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Re: FCC Docket No. 15-191

To whom it may concern:

When measuring the state of broadband deployment in the United States, the FCC must include the quality and cost of connections in their metrics. Not all broadband connections are created equal and not all broadband services are affordable to the average consumer.

Two factors affecting the quality of a connection are latency and symmetry.

In order for a connection to be usable for phone calls, video chatting / conferencing, online gaming, and other real-time interactive services, the latency of the connection needs to be kept to a minimum. If the latency is too high, advanced services such as these will fail and cannot be used to communicate. This is particularly important for future applications such as providing patients in rural areas access to distant medical specialists over high-definition video conferencing systems.

Most broadband Internet connections in the United States are via coax from the local cable company and use DOCSIS 3.0 technology. These connections are highly asymmetrical meaning they have fast download speeds and often minimal upload speeds. The upload speeds are often 1/5th to 1/10th the advertised download speeds. The upload speeds are often so slow, the providers don't even bother to advertise them or tell you what they are when you sign up for services. DOCSIS 3.1 technology is just as asymmetric as DOCSIS 3.0 technology and will not fix the asymmetry inherent in cable broadband connections.

These asymmetric technologies and broadband connections favor the consumption of services over the creation of content. In order for connections to be the most useful to subscribers, subscribers must be able to create as well as consume. It should not take a half hour to upload one minute of video to YouTube or 14 hours to back up a single memory card's worth of photos to an online cloud-based backup service. As the Internet of things and cloud computing technologies advance, more devices in the home will need access to the limited upstream bandwidth to function correctly. High-speed upstream links also enable people to work remotely thus cutting down on traffic congestion and the resulting pollution. With today's highly asymmetrical Internet access technologies, none of these new applications can reach maturity or users must wait an inordinate amount of time to share their user-created content.

Another factor affecting broadband's usability and penetration is cost.

Consumers are increasingly choosing over-the-top video services over their incumbent broadband Internet provider's own television programming services. This has led to a decline in video programming revenues for these providers. With wired broadband penetration reaching saturation in some ISP's markets and video programming revenues declining from cord cutting, the nation's largest wired ISPs are looking to maintain profit and revenue growth by increasing the cost of their Internet services thus hoping to replace revenues from a failing business (cable

television programming) with revenues from a steady or slowly growing business (broadband Internet services).

The broadband providers are doing this by arbitrarily capping the amount of data users may consume in a billing cycle without paying additional overage charges or other fees. Even the nation's largest ISP admits their new 300GB cap has nothing to do with congestion. With something like 85% of Americans only having access to a single broadband provider, any price increase, capping, or reduction in the amount of data allowed to be consumed by subscribers should be viewed as an abuse of the monopoly position of that provider.

Metered and capped services change the way users use the Internet. One effect is to push consumers toward the Internet provider's own video services which would not be subject to a cap over their competitors' over-the-top services which would be subject to the cap. This is a flagrant abuse of the Internet provider's often monopoly or duopoly position in the market for broadband Internet access. Other effects would be for subscribers to wait to or decline to install security updates on their home PCs, tablets, or cell phones; for subscribers not to make a video chat with distant friends and family; or for subscribers not to purchase a video game that required a 50GB download to install because it was at the end of the month and they were near their cap.

Caps and high-priced metered usage are also detrimental to the coming Internet of things. If a thermostat, smoke detector, security camera, and alarm system are all consuming a limited pool of available data for the month, many consumers may be tempted to take these devices offline so they can download a game or watch an extra hour of video at the end of the month. Or not purchase them in the first place.

Furthermore, the provider with the 300GB cap has had unenforced caps in the range of 250GB to 300GB for the past five years. This cap is low enough that only 8% of their subscribers will hit it currently but given the increasing popularity of over-the-top video services and the multitude of devices now connected in the home, more and more subscribers will be subject to these additional fees in years to come. Given that the cap hasn't changed in the past five years, the goal of the provider is more revenues and ever increasing profits, and the provider's monopoly position for Internet access in many markets; the likelihood that the cap will increase in the future as it snares more subscribers is pretty slim.

Yes, the quality and cost of Internet connections should be considered when measuring the state of broadband deployment in the United States. We should hold high goals for our Nation's telecommunications infrastructure. Our goal should not be what's most profitable for the incumbent providers but rather what's needed to make the United States number one in affordable broadband Internet access. The goals for our telecommunications infrastructure should keep pace with our ever-advancing computing, storage, hardware, and software technology rather than falling by the wayside or falling behind.

Or we could just install FTTH everywhere and be done with it.