



White Paper

Should OTTs be licensed and pay Telecom Companies

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1. Introduction

- 1.1 TRAI's (Telecom Regulatory Authority of India) 2022 consultation paper covered three broad grounds: licensing of OTT (over-the-top) services, sharing OTT revenues with telecom companies, or telecom service providers (TSPs) and, banning specific apps during periods of unrest. In this note we are going to discuss the implications of the first two aspects --- licensing and revenue sharing --- that TRAI was looking into. COAI (Cellular Operators Association of India) supported TRAI's intervention in the OTT space since their contention is that (a) many of the OTT applications provide the same (communication) services as the telecom companies (application of the same service same rules philosophy) (b) OTTs should bear a part of the cost of the telecom infrastructure they are using to make their services available to the users of the OTT services.

- 1.2 COAI reflected the same concerns that have been raised before by telecom service providers in other countries. For example, internet broadband access providers, such as telecom and cable companies (e.g., AT&T, T-Mobile, and Telia), have for years demanded compensation from content and application providers (e.g., Netflix, Spotify, and WhatsApp) for using their infrastructure to deliver digital services. SK Broadband, in 2019, filed a lawsuit against Netflix, an online movie and video streaming services company, demanding fees for using the former's internet network infrastructure in South Korea.¹ Similar battles are occurring in France, Japan and other countries, turning the dispute between telecom companies and over-the-top (OTT) service providers into an international economic debate. India's experience of the dispute between leading OTT service providers and India's telecom companies over network usage charges is a more recent one.²

- 1.3 These "disputes" are the result of two things: (a) on the one hand, mobile operators are faced with the prospect of declining revenues as voice calls shift towards internet calling services or on text messaging applications (like WhatsApp) and (b) on the other, the OTT service providers are increasing their revenues as they gain more and more subscribers who use their phone connections to access the internet. Thus,

¹ See, thelec.net/news/articleView.html?idxno=4481, last accessed on August 15, 2024.

² See, outlookindia.com/corporate/charging-network-usage-fees-from-otts-wont-violate-net-neutrality-says-telco-body-coai, last accessed on August 15, 2024.

the volume of traffic on telephone connections has been increasing in activities where telephone operators do not earn incremental revenue, while the volume in activities where operators do earn revenue has been decreasing. The telecom companies claim that they are faced with a double whammy because there is increased pressure on the infrastructure they provide, but this greater pressure cannot be monetized by them. This is a global phenomenon observed before in other countries, e.g., in Korea (Shin, 2012),³ in Europe (Nikou, Bouwman and Reuver, 2012)⁴ and in Latin America (Ganuza and Viacens, 2014).⁵

- 1.4 In this paper we compare the economic outcomes of allowing telecom operators to charge a fee from OTT service providers each time a consumer accesses them through the telephone versus continuing with the status quo where telecom operators do not get any such fee from the telephone subscriber or the OTT provider. When comparing the outcomes, our focus is not on how the profits, or surpluses, are broken up between the telecom operators and the OTT service providers. Instead, we focus on which of the two outcomes will lead to more innovation and greater improvement in consumer, or user-value.

2. Licensing OTTs

- 2.1 The argument being made by supporters of OTT licensing is that the OTT communication apps provide the same services as telecom companies and therefore, if telecom companies are required to be licensed, then OTT apps should also be licensed. . This argument, unfortunately, is flawed for a number of reasons. First, services like WhatsApp are not similar to the services provided by the telecom companies. Services like Skype and WhatsApp, for example, are not substitutes for voice calling or SMS, as SMS is typically used for brief text communication rather than real-time chatting or video calls. Though voice and SMS are also used for communication services, they are very different from the services on the internet.

³ Shin, D-H. (2012), What makes consumers use VoIP over mobile phones? Free riding or consumerization of new service, *Telecommunications Policy*, 36, 311-323

⁴ Nikou, S., Bouwman, H. and de Reuver, M. (2012), The potential of converged mobile telecommunications services: a conjoint analysis, *info*, 14(5), 21-35

⁵ José Ganuza, J. and Fernanda Viacens, M. (2014), "Over-the-top (OTT) content: implications and best response strategies of traditional telecom operators. Evidence from Latin America", *info*, 16(5), 59-69

2.2 Second, content providers ride on TSP infrastructure and cannot reach a consumer except through that medium. A TSP, therefore, has absolute control over the pricing of a foundational element for internet-based communication and messaging (ICM), namely data transportation. The implication is that a TSP providing content identical to that of a non-TSP content provider is always able to succeed in the competition. The reason why the TSP loses out to non-TSP content providers providing communication and messaging services, despite having absolute control over the medium in which the competition takes place, is simple. The latter are more innovative and provide a range of services that the TSP fails to provide – ease of use, encryption, other value-added services involving a combination of voice and video services, group communication etc. Hence TSPs seek to limit competition from more innovative and nimbler non-TSP content providers by demanding that they be licensed rather than competing with them on the value proposition. It is far from clear that licensing imposes any constraints on a TSP's ability to offer competing products. It may be noted in this context that TRAI has exercised forbearance and not imposed any pricing controls on these services. Licensing does not prevent a TSP from adopting an appropriate pricing strategy for its data services to ward off any competition from content providers.

2.3 Further, the underlying reality is that with technological advancement, the analog method of providing communication and messaging services has been completely overtaken by the digital mode which is far more efficient in terms of infrastructure utilization or, requirement. TSPs which have invested money in analog infrastructure want to extend the utility of that infrastructure by preventing or delaying the entry of digital content providers. Nor do they want to cannibalize their own analog voice and messaging revenues by offering the same services using digital technology and charging based on data usage. Besides, the older pricing models of TSPs are heavily tilted in favor of non-digital, inefficient communication and messaging services. That is another reason why they themselves have been slow to switch to digital or internet-based communication and messaging services such as VOIP.

- 2.4 Finally, TSPs are licensed because provisioning of (tele-) communications services is a duty of the government. Private entities can be permitted to provide this service as a commercial activity only if the outcome (in terms of access, affordability, reach, etc.) is similar to what the government wants to achieve. Hence, TSPs are licensed. There is no such government objective in the OTT content space. Instead, here the government depends on private entities to come up with innovative experiments in the marketplace to see what succeeds and what does not. Licensing experimentation is an anathema to innovation!
- 2.5 In summary, ‘the same service’ characterization of ICM service providers by equating them with communication and messaging services provided by TSPs is a specious argument bereft of substance. In fact, as we will see, economic arguments suggest that licensing of content providers would end up hurting the TSPs themselves and not just the consumers, or users, of OTT services.

3. Beginnings of the debate on revenue sharing

- 3.1 The attack on content and application providers by those who own the infrastructure that carry them, originated in the USA in the early 2000s.⁶ Comcast, Verizon and AT&T, providers of broadband, argued that companies like Google, Microsoft and Yahoo! should pay the providers for the infrastructure they were using every time subscribers accessed online content.⁷ At that time, this led to a debate on net neutrality which the broadband providers lost.
- 3.2 TSPs argue that the ever-increasing OTT traffic will develop congestion in the telecom infrastructure requiring more and more investments by them. The problem, they claim, is that while TSPs carry the OTT content, the latter do not pay anything for the infrastructure to the TSPs. Their contention is that OTT content providers should pay the TSPs every time a content user connects to an app provider through the phone.

⁶ Cheng, Hsing Kenneth, Subhajyoti Bandyopadhyay, Hong Guo, (2011) The Debate on Net Neutrality: A Policy Perspective, *Information Systems Research*, 22(1), 60-82; <https://doi.org/10.1287/isre.1090.0257>

⁷ Indeed, ex-CEO of AT&T, famously said, “Now what they would like to do is use my pipes free, but I ain’t going to let them do that because we have spent this capital and we have to have a return on it,” as reported in *Business Week* November 7, 2005.

- 3.3 Online video transmission (or internet TV) is the fourth generation in the television technology.⁸ The second generation was the era of triple-play, where both cable and telecom operators bundled voice, data and video (television) subscriptions. The third generation was digitization and HD TV, while the first was, of course, the classical television market before cable. Interestingly, the origins of what we are discussing today are to be found in what was going on during TV's second generation. At that time the visual (home) entertainment market was attempting to get integrated. However, with digitization and the neutrality of the internet, the integrated model that the telecom operators were attempting to build got disrupted. In addition to the technological possibilities, innovative content providers like Netflix offered better services on the net compared to what the infrastructure providers were offering.
- 3.4 Bundling was quite pervasive in the business models of television's second-generation technology. In fact, by 2013, triple-play bundles were the main strategies behind much of the competition among the EU27 operators. These strategies raised the entry barriers to OTT providers as the bundle price did not vary much if one of the elements of the bundle was removed. This, obviously, made it difficult for OTT service providers to compete against the incumbents. This sort of bundling was a textbook example of transferring market power held in one market to another market.⁹
- 3.5 Using the internet has led to discontinuance of cable connections, especially among the young.¹⁰ Even though this "cord-cutting" started in the second-generation TV era, it has emerged as the major disruptor during the third and fourth generations of TV technology. For example, as early as the beginning of the last decade, in the USA, the pay TV sector lost more than 3 million subscribers between mid-2012 and mid-2013. At the same time, Netflix reached a total of 30 million by adding 6.3 million subscribers in the first 3 months of 2013.¹¹ In India, while cord-cutting is low, it is gathering momentum; moreover, India has "cord-never" as the younger

⁸ Noam, E. (2014), Cloud TV: Toward the next generation of network policy debates, *Telecommunications Policy*, 38(8-9), 684-92

⁹ Baccarne, B., Evens, T. and Schuurman, D. (2013). The Television Struggle: An Assessment of Over-the-Top Television Evolutions in a Cable Dominant Market, *Communications & Strategies*, No. 92, Dec

¹⁰ Baccarne, B., Evens, T. and Schuurman, D.. (2013). The Television Struggle: An Assessment of Over-the-Top Television Evolutions in a Cable Dominant Market, *Communications & Strategies*, No. 92, Dec

¹¹ Fontaine, G. and Noam, E. (2013), Cutting the cord: common trends across the Atlantic, *Communications & Strategies*, No. 92, Dec

population is entering the market as online video and programming consumers.¹² Globally, too, younger and lower-income households are replacing pay TV with OTT activity or are opting for OTT to begin with.¹³

4. Telecom and OTT

- 4.1 In paragraph 1.3, we have stated that we will evaluate the two outcomes, one where the telecom companies can charge the content and application providers every time a phone subscriber accessed them on the phone and the other, where they did not (were not allowed to). We are going to evaluate the outcomes along three dimensions: (a) how well does each outcome address the disparity in the use of the internet among the Indian population (b) how does each outcome encourage innovation among the OTT service providers and (c) whether the outcome stifles the infrastructure investment by telecom companies.
- 4.2 We treat the mobile connection as a platform that enables internet users to connect to the content and application providers (OTT service providers). As is often the case in two-sided platforms, the “value” of the platform depends on the direct and indirect network effects which, in turn, are determined largely by the number of players on each side. In other words, a phone connection is of greater value if more subscribers connect to the net, as well as, if there are more OTT service providers. Achieving these direct and indirect network effects clearly addresses points (a) and (b) of the last paragraph. In particular, the indirect network effect highlights an important aspect of the problem at hand --- anything that discourages mobile subscribers to access the net, reduces the number of OTT service providers and anything that limits the latter discourages the number of internet connection seekers.
- 4.3 Mobile subscribers to the internet are discouraged from connecting to online content if they are asked to pay a higher price. Currently, they pay a flat fee to the content provider and then connect to the internet as often as they want. In short, their incremental cost of accessing the content one more time¹⁴ is zero. Therefore, as long as they are getting positive value, they will connect. So, how many times will they

¹² See, medianews4u.com/from-cord-cutting-to-cord-never-behavioural-change-more-than-cost-driving-cable-and-dth-churn , last accessed on August 15, 2024

¹³ Banerjee, A., Alleman, J. and Rappoport, P. (2013), Video-Viewing Behavior in the Era of Connected Devices, *Communications & Strategies*, No. 92, Dec

¹⁴ Economists term this the marginal cost of accessing the content.

connect to the content provider? They will stop at a number when they are fully “satiated”, i.e., when they get no additional positive value by connecting. Assuming that the value (happiness) of the first hour of content viewing is more than that of the second hour which, in turn, is more than the third hour, etc., the number of times a subscriber connects to an app will fall if the cost of connecting increases. In particular, the number of times a connection is made is less at a positive price than at a zero price.

4.4 Markets are demand driven and, hence, cost increases are usually passed on to the buyers. So, if telecom providers charge apps every time a subscriber connects to them, the cost to content providers will increase. They can pass this on to their customers in two ways. One, they can make the subscriber pay (at least partially) the “connecting fee” being charged by the telecom provider. As argued in the last paragraph, this will reduce the number of subscribers to the content. Two, the content providers can increase the flat subscription fee they charge. A content provider has “ n ” subscribers because (a) everyone *other than these n* perceive that, by subscribing, they will get a value which is less than the subscription fee and (b) n are obtaining a value which is at least as great as the subscription fee. Clearly, as the subscription fee increases, there will be less and less of type (b) and more and more of type (a) or, the number of subscribers will fall if the content provider increases the subscription fee.

4.5 So, however the content provider may want to pass on the cost to the content user, the volume of content use will decrease. This will reduce the “value” generated by the platform. And, if that happens, both the subscriber base and the content supplier base will fall. This will reduce the welfare of the consumers of content on the internet as well as the innovation by content providers. This, of course, will reduce congestion on the current telecom infrastructure.

4.6 The telecom companies want to charge OTT service providers a congestion charge so that the extra revenue to the telecom companies creates the necessary current surplus that can be invested for improving the next generation infrastructure. This raises a fundamental question: by raising a charge on the OTT service providers, will the telecom operators be able to increase their revenues to give them more investible funds for the future?

- 4.7 First, observe that if the demand for OTT services is elastic (sufficiently price sensitive), any increase in the price of OTT services will reduce the total expenditure by content users. The content providers will not only get a smaller fraction of the revenue they were getting before, but they will also get a fraction of a smaller amount that the OTT consumers will now be spending! This will be a double whammy for the OTT content providers. Remember just as network effects have exponential positive impacts as the number of users grows, it also has a similar fast decay when the number of users falls.
- 4.8 Second, there exists a significant amount of literature in economics that deals specifically with the argument that allowing network operators to charge the content providers will encourage investment in network infrastructure. According to Economides (2011a),¹⁵ the more congested the network, the higher a telecom operator could charge the service provider and, as a result, there would be no incentives to invest in order to relieve network congestion. Cheng, Bandyopadhyay and Guo (2010)¹⁶ show that the incentives for broadband providers to increase their network capacity are greater within a context where they do not charge service providers on the net. Greater capacity leads to less congestion and more valued Internet services, which translates into greater activity in the content provider ecosystem.
- 4.9 Indeed, Economides (2011a)¹⁷ makes a strong argument against allowing telecom operators to charge content providers on the net. According to him, their pricing strategy will never achieve the true value of the network for they will never consider the impact on the content users and, hence, through the indirect network effects on the content providers. The virtuous cycle of content users leading to more content providers which, in turn, increases the demand for more content will be destroyed. In the Indian context this would be very bad as it will negatively affect the explosion of innovation and content in the OTT space.

¹⁵ Economides, N. (2011a), Why Imposing New Tolls on Third-Party Content and Applications Threatens Innovation and Will Not Improve Broadband Providers' Investment in *Net Neutrality: Contributions to the Debate*, (ed.) J P Martinez, Fundación Telefónica. 86-103.

¹⁶ Cheng, Hsing Kenneth, Subhajyoti Bandyopadhyay, Hong Guo, (2011) The Debate on Net Neutrality: A Policy Perspective, *Information Systems Research*, 22(1), 60-82; <https://doi.org/10.1287/isre.1090.0257>

¹⁷See footnote 15

4.10 Economics literature on net neutrality is also closely related to this literature. Economides and Tåg (2012)¹⁸ argues that allowing telecom operators to charge OTT service providers is the same as abolishing network neutrality. Cheng, Bandyopadhyay and Guo (2011)¹⁹ looked specifically at the question of whether the broadband service providers will find it optimal to increase their capacity if net neutrality is abolished. The paper demonstrates that (under most plausible parametric conditions) the optimal capacity maintained under net neutrality is higher than under no net neutrality.

5. Conclusion

In this note we considered two issues raised by the TSPs: licensing (by DOT) of OTT services and sharing OTT revenues with telecom companies. In section 2 we argued why licensing by DOT of OTT services is a specious argument bereft of substance. In sections 3 and 4 we argued that allowing TSPs to charge OTTs, every time a (telecom) customer connects to the OTT service through the telephone, is a bad idea for two reasons. First, it adversely affects the growth of new OTT innovations. This, in turn, slows down India's start-up activities. Second, the claim by TSPs that this will enable them to improve and expand their infrastructure is not correct. If anything, it will result in less carrying capacity simply because congestion charges can only be levied when there *is* congestion.

¹⁸ N. Economides and J. Tåg (2012), Network neutrality on the Internet: A two-sided market analysis, *Information Economics and Policy*, 24, 91–104

¹⁹ See full reference in footnote 6