

Internet 101

What is all this Internet speed and bandwidth talk all about?

Let's say you need 5 gallons per minute (gpm) of water to take a decent shower and 40 pounds per square inch of pressure to deliver that gpm water volume. Let's assume that you have a two inch water pipe feeding your shower.

Now let's say that you have a shared water well and your neighbor decides to take a shower at the same time, a shared well is somewhat common in semi-rural areas. Now you will need a four inch pipe to deliver that volume to both showers at that same pressure.

Network congestion is caused by too much data trying to use the same pipe at the same time.

Megabits per second (Mbps) is like water pressure that delivers Megabytes (MB) or Gigabytes (GB) of data volume to stream a movie, YouTube video, or Zoom call or whatever.

Unlike fiber or DSL Internet service, cable Internet (Comcast/Xfinity or Charter/Spectrum) is a shared system and multiple users share your local node. How many depends on population density of your node. On my node in a subdivision of a village, it is likely a few hundred devices. (modems)

My own data packets go from Francis Creek, to Two Rivers, to Stevens Point. Then if the destination is my web or email server in Milwaukee, they go to Fond du Lac and then Milwaukee. If the destination is Chicago, then my packets go to Eau Claire from Stevens Point and then to a Chicago IXP on the Internet backbone. If the destination is the actual Internet, like Netflix or other websites, the packets go from Eau Claire to Minneapolis and connect to the actual Internet backbone.

Minneapolis is where a Tier 3 provider like Spectrum buys its Megabits from a Tier 1 provider like AT&T or Verizon which serves as an Internet Exchange provider or IXP. So Internet Service Providers, or ISP's like Spectrum do not actually make anything, they just route the Megabits they buy and resell via their dumb pipes. Like a pipeline company.

The can only resell what they buy, and they are not buying enough to provide a legitimate service to their subscribers.

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