Why might one computer use more bandwidth than another?

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Question

Why might one computer use more bandwidth than another?

Answer

As the classic commercial tagline “L’Eggo My Eggo” illustrated, when supply is limited - demand can become contentious.

If you share your internet connection with other pesky people, you have probably experienced times where your connection slowed down dramatically. While you are doing something important like binge watching Game of Thrones, someone else decides it is the perfect time to watch cat videos on YouTube. Faster than you can say “Winter is Coming” your video quality drops and the inevitable… were sorry your connection is such crap that we can’t let you continue your pathetic attempt to view the show one pixel at a time. Then you go into the other room to find out that the house cat aficionado hasn’t experienced any issues. Wait a second... you think "I have a great internet connection and I was on the internet first so why I am I being denied John Snow while they get to watch Moggy the cat jump through the snow." At a minimum we should be sharing the network 50/50… right? Wrong.

To understand the problem lets use a big tall milkshake as an example (choose your favorite flavor). You sit down with a straw and dip it into the top of the milkshake and start enjoying its smooth deliciousness. Then someone sits down, and knowing that there is room for another straw and plenty of shake to share, and you invite them to join you. As you watch with a generous spirit, the person picks up about 30 straws - shoves them deep into the milkshake and starts sucking down your milkshake like a supercharged Dyson. Before you know it your straw isn’t down far enough to enjoy any of the milkshake at all.

A couple of things happened here that related to how your internet connection works. If you view the diameter of the milkshake glass like your internet connection you can see it has room for more that one straw. In relation your internet connection can handle multiple “pipes” of information flowing through the bigger “pipe” of your available capacity. Sharing a milkshake is easy if two people each agree to use one straw and drink it at the same rate. If they don’t, well someone is gonna get less. If your video player is streaming a video using one or two requests at a time from the internet… no problem. But if another video player on the same network wants to get greedy it can send 50 requests at the same time, each asking for way more data than you do, and completely hog the available supply.

There are a few ways around this. Some apps let you set a maximum number of requests to make at one time (most don’t). Most apps let you choose a default video quality like SD, HD, or 4K - using the a lower resolution will make for few and less greedy requests for data. But the only sure fire way of making sure that apps and people share politely is to have your network enforce some manners. This is done through a process called QoS or Quality of Service. Many routers now include the ability to prioritizes one type of traffic over another. An example is: no matter how bad my video quality has to become, never let it steal bandwidth from the VoIP phone. Some even allow you to say that any one machine can only ask for up to a certain percent of the total available bandwidth.

So whether you have to share Eggos, milkshakes, or the internet remember it’s all about manners. Now

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L’Eggo my Eggo!

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