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Subject: TRAI Consultation on Regulatory Mechanism for Over-The-Top (OTT) Communication Services, and Selective Banning of OTT Services
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Dear Shri Akhilesh Kumar Trivedi,

Please find attached my comments to the TRAI Consultation on Regulatory Mechanism for Over-The-Top (OTT) Communication Services, and Selective Banning of OTT Services.

Please let me know if you have any questions or if there is anything else you need from me. I would be happy to discuss these issues further.

Sincerely,
Barbara van Schewick

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**Response to the Telecom Regulatory Authority of
India's Consultation on Regulatory Mechanism for
Over-The-Top (OTT) Communication Services, and
Selective Banning of OTT Services**

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August 31, 2023

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Introduction

I welcome the opportunity to submit comments to TRAI’s consultation on Regulatory Mechanism for Over-The-Top (OTT) Communication Services, and Selective Banning of OTT Services.¹

I submit my comments as a professor of law and, by courtesy, electrical engineering at Stanford University whose research focuses on Internet architecture, innovation, and regulation. I have a Ph.D. in computer science and a law degree and have worked on net neutrality for the past 23 years.

My book “Internet Architecture and Innovation,” which was published by MIT Press in 2010, is considered the seminal work on the science, economics, and politics of network neutrality. My papers on network neutrality have influenced discussions on network neutrality all over the world.

I have testified on matters of Internet architecture, innovation, and regulation before the California Legislature, the US Federal Communications Commission, the Canadian Radio-Television and Telecommunications Commission, and BEREC, including on proposals to force applications to pay ISPs for terminating traffic to the ISPs’ customers.

The FCC’s 2010 and 2015 Open Internet Orders relied heavily on my work. My work also informed the European Union’s 2015 and 2020 guidelines implementing the European Union’s net neutrality law, the E.U.’s 2022 update that banned harmful zero-rating, and the 2016 and 2017 Orders on zero-rating by TRAI and the Canadian Radio-Television and Telecommunications Commission, respectively.

I have not been retained or paid by anyone to participate in this proceeding.²

I would welcome the opportunity to discuss these important issues further.

Finally, my comments in this submission draw heavily on my earlier writings on the topic.³

Executive Summary

This consultation asks, in part, about the need for and possible harms of a “collaborative framework between OTT communication service providers and the licensed telecommunications service providers.” While the consultation document does not further define the term “collaborative framework,” the term could be read to encompass long-discredited proposals to force online services to pay network access fees to Indian providers of internet access (ISPs).

These kinds of network fees have never existed in India and violate India’s net neutrality regime.

¹ <https://www.trai.gov.in/consultation-paper-regulatory-mechanism-over-top-ott-communication-services-and-selective-banning>

² Additional information on my funding is available here: <http://cyberlaw.stanford.edu/about/people/barbara-van-schewick>.

³ For a list of my recent writings on network fees, see <https://cyberlaw.stanford.edu/about/people/barbara-van-schewick>.

Mandating such fees would be a radical departure from how the internet has operated and flourished over the last 30 years. Network fees are a threat to the internet in India and, if enacted, would set a precedent that could lead to a splintering of the internet across the globe.

Neither mobile nor fixed networks in India are being overrun with traffic. Just as it is around the world, internet traffic in India is growing at a predictable and steady rate, while the technology to handle more traffic becomes cheaper every year. Indian citizens pay some of the lowest costs in the world per GB, and that low cost has led India to be a world leader in the amount of data used on average by subscribers to Indian mobile internet services.⁴

For 30 years, the internet has operated by consumers and online services each paying for their own access to the internet. Individuals pay an ISP to connect them to the entire internet, allowing them to use whatever websites and services they choose.

Their ISP has the responsibility to connect to other networks to allow them to do so. Online services pay hosting, transit, and content delivery network services (or build and operate undersea cables, data centers, and CDNs themselves) to deliver their traffic to all the other networks on the internet.

This model has led, year over year, to decreasing costs of distribution and ever increasing flows of information. It has allowed everyone – no matter the color of their skin or the size of their wallet – to develop new apps and services or share their ideas with anyone on the Internet at low cost, creating the most powerful communication, educational, and economic engine the world has ever seen.

Requiring websites, OTT communication service providers, and other online services to pay every Indian ISP would undo that revolution and turn the internet into a system where ISPs get paid twice for the same service: once, by individuals and companies that pay to get online, and second, by the sites and service providers those individuals or companies seek to use.

Services that refuse or cannot afford to pay these fees will be either blocked or become extremely slow for Indian citizens.

If enacted, such fees would cause significant harm to small businesses, individual creators, startups, and innovators who will face the choice of paying more to be online, being extremely slow for Indian users, or being completely unavailable to Indian users.

Services that do pay will degrade the quality of their offerings to reduce the tolls they have to pay each ISP. For Indians, that means no more high-quality YouTube videos; cricket matches will only be in HD for the richest customers, and Twitch streams will be downgraded in quality.

⁴ “Data usage per subscriber in India up by 43 times in 6 years, cost dips by 96%”, The Times of India, June 7, 2021. <https://timesofindia.indiatimes.com/business/india-business/data-usage-per-subscriber-in-india-up-by-43-times-in-6-years-cost-dips-by-96/articleshow/83266922.cms>.

Network fees would reverse 30 years of successful internet development that has made the dissemination of information, entertainment, and commerce cheaper every year, and would create a global precedent that could lead to the splintering of the internet, as other countries will undoubtedly take India as an example.

If network fees become common around the world, every website and service in the world will need to pay, either directly or through their service providers, every ISP in the world, forcing online services to pick-and-choose what portions of the world they serve.

This would be a disaster for the internet, not just in India, but for the entire world. The internet has thrived and grown remarkably in 30 years, thanks to an economic model where users pay their ISP to be able to choose what they want to do on the internet, without interference from the companies they pay to get online. In three decades, the internet grew from being a playground for geeks to the most powerful, flexible, and world-changing communication platform the world has ever seen, and an indispensable tool to every facet of our lives and economy.

And while the internet is far from perfect, the solution to its growing pains is not going to be found in overturning its fundamental economics and tossing out net neutrality.

Q3. What should be the definition of OTT communication services? Please provide a list of features which may comprehensively characterize OTT communication services. Kindly provide a detailed response with justification.

The majority of my comments discuss whether internet applications, content, and services (“internet applications”) should be required to pay Indian providers of internet access services and how that would affect net neutrality, innovation, and user choice.

However, I want to offer some thoughts on the question of categorizing OTT communication apps using the same regulatory regime applied to voice and text messaging services offered by phone carriers.

While I do not propose a definition for OTT communications services, I want to stress how difficult it is to assign internet applications, content, and services to particular categories.

That’s because internet applications do not easily fit into categories. We have seen this problem in net neutrality – for example, when ISPs try to offer preferential treatment (often called “fast lanes”) to certain types of apps only or limit zero-rating plans to certain categories of apps (e.g., zero-rating plans that are only open to online messaging applications).

For instance, Gmail is best known as an email service, but it also has chat and voice calling built in. Huge multiplayer online games like League of Legends are thought to be games, but they also include the ability to communicate via chat and voice.

Productivity tools like Slack and Microsoft Teams or modern message board systems like Discord also offer multiple methods for users to communicate, including one-to-one and group text, voice, and video capabilities. Social media services like Instagram, Twitter and Mastodon include ways for users to communicate directly with one another privately. All of these services allow for some combination of voice calls, video calls, direct text messages, and sometimes even private text message groups.

These applications and services are all popular tools used for business, entertainment, and democratic organizing.

Does the fact that these applications offer the option to communicate via voice mean they should be classified as voice communication services? If yes, would that classification apply only to the voice functionality included in the app, or would the entire app be treated as a voice communication service?

If the definition of OTT communication services is drawn broadly, this will discourage apps that are not traditionally thought of as “communication services” from innovating new ways to let users connect and communicate directly within their apps. If the regulatory burden is high, apps from startups or smaller companies will need to either turn off these features for people in India or forgo the Indian market entirely.

Q5. Please provide your views on the following aspects of OTT communication services vis-à-vis licensed telecommunication services in India: quality of service.

OTT communications services should not be subject to quality of service requirements.

First, there is no need to subject OTT communications services to quality of service requirements. For the last 30 years, OTT services have flourished using best-effort connections over consumer-facing broadband networks. That has allowed new kinds of online communication services to emerge – from email to instant messaging to peer-to-peer video calling to free group video calling applications to communication networks that integrate secure digital payments. These tools have provided incalculable value to individuals and businesses in India. For example, they have enabled cheap/free international calls to and from India that keep the Indian diaspora connected and have allowed micro-entrepreneurs of all sorts to flourish using new digital communication tools.

Second, any requirement that an OTT commit to a quality of service guarantee (often part of legacy telecommunication requirements) ignores that OTTs, unlike traditional voice services, do not own the underlying network infrastructure over which their service is delivered.

In particular, OTTs generally do not own the internet access networks that their customers use to access and use the OTTs’ services. This makes it impossible for them to control the quality with which their data is delivered by their customers’ ISPs. To comply with quality of service requirements, OTTs would have to enter into agreements with (and likely pay) their customers’ ISPs so the ISP ensures the required quality when delivering an OTT’s data over its network to the ISP’s internet service customers. In other

words, OTTs would have to buy a fast lane with performance guarantees from ISPs to meet the regulatory requirements.

That would directly violate India’s net neutrality rules – for good reason. These kinds of paid fast lanes distort competition, create barriers to entry for innovators, small businesses, and start-ups, and make it harder for speakers without deep pockets to speak and be heard.

Chapter IX, Clause 2.3 (ii) of the Unified License explicitly prohibits providers of internet access “from entering into any arrangement, agreement or contact, by whatever name called, with any person, natural or legal, that has the effect of discriminatory treatment of content.”⁵ “Discriminatory treatment,” in turn, includes “any form of discrimination, restriction or interference in the treatment of content, including practices like ... granting preferential speeds or treatment to any content” (Chapter IX, clause 2.3(iv)(b)), which is exactly what such an agreement between an ISP and an OTT would entail.

Q8. Whether there is a need for a collaborative framework between OTT communication service providers and the licensed telecommunication service providers? If yes, what should be the provisions of such a collaborative framework? Kindly provide a detailed response with justification.

It is not clear what kind of collaborative framework between OTT communications service providers and the licensed telecommunications service the consultation document is contemplating.

On the one hand, the question could refer to a need for collaboration between the provider of an OTT communications service and a provider of the licensed telecommunications service it replaces. For example, one could imagine a need for a provider of an internet telephone service to interconnect with a provider of traditional telephone service in order to allow the customers of each of these providers’ telephone services to call each other. The Unified License seems to envision that possibility: “While providing Internet Telephony service, the Licensee may interconnect Internet Telephony network with STN/PLMN/GMPCS network.” (Chapter VIII, Clause 2.1(a)(i)).⁶ This kind of relationship is outside the scope of my comments.

On the other hand, the question could refer to a need for collaboration between the provider of an OTT communications service and a provider of internet access service (which also is a licensed

⁵ Government of India, Ministry of Communications, Department of Telecommunications, License Agreement for Unified License (updated as of March 31, 2023), available at <https://dot.gov.in/sites/default/files/Updated%20UL-AGREEMENT%20up%20to%2031%20Mar%202023.pdf>.

⁶ Government of India, Ministry of Communications, Department of Telecommunications, License Agreement for Unified License (updated as of March 31, 2023), available at <https://dot.gov.in/sites/default/files/Updated%20UL-AGREEMENT%20up%20to%2031%20Mar%202023.pdf>.

telecommunications service provider) that the OTT’s customers use to access the OTT communications service. This relationship is the focus of my comments.

In particular, large telecom companies in several countries, including in Europe and Brazil, have been asking regulators to force internet applications, content, and services (“internet applications”) to pay them so-called network fees, and the term “collaborative framework” could potentially encompass these proposals.

However, there is no need for a collaborative framework between OTT communications service providers and the licensed telecommunications service in general, nor is there a need for network fees.

Forcing providers of OTT communications services to “collaborate” with their customers’ ISPs would violate one of the key principles at the core of the internet’s success.

Forcing providers of OTT communications services to interact with their customers’ ISPs would be a radical departure from how the internet has operated for the past thirty years and would violate one of the key principles that are at the core of the internet’s success.

On the internet, each party contracts with their own ISP for access to the entire internet – whether they are individual Indians, Indian companies, or internet applications. Each party’s ISP then connects with other networks so its internet service customers can reach not just other subscribers of the ISP’s network, but the rest of the internet as well.

This model allows everyone with an internet connection to interact with everyone else attached to the global internet.

This model has been at the core of the internet’s success. Once a business, website, or application connects to the internet through its own ISP, it can reach customers all over the world. It has no relationship with its customers’ ISPs. Typically, it will not even know the identity of its customers’ ISPs. This allows companies and speakers without deep pockets to share their products and ideas with people around the world; they do not have to negotiate with ISPs around the world just to be accessible to these ISPs’ subscribers.

As I have explained elsewhere, this model is a direct consequence of the end-to-end argument, one of the fundamental design principles for the internet’s original architecture.⁷ TRAI has recognized the importance of the end-to-end argument in the past.⁸

This model, along with net neutrality protections, creates the conditions – innovation without permission, user choice, application-agnosticism, and low costs of application innovation – that have allowed the

⁷ Barbara van Schewick, *Internet Architecture and Innovation*, MIT Press (2010).

⁸ See, e.g., TRAI, *Prohibition of Discriminatory Tariffs for Data Services Regulations* (2016), para. 15; TRAI, *Recommendations on Net Neutrality* (2017), para. 2.3.

internet to become the most powerful communication network the world has ever seen. This model fosters application innovation, improves democratic discourse, opens up new economic opportunities, increases the efficiency of every business and governmental organization, and provides a more decentralized environment for economic, social, cultural, and political interactions that everybody can participate in.⁹

There is no need to force providers of OTT communications services or internet applications to pay their customers' ISPs.

Large telecom companies have wanted to be paid for terminating traffic to their internet service customers for many years. An ISP's internet service customers already pay their ISP to transport their data to and from the internet, but large telecom companies would like to get paid twice for the same service.

The idea first surfaced in 2005 when AT&T's CEO told the press he wasn't going to let Google and Yahoo use his pipes for free. This set off a media firestorm and a move in the U.S. Congress to create the first net neutrality law. And it's why the Federal Communication Commission's 2010 net neutrality order explicitly outlawed such practices as a kind of blocking.

In 2012, ETNO, the trade association of Europe's largest telecoms, asked the International Telecommunications Union (ITU) to enshrine the principle of Sending Party Network Pays in its regulations.¹⁰ Under this principle, networks delivering traffic to last-mile ISPs would pay the ISP for terminating that traffic. The proposal was carefully studied and unequivocally rejected as unnecessary and harmful by the OECD, Europe's group of top telecom regulators known as [BEREC](#), the European Commission, governments around the world, and ultimately, the ITU.¹¹

As BEREC explained at the time:¹²

Ultimately, it is the success of the [content and application providers] (from whom ETNO wishes to extract additional revenues) which lies at the heart of the recent increases in demand for broadband access (i.e. for the ISPs' very own access services).

Indeed, both sides of the market – [content and application providers] on the one hand and users of these applications on the other hand – already contribute to paying for Internet connectivity. There is no evidence that operators' network costs are already not fully covered and paid for in

⁹ For a short summary with further references, see, e.g., Barbara van Schewick, Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like, *Stanford Law Review*, Volume 67, Issue 1 (2015), pp. 19-23, available at https://www.stanfordlawreview.org/wp-content/uploads/sites/3/2015/01/67_Stan_L_Rev_1_van_Schewick.pdf.

¹⁰ *Ars Technica*, "[Dear ITU, please don't bill Internet use like phone calls](#)"

¹¹ [OECD](#): pp. 13-14, 33;

[BEREC BoR](#) (12) 130; Commission: https://ec.europa.eu/commission/presscorner/detail/de/SPEECH_14_647; <https://cepa.org/whats-old-is-new-again-is-retrograde-telecom-policy-returning-to-europe/>

¹² https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/1130-an-assessment-of-ip-interconnection-in-the-context-of-net-neutrality; Commission.

the Internet value chain (from [content and application providers] at one end, to the end users, at the other).

This model has enabled a high level of innovation, growth in Internet connectivity, and the development of a vast array of content and applications, to the ultimate benefit of the end user. Attempts to undermine it could put these benefits at risk. (pp. 3-4)

Now, large telecom companies are trying again to get paid for terminating traffic to their subscribers, asking regulators around the world to force providers of popular content, applications, and services to pay them.

However, there is no need for such fees and, as explained below, such fees would be affirmatively harmful.

In particular, the current dynamic between online services and internet service providers has led to extraordinary investment by all players in the market, including the largest OTT services and enabling-tech providers such as CDNs and cloud hosting services.

Content providers contribute aptly to the internet ecosystem by investing in content, applications, services, and infrastructure.

First, providers of internet applications invest huge amounts of money to develop and operate internet content, applications, and services.

These investments not only benefit Indian internet users, they also directly benefit Indian ISPs. Without content providers, there would be no market for internet access. Netflix, Google, WhatsApp and the millions of other sites and services available on the internet are the very reason that any ISP's customers purchase access to the internet.

And when new content and services that require more data come to market, customers are motivated to upgrade to faster, enhanced, and more expensive internet plans. Innovation by content providers directly leads to increased revenue and profits for ISPs, which is just one way that content providers contribute to making this market work.

Content providers take huge risks that ISPs never have to bear. ISPs operate in a stable, low-risk market with limited competition where demand for their product is created by others. In contrast, content providers, startups, and venture capitalists take significant risks in developing costly new content and applications that may or may not take off. The five largest tech companies spent nearly US \$400bn on R&D and capital investments in 2022 alone.¹³ And most new applications fail. But ISPs benefit from the successes of that speculative development and VC investment, while facing none of the downside risk.

Second, on the network infrastructure front, content providers spend billions of dollars every year to bring data right to the ISPs' doorsteps. The largest content providers build and operate expensive, large data

¹³ CAP Investment Data: The Economist, "[Mastering the Machine: Big Tech and the Pursuit of AI Dominance](#)".

centers to host their data, while nearly every other player rents similar facilities via cloud services and CDNs. Then, the large platforms, cloud services, and CDNs transport that data across the world by constructing or leasing undersea and terrestrial cables. Once they get that data across continents, they interconnect directly with networks of all sizes and store copies of their data close to customers to speed up downloads.

As explained in more detail in the next section, all of these investments make it easier and faster for ISPs to get online services and website data to their customers as the last step in a long chain of data transportation.

Which is to say not only do online companies pay to create movies and new applications, they spend billions to bring all of that to the doorsteps of ISPs around the world (and even sometimes cache the data inside their networks), which drastically cuts the ISPs' own transit connection costs.

That's not cheap to do. These investments totaled US \$883 billion worldwide over the last decade. Because content providers pay to bring data 99% of the way to customers, Indian ISPs only need to worry about getting that data across the last mile, which saves them millions of dollars a year.¹⁴

As Europe's top telecom regulator, BEREC, made clear in its September 2022 report on the EU's network fee proposal: "There is no evidence that operators' network costs are not fully covered and paid for in the internet value chain. [...] There is no evidence of "free-riding."¹⁵

Finally, content providers contribute by investing in and deploying compression technology. Compression algorithms significantly reduce overall bandwidth for ISPs. An Analysys Mason study of Netflix's compression algorithm showed that, without improved encoding, overall bandwidth usage would increase by 24%.¹⁶

Because compression results in less data entering the ISP's network, ISPs can spend less on upgrading and maintaining their networks. The Analysys Mason study found that compression saves ISPs an estimated \$150-270 million dollars per year for Netflix alone. If compression efforts by just one service can yield hundreds of millions in savings, imagine the ISP benefit from the combined compression efforts of all large CAPs.

The current economic structure incentivizes all players to invest.

Online services have strong incentives to build out infrastructure worldwide, and collectively spend billions of dollars to bring copies of their databases and content as close to end users as possible. The days when users in India had to load websites from far-away servers in the U.S. or Europe are long gone.

¹⁴ Analysys Mason, "[The Impact of Tech Companies' Network Investment on the Economics of Broadband ISPs](#)".

¹⁵ BEREC, "[BEREC Preliminary Assessment of the Underlying Assumptions of Payments from Large CAPs to ISPs](#)".

¹⁶ Analysys Mason, "[Netflix's Open Connect program and codec optimisation helped ISPs save over USD1 billion globally in 2021](#)"

Modern website infrastructure uses CDNs and data centers distributed around the world so that content and applications load quickly. These data centers and CDNs not only make the internet faster for Indians, they also reduce the costs that Indian ISPs have to pay to bring data to their customers who request that data.

Carrying data from the U.S. or Europe via underseas cables isn't just slower than loading content locally, it's also more expensive for Indian ISPs. CDNs reduce the amount of data that has to flow over those cables, because a copy of the data or an application server is hosted in India. And in fact, data is often cached in multiple locations inside India.

Take, for instance, Cloudflare, which is used by more than 25 million websites to host their static files and run edge computing servers. Cloudflare has [11](#) data centers in India. In other words, thanks to Cloudflare's CDN, 25 million websites have copies of their data hosted not just in one location in India, but in 11 locations throughout the country. You can test which data center you are connecting to with this [tool](#).

So when an Indian opens their phone and clicks a link to a website that uses Cloudflare, the Indian's ISP connects locally to one of those Cloudflare data centers, making the site load much faster for the user.

And since Cloudflare doesn't charge to interconnect, the ISP saves money.

Without local Cloudflare data centers in India, the Indian ISP would have to send that request for the website through their transit provider, paying to transport data across an undersea cable and carry the response back along that same cable.

Cloudflare is just one example.

The large hosting platforms, streaming services, social media services and other CDN providers have also built significant infrastructure in India.

That infrastructure benefits all parties:

- 1) Sites and streaming media load faster, which helps online services get more customers;
- 2) Indians get much faster internet services, which lets them do what they need to do for their business, education and entertainment; and
- 3) Indian ISPs have lower costs to run their networks (since less traffic has to go over their paid connection to the rest of the internet), offer speedier service, and have more robust networks because they have more routes in and out of their network.

Network fees are unlikely to increase broadband deployment.

In Europe and Brazil, large telecom are justifying their proposals to force online service providers to pay ISPs directly by arguing that such fees would help fund infrastructure deployment. However, these proposals do not include any mechanism that requires ISPs to use the additional money to fund

infrastructure buildout beyond their current and usual expenditures. Creating such a mechanism would be difficult, if not impossible. As a result, it is unlikely that network fees would increase broadband deployment, and history suggests they will not.

Devising mechanisms that would require ISPs to use the network fees to build more infrastructure than they are already planning to would be extremely difficult. One could try to mandate that a telecom has to invest some percentage of its revenue (10% to 20%), in addition to the network fees. However, this misses that infrastructure spending is cyclical. A company may spend a lot for 4 years to build out 5G, then relax that spending because the next generation infrastructure is now built.

Such mechanisms are essentially impossible to create and enforce, even if companies didn't employ clever accounting practices to appear to comply. So no matter what the best intentions of regulators are, ISPs would be free to take this new pot of money and use it for dividends, stock buybacks, acquisitions, or even executive bonuses.

History suggests that network fees will not increase network deployment. In fact, what we saw in the telephony world is that such payments led to less infrastructure buildout. In the telephony world, countries charge termination fees for long distance calls that originate outside their borders to parties inside their borders. These termination fees led to international calls that cost dollars per minute, because countries, like ISPs today, have a monopoly over reaching the customers in their country or network.

Countries justified the high fees on the grounds that the money would be used to build out infrastructure, but that's not what happened.

A Mercatus study published in 2012, the last time this kind of proposal was seriously considered, found a negative correlation between high network fees and infrastructure buildout. In other words, the more a nation charged for international long-distance calls, the less new telecommunications infrastructure got built:¹⁷

High international telephone collection rates have not led to greater buildout and adoption of telecommunications infrastructure in the past two decades. It seems unlikely, therefore, that adopting a sender-pays model for Internet traffic would increase buildout of Internet infrastructure today.

Furthermore, as we've seen in other contexts, funding is fungible. In the U.S., more than 35 states instituted lottery systems, with many of them dedicating most or all of the proceeds to education. However, that funding turned out to be fungible, and education budgets in lottery states did not rise. A comprehensive study in 2001 found that "lottery revenues earmarked for education are found to have no

¹⁷ Ars Technica, "[Sender-Pays Rule Doesn't Necessarily Increase Telecom Investment](#)" and Eli Dourado, "[Do High International Telecom Rates Buy Telecom Sector Growth? An Empirical Investigation of the Sender-Pays Rule](#)" Mercatus Center and Department of Economics at George Mason University, November 2012).

impact on education expenditures,” and it’s now widely accepted among economists that such funding mechanisms do not increase investments.¹⁸

Finally, it is not even clear that ISPs actually have the capacity to build out more quickly even if they were given a windfall and decided to spend it on infrastructure.

Proposals to force apps to pay ISPs are based on flawed assumptions.

End users, not services, cause traffic.

Netflix doesn’t broadcast videos. YouTube doesn’t randomly send a World Cup match recap to an ISP’s paying customer. WhatsApp doesn’t write a user asking when their shop opens on Saturday. Cloudflare doesn’t send a cat GIF from one of its clients to users at random (however fun that might be).

Users choose to watch a Netflix movie, a YouTube clip or a funny GIF on a website. Users choose to upload video, or livestream from their mobile, send a message on Facebook Messenger or make a video call to a family member. Users pay their ISP to deliver traffic *upstream and downstream, to and from* the sites and services that the user chooses to use. The Indian user creates the traffic over a connection they paid to use.

By definition, that’s a rational use of resources. Indians pay for their internet connection; plans with higher speeds and higher monthly data caps are more expensive. Then they get to decide what they want to do online, and it is their ISP’s job to transport their traffic to and from the internet.

Those seeking to force apps to pay ISPs incorrectly blame popular online services for sending traffic to end users.

It’s a perplexing frame. Users only pay ISPs to get online because there are online services they want to use. It’s not quite clear why one would want to punish the services that create the demand for the ISPs’ product; imagine a beach resort being angry that pleasant weather, pretty sunsets, fine sand, and warm water make people rent their rooms.

It’s somewhat akin to electrical utilities throwing a fit that TV manufacturers, popular TV networks, and hit TV shows have higher profits than the electric companies do, and demanding that they pay to build out electrical lines.¹⁹

Moreover, singling out traffic from popular applications or OTT communications services for special treatment makes no sense and violates the principle of cost causation. Packets are packets: streaming video from a less popular provider burdens the network just as much as video from a popular service, and

¹⁸ Thomas A. Garrett, "[Earmarked Lottery Revenues for Education: A New Test of Fungibility](#)," *Journal of Education Finance* 26, no. 3 (Winter 2001): 219-238.

¹⁹ Notably, thousands of other businesses that rely on the internet and use the services that ISPs want to tax would envy the ceaseless demand ISPs have for their services and the blue chip telecoms’ substantial margins and market caps.

the users of all of those services have already compensated their ISP for carrying that data. A video provider has no control over whether a customer decides to watch a single episode every couple of days or binges series after series, or whether he does so in the evening when everyone else is using the internet as well or in the middle of the night when the network is empty.

Increased traffic does not result in higher costs.

Networking equipment works just as consumer electronics and services such as computers, cellphones, and online services do: they get faster, cheaper and more powerful every year.

So the costs of deploying and operating broadband infrastructure drop every year. Routers become cheaper, transit becomes cheaper, and the next generation of networking like 5G and fiber are capable of 1000x more capacity than the equipment they replace.²⁰ And ISPs are moving away from hardware control of network operations to software control, much as people are moving from desktop word processors to using Google Docs or Microsoft 365. This process, called network virtualization, makes it faster, easier, and cheaper to modify software, control the network, and configure new capacity. In 2016, AT&T's CFO said that the company's move to network virtualization let AT&T add 2.5 times more capacity at 75% of the capital cost than previously.²¹

A 2022 Analysys Mason study found that "Network-related costs for ISPs have remained stable over time even while traffic volumes have grown significantly. Data traffic only drives a small share of ISP costs."²²

The study found that, from 2018 to 2021, "network-related ISP costs increased by 3% in total over three years, whilst network traffic increased by over 160%."

Online services spend billions of dollars optimizing traffic, despite ISPs' claims to the contrary.

ISPs like to claim that online applications and services have no incentive to optimize their traffic delivery unless ISPs tax them.

Here's Telefonica, for instance: "Additionally, absent any direct traffic cost on telecom networks, **there is no price incentive for OTTs to generate traffic more efficiently** and thus insufficient motivations to control and reduce traffic related energy consumption and CO₂ emissions to limit the carbon footprint..."²³ (emphasis added)

This is an absurd claim. Large infrastructure providers and platforms spend billions to make their data centers as efficient as possible, even going so far to design their own chips and hardware. And since they

²⁰ Cisco, "[5G vs. 4G: What's the Difference?](#)".

²¹ FierceWireless, "[T-Mobile, AT&T, and Verizon Maintain Capex Spending Despite Incentive Auction](#)".

²² Analysys Mason, "[The Impact of Tech Companies' Network Investment on the Economics of Broadband ISPs](#)".

²³ Telefónica, "[The Unsurmountable Cost of OTTs' Traffic for Europe](#)".

pay their own data transport costs and electricity bills, they have every incentive to make their traffic as efficient as possible.

Even beyond that, every online application and website works to make their site as lean and fast as possible. Video streaming sites adjust the quality of the video they send so that users on thin or congested connections get a lower data-rate version.

Additionally, every serious online company, website, and blogger uses a CDN to host their traffic locally around the world. No application or service needs to pay an ISP to have an incentive to optimize their site; slow performance dooms a site to irrelevance. A fast data-optimized app is table stakes in the ultra-competitive online market.

Accurate traffic attribution is impossible.

Most discussions of network fee proposals ignore the significant problems and costs associated with accurately identifying and measuring traffic on a continuous basis. If any traffic measuring system is put in place, it would need to undergo weights-and-measure certification so that all parties can agree on the results.

First, network fee proposals must rely on accurately identifying and measuring sources of traffic, which is challenging, if not impossible to do.

Most traffic is encrypted and increasingly uses modern protocols (QUIC/HTTPS3) that prevent network surveillance. For example, Sandvine lists “Generic QUIC” and “Generic HTTP Media Stream”—different types of encrypted, unidentified video traffic—as the top 3 and top 4 video apps globally, with overall shares of total traffic of 5.41% and 4.33%, respectively.²⁴

If a content provider interconnects directly with an internet access provider or operates its own CDN, it is easier to attribute the traffic to that service.

However, if a content provider’s data comes into the network through another network provider or a third-party CDN, its data traffic is mixed in with other applications, making it much harder and often impossible to attribute.

Additionally, users increasingly use privacy and security tools such VPNs and Apple’s Private Relay that completely hide their traffic from network snooping, including attribution tools.²⁵

While such tools used to be used mostly by only the most technical users, they are increasingly being offered at the device level, including by Apple and Android, for free. Additionally, there are free apps from Cloudflare and DuckDuckGo that provide similar obfuscation of traffic.

²⁴ Sandvine, "[2023 Global Internet Phenomena](#)" p. 15.

²⁵ Ibid. p. 25. “The challenge for operators is that QUIC obfuscate[s] what’s happening on networks. That’s true overall with the rise in encryption (i.e., Apple iCloud Private Relay), QUIC, and HTTP/3 traffic, all of which leads to a flood of “unknown” or “other” traffic...”

All that means that traffic attribution will never be accurate, so disputes will be common and difficult to resolve. Companies subject to the fees might take steps that make it harder to identify their traffic, e.g., by no longer directly interconnecting with internet access providers or moving some of their offerings to third-party CDNs.

Second, if ISPs will get paid based on the amount of traffic coming into their network, they have every incentive to inflate those numbers for particular online services. Thus, if such a proposal was put into place, it would be necessary to have government-audited technology or a neutral third-party measurement tool so that ISPs can't overinflate the amount of traffic a given app, service, or CDN is charged for.

Third, apps become popular and fall out of favor quickly on the internet, so traffic shares change continuously, making measurement and negotiation a costly, ongoing challenge. For example, from 2021 to 2022, Facebook's share of global traffic dropped from 15.1% to 6.5%, while Microsoft's share grew from 3.3% to 5.1%.²⁶ Thus, a company might meet the access fee threshold during one month, but not the next.

Finally, identifying traffic might even create privacy problems. If a content provider's data comes into an ISP's network through another network provider or a third-party CDN, analyzing the content of the packet might be the only way to identify the traffic.

In Europe, large European telecoms' proposal to force websites to pay them is facing fierce and widespread opposition.

While ISPs may be pointing to Europe as the example of other countries and regions adopting a network fee regime, that's a misunderstanding of what is happening in Europe.

The European proposal has met with fierce and widespread opposition, starting when European Commissioner Thierry Breton attempted to fast track it last summer.

Since then:

Europe's [top telecom regulator BEREC](#) and [the majority of EU member states](#) have rejected the proposal.

More than fifty members of the European Parliament from every group [slammed the "radical proposal"](#), saying that "requiring the providers of websites and applications to pay fees to ISPs that have never existed before ... would abolish key net neutrality guarantees that Europeans fought hard for."

Additionally, [a wide range of industry groups and civil society organizations oppose](#) the proposal. They [include](#) the Motion Picture Association (MPA), owners of sports television rights, digital rights organizations like Epicenter.Works and European Digital Rights (EDri), [Mozilla](#), [Creative Commons](#), the

²⁶ Ibid. p. 10.

[Internet Architecture Board](#), [European librarians](#), [the Internet Society](#), [the European Consumers Association \(BEUC\)](#), and small ISPs – all of whom argued that the telecom proposal is a terrible idea that violates net neutrality. Europe’s top telecom regulators, BEREC, carefully evaluated network fee proposals in 2012, 2022, and 2023, and scathingly rejected them every time, saying they were unnecessary to meet deployment needs and threatened the open internet.²⁷

In October 2022, BEREC [concluded](#) the proposal was no different than a widely rejected 2012 proposal by the same companies. The report concluded that ETNO’s reasoning has the same flaws now [as it did more than a decade ago](#), and that nothing has changed in the internet ecosystem that would warrant adopting this dangerous and unnecessary policy today. BEREC “found no evidence that such a mechanism is justified,” and warned that the proposal “could be of significant harm to the internet ecosystem.”²⁸

BEREC’s [May 2023 response](#) to the European Commission’s consultation on the topic again found there is no problem and, even if there was, network fees would not fix it.²⁹

Any regulatory intervention requires a proper justification. BEREC is currently not aware of structural interconnection problems in relation to growing volumes of traffic attributed to content and application providers.

It is questionable that mandatory payments from content and application providers to internet service providers (ISPs) would lead to Member States meeting the connectivity targets.

Moreover, BEREC warned that forcing certain websites to pay ISPs would harm competition and innovation and hurt European consumers, small businesses, and startups.

The European Commission has not taken a position on network fees. The Commission’s consultation on the topic closed in mid-May. The Commission has yet to publish the comments, let alone come out with an evaluation or proposal.

The situation in India is consistent with the ITU’s Recommendation on voluntary commercial arrangements between telecommunication network operators and OTT providers.

The consultation document cites the ITU’s Recommendation on voluntary commercial arrangements between telecommunication network operators and OTT providers (2020), which said in part:

²⁷ <https://cyberlaw.stanford.edu/blog/2022/11/eus-top-telecom-regulator-big-telecoms-proposal-force-websites-pay-them-puts-internet>; BoR (12) 130 https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/1130-an-assessment-of-ip-interconnection-in-the-context-of-net-neutrality

²⁸ <https://cyberlaw.stanford.edu/blog/2022/11/eus-top-telecom-regulator-big-telecoms-proposal-force-websites-pay-them-puts-internet>; https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-preliminary-assessment-of-the-underlying-assumptions-of-payments-from-large-caps-to-isps_

²⁹ BEREC 2023 [Annex to complement Section 4 of the BEREC Consultation Response](#).

In order to capitalize on the consumer demand for OTT applications, Member States should enable telecommunication network operators the flexibility to adopt innovative business models, such as the transition to datacentric end-user tariff structures to reduce dependence on revenues from traditional telecommunication services.

[...]

Member States are encouraged to develop policy frameworks to enable voluntary commercial arrangements among telecommunication network operators and providers of OTT applications so as to allow each to invest in Internet infrastructure, without subjecting the parties to traditional telecommunication regulatory requirements.³⁰

What’s notable about the ITU Recommendation is that it recommends what India is already doing.

First, mobile internet access and, to a lesser extent, fixed internet access in India is generally sold based on data volumes. Thus, Indian ISPs have already moved to the kind of “datacentric end-user tariff structures” recommended by the ITU, and nothing prohibits Indian ISPs from charging higher prices for internet service plans that provide more data.

Second, Indian ISPs are free to enter into “*voluntary* commercial arrangements among telecommunication network operators and providers of OTT applications so as to allow each to invest in Internet infrastructure, without subjecting the parties to traditional telecommunication regulatory requirements,” within the limits imposed by India’s net neutrality rules. However, forcing providers of OTT communications services or providers of internet applications to pay their customers’ ISPs would violate India’s net neutrality rules, as explained below.³¹

When an ISP wishes to connect its network and subscribers to the entire internet, it enters into a voluntary agreement with a transit provider that connects it to the rest of or a large portion of the internet. That transit provider in turn makes voluntary commercial arrangements with other networks, including those of large OTT applications, in order to facilitate access for the transit providers’ customers.

These agreements between a transit provider and an OTT provider are voluntary commercial arrangements as envisioned by the ITU. In order to offer internet service an ISP has to have a transit connection, but which provider they choose as their transit provider and what kind of arrangement they have is entirely up to the ISP’s discretion.

ISPs also voluntarily connect directly with other networks, either directly or at an internet exchange point (IXP). For example, many ISPs connect directly with content delivery networks (CDNs), cloud hosting providers, and some large OTT’s that run their own networks or CDNs. These are voluntary commercial

³⁰ ITU-T, Enabling environment for voluntary commercial arrangements between telecommunication network operators and OTT providers (2020), available at <https://www.itu.int/ITU-T/recommendations/rec.aspx?id=14269>.

³¹ See the answer to question 9.

arrangements as envisioned by the ITU. Worldwide, the vast majority (more than 99.99%) of these so-called peering agreements are unpaid, since they provide value to both parties.³²

Nothing in the ITU’s recommendations suggests any support for mandatory payments from OTT applications to their customers’ ISPs, whether those mandatory fees are price-set by the government’s telecom agency or negotiated between parties, where one party is obligated to pay the other.

In fact, the ITU explicitly warns against such mandatory payments saying that Member States should not “[subject] the parties to traditional telecommunication regulatory requirements,” which often include interconnection payment obligations.

Moreover, any requirement that would require OTT providers to pay ISPs would violate India’s net neutrality rules.³³

Q9. What could be the potential challenges arising out of the collaborative framework between OTT communication service providers and the licensed telecommunication service providers? How will it impact the aspects of net neutrality, consumer access and consumer choice etc.? What measures can be taken to address such challenges? Kindly provide a detailed response with justification.

Forcing providers of OTT communications services or providers of internet applications to pay ISPs would create countless harms. Most of these harms are unavoidable.

Network fees would undo decades of successful Internet economics.

Requiring content providers to pay ISPs fees that have never existed before would be a disastrous return to the economic model for telephony where telecom companies leveraged their termination monopolies to make long-distance telephone service prohibitively expensive.

Since every phone company and country has a monopoly over their customers, they were able to (and still do) charge exorbitant termination fees to everyone wanting to call their customers from outside their network or country.

This is what led to prices as high as USD \$4-5 per minute for international calls.

³² Packet Clearing House “[2021 Survey of Internet Carrier Interconnection Agreements](#)”, p. 4 (describing the percentage of peering agreements with symmetric terms, in which no party pays the other).

³³ See the answer to question 9.

Governments that realized this was a problem created a regulatory monster trying to rein in these termination fees, which remain unconnected to the actual cost even to this day. Ironically, the invention that finally crushed this price-gouging scheme was the internet, where the rise of VoIP and services like Skype and Facetime let people connect with loved ones and business partners around the world for pennies, and eventually for free.

Broadband providers have the same monopoly over their internet service customers that telecom providers had in the heyday of traditional voice telephony. That means it's inevitable that if they are granted their wish that online services must pay them in order to reach their customers, the price gouging will return. This will be especially true if OTT services that compete with carriers' own telephony and SMS text messaging services will be required to pay network fees to those carriers.

We saw this happen in the U.S. in 2013-15, when the largest ISPs in the country demanded outrageous payments from large online services and backbone providers, and throttled the doors to their network for those who did not pay.³⁴ The congestion only ended when companies paid the requested tolls, which went far beyond the cost of widening the connection, reflecting the ISPs' termination monopoly.

For example, transit provider Level 3 told the FCC that these ISPs frequently demanded as much in payment for access to a single ISP's subscribers as Level 3 was charging its own clients for access to the entire Internet.³⁵

The congestion didn't harm the biggest online platforms because they quickly paid, realizing it cemented their dominance. Small and medium-size companies that wouldn't pay or couldn't afford to had to enter the network through the congested doors. Tens of millions of Americans suffered from web sites that didn't load, games that wouldn't play, and videos that stuttered.³⁶ The throttling did not stop, despite citizens howling and loads of bad press, until sites paid the monopoly-level fees. This behavior continued for years until the FCC put a stop to it in 2015.³⁷

Forcing some apps to pay network fees distorts competition.

Selective network fees present serious competition problems.

³⁴ In the US, the FCC's 2010 Open Internet Order explicitly prohibited termination fees as a violation of the 2010 Open Internet Rules. Nevertheless, termination fees emerged in 2012 when the five largest ISPs in the US found a loophole in the 2010 rules and began forcing online companies to pay them by refusing to alleviate congestion at interconnection points where data enters the ISPs' networks.

³⁵ Level 3, 2017, Comments, GN Docket No. 17-108 (filed: July 17, 2017), p. 9, <https://www.fcc.gov/ecfs/filing/107171850225629>.

³⁶ Susan Crawford, "[The Cliff and the Slope](#)," Wired.

³⁷ In its 2015 Open Internet Order, the FCC prohibited circumventing net neutrality at the point of interconnection, while continuing to ban termination fees. California adopted the same prohibitions to prevent the return of the disruptions.

By charging only some companies and not their competitors, selective network fees would operate as a “tax” on online businesses in a wide range of markets.

This would distort competition in many markets that are currently highly competitive.

No matter which online video service users prefer, those exempted from the tax will have a competitive advantage solely because of their lower costs.

This makes no sense. Packets are packets: streaming video from a less popular provider burdens the network just as much as video from a popular service, and the users of all of those services have already compensated their ISP for carrying that data.

Additionally, online services compete for people’s attention across categories and even against offline services.

That is, Twitch, a streaming video service, competes for online attention with TikTok, a social network, as well as with tens of thousands of other options including online games, podcasts, puzzle sites, community forums and more.

And online services compete against offline services: online video lets people get rid of cable TV; online calling helps people lower their phone bill; online games compete against entertainment options like going to the movies or playing a board game.

People looking for entertainment, diversion, or personal connection have lots of choices, and selectively charging some services, but not others, distorts competition across all of those markets.

Network fees are even more egregious because many large Indian ISPs offer services that compete directly with the services they want to tax. For example, they may offer traditional telephony, cable television, and text messaging. Indian ISPs also run their own online services. For example, Jio operates two streaming services JioTV and JioCinema, an online game service JioGames, and two online communication services, JioMeet and JioChat.

Thus, if forced to pay network fees, popular services like WhatsApp, Slack, Microsoft Teams, Discord, Signal and Netflix would be forced to pay fees directly to their ISP-owned competitors.

ISP-owned services will gain a huge advantage over their competitors paying fees. In fact, they will even get an extra boost because their parent company will be on the receiving end of these payments.

The result will be a three-tier system with the popular online players paying the tax, ISP-owned content and apps getting a bonus, and small and medium providers left in the middle: they aren’t forced to pay but are still disadvantaged competing against ISP-owned services.

The only way to avoid the competitive distortion from network fees is to charge all content providers an equal tax on every bit and byte. But that would violate net neutrality, too, and would fundamentally

change how the internet operates. Some sites and services will not pay every ISP, either by choice or financial necessity. Internet access as we know it would disappear.

Instead, we'd be in the world of cable: Our online choices would be limited to the services that paid a particular ISP the fees that ISP demands, the very situation net neutrality was intended to prevent.

Network fees will harm Indian consumers.

Internet applications that have to pay network fees, whether OTT communications services or popular internet applications, will be facing significantly higher costs. As a result, many of the services that Indians like to use, whether that's online messaging, video streaming, or online backups, will become more expensive.

ISPs can charge exorbitant network fees because they have what is called a termination access monopoly. Because the only way that content gets to an ISP's subscribers is through the ISP's pipes, ISPs have all the bargaining power and can force content providers to pay up or go under. These monopoly fees end up getting passed on to users in the form of higher prices.

We've seen this before in the U.S. For example, when Comcast forced Netflix into paying for access to Comcast's internet service customers, Netflix had to raise its prices. There is no reason to expect it to play out differently for Indian consumers this time around.³⁸

As an alternative to raising prices, affected apps and services may restructure their Indian offerings so that they incur lower network access fees. This isn't hypothetical. We've seen this exact behavior happen in South Korea in response to a similar attempt to charge network fees.

Because the fees are tied to bandwidth, the easiest option for platforms is to limit or end high bandwidth services.

That's why Amazon's Twitch, a popular livestreaming service, eliminated high-definition live video streams in South Korea and later removed the ability of South Koreans to watch recorded live streams at all. Like South Koreans, Indian users will no longer have the choice to access high-quality content online; their ISP will have eliminated that choice by adopting these fees and making it too expensive for content providers to offer these services.

Efforts to cut bandwidth could spell the end of free services as well. While Twitch only had to reduce the quality of its content, other providers might not be able to survive. It's hard to see how the business model of any free or ad-supported high-bandwidth service continues to work when the costs of providing that service skyrocket. Free photo and email storage limits will drop. Popular video streaming platforms and services like YouTube or Tubi may need to eliminate free ad-supported video in India, while keeping higher quality streams for paying Indian customers and customers abroad. Popular video calling apps like

³⁸ Ars Technica, "[Netflix comes through with price hike after struggles with Comcast, Verizon](#)".

Facetime, WhatsApp, and Skype may have to start charging for or reducing the quality of calls to, from, and within India.

Another tool to reduce or avoid these fees would be to simply move content out of India. All of the investments that content providers make in bringing data across the world stop making economic sense when they are charged extra for bringing that data right to the ISP's door.

Hosting that data somewhere abroad, if structured correctly, could reduce what content providers need to pay for data transport and help them avoid paying network fees by making their service harder to identify. But because content located further away loads more slowly, it will also reduce the quality they can offer, again harming user choice and further degrading the Indian internet.

For example, if forced to pay network fees, Cloudflare has a number of choices that would then make economic sense: It could reduce its costs in India by shutting down some of its data centers. Or it could say that only its highest paying customers get to have their web data in caches in India, while all other sites would have their copies in a data center outside the country. This would slow down the internet experience for Indians and raise the costs for all Indian ISPs.

This is not hypothetical. This is exactly what Cloudflare has done in South Korea in response to network fees. Only the highest paying Cloudflare customers have their data stored on servers in South Korea, while all other Cloudflare sites are in Japan. Korean ISPs have to pay to get that data over undersea cables, and those sites are far slower for Koreans due to the latency caused by distance.

It's unfortunate but understandable. If Indian ISPs are going to charge CDNs and app providers, why would those companies also spend money to build infrastructure in India? And in this model, everyone loses. Online services will get slower and worse; Indians will have a worse experience online, while ISPs will face angry customers, spend more money to carry data over underseas cables, and only get a little more money for their trouble.

There is no reason to inflict that severe harm on India by adopting this model.

Network fees will harm Indian businesses, creators, and nonprofits.

While selective network fees are pitched as a targeted solution that will only harm large tech companies, that's simply not how the modern internet works. Almost all Indian organizations, large and small, as well as individual creators, use services provided by the large companies. These include cloud hosting services and CDNs like Amazon Web Services and Google Cloud, productivity services like Zoho, Google Docs and Microsoft Teams, social media platforms like Instagram, and cloud storage services like Digilocker.

Even if only the large platforms or OTT communication service providers will be forced to pay network fees directly, Indian businesses will have to pay higher prices for the platforms' services or switch to low-quality alternatives for the services they need to function.

That increase in prices for technology will affect Indian businesses across the economy, from small businesses using Google Workspaces for email to entrepreneurs using WhatsApp to communicate with customers. These companies or individuals would either have to pay higher prices to accommodate network fees or undertake a costly process of moving to a lower quality alternative host that does not have to pay network fees.

If network fees were levied on large platforms, online advertising on large platforms targeting Indian customers will also get more expensive. The platforms will have no choice but to raise the price per ad for content in India, meaning Indian advertisers will be paying more for less.

In other words, this proposal would be an indirect tax on tens of thousands of Indian businesses, transferring money from them to giant, incumbent telecommunications companies — without even a promise that new infrastructure would be built.

Indian businesses, organizations, and content creators will also suffer from reductions in the quality of service they receive and can offer to Indian customers. Any organization that distributes video content through YouTube and other large platforms would likely have the resolution of their videos degraded in India or have their ad revenue slashed. Individual content creators on YouTube, Instagram, Twitch, and other platforms will find it harder to make a living because platforms will have to keep a larger share of ad revenue to pay ISPs. Network fees will reduce budgets for creating new movies, paying creators, and improving services. And if the large platforms move their services out of India, webpages and services offered by Indian businesses that rely on the platform's services will load more slowly and will have to use less bandwidth to remain usable.

All of these impacts are particularly problematic for small businesses, startups, and nonprofits. In South Korea, for example, Cloudflare reduced the quality of service they offer under their free tier. As part of its service, Cloudflare stores its customers' content in locations worldwide so it loads faster for people everywhere. Their free tier allows many startups, small businesses, and nonprofit sites and services to operate quickly and safely around the world—even if they normally couldn't afford to pay for such a service. But because of the new fees, Cloudflare couldn't afford to continue operating their free tier the same way in South Korea. Instead, only paying Cloudflare customers can have their videos, files, and photos stored in South Korea, while those on the free tier are hosted abroad. This means that smaller players load much more slowly—if at all—for Korean users, hurting both Koreans and the ability of Cloudflare's free-level customers to break into the South Korean market.

Network fees distort competition among ISPs.

Allowing or mandating these fees will also distort competition in the market for internet services.

Large ISPs will get more money from network fees than smaller ones, simply because they have more subscribers. They will get this large influx of money, regardless of whether they (or the country) already reached their deployment goals or whether other companies are more efficient in deploying new infrastructure. This disadvantages challengers and new entrants.

Compounding the problem, the larger ISPs with more customers will be able to demand more money *per user* than smaller ISPs, as we saw in the U.S. In the 2016 FCC Charter/TWC Order, the FCC found that among the five large internet access providers that were charging termination fees, the per-user termination fees increased with an ISP’s overall number of subscribers. In other words, the more subscribers an ISP has, the higher the fee it charges for access to a single subscriber.³⁹ This gives larger ISPs an even stronger advantage over their smaller competitors.

Moreover, small ISPs lack the bargaining power or personnel to negotiate with large platforms. In the U.S., only the five largest ISPs were able to leverage their control over access to their subscribers into forcing interconnection partners to pay termination fees.⁴⁰

Thus, the largest ISPs will benefit disproportionately from a network fee mandate.

This will favor ISP consolidation and reduce ISP competition, resulting in higher prices and worse service for Indian internet users.

Network fees violate net neutrality.

Net neutrality seeks to ensure that we, not the companies we pay to get online, get to decide what we do online. Users determine what apps and services are successful, not ISPs.

To ensure that ISPs cannot interfere with our choices, net neutrality requires broadband providers to connect their customers to all apps and sites, without favoring some apps over others.

Large telecoms want to charge some apps, but not others, for the traffic associated with their apps. That treats the traffic of apps that have to pay network fees differently from those that don’t and distorts competition among apps. This kind of unequal treatment violates the heart of net neutrality.

Chapter IX, clause 2.3(i) and (ii) of the Unified License explicitly prohibit ISPs from “engaging in any discriminatory treatment of content” and from “entering into any ... agreement, by whatever name called, with any person, natural or legal, that has the effect of discriminatory treatment of content.”

“Discriminatory treatment” includes “*any* form of discrimination ... in the treatment of content” (Chapter IX, clause 2.3(iv)(b)), including technical discrimination (e.g., slowing down or speeding up certain apps or types of apps) and economic forms of discrimination (e.g., not counting certain apps or types of apps towards people’s data caps). As TRAI first recognized when adopting the 2016 Prohibition of Discriminatory Tariffs for Data Services shows, treating traffic differently economically by counting the traffic of certain apps towards people’s data caps—but not counting the traffic of zero-rated apps—distorts user choice, competition, innovation, and free speech just as much as treating traffic differently technically.

³⁹ FCC Charter/TWC Order, paras. 99, 115, Order linked at <https://www.fcc.gov/document/commission-approves-charter-twc-and-bright-house-merger>.

⁴⁰ FCC Charter/TWC Order, para. 99, Order linked at <https://www.fcc.gov/document/commission-approves-charter-twc-and-bright-house-merger>.

In addition, any network fee – whether it applies to all apps or only some – violates Indians’ right to use their internet service to access the applications of their choice. Net neutrality protects Indians’ ability to access all of the content available on the Internet, not just the apps and sites that have paid their ISPs.

Apps and sites that do not pay the required fee would not be accessible to an ISP’s subscribers, preventing these subscribers from accessing the content, applications, and services of their choice, violating net neutrality.

In particular, this would violate both Chapter IX, clause 2.1(i) and clause 2.3(i). According to clause 2.1(i), “the subscriber [of internet access service] shall have unrestricted access to all the content available on the Internet.” Clause 2.3(i) prohibits ISPs from “engag[ing] in any discriminatory treatment of content.” “Discriminatory treatment” includes “blocking,” as clause 2.3(iv)(b) explains.

In the US, the 2010 and 2015 Open Internet Orders explicitly prohibited ISPs from charging apps for access to the ISPs’ subscribers, and the 2015 Order made clear that ISPs cannot circumvent Open Internet protections at interconnection points where data enters their network.⁴¹ That point of interconnection is often where broadband companies try to charge websites, applications and service providers like CDNs and transit networks. California’s net neutrality law includes the same protections.⁴²

Network fees also violate Europe’s Open Internet Regulation, as BEREC explained in detailed legal analysis submitted to the European Commission’s consultation on the topic:

If a mandatory payment was limited only to certain players (such as [large online platforms]), it would go against the principle of net neutrality as set out in recital 1 of the [Open Internet Regulation]. This is because it involves treating traffic unequally, contradicting the principles of equal treatment and nondiscrimination enshrined in Article 3(3) of the [Open Internet Regulation].⁴³

My submission to the European Commission did the same.⁴⁴

Network fees will slow digital adoption and work counter to the Digital India Programme.

Over the last decade, India has been a model for the world in mobile digital adoption and modernization.

⁴¹ The 2010 Order defined network fees as a kind of blocking, while the 2015 Order defined them both as a kind of blocking and a kind of degradation. FCC 2010 Open Internet Order, paras. 24, 67; FCC 2015 Open Internet Order, paras. 113, 120, 206.

⁴² SB 822, §3101(a)(3),(9)&(b).

⁴³ BEREC 2023 [Annex to complement Section 4 of the BEREC Consultation Response](#), pp. 14-15.

⁴⁴ van Schewick 2023 [Submission to EU Consultation](#), pp. 5-8.

Thanks to India’s net neutrality rules and government initiatives like the Digital India Programme, over 99% of India’s urban population is online, and rural connectivity continues to grow.

Closing the gap and increasing online digital participation remains a priority of the Indian government, with the Digital India Programme recently being funded again with 14,903 crore (~US \$1.7B) through 2026.

In short, it is a government priority to get people in India using the internet even more.

That’s the exact opposite of what network fees do: By imposing a tax on certain services (e.g., OTT communications services or popular applications), network fees reduce the amount of network usage and the quality of services on the network.

Most of the harms from network fees are unavoidable.

Network fees create problems where none exist. Addressing some of these problems would require significant regulation, but most of the harms would remain.

In particular, network fees would allow internet access providers to exploit their termination monopoly. In the internet context, the internet access providers’ termination monopoly has not been a problem historically. That’s because internet access providers traditionally have not received payment for delivering content to their subscribers from anyone other than their subscribers: they either pay a transit provider to connect them to the entire internet or they exchange data with transit providers, CDNs, or content providers without payment (“settlement-free”). That’s still the norm for the majority of internet access providers.⁴⁵

As discussed above, mandating network fees would reverse 30 years of successful internet economics and return the internet to the age of telephony. The Sending Party Network Pays model is well known to regulators for its openness to abuse, perverse incentives, and massive bureaucratic headache of centralized rate setting necessary to prevent providers from exploiting their termination monopoly.

ISPs in Europe want to avoid rate regulation by asking policy makers to require applications to pay them without rate setting and enlisting arbitration for disputes. This would allow ISPs to freely exploit their termination monopoly and substitute a clumsy abuse mitigation system with an opaque system that favors the largest companies.

As discussed above, the telcos’ desired regime has no safeguards ensuring ISPs actually increase investment. Absent any requirement to increase capital investment or even report their yearly investments, ISPs have every incentive to simply keep capex spending at the same level and use the additional funding for other investments, stock buybacks, or CEO bonuses.

⁴⁵ Packet Clearing House “[2021 Survey of Internet Carrier Interconnection Agreements](#)”.

If India were to adopt widespread network fees, it must adopt significant new regulations to avoid at least some of the harmful consequences of these fees. Those would need to:

- Regulate network fees to prevent ISPs from exploiting their termination monopoly and prevent large ISPs from charging higher per-subscriber fees than smaller ones;
- If the goal of such fees is to support network deployment:
 - Require funds from network fees to be spent for additional deployment on top of what ISPs would have spent otherwise;
 - Verify that fees are indeed used for additional deployment; and
 - Impose open access obligations on networks deployed using network fees to ensure maximum benefits for consumers.

However, these measures:

- Would only partly remove the advantage of large ISPs: even if the rate is regulated, ISPs with more customers will receive more money overall, disadvantaging challengers and new entrants;
- If the goal is to foster network deployment:
 - Won't ensure that money goes to the most efficient ISP that offers the best services;
 - Don't solve the problem that fees would go to ISPs purely based on size, including to those that have met the deployment targets, rather than to ISPs willing to deploy networks where they are needed most;
- Would not address the distortion of competition in the markets for affected content, applications, and services; and
- Would not alleviate the harms for Indian people, businesses, and creators resulting from the increased costs and reduced quality of services associated with selected network fees.

The regulatory framework necessary to limit at least some of the harms associated with selective network fees is substantial and costly, and would not address many of the harms associated with these fees. It's not worth these costs and harms to solve a non-existent problem.

Negotiated network fees are not the solution.

Most analyses of proposals in Europe have focused on proposals to *mandate network fees*. Under this model, websites and apps that meet certain criteria would be required by law to pay every ISP in a country directly.

However, in their May 2023 consultation response to the European Commission, ETNO and GSMA, the lobbying groups for Europe's largest telecom companies, called for a different model: *Negotiated network fees*.

This proposal would require certain content providers and European ISPs “to negotiate ... a fair and reasonable contribution for traffic delivery.”⁴⁶ If talks break down, an arbitrator would step in and decide which company’s final offer wins.

In other words, this proposal requires certain online services to negotiate with ISPs over the size of the fee, not whether there is a fee.

And if an online service disagrees with the requested fee or an ISP thinks an online service isn’t offering enough money, some arbitrator will decide how big that fee is.

This “obligation to negotiate network fees” is being shopped in the EU as a compromise alternative to mandated network fees, but as I explain in a recent blog post, it is not a compromise at all.⁴⁷

In fact, it’s exactly the same.

While the telcos market the obligation to negotiate network fees as light-touch, less intrusive, and less regulatory than mandated network fees, an obligation to pay network fees is baked into the proposal: the negotiation determines *how much* the specific content provider has to pay the specific ISP, not *if* it should pay *at all*.

That’s a mandated fee. As a result, the negotiated fee proposal creates exactly the same harms as mandated fees.

Just like mandated network fees, negotiated network fees would undermine the internet’s economics, violate net neutrality, make online services worse, subsidize ISPs’ own services at the expense of user choice, and harm smaller competitive ISPs.

⁴⁶ <https://etno.eu/downloads/positionpapers/summary%20of%20the%20joint%20telecom%20industry%20response.pdf>.

⁴⁷ <https://cyberlaw.stanford.edu/blog/2023/07/eu-telecoms-newest-proposal-force-websites-pay-them-just-terrible-their-previous-one>.