Via ECFS and Email

February 7, 2016

Chairman Tom Wheeler & Commissioners Clyburn, Rosenworcel, Pai and O'Rielly
Federal Communications Commission
445 12th Street S.W.
Washington, D.C. 20554

Re: T-Mobile's Binge On Video Streaming Program; GN Docket No. 14-28

Dear Chairman Wheeler and Commissioners,

Like so many others, I am a self-declared Internet expert. I am also the owner of a small business, an entrepreneur, and an innovator (evidenced in part by issuance of several communications technology patents by the USPTO). And I am a consumer.

I am writing to point out that T-Mobile's Binge On program is a fine example of innovation and part of what makes the Internet, market forces, and America great. I respectfully submit that the FCC will do the greatest good for all Internet stakeholders by leaving it alone.

While personal anecdotes are not always best for informing policy decisions, I will start with mine. I am a T-Mobile wireless customer and a subscriber to Netflix, Hulu and Amazon Prime. I have a paid Vimeo account. And I am a presenter in an on-line course under development for Coursera.

Binge On is a terrific benefit for me and countless others. I don't watch a lot of video over the mobile network (I'm also a Comcast cable modem subscriber and consume most video via that more efficient delivery mechanism). But if I do choose to watch a Netflix offering on my wireless device, it's great to know that it won't count against my monthly data allocation. That means I've got more gigabytes available to check on the Coursera project or to explore other video services not (yet) supported by Binge On.

So as a consumer, I applaud T-Mobile. As a casual consumer of mobile video, for me the program is clearly a win all the way around. If I were a voracious watcher of video, I'm sure I'd be thrilled that now I could watch as much as I want from some of the most popular services without affecting my cap (again, freeing up gigabytes for other uses, like watching the occasional YouTube video). That's clearly a net positive compared to before the program took effect. If I were somebody who watched a lot of video, but none of it sourced from the current program participants, I'd be no worse off – and I'd have the opportunity to encourage T-Mobile and my preferred providers to work together so that I could benefit in the future.

As a technologist and a businessperson, I also see great benefit to Binge On. My understanding of the program's genesis is as follows:

A. T-Mobile linked together several critical observations: (1) Vast amounts of wireless bandwidth are consumed by video delivery, likely making it one of the prime sources of network congestion; (2) The resolution supported by the typical stream is overkill for the small screen on which the video is usually presented; (3) In some video delivery protocols, the video server can be directed to deliver a lower-resolution stream with a tremendous reduction in required bandwidth.
B. T-Mobile found that if they could identify a video stream in a supported protocol, they could readily send a message back to the source server asking that it switch to lower-resolution delivery.

C. T-Mobile realized that if they shared their network efficiency gain by offering consumers a data allocation exemption for these adjusted streams, at least some subset of consumers would find it attractive and it would be a competitive advantage in attracting and retaining subscribers.
D. By working explicitly with video providers, T-Mobile and the providers can reasonably assure that the user experience is seamless and enjoyable, and that streams from those providers is accurately detected by T-Mobile so that they can be reliably exempted from the customer's data allocation (since nothing upsets consumers more than billing discrepancies).
E. By enabling this benefit automatically for all subscribers, T-Mobile was able to let video consumers enjoy it immediately, and to quickly increase the headroom on their network during times of heavy use (benefiting even those that watch little or no video from the supported services on their mobile devices).
F. By offering an opt-out capability, T-Mobile made sure that no subscriber had to be worse off than before (and in fact, even those that opt out still presumably enjoy a less congested network – a benefit to both those consumers and their non-supported providers).

Wow! That sounds like an innovative, well-thought-out and well-executed program, and one that provides benefits all around (although obviously more benefits for some than others) – except perhaps for T-Mobile's competitors, but that's the point of competition.

If T-Mobile had done anything differently, somebody would complain that they didn't do it the "right" way. There is concern that some video services are "supported" and others are "excluded." Some have suggested that the program could (or should) be altered along various lines (and I'm certainly appreciative of those that try to make constructive suggestions as opposed to just complaining):

1) Offer consumers instead an "unlimited low speed pipe" that could be used for any sort of traffic (either with or without a "high-speed" bucket that would be consumed first). Indeed, some carrier (including T-Mobile) might choose to offer this if they thought it would be attractive to consumers and commercially viable. My expertise in mobile technology, mobile economics, and consumer preferences is limited. I do know that one way mobile carriers compete is by touting the highest speeds. Would consumers would respond to a campaign stating: "It's slow but it's good enough and it's cheap"? More problematic, I would think, are the commercial implications: There are practical limits to how much video an individual subscriber will consume, so T-Mobile has some expectation about how Binge On will affect their network. If you offer an unlimited pipe and the only constraint is a moderate speed limit (but no other constraint on when or how it is used), you'll get people setting up servers and related functions that would likely consume bandwidth non-stop. People will run nanny-cams 24 X 7. This potentially adds to, rather than mitigates, network congestion and convolutes economics for the carrier. T-Mobile already has a "no overage" policy; subscribers that reach their monthly data allotment aren't turned off or charged overages; they're switched to a lower speed. The suggestion here is effectively that the "lower speed" be made substantially higher. I suspect that the economics of that are not viable.
2) Offer consumers more data for less money. Of course, this is an area where mobile operators are already feverishly competing. The efforts that carriers and technology suppliers have made in providing more functionality, coverage and bandwidth at reasonable prices is a huge consumer benefit and has happened thus far without intrusive regulation. Market forces will continue to drive this.

A key underpinning of Binge On is that it eliminates a source of bandwidth waste. To function, it has to be able to recognize a video stream, signal the server to reduce the resolution, and track the stream so that it doesn't count against the customer's data allocation. Again, I lack depth of knowledge here, but I can imagine that recognizing the video stream is something that is more problematic in certain circumstances. For example, if the communication between server and client is encrypted, the network equipment won't have visibility to its characteristics. Further, some video protocols may not offer reduced-resolution options. And if the transmission uses UDP, which is "connectionless," the network may not be able to keep track of the stream so that it can be exempted from the allocation. These (or something similar) are realities faced by network operators and service providers; you cannot regulate them away. But over time the involved parties will address these constraints.

If we are to be informed at all by history, we know that market forces and competitive pressures will, along with technology advances, result in an evolutionary progression. Perhaps a competing mobile network operator will come up with a different scheme that is even more attractive to consumers and a better conservator of network bandwidth. Maybe video service providers will do a better job of detecting small screens where resolution can be reduced, and take that initiative on their own across all networks, rather than relying on an operator like T-Mobile to identify the applicability and invoke the bandwidth reduction.

I am reminded of ISP-based "web caching" which was introduced many years ago to improve network performance. ISP's would keep local copies of frequently-accessed web pages so that they could be served up quickly without going back to the source server. This was a great innovation and benefit to consumers at the time, was copied by many providers, and has now evolved into the background (at least in areas like the USA where we have a much lower-latency, higher-bandwidth network than we did decades ago). Some might have argued at the time that web caching was disadvantageous to those that were serving dynamic content (since it could not benefit from the technique). But in the end, it delivered measureable benefits, did minimal harm, and now doesn't matter.

As an owner and operator of a small business that relies on the Internet, I'm delighted that T-Mobile (and others) are innovating and that they are cooperating with network stakeholders. My own business uses voice-over-Internet protocol (VoIP) technology, which is sensitive to network characteristics such as delay and packet loss (often associated with congestion). Although my business isn't a participant in, nor is it eligible for, Binge On, it benefits because the program reduces congestion generally. I'm hopeful that in the future, there will be new carrier programs that can benefit applications like mine. Since my business is small, I don't expect to be a charter member of such a program if and when it comes into being. But I do imagine that once established, I'll have an opportunity to take advantage of it, either directly or through some intermediary that decides to make a business aggregating numerous small operators such as myself. The marketplace has delivered time and again in analogous situations, and I'm confident that it will continue to do so.

Content Delivery Network services are a good example. Originally, this technology was introduced to allow a provider of content to insure trouble-free delivery to their consumers by distributing caching servers and securing direct connections to ISPs. (Consider this an evolution of ISP web caching, mentioned earlier.) This was an expensive proposition and presumably available only to the largest provides. But in a relatively short period of time, businesses emerged that offered CDN services to anybody that wanted it. Even the smallest start-up could affordably engage a CDN to make their content readily available around the globe. The CDN, which might at first look like a barrier to entry, became an enabler to further innovation.

Some seem to suggest that if a service provider takes some action that benefits one constituency but not another (or does not benefit all constituencies equally), this is somehow improper. But adopting that philosophy is the real slippery slope. If a mobile operator deploys a new tower in suburban Boise, that doesn't benefit me because I don't live there and have no current plans to visit (despite liking Idaho). Admittedly, somebody in suburban Boise MIGHT attempt to call me at some future point, and then I'd benefit from the new tower, I guess. But nobody would argue that the operator shouldn't be allowed to deploy the tower because it would benefit some more than others.

T-Mobile's Music Freedom program exempts a variety of music streaming services from data allocations. I am not a music streamer so this doesn't benefit me. My business doesn't deliver music streams so my business won't benefit. Does that mean they shouldn't be able to offer it? Or that regulators should second-guess it? Only T-Mobile has the insights into what types of content are driving network utilization, which consumers take up what fraction of bandwidth, how peak utilization compares to average and when it occurs, which video services are long-form vs. short-form and how that impacts the network, which sorts of customers are most profitable, and a whole variety of other factors that inform their innovation and decision-making. Operating that business is an ongoing process that involves continuous feedback and refinement as offers and technologies evolve.

HD Voice (technically "wideband audio") is something I've brought to the FCC's attention several times in the past. T-Mobile was the first major US carrier to introduce this consumer benefit (which can help those with hearing impairments, for example), prompting all the others to follow. Hopefully soon we'll get network interoperability for HD Voice. More proof of the evolving network and the power of competition.

The FCC as regulator, and some pundits, sometimes consider the state of the universe as unchanging. But part of the magic of technology generally and the internet specifically is that it is continuously evolving. That is what has made it so powerful today, and allowing that to continue will hopefully keep the magic alive. No individual or committee or agency is as powerful as market forces, consumer choices, and the thinking of thousands or even millions of motivated innovators.

This letter is not so much about Binge On as it is about the benefits of allowing these forces to play out. When something like Binge On comes along, celebrate it as an example of how well the system is working. As naysayers speak their minds, which they must, evaluate those comments in the context of the evolutionary process. Even those that claim they are "harmed" by Binge On are perhaps just realizing less benefit than others. Binge On bars no one from innovating. Leave it alone.

Respectfully,

/s/ David Frankel

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