. You have 20 Gbps right now. Why would you want only 1 Gigabit? Next year, your computer will have a 40 Gbps USB 4.0. Why would you want service 80 times slower than the one computer in your home when the average home has at least 10 devices with 20-gigabit ports?

The problem is one of collective blindness in the past. People need to wake up and build the future. They need to realize that peak speed is excellent, that they already have and use more and should expect more. Typical video files for an entire TV show will likely download in less than a second in the future. Internet will eventually be billed like water or electricity without limits on pipe size, electrical current or cost of power or water. It's the only product that could potentially not have limits if people collectively don't mess it up. Goodbye, downloads, hello latency. ❖

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