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UNBUNDLING THE DEMAND FOR A NETWORK USAGE FEE

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Unbundling the demand for a Network Usage Fee

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I. INTRODUCTION

Major telecom service providers (telecom operators or telcos) in India are arguing for the introduction of a network usage fee for over-the-top (OTT) applications.¹ For the uninitiated, a network usage fee is compensation paid by an application service provider to a telecom operator for the bandwidth consumed by the former on the latter's network. Telcos argue that the fee is necessary for them to develop, maintain, and upgrade network infrastructure. They contend that there is a currently a structural imbalance as OTT platforms allegedly benefit from telecom operator funded networks but do not invest in creating, operating, maintaining or expanding them.

This report relies on secondary research to evaluate the merits of the assertions made by telecom operators in favour of introducing a network usage fee. Broadly, the literature available indicates that that contentions in favour of network usage fees may be incorrect. Specifically, our findings indicate that:

- 1** OTTs are vital growth drivers for telecom operators. A large portion of telco revenues are built on the availability of OTT content to attract users and increase data usage. Further, telecom service providers partner with OTTs to offer bundled services that attract subscribers, build customer loyalty, and increase user spends on mobile and broadband services.
- 2** OTTs make substantial investments in network infrastructure such as content delivery networks (CDNs), undersea cables, data centres and more. These investments help optimise the delivery of content through telecom networks, enabling cost savings and enhanced quality of service for telcos and users.
- 3** Consumers, not OTT providers, drive data traffic. Demands for imposing a fee on OTTs overlook the fact that consumers determine and already pay for the data traffic generated on a network
- 4** Network related costs have remained stable despite traffic growth. Despite a significant increase in global network traffic, operator costs have seen only a minimal increase.
- 5** Mandating a network usage fee may also adversely affect the digital ecosystem and consumers. It may restrict choice, increase prices, and erode quality of service as it is likely to foreclose competition and violate net neutrality.

II. WHY ARGUMENTS IN FAVOUR OF NETWORK USAGE FEES ARE MISPLACED

A. OTT and Telco Services are Complementary

There is a symbiotic relationship between telcos and OTTs.² While telcos supply the transmission capacity, OTTs offer content to stimulate people's demand for this capacity. Building transmission pipes without any content to transmit would be unviable for telecom companies,³ whose success relies heavily on the availability of content provided by OTTs as demanded by audiences, thus generating demand for transmission capacity. This section explains how OTTs and telecom services are complementary.

OTTs drive data demand and revenue growth for telcos

User engagement with OTT applications is directly proportional to the amount of data consumed over the internet. OTT applications encourage people to purchase data packs and upgrade to higher-tiered data services supplying faster speeds and greater bandwidth.⁴ In other words, OTT apps help telecom operators by boosting demand for data usage.⁵ Illustratively, the Body of European Regulators for Electronic Communications (BEREC) found that the success of OTT services is core to the recent surge in demand for broadband access.⁶ More content brings more people online, which drives data usage and concomitantly, revenues, for telecom companies⁷ (Refer Figure 1).

The absence of engaging online content and applications, in turn, would bring down the value of internet access. Evidentially, one study found that 69 percent of YouTube users expressed willingness to upgrade their broadband connections if it would make the app work faster.⁸

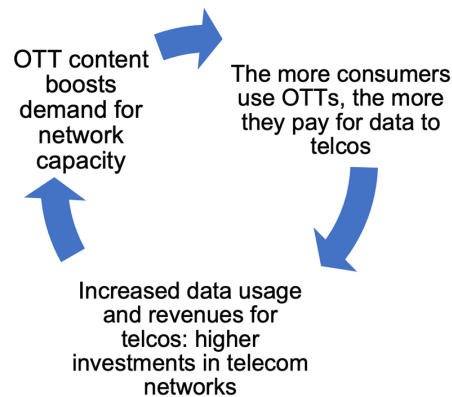


Figure 1: How OTTs drive demand for telecom services (Source: Author's own)

More traffic means more revenue for telcos

The consumption of online content and services is at an all-time high.⁹ On average, Indian users spend approximately 70 minutes a day on OTT platforms, with each session lasting 40 minutes.¹⁰ India also has the highest data traffic per smartphone worldwide, which is projected to grow from 25 GB per month in 2022 to 54 GB per month in 2028 – a compound annual growth rate (CAGR) of 14 percent.¹¹

The surge in data consumption has created lucrative revenue opportunities for telecom operators.¹² For instance, tariffs have jumped by as much as 57 percent in certain telecom circles in response to increased

data usage. In Haryana and Odisha, the Airtel lowest priced plan is Rs 155 for a GB of mobile data for 24 days.¹³ Earlier, it was Rs 99 for 200 MB of 2G mobile data for 28 days. Such tariff adjustments have contributed to an estimated 20-25 percent increase in the combined revenues of major telecom players such as Reliance Jio, Bharti Airtel and Vodafone Idea.¹⁴

Airtel reported a 27 percent increase in its revenue from mobile services in the first quarter of FY23, attributing it to growing consumption of mobile data.¹⁵ Similarly, Reliance Jio achieved its best-ever quarterly revenues at Rs 27,527 crores in June 2022, with total data traffic in the quarter growing by 27.2 percent.¹⁶ Figure 2 demonstrates the steady rise in telecom revenues from data subscriptions since 2018.

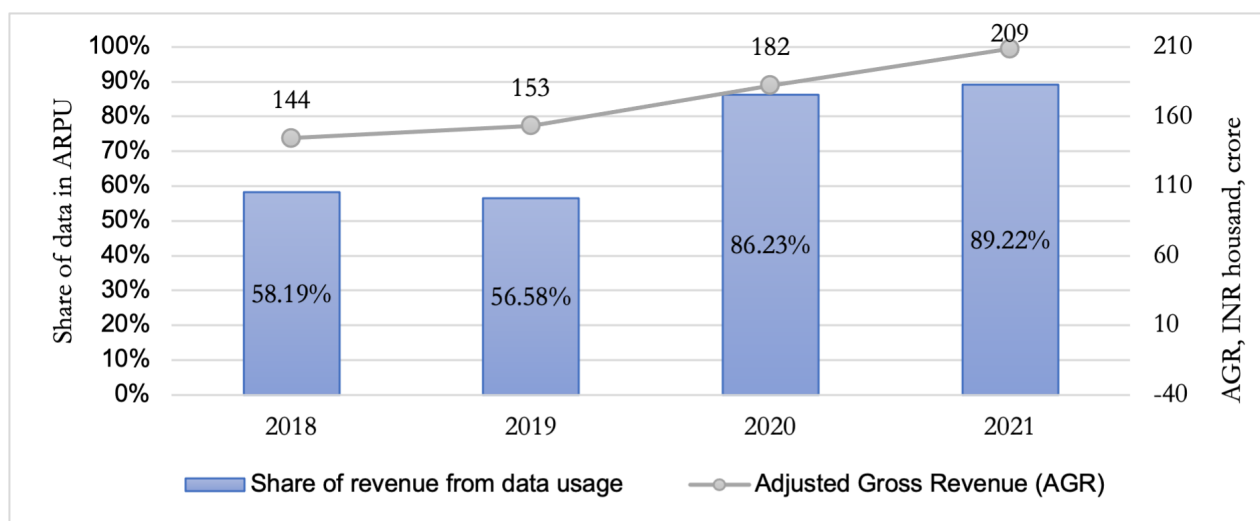


Figure 2 Annual revenue and share of data usage in wireless telecom revenues, per user, per month (Source: TRAI performance indicator reports)

The average revenue per user (ARPU) is also growing for telecom operators in India, where Morgan Stanley expects ARPUs to increase by 50 percent over the next 4-5 years.¹⁷ Figure 3 shows increases in ARPUs after the initial downturn caused by frenetic competition in the telecom sector following Reliance Jio’s entry in 2016.¹⁸ The rise in ARPUs reflects the growing demand for data services.¹⁹ It indicates telcos are capitalising effectively on users’ demand for data driven by OTT platforms.²⁰

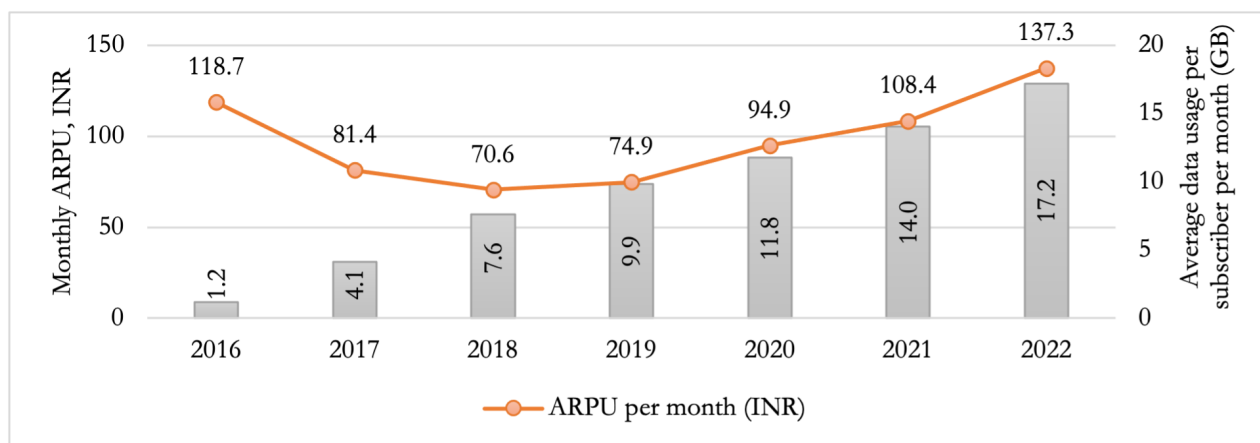


Figure 3 Monthly ARPUs and data use (Source: TRAI performance indicator reports)

Telecom service providers benefit from OTTs by bundling their content with subscription packs

OTT services benefit telcos through bundled subscriptions (Figure 4). Telcos actively promote their own product by tying up with OTT services.²¹ Specifically, major telcos often bundle OTT content with their subscription plans to attract consumers.²² By bundling subscriptions, telcos leverage their partnerships with OTT services to enhance revenues and extend customer lifecycles. Illustratively, a study by Ovum states that bundles increase customer loyalty and spending on mobile and broadband data services.²³ The study found that 44 percent of respondents had spent more on their carrier plan because they were subscribed to an OTT media bundle.²⁴ Forty-seven percent said that they were more likely to continue with their telecom provider due to the bundled subscription. Only 5 percent of consumers said that bundling had no effect on their loyalty or spending.²⁵

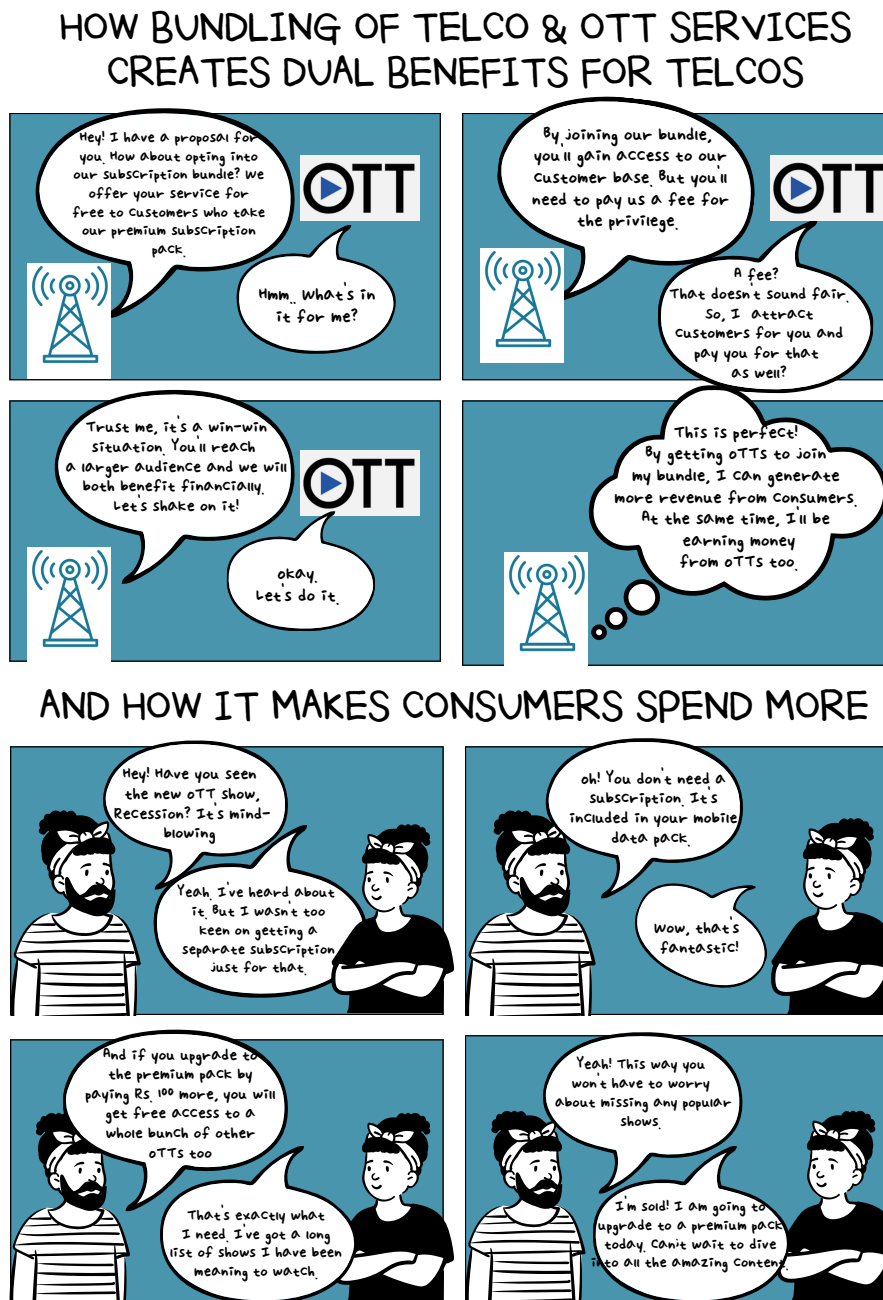


Figure 4 How bundling of telco & OTT services creates dual benefits for telcos (Source: Author's own)

OTTs are an Important Driver of Growth for the Economy

The impact of OTTs extends beyond the telecom sector. Research shows the increased use of OTT apps can boost the global gross domestic product. A study by WIK-Consulting found a 10 percent increase in OTT app use results in an increase of USD 1 billion in the global GDP on average.²⁶

B. OTTs make significant investments in network infrastructure

OTTs actively invest in network infrastructure, enabling improved quality of service and reduced costs for telcos and consumers.²⁷ From 2011-2022, OTT providers invested approx. USD 900 billion into network infrastructure, with an average spend of USD 120 billion per year from 2018 to 2021.²⁸ These investments included communications infrastructure network components such as content delivery networks (CDNs), public clouds, submarine cables, data centers and data cache servers.²⁹

CDNs consist of distributed servers strategically placed around the world to bring content closer to end users (Refer Figure-5).³⁰ Each server in a CDN network is called a Point of Presence (PoP) or an edge server.³¹ Content is stored and served at interconnection points between CDNs and telcos or inside the telco networks through embedded or on-net caches.³² Consequently, data-intensive content like videos need only be sent once to each server from the point of origin (origin server), and can be repeatedly served to end-users.³³ When a user visits a website, CDNs forward the request from the origin server to the nearest server (edge server). Cached content is delivered faster as it traverses a shorter distance. Thus, CDNs enable faster page loads, reduced latency,³⁴ and lower bandwidth costs.³⁵

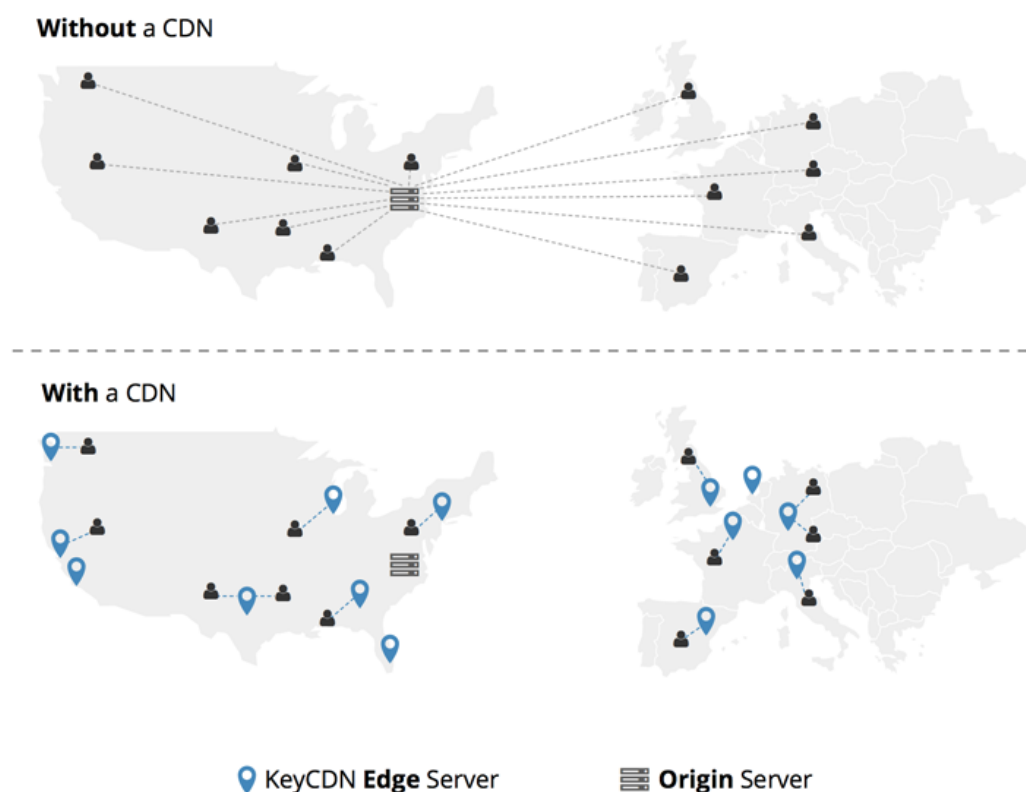


Figure 5 How a CDN works (Source: Moz.com)

OTTs invest heavily in content delivery networks. For instance, Netflix introduced Open Connect, a caching and content delivery program.³⁶ It also invested in video encoding standards (codecs) that were twice as efficient as previous implementations. Without these investments, global Netflix traffic would be approximately 24 percent higher than its current levels. In addition, both the Open Connect program and optimised codecs together have yielded substantial cost savings for ISPs, surpassing USD 1 billion worldwide in 2021.³⁷

Additionally, many OTTs also have data centers equipped with necessary hardware, physical or virtual servers, and networking equipment to efficiently store and distribute large volumes of data.³⁸ Illustratively, Amazon has 38 data centers worldwide,³⁹ including two in India and five upcoming facilities.⁴⁰ In addition, the company recently announced plans to invest USD 12.7 billion in the cloud infrastructure in India by 2030.⁴¹

OTTs have also invested in embedded caching in telecom networks and long-distance transport lowered capacity-related expenses for ISPs by USD 5 billion and USD 6.4 billion each year.⁴²

Further, OTTs are also putting money in trans-oceanic undersea cables that carry data across continents.⁴¹ In 2022, Meta announced a collaboration with Airtel and Saudi Telecom to expand its subsea cable called 2Africa Pearls which connects Africa, Europe and Asia to India.⁴³ Google's Apricot is a 12,000 km undersea cable that will connect six Asian countries.⁴⁴ A Meta-led consortium is also financing construction of the largest subaquatic cable that will connect 33 countries in western Europe, the Middle East, and southeast Asia.⁴⁵

C. Consumers drive data traffic, not OTTs.

Consumers drive data traffic.⁴⁶ The demand for data-intensive activities stems from consumer choice and action (Refer Figure-6). OTT services operate on a pull basis, meaning that consumers choose, download, and consume content based on their preferences. When users choose to watch content through a device, they send a playback request to the streaming service provider (OTT).⁴⁸ The OTT, in turn, delivers the requested content over an internet connection that the consumer has already paid for.⁴⁹ Attempting to place the burden on OTTs to cover network costs ignores the fact that consumers pay for internet connectivity and determine traffic volumes.⁵⁰

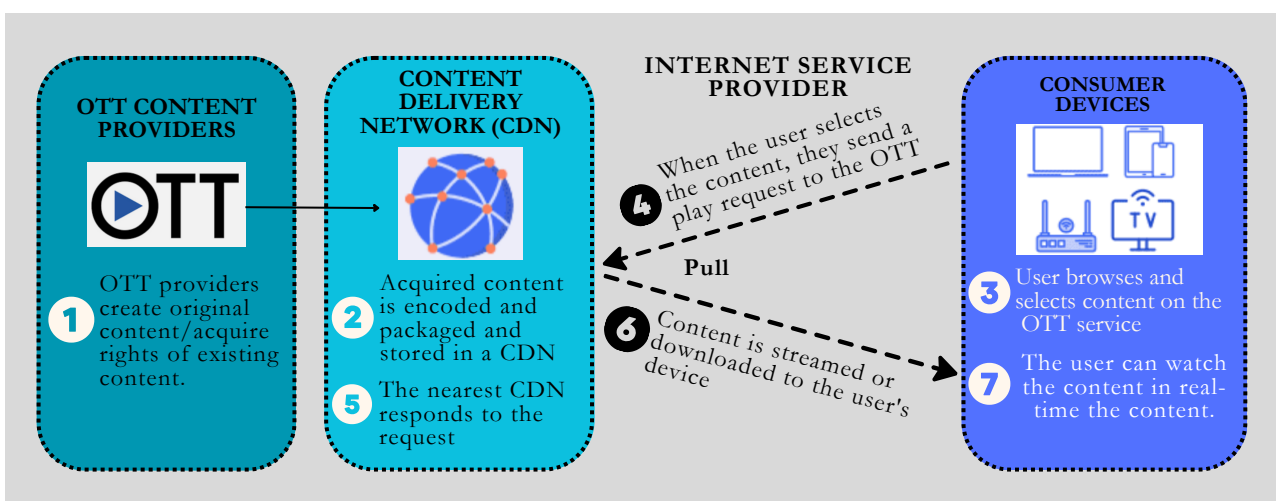


Figure 6 Understanding how consumers pull OTT content (Source: Author's own)

Network costs are stable amidst rising internet traffic

Research suggests that large traffic volumes have not translated into higher network costs for telecom service providers. As per an Analysys Mason report, the annual spends of telecom operators remained stable despite a substantial increase in global internet traffic. While global traffic increased by over 160 percent between 2018-21, network related costs increased by only three percent. This shows that telecom networks can handle significant increases in traffic without substantial additional costs.⁵¹

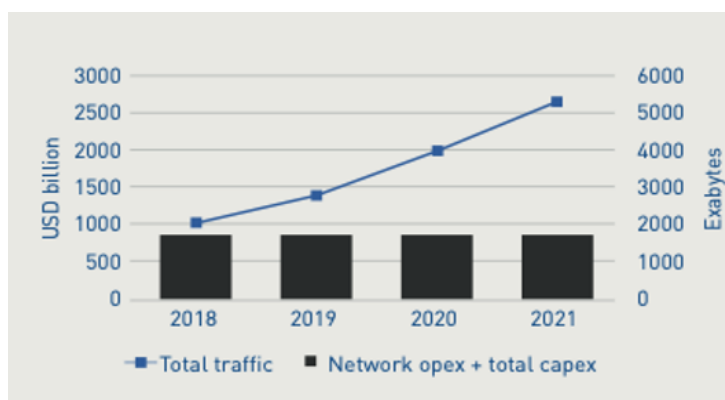


Figure 6 Growth in traffic delivered over fixed and mobile access networks and the evolution of network-related telecom operator costs from 2018 to 2021 (Source: [Analysys Mason](#))

There are several reasons why network costs remain stable despite increased data traffic. One, a significant portion of fixed (wired) telecom networks are not sensitive to changes in traffic. Infrastructure deployment is driven by the location of end-users and the technology used rather than the volume of traffic on the network. The spend on core and back-end networks connecting fixed networks to the wider internet is more responsive to traffic demands, but constitutes only a small share of total costs.⁵²

Spending on network expansion or upgrades is necessary only when demand approaches peak capacity, and the associated costs are small compared to total network capacity.⁵³ Advances in technology have also played a crucial role in ensuring stable network costs as traffic grows. Innovations such as high-capacity routers and dense wavelength-division multiplexing equipment have greatly improved network efficiency in handling traffic volumes.⁵⁴

Mobile networks may demonstrate greater traffic sensitivity, but the marginal costs of additional data usage remain very low.⁵⁵ According to an Ericsson report, network providers experience a decline in cost per GB as user traffic increases.⁵⁶ Data traffic increases faster than investment, thus, lowering the cost of transmitting each additional GB of data.⁵⁷ Further, mobile data tariffs are highly segmented, enabling operators to charge users based on their data usage. Tariff segmentation ensures that consumers who use more data pay proportionally higher fees, allowing operators to align revenue with actual data consumption and effectively manage costs.⁵⁸ Ongoing developments in mobile technology further contribute to cost optimization. These include the introduction of newly assigned spectrum bands or refarming legacy spectrum for new technologies, the introduction of multi-band antennas and the adoption of network virtualisation. These advancements allow operators to expand capacity at a lower incremental cost.⁵⁹

D. Network usage fees will undermine access to the internet for digital businesses

The internet is a network of networks connecting private as well as state-owned entities for the free flow of communications.⁶⁰ Agreements that govern the exchange of traffic between networks rely upon voluntary, commercial negotiations and are the foundation of the internet's networking model.⁶¹ Introducing a network usage fee may disrupt this model significantly and irreversibly change the fabric of the internet and its core elements of success.⁶²

Connections to the internet entail peering and transit arrangements (Figure 7). Peering connects providers with similar network and traffic profiles, often without a settlement or contractual relationship.⁶³

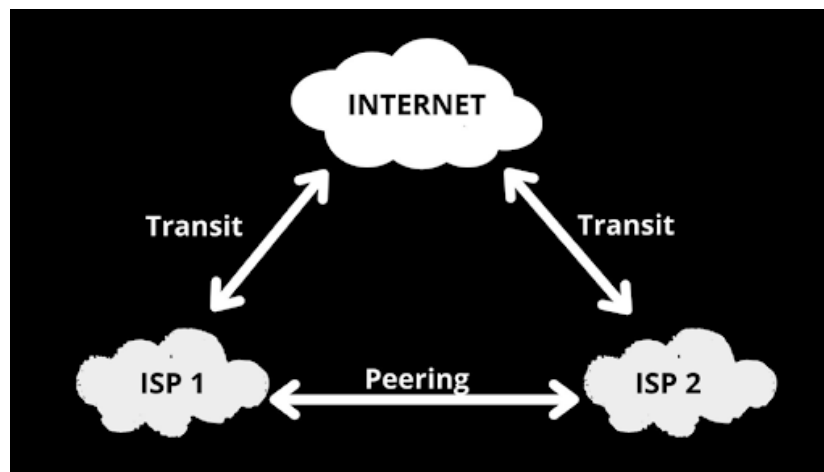


Figure 7 Internet Interconnections: Peering and Transit (Source: lectron.com)

However, peering alone cannot provide access to the internet as a whole because each provider would need to form peering arrangements with others, which may be impractical.⁶⁴ As it happens, only a few tier-1 network providers (backbone networks) have been able to access the entire internet through peering.⁶⁵ These backbone networks sell their access to smaller providers, such as smaller backbones, ISPs or OTTs via transit arrangements, which give the latter holistic online access.⁶⁶

Over time, interconnection agreements have adapted to meet the evolving demands, such as by creating internet exchange points (IXPs) and content delivery networks (CDNs). IXPs enable efficient traffic exchange through multiple networks, letting smaller ISPs and OTTs extend their reach and connect directly with global networks. CDNs combine peering and caching, enabling cost management and (as mentioned before) a high-quality user experience.⁶⁷ These evolving arrangements are beneficial to all parties concerned, and this is why they are by and large settlement-free, showcasing the value of openness and flexibility in the Internet.⁶⁸ Thus, online interconnection agreements have evolved to deliver high-bandwidth content efficiently, in mutually beneficial arrangements between ISPs and OTTs, without the need for mandated cost-sharing structures.⁶⁹

A network usage fee would greatly complicate the current system of interconnection on the internet, harming the simplicity and adaptability of settlement-free peering and transit agreements. Application service providers would need to enter into separate agreements with each carrier. Carriers would be burdened with the task of maintaining detailed accounts to determine payments for traffic flows between networks.⁷⁰ Regulators would need to introduce protections against manipulation of the payments system, which, in turn, would increase the complexity and costs further. A mandatory cost-sharing framework would restrict the flexibility of networks to negotiate their interconnections, and impinge on their autonomy within the internet. The disruption may result in inefficient traffic flows, higher costs of data transmission, and a lower quality of service for internet users.⁷¹

E. Network usage fees may harm competition

The imposition of network usage fees may impact competition negatively, especially for smaller players in the market.⁷² Smaller players may not be able to afford the network usage fees, making it difficult for them to compete with larger players who can afford to pay. This may result in smaller players being forced out of the market, foreclosing competition and freedom of choice for end-users.⁷³

An important consideration here is that certain telcos have OTT services of their own. Such services would necessarily operate at an advantage against others as the former would not have to pay network usage fees on the parent telco's network.

F. Network usage fees may violate net neutrality

The demand for a network usage fee goes against the principle of net neutrality. Net neutrality provides for the equal, non-discriminatory treatment of content by internet access providers.⁷⁴ In India, the regulatory framework on Net Neutrality prohibits discrimination, restriction or interference in the treatment of content – such as by blocking, degrading, slowing, or granting preferential speeds or quality to any content.⁷⁵

The concept of a network usage fees conflicts with the principle of net neutrality. If an OTT provider were to decline to pay the fee demanded by telcos, the latter may intentionally slow down the OTT service, compromising the end-user experience.⁷⁶ The telco may even have the power to terminate the OTT's ability to transmit content and services to consumers – even if the consumer requests it.⁷⁷ Net neutrality seeks the equal treatment of all traffic to give consumers control over their online experience.⁷⁸ Imposing a network usage fee would seize that agency from consumers and hand it to telecom operators, allowing the latter to engage in discriminatory practices and determine what users can and cannot see.⁷⁹

G. Network usage fees may harm consumers

A network usage fee on OTTs may harm consumer interests by raising the cost of accessing these services and reducing their quality.⁸⁰ This can be understood by recalling the South Korean experience of the settlement regime.⁸¹

According to scholars, voluntary online interconnection, where arrangements flow from commercial negotiations, ensures that networks operate efficiently and network services can be optimised in terms of cost and performance.⁸² South Korea's interconnection rules upended this paradigm. In 2016, South Korea mandated paid-peering arrangements, imposing an obligation on OTT services to contract and pay domestic ISPs to carry their content to end-users.⁸³ The result: inefficient traffic flows and higher cost of OTT services.⁸⁴ Illustratively, latency rates in South Korea worsened – a recent OECD study shows the country now has the highest latency rate on average amongst all OECD countries.⁸⁵ In South Korea, from approximately 120 milliseconds in 2018, latency had climbed to almost 160 milliseconds in 2020.⁸⁶

Consumers in South Korea also saw their Netflix subscription rates increase by 12.5 percent in recent year as a direct consequence of the dispute between the OTT content service provider and the South Korean internet service provider SK Broadband over network usage fees.⁸⁷

The imposition of a network usage fee in South Korea also had notable impacts on the future of data and internet use in the country, with both foreign and domestic OTTs choosing to suspend or degrade their services, or simply exit the market rather than pay high interconnection charges to the ISPs.⁸⁸

South Korea may also witness a decline in network investment because of network usage fees. There are concerns that the new submarine cables such as Google Apricot, Facebook's Echo, and Bitfrost will no longer land in South Korea because of the introduction of the network usage fee and the latency problems it caused.⁸⁹ India's policy makers can learn from South Korea's experience and recognise that interjecting in voluntary negotiations between networks, where there is no evidence of market failure, can have negative consequences for both businesses and consumers.

III. CONCLUSION

To reiterate, arguments in favor of a network usage fee contend that OTT services free ride on telco services, without contributing any funds towards the development or maintenance of network infrastructure. However, our findings suggest the contrary, namely that OTT services invest considerably in optimizing telecom networks. OTTs also complement network access services by providing content which drives consumer demand for data subscriptions. Finally, as the internet is a pull-based or on-demand medium, it is consumer choice that drives data traffic. OTTs are merely responding to consumer requests when delivering content.

The South Korean experience with the introduction of a network usage fee indicates that such a construct would see both consumers and digital service providers worse off. An important distinction between South Korea and India, however, is that the former comprises mostly fixed line connections whereas the latter is predominantly a mobile-first digital environment. As such, further empirical research may be necessary to understand the impact of network usage fee in India, and consumer perceptions around the outcomes such a construct would yield.

ANNEXURE A: TIMELINE OF NETWORK USAGE FEE AND NET NEUTRALITY DEVELOPMENTS IN INDIA

<p>February 2012</p>	<p><u><i>Airtel's demand for an internet tax on OTTs</i></u> The first demand for a network usage fee for OTTs came from the chairman of Bharti Airtel, Sunil Mittal, who proposed an internet tax analogous to the toll tax on highways. Speaking at the Mobile World Congress in Barcelona in 2012, Mittal suggested OTTs should pay an interconnect charge to network operators on the lines of the termination fee for voice calls.⁹⁰</p>
<p>December 2012</p>	<p><u><i>BEREC's assessment of IP interconnection in the context of net neutrality</i></u> Around the same time, BEREC examined the matter of IP interconnection in the context of net neutrality. It concluded that telcos' claims of OTTs' free-riding are unfounded since OTTs make significant payments for hosting and connectivity. They also pay for CDN services that help bring content closer to end-users. Moreover, there is no indication that operator network costs are not entirely covered and paid for in the internet value chain.⁹¹</p>
<p>February 2014</p>	<p><u><i>Facebook launches Internet.org</i></u> At a mobile industry conference in Barcelona, Facebook pitched its plan to launch Internet.org, to provide free basic internet services to entice the whole world online.</p>
<p>December 2014</p>	<p><u><i>Airtel's plan to charge extra for VoIP calls</i></u> Airtel announced plans to charge extra for VoIP calls through Skype, Viber etc. As per the new data policy, internet data packs were valid only for internet browsing, excluding VoIP. VoIP data use would be charged separately at standard rates.⁹² After facing backlash from net neutrality proponents who said the plan was anti-net neutrality, Airtel withdrew its plan within a week.⁹³</p>
<p>February 2015</p>	<p><u><i>Facebook's Free Basics program goes live in India</i></u> Facebook's program Internet.org went live in India in partnership with Reliance Mobile. Internet.org was a platform allowing access to 36 bookmarked sites and to Facebook, the only social network available. Subscribers could surf through stripped-down versions of participating websites free of charge.⁹⁵ Crucially, Facebook itself would decide which sites to include on the platform.⁹⁵ Critics recognised that if Internet.org took hold in India, Facebook would be the gatekeeper to the internet for millions of new users. Moreover, the arrangement violated net neutrality: by excluding the competitors of listed sites, it was subsidising the growth of a chosen few.⁹⁶</p>
<p>January 2015</p>	<p><u><i>DoT sets up Committee to investigate net neutrality</i></u> DoT set up a six-member committee to recommend the policy, regulatory and technical responses to net neutrality.</p>

<p>March 2015</p>	<p><u>TRAI's CP on Regulatory Framework for OTT services</u></p> <p>Meanwhile, TRAI issued a consultation paper on regulating OTT services, inviting comments on network neutrality for the first time. It asked stakeholders whether OTT players should pay for the use of telecom networks and what kinds of discrimination and traffic management practices telecom operators should be permitted on their networks.⁹⁷</p>
<p>11 April 2015</p>	<p><u>Save the Internet + AIB's net neutrality explainer</u></p> <p>Save the Internet, a website built by a volunteer group of coders, lawyers and policy wonks was launched. It allowed anyone to make a submission to TRAI in favour of net neutrality.⁹⁸</p> <p>It also featured a video by a popular group of comedians, AIB, who produced a nine-minute explainer on net neutrality. The video eventually garnered 3.5 million views. In two weeks, more than a million people had used the website to send emails to the government.⁹⁹</p>
<p>April 2015</p>	<p><u>Airtel launches Airtel Zero</u></p> <p>Bharti Airtel launched an open marketing platform called Airtel Zero using which customers could surf/download the applications of e-commerce players that had signed with it for free. The data charges would be paid by the application providers.¹⁰⁰ On 6 April Flipkart, India's largest e-commerce platform, signed with Airtel Zero.</p> <p>This was seen as violating the principles of net neutrality by some sections, as it allowed free access to only the companies that had the resources to partner with Airtel. The DoT Committee left it to the TRAI to decide whether Airtel's zero-rating plans violated net neutrality.¹⁰¹</p>
<p>May 2015</p>	<p><u>DoT Committee Report on Net Neutrality</u></p> <p>The DoT Committee submitted its report on net neutrality (NN). It recommended adhering to the core principles of NN while prohibiting exploitative or anti-competitive traffic management, application-specific controls, or improper priority, paid or otherwise. Legitimate traffic management was allowed if it wasn't against the principles of NN.¹⁰² The report explicitly disapproved of differential data tariffs being offered by operators through select tie-ups with content providers.</p> <p>The Committee also said that for local and national calls, TSPs and OTT communication services may be treated similarly by regulatory agencies. For international VoIP calling services and other OTT services, however, it recommended no such regulatory oversight. At the same time, the report emphasised the need to separate the application layer from network layer, and added that OTT application services did not require the same level of regulatory oversight as traditional telecommunications services.¹⁰³</p>

<p>December 2015</p>	<p><u>TRAI's CP on Differential Pricing for Data Services</u></p> <p>TRAI released an 11-page consultation paper on differential pricing, seeking comments from industry stakeholders about alternatives to zero-rated services that would maintain a free and neutral internet.¹⁰⁴</p> <p>While seeking inputs, TRAI expressed disapproval of operators providing differential data tariffs through partnerships with certain content providers. It noted that such arrangements discriminated against small content providers who may not be able to participate as they would struggle to attract users if there were substitutes available for free. Allowing service providers to act as gatekeepers might also give TSPs the power to select certain content providers over others, hindering competition and innovation.¹⁰⁵</p> <p>The regulator offered two alternatives to delink free internet access from specific content. The first model was for operators to offer initial data use for free, without limiting it to any content in particular. The second model proposed for content providers to reimburse customers directly for browsing and download costs regardless of the mobile operator used to access the data.¹⁰⁶</p>
<p>February 2016</p>	<p><u>Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016</u></p> <p>TRAI released the 'Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016' banning differential pricing arrangements (such as zero rating) for internet access.¹⁰⁷ The regulations prohibit TSPs from offering or charging different tariffs for data services basis the content being accessed by consumers.¹⁰⁸</p>
<p>May 2016</p>	<p><u>TRAI's pre-consultation paper on net neutrality</u></p> <p>The DoT asked TRAI for recommendations on net neutrality, specifically traffic management techniques, and the economic, security and privacy aspects of OTT services and other related areas. In response, TRAI issued a Pre-Consultation Paper to identify key issues within NN.</p>
<p>January 2017</p>	<p><u>TRAI's CP on net neutrality</u></p> <p>The 2016 Regulations dealt only with the cost/pricing aspect of net neutrality. For a more comprehensive framework on net neutrality, TRAI floated a consultation paper that posed 14 questions to define net neutrality in the Indian context.¹⁰⁹</p>
<p>November 2017</p>	<p><u>TRAI recommendations on net neutrality</u></p> <p>In its recommendations, TRAI backed the basic principles of an open and free internet. It prohibited internet access service providers from resorting to any form of discrimination or interference in the treatment of content, including practices like blocking, degrading, slowing down or granting preferential speeds, with exceptions for specialised services and reasonable traffic management practices. It also recommended that this principle to be incorporated in licence agreements for ISPs and a multi-stakeholder body to be set up under the DoT for enforcing net neutrality.¹¹⁰</p>

<p>July 2018</p>	<p><u>Net neutrality regulatory framework</u></p> <p>The Indian government adopted a comprehensive set of principles on non-discriminatory access to content. Internet service providers were disallowed from indulging in any kind of discriminatory treatment of content, including practices like blocking specific websites or speeding/slowing content transmission.¹¹¹</p> <p>The net neutrality framework was brought about through amendments to the licence agreements between the government and each ISP. The DoT, as executor of these agreements, was responsible for monitoring and enforcement.¹¹²</p>
<p>November 2018</p>	<p><u>TRAI's CP on a regulatory framework for OTT communications services</u></p> <p>TRAI released a consultation paper to discuss whether OTT communications services such as WhatsApp and Skype ought to come under the regulatory regime.¹¹³ The paper asked for industry opinion on whether OTT communications services resembled those offered by telecom operators and if substitutability should be the main criterion for comparing regulatory or licensing rules. The paper also inquired about the impact of regulatory or licensing imbalances on telecom network investment, specifically for capacity expansions and technology upgrades. It sought input on how OTT service providers could participate in infusing investment into telecom networks.¹¹⁴</p>
<p>September 2020</p>	<p><u>TRAI recommendations on a regulatory framework for OTT communications services</u></p> <p>The TRAI ruled out the need to bring any additional regulations to govern OTT communications services.</p> <p>It recommended that: a) Market forces should be allowed to respond to the situation, b) No regulatory interventions are required for privacy and security in OTT services, and c) There is no need to regulate OTT services beyond existing regulations.¹¹⁵</p>
<p>January 2020</p>	<p><u>TRAI's CP on Traffic Management Practices (TMPs) and a Multi-Stakeholder Body (MSB) for Net Neutrality</u>¹¹⁶</p> <p>While the Indian authorities incorporated NN within legal and licensing systems, any actual implementation of the framework remained largely non-existent. To remedy this, TRAI began a consultation to establish a framework for managing TMPs and updating them continually through a functionally independent MSB.¹¹⁷</p>
<p>September 2020</p>	<p><u>Recommendations on TMPs and MSB for net neutrality</u></p> <p>TRAI proposed creating a multi-stakeholder body under the DoT to ensure that ISPs adhere to the net neutrality regime. The role of the MSB would be to advise and support the DoT in monitoring and enforcing the principles of net neutrality.</p>

	<p>In addition, it recommended creating a repository of reasonable and necessary traffic management practices that internet players could adopt to manage traffic on their networks. The DoT would be responsible for framing a policy for ISPs to inform affected users of the impact of applied traffic management practices. It added that industry players too should be required to maintain a record of instances of application of TMPs.¹¹⁸</p>
December 2021	<p><u>TRAI's CP on Regulatory Framework for Promoting Data Economy through establishment of Data Centres, Content Delivery Networks and Interconnect Exchanges in India</u></p> <p>TRAI issued the Consultation Paper to seek inputs of stakeholders on regulatory framework for promoting the establishment of Data Centres, Content Delivery Networks and Internet Exchange Points in the country.</p>
September 2022	<p><u>Draft Indian Telecommunications Bill 2022</u></p> <p>The draft Bill provides an all-encompassing definition of telecommunications services to include OTT services in its ambit. The stated rationale is to level the playing field between telecom operators and OTTs.</p>
November 2022	<p><u>TRAI's Recommendations on Regulatory Framework for Promoting Data Economy through establishment of Data Centres, Content Delivery Networks and Interconnect Exchanges in India</u></p> <p>TRAI's recommendations are as follows:</p> <ul style="list-style-type: none"> • Measures to facilitate and incentivise establishment of Data Centres (DCs) and DC Parks, including: Single window clearance; Introduction of a DC Incentivisation Scheme; Development of a national level DC Readiness Index framework; Establishment of DC Economic Zones; and Formulation of India-specific building norms, standards and certification framework for DCs. • Registration of CDN players with the Department of Telecom (DoT) through a simple online registration process. TRAI highlighted that the incentives recommended for DCs should also help in proliferation of CDNs in the country. • Creation of a separate authorization in Unified License for IXPs with terms and conditions that are much less onerous than ISP license authorizations.
November 2022	<p><u>COAI's letter to DoT demanding network usage fees</u></p> <p>The COAI in a letter to the DoT demanded that OTT platforms contribute to network infrastructure costs.¹¹⁹ It suggested levying a mutually decided usage charge on OTTs based on the traffic generated by them on telecom networks. The association argued that OTTs are free-riding on telecom networks, and should pay a fee for using these networks. According to the association, the proposed usage charge would help telcos roll out and expand networks to meet the increased infrastructure requirements. It also pointed out that globally there has been growing demand for OTTs to make a fair contribution to the network costs of telecom firms.¹²⁰</p>

January 2023	<p><u>TRAI's CP on convergence</u></p> <p>A TRAI consultation paper on convergence explores the idea of a converged regulator and regulations for telecom, broadcast and digital services, and licensing/permission-based regulation for providing online services. This is a departure from TRAI's earlier position on unbundling and separating content from carriage.¹²¹</p> <p>The CP notes further that the increase in OTT media consumption has challenged TSPs to support more content, devices and users. Moreover, the exponential availability of 4K and even higher quality content that requires a large amount of bandwidth to be streamed appears as a new issue for network operators. In this context, it emphasises the need to factor OTTs into aspects such as infrastructure sharing.¹²²</p>
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ANNEXURE B: CROSS-COUNTRY COMPARATIVE ANALYSIS OF THE NETWORK USAGE FEE DEMAND

Market	Regulatory Stance/Proposals/Reports	Case for the fee
EU	<p>2012 & 2017: The Body of European Regulators for Electronic Communications (BEREC) published reports on the internet interconnection market, concluding there were no competition issues requiring regulatory intervention.¹²³</p> <p>2022: In its preliminary assessment of the fair contribution debate, BEREC rejected many arguments raised by ETNO.¹²⁴ It said that there was no evidence that large OTTs were free-riding on telecom networks or that the SPNP charging system could cause significant harm to the internet ecosystem.¹²⁵</p> <p>The European Parliament Committee on Industry, Research and Energy (ITRE) removed the reference to the fair contribution debate from its draft report on the grounds that it would violate net neutrality.¹²⁶</p> <p>A group of 54 Members of the European Parliament wrote to the European Commission discouraging the imposition of an access fee on OTTs.¹²⁷</p> <p>2023: The EU Commission launched a public consultation on the future of the connectivity sector and its infrastructure, including a section on fair contribution (Section 4). It ran from February 23 to May 19. With a focus on the fair contribution concept, the Commission has asked respondents to quantify their current and future investments in network infra capable of optimising internet data traffic. Additionally, the questionnaire seeks inputs on determining the threshold that would define an OTT as a large traffic generator, a category likely to include the likes of Netflix and Google.¹²⁸</p> <p>The European Parliament's own research observes that South Korea's experiment with a fair contribution to network financing is failing.¹²⁹</p>	<p>In 2012, The European Telecommunications Network Operators Association (ETNO) proposed to introduce a sending-party network pays (SPNP) charging system. The idea of the system was that large traffic generators should pay a fee to telcos based on the volume of traffic sent over an operator's network.¹³⁰</p> <p>In February 2022, Deutsche Telekom, Orange, Telefónica and Vodafone penned a joint statement stating that the current situation was not sustainable and the EU needed regulation on NUF. The four players commissioned a study to estimate the costs associated with 'traffic sensitive' elements of fixed and mobile telecom networks across Europe that could be attributed to OTT traffic, in March 2022.¹³¹</p> <p>In July 2022, the Global System for Mobile Communications (GSMA) Europe expressed its support for traffic-flow based contributions, in a joint release with other large European telecom associations.¹³²</p> <p>France: A French telecom federation proposed creating a toll for major digital content providers in February 2022.¹³³</p> <p>Germany: In February 2023 as MWC, the CEO of German telecom group Deutsche Telekom, Tim Hoettges made a presentation in which he proposed that customer and content provider both pay the telecom operator.¹³⁴</p>

<p>South Korea</p>	<p>2016: The South Korean government implemented amendments to the Interconnection Standards for Telecommunications Facilities (2005) under the Telecommunications Business Act. The revised rules altered the norms of voluntary negotiated interconnection by imposing a sending party pays (SPP) regime. The rules required ISPs to charge for the traffic they receive from each other, i.e. ISP A must pay ISP B to send traffic to ISP B's customers, and vice versa.¹³⁵</p> <p>2020: The sender pays policy was reinforced with the Content Providers Traffic Stabilization Law. The law is an amendment to the Telecommunications Business Act that requires content providers (CPs) greater than a certain size (1% of total traffic and 1M daily users) to take measures to ensure convenient and stable provision of services to end users. It does not however mandate paying network usage fees.¹³⁶</p> <p>2021-2022: As of 2022, several legislative proposals have been tabled in the South Korean National Assembly. Some proposals seek to impose an obligation upon CPs to enter into a network use agreement with domestic ISPs. Other pending bills additionally mandate that CPs be required to pay a network usage fees to domestic ISPs under such an agreement. Failure to comply would result in the issuing of a correction order or a penalty surcharge.¹³⁷</p>	<p>The story of South Korea's settlement regime began with two disputes.</p> <p><u>KT & Facebook</u> Facebook stored its popular content on a cache in KT's network, one of the country's largest ISPs. After the 2016 amendments, KT was facing high bills from Tier-1 ISPs due to the sending party pays regime. They requested payment from Facebook for the traffic sent from the cache on KT's network. When negotiations failed, Facebook disabled the cache, causing South Korean users increased data latency in accessing Facebook. KT filed a claim with the regulator KCC, resulting in a fine of USD 328,000 levied on Facebook for service disruption. However, the decision was overturned in 2019.¹³⁸</p> <p><u>SK Broadband & Netflix</u> In November 2019, SK made a claim to the KCC to have Netflix pay a network usage fee as compensation for the increased bandwidth requirements. Netflix lost the case in June 2021. The district court ruled that Netflix had an obligation to pay SKB for network use, but stopped short of delineating the method or form of consideration.</p> <p>Netflix has since appealed to the Seoul High Court and the decision is pending.¹³⁹</p>
<p>Japan</p>	<p>2006: The Ministry of Internal Affairs and Communications set up a committee after Japanese network providers started facing pressure to increase investments as web traffic soared.¹⁴⁰</p> <p>2007: The Ministry of Communications released a report on network neutrality. It discussed who should bear network development costs and whether telecom operators may engage in packet-shaping (or traffic blocking) to ensure network quality. In particular, the MIC discussed whether heavy data users should be required to pay additional charges based on their packet usage, and whether distributors of data-rich content should be required to pay</p>	<p>The remit of the study group report was limited to the sharing of network costs on a voluntary basis. A mandatory cost sharing structure has not been discussed.</p>

	<p>additional charges based on their packet usage, and whether distributors of data-rich content should be required to pay ISPs for additional charges. The report concluded that these matters should be left to the market, i.e. negotiations between ISPs and OTTs.¹⁴¹</p> <p>2019: In April 2019, a study group released a report on network neutrality, emphasising the need to discuss sharing network costs to facilitate network upgrades and ensure reliable service for users. The group proposed that the MIC collaborate with network operators to conduct surveys and gain understanding of the current traffic conditions. The report also proposed making the relevant objective data publicly available and initiating discussions on ways to request the relevant companies to contribute to these costs. However, the report does not provide specific recommendations in this regard.¹⁴²</p>	
Thailand	<p>2019: The National Broadcasting & Telecommunications Commission (NBTC) tried to establish a revenue-sharing framework.¹⁴³ It later backtracked. The commission wanted to charge “big OTTs” and not small ones.</p> <p>2022: The commission again remarked on how OTTs free-ride over telco networks.¹⁴⁴</p>	<p>The NBTC withdrew after consumers and industry experts said the proposal would increase costs and hinder economic growth. Industry experts warned that OTT services would have to pass on the costs to consumers, and several players would exit the market if the regulator implemented the mechanism.¹⁴⁵</p>
Brazil	<p>Consultation:</p> <p>2023: The National Telecommunications Agency, ANATEL, initiated the Request for Comments 13/2023. It contains 28 questions and relevant ones include: 1) Telco networks’ struggle to process consumer data demand due to new business model, 2) OTT contribution to improve, expand and maintain the network infrastructure, as well as the pros and cons of regulation that establishes remuneration for the use of telecommunications networks (‘network fee’/ ‘fair share’).¹⁴⁶</p>	

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