

The why's and how's of Net Neutrality

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Summary

This note explains what net neutrality arguments are about and proposes two specific ways to insure a vibrant, universal, inventive future for the Internet. Specifically, we propose that pay-to-play paths can co-exist with the open Internet *as long as* both are developed simultaneously. In addition, we propose that access fees increase progressively in proportion to access speed. The extra charges for very high speed, service providers supports universal access for everyone else.

Part One: Net Neutrality for dummies like me

“Simply put, net neutrality is the principle that all traffic on the internet should be treated equally.” That’s how “Milo” put it on Breitbart’s web site ([Here's What 'Net Neutrality' Is... and What to Think About It - Breitbart](#) .) We couldn’t agree more. But while some see this as the inability to prioritize smooth streaming over email, we see it as basic freedom of expression and permission-free invention. As a practical matter, email doesn’t cause Spotify to stutter, but burdening either with pay-to-play lets the Internet provider make the choice. At your expense but not under your control. We can do better. Here’s how.

Think of your existing home wired broadband connection. If you subscribe to cable, then you have two virtual pathways into your house. One is the cable path and other is your wired Internet connection. Both use Internet protocols to deliver information, TV programs and Internet data, but leave that aside for the moment. Let’s instead look at the characteristics of each.

On the cable side, the franchise operator owns the pathway. They have sole authority to decide what “channels” are in it, how to charge for them, what they can bundle, and so forth. If they elect to distribute the Home Shopping Channel and not QVC, they are free to do so. Indeed, if the wireline provider has their own shopping channel, they are free to make it exclusive and decline to carry any others at all. There is some historical oversight such as must carry, but there are enough channels so that there is room for discretion. The cable industry has argued long and hard to retain these rights, and they are secure. This side of your line is loosely regulated.

On the Internet side, it is a free-for-all. Anyone can create bits and anyone can consume, distribute, or choose among them freely. The provider cannot discriminate

nor can they snoop on the data to build your profile or market or unknowingly create a dossier about you. This is regulated using the time-honored common carrier regime, originally designed to make sure that ferryboat operators couldn't charge your goats more than someone else's to cross the river or to prevent highway hotel operators from refusing you a room if they had one. Nothing in this regulatory regime limits innovation, it just limits discrimination.

Let's also debunk the notion that letting a common carrier make decisions about what to block, filter, or charge for is good for streaming (or other) applications. That is neither true, nor what this debate is about. There is no looming crisis on the Internet. Cisco's annual "Visual Network Index" ([Cisco Visual Networking Index: Forecast and Methodology, 2016–2021 - Cisco](#)) foresees growth, not disaster. The only place where bits get constricted is the (virtual) monopoly path into your home or phone because of high access charges or bad design. It is not a technical problem — we have already invented ways to make applications work in diverse environments — it is a money problem. Carriers want a bigger share; existing distributors want barriers to entry. Guess who pays for that?

What's the problem? [Both-And versus either-or](#)

Now which of these two home pathways has had generous investment and innovation? The answer is both. Cable has come a long way since 1949 when it was used to bring television to communities plagued with bad reception. We have the rise of subscription channels, national channels, news channels, shopping, all sort of niche television ideas that were impossible in a restricted environment such as over-the-air broadcast. Historically, cable providers even tried home shopping and today they offer video on demand (a la Netflix, but priced differently,) and home security systems.

Likewise the Internet side has seen investment and innovation as well. No need to list that here. Suffice it to say that it is a hotbed of ideas at all scales and in all areas.

Given this "best of all possible worlds" why would we make a change? More important, do we have to choose at all? We argue that we don't.

Why not "both-and" instead of "either-or?" Allow a cable-like environment to continue. *And* allow the Internet as we know it to prosper without interference. This is clearly technically possible — indeed we already have it. And if you peer into the future a little, you can see that the cable side can provide more than just programs. Since it already uses Internet protocol for delivery of those programs, it can easily accommodate services that we associate with the Internet— two-way, interactive, targeted at a browser or computer rather than a TV receiver, etc. Indeed, Netflix could migrate to that channel quickly, and pending an agreement with the wireline provider, provide guaranteed quality of service. As could a medical monitor, a home Internet of

Things interface, whatever. Of course, they may have to pay a toll to be carried here. Call it “rent.” Again, plenty of room for innovation.

But there is a catch: there is no requirement to provide the Internet at all. If the wireline provider found that it was more profitable to add more cable-like space for these rent-paying services, it could let the Internet side wither. Indeed, it could deliberately restrict the Internet’s capacity so as to prevent services that compete with the cable side from working at all. That’s the streaming stutter we talked about earlier.

What can we do?

There is an easy fix for this: make it a franchise requirement that ISPs maintain the Internet side and that they expand it in equal measure when they expand their pay-to-play side. That is to say: if they grow the cable side, they must make provide equal growth for the open Internet. No shrinkage allowed. This is clearly in the national interest — Internet access is already a requirement of civic life (the government uses it...) and it is viewed by many as a human right. Living without it is hard, like being nearsighted and lacking eyeglasses. You are just locked out of what society has to offer.

Of course none of this is free. That wireline provider can charge for Internet service. It already does. To date, there hasn’t been a price control on Internet service, but the threat of it looms if the provider doesn’t play fair.

Will companies invest and innovate? Investment has not slowed in the past two years of experience with Title II regulation. If anything, the world of wires needs more investment targeted low-profit, underserved areas that are in effect in the dark and need the Internet badly to bootstrap themselves. To our mind that is the one and only economic adjustment we need to make.

The flip side of this is pretty scary: Current FCC proposals eliminate the Internet part of the wire and transform the entire wire into a cable system. In essence the operator is then free to discriminate or charge for any service it likes. Ultimately, the operator could charge a penny for each email, or each heartbeat of a medical monitor. This is not the Internet we know and love, it is a cable system re-branded to sound like it. (Indeed, had we been smarter, we would have trademarked the term Internet to refer to best efforts, end-to-end networks of networks... Then we would be arguing over Internet versus IP-Cable...)

So what’s really going on here. The answer is pretty obvious. The wireline providers have watched the rise of Amazon, Facebook, Google, Netflix, et al and seen them grow

profitable using the operator's wire. They want a cut. And they want an easy way to get into those businesses. Well, let them, I say. Just not by granting monopoly power over our bits of freedom. Rather than redefine the Internet as a cable service, leave Internet service neutral and allow cable-like services compete. If they compete on a level playing field, where the Internet grows as cable-services grow, we have a fertile field for both economic and imaginative or technical innovation. Eliminating net neutrality closes this door, it is solely an *economic* adjustment, not an inventive or innovative one.

What about wireless?

The answer for wireless is not so easy, since it is not trivial to expand the bandwidth. This is a case where we need both investment and innovation. If wireless operators want to use their wires to mimic a cable service (owned, restricted, monitored, etc) then they have to show innovations that do so without sacrificing the equal expansion of the real Internet. And to the extent that these new ideas create the opportunity for economic services, they will prosper. And there is no dearth of invention on which to base these innovations.

As Bob Noyse said: "Scientists, engineers, and artists create value; the rest just move it around" Real innovation is based on real invention. And real invention is not just pushing money around, it is permissionless experimentation. In the past twenty-five years, we have seen the fruits of such invention, and we have seen them generate economic opportunity. That invention occurred on the Internet precisely because it was open and non-discriminatory. Certainly it exploited the presence of the pathways that wireless and wireline operators provided, that's the nature of things: invent a car and I will invent a taxi service that makes money from the car without giving back a tax on it to the manufacturer. Invent a sewing machine and I will invent a garment industry and exploit your cheap sewing machine to make Dior dresses. Sounds unfair if you are the enabler, but that's the point of socially valuable common carriage and infrastructure. Others can leverage it. Indeed, that is capitalism. Buying a car doesn't make you a partner with GM. To redistribute your profits back to the infrastructure simply because you can pass a law taxes progress and restricts innovation.

But more important it is taking the easy way out. Eliminating net neutrality doesn't open any new door to innovation, it short-circuits it in favor of industrial policy that locks in what we have and redistributes wealth and control. It is pushing money, not pushing ideas. It lets an industry build a wall of defense against innovation, and gives them monopoly rents on a social necessity. That's not what we are about and not where we want to go.

Part two: A Progressive access fee

We all built the Internet as an engine of freedom and invention. The vision was information as a human right. We need to recognize that the Internet has become so central and essential to

participation in society that job one is to insure that it meets that need. There can be no “unbanked”, or “unconnected” in today’s world. The value of the Internet is realized when everyone has it. It’s that important. It has to be a national priority to more than reach that goal, but to also establish a climate where everyone is a first class citizen on the net. If nothing else, one lesson we have learned from the past twenty years is that this is a two-way, symmetric, participatory and contributory medium. It is not merely or even primarily a new distribution or broadcast system, nor is its position in society dependent on those attributes. We have avoid letting that use drive the future.

We also recognize is that there is a difference between *technical innovation* and *economic innovation*. It is one thing to build a fertile platform for new business ideas such as billing plans and quite another to create an environment that promotes technical invention based innovation. Clearly these two are linked, but it is the latter that creates new opportunity and new freedoms. Economic innovation is about incentives and profits. It follows from invention, it does not lead it. Given the digital world, with its rapid turnover of hardware software and applications, regulation is about enabling the future rather than standardizing the present to allow creative home bundles. In particular, we need to optimize for the permissionless innovation that puts dorm residents and farmers alike on a par with major corporate incumbents.

To this end, we believe that the regulatory institutions must be partners in the spread of high quality, unfiltered Internet access *including the devices needed to use the Internet* throughout the country and on behalf of every person.

One way to realize this is to institute a progressive fee for access that fuels a nationwide plan to lace up the country. In essence, this amplifies the function of the USAC or the Universal Service fund. Most important, we propose that this fee be progressive — higher rate access pays a higher proportion of the access charges than lower rate. The impact is that the major information providers would support the expansion of the Internet while the newcomers and experimenters would have a relative, encouraging discount.

This allows for both financial and technical innovation. At the bottom end of the curve, one might be subsidized or literally *paid* to get on the net. That “pay” might get someone who could not otherwise afford it a smartphone. At the top of the curve, those using the Internet as a surrogate for large-scale broadcasting finance the rest of us via a larger than linear charge for their access.

Depending on who you reference, 50-80% of the traffic on the Internet is streaming. That’s fine. Skype, ubiquitous cameras and Netflix contribute to that. We value the creative contribution to society that so-called OTT providers have added to the media mix. But since they have now become powerful stakeholders, it is time for them act responsibly on behalf of society. Anti-neutrality proponents would allow the carriers

to “tax” them and share in the profits. Ultimately, this cost is passed to the consumer. We say no. Instead, let’s use that contribution to bootstrap the rest of the population into the game.