

Before the Telecom Regulatory Authority of India
Comments of the Center for Democracy & Technology
on the
Consultation for the Regulatory Framework for Over-The-Top Communication Services
January 7, 2019

The Center for Democracy & Technology (CDT) thanks the TRAI for the opportunity to provide comments on the regulatory framework for over-the-top communication services. CDT is a non-profit advocacy organization working to preserve the internet as a forum for free expression and a robust marketplace for beneficial services. CDT participated in the TRAI's previous consultations on differential pricing and net neutrality and appreciates the TRAI's careful and deliberate consideration of the various aspects of policy associated with the regulatory landscape in India.

As network usage has expanded beyond single-purpose communications to allow the development of thousands of applications and services that rely on the ability to transmit data across those networks, including new formats for communication, the market for communication services has significantly changed. Telecommunication Service Providers (TSPs), once the only providers of communication services, now face competition in the market for those services, notably from applications and services that send communications "Over-The-Top" (OTT) of existing telecommunications infrastructure. However, TSPs remain the only providers of the network transmission services all such communication services require. In CDT's view, this does not necessarily call for an extension of regulatory obligations for over-the-top communication services, but may result in some restructuring of the traditional TSP business model.

In any case, it is appropriate to reassess the relationships between TSPs and OTT providers, as the TRAI and DoT have done through the net neutrality consultation series, and also to address the regulatory environment in which various providers of communication services operate. In addition, CDT discusses some issues for further consideration and offers a slightly different framing the TRAI might use when considering the relationships among various providers of communication services. CDT is aware that India's social and cultural attributes may call for a unique framework, but urges the TRAI to carefully consider the long-term implications of extending any new obligations to providers of OTT communication services, especially with regard to the risk of inhibiting an otherwise robustly competitive market for such services and the potentially detrimental effects that chilling this market may create for the overall health of India's network-reliant economy. CDT respectfully offers the following comments in response to the TRAI's questions:

Q. 1. Which service(s) when provided by the OTT service provider(s) should be regarded as the same or similar to service(s) being provided by the TSPs. Please list all such OTT services with descriptions comparing it with services being provided by TSPs.

CDT agrees with the GSMA that regulation should be based on the functionality of services.¹ Therefore, to follow the TRAI's proposal to identify services that are the "same or similar" to services provided by TSPs, it is necessary to first list and describe the functionality of services TSPs provide. For the purpose of this consultation, CDT proposes that TSPs provide, at the highest level of abstraction, two basic services: communication services and transmission services.² The communication services allow people to speak or exchange written messages with one or more other persons, while the transmission services carry the information necessary to send those communications across networks. Of those, only the communication services are relevant to this consultation because non-TSP OTT services do not provide for the information transport necessary to support them. Therefore, the relevant TSP services include voice and text based communications, but not the transmission and network operation functions TSPs perform to support those services. Put more simply, and to slightly rephrase the TRAI's wording, the scope of services addressed here should include only OTT services that are the same as or similar to *the OTT communication services currently provided by TSPs*.

As the TRAI has recognized, many OTT services include more than one feature, many of which are unrelated to traditional communication services.³ In some cases, the communications feature of an OTT service package might be a relatively small (or even unused) part of the overall service.⁴ But following the approach of some EU jurisdictions (as mentioned in the consultation) to categorize services according to the relative dominance of the communication aspect of a mixed service could create unintended consequences.

First, the EU approach may create an incentive for providers of mixed OTT services to avoid regulation by shifting the relative dominance of the communication features built into their platforms. Additionally, changes to the service, such as compliance with an interception obligation or disabling encryption, could push users toward the platforms offering "ancillary," unregulated communication features, reducing the effect of regulation or requiring the TRAI to continuously adjust the list of relevant services. Likewise, under the TRAI's proposed approach, any attempt to exhaustively list all OTT services that are the same as or similar to TSP services likely will result in a collection that is both under- and over-inclusive of the TRAI's desired scope as TSPs' service offerings change or new

¹ 2018 OTT Consultation at 5.1.3, pg. 33, citing GSMA "A new regulatory framework for the digital ecosystem" (2016), available at https://www.gsma.com/publicpolicy/wp-content/uploads/2016/09/GSMA2016_Report_NewRegulatoryFrameworkForTheDigitalEcosystem_English.pdf.

² CDT understands that TSPs provide other services, such as DNS, to support these two basic service categories.

³ 2018 OTT Consultation at 2.2.8, pg. 8.

⁴ 2018 OTT Consultation at 2.2.8, pg. 9.

communication-enabling services emerge. In summary, identifying services by name or classifying services based on their relationship to other, out-of-scope services sets the TRAI up for a game of regulatory cat-and-mouse, requiring constant reassessment of services subject to regulation.

As an alternative, CDT favors an approach based on specific features, either of the service or the providers, that call for regulatory attention. For instance, rather than listing individual OTT services, the TRAI could consider describing in more detail the communication services currently provided by TSPs, both in terms of the functions they provide and the reasons for regulating them, before looking for analogs in the services offered by other OTT providers. To be fair to both TSPs and OTT providers, however, the network transmission element of those services must be isolated since only TSPs provide such transmission services to consumers. Based on these descriptions, the TRAI could then evaluate the extent to which OTT services provide the same functions. As discussed in more depth below, the TRAI might also consider whether, based on the services described and the functions they provide, regulation of those services is necessary when viewed as conceptually separate from the functions of network operation and the competition- and reliance-related concerns associated with network ownership. As discussed in more detail in response to Q.3, Q.5, Q.7, and Q.8, CDT suggests that under this approach, few, if any, regulations need apply to OTT communication services.

Q. 2. Should substitutability be treated as the primary criterion for comparison of regulatory or licensing norms applicable to TSPs and OTT service providers? Please suggest factors or aspects, with justification, which should be considered to identify and discover the extent of substitutability.

CDT is concerned that using substitutability, with regard to OTT-provided communication services relation to TSPs' traditional communication services, as a primary criterion for comparison of services potentially subject to regulatory or licensing norms presents the risk of conflating the regulatory purposes of obligations imposed on TSPs in their role as network operators or as service providers in a traditionally non-competitive market with those that serve other purposes. Using substitutability as the primary criterion also risks creating a different kind of regulatory imbalance between OTT communication services that are currently seen as substitutes for TSPs' services and those that offer similar functionality but are not viewed as substitutes. For instance, the communications feature of an OTT platform offering other capabilities may not currently have a large enough user base to act as a substitute for a TSP's service, but regulatory pressure on other, communications-centric OTT services may push users toward the unregulated options. As discussed in response to Q.1, this game of regulatory cat-and-mouse could create administrative burdens for the TRAI, uncertainty for OTT providers, and may result in less effective consumer protections.

As suggested in response to Q.1, a better starting point would be to consider whether there are any aspects of OTT communication services that require regulatory restrictions or obligations. In light of the

DoT Commission's findings regarding OTT services, the TRAI may also wish to consider how imposing restrictions or obligations could affect the ability of service providers to continue offering the service or affect the potential for new providers or services to enter the market.⁵ CDT supports reasonable consumer protection regulations when applied equally and with an understanding of their ramifications. However, CDT does not consider the preservation of TSPs' legacy business models, with respect to their communication services, to be a valid need for regulatory action.⁶

Should the TRAI find a need for extending restrictions or obligations to OTT communication services that is not outweighed by the impact of such regulation on the overall market for those services, it could then apply the same regulatory approach to all relevant OTT communication services, regardless of whether they are offered by a TSP or another service provider.

Q. 3. Whether regulatory or licensing imbalance is impacting infusion of investments in the telecom networks especially required from time to time for network capacity expansions and technology upgradations? If yes, how OTT service providers may participate in infusing investment in the telecom networks? Please justify your answer with reasons.

Based on evidence cited in this consultation, it appears that, despite facing additional competition in the market for communication services, TSPs remain financially healthy.⁷ Moreover, there appears to be sufficient potential for growth in the market for data transmission to encourage both new market entrants as well as continued investment by incumbent providers.⁸ Given the current rate of network connectivity subscription in India, there remains a substantial percentage of the population who might become TSP data customers, if not customers for TSPs' communication services as well.⁹ CDT suggests that the "virtuous cycle" created by an increased demand for OTT services, both communication and otherwise, will continue to spur network investment, both in terms of building network capacity to meet the increased demands for data transmission and in terms of extending networks to connect new customers. Accordingly, OTT service providers participate in infusing investment in telecom networks by creating and offering new OTT services, which drive up TSPs' customers' demand for data transport and adds to the incentive for new customers to purchase internet access.

⁵ India Department of Telecommunications Committee Report on Net Neutrality (May 2015), pg. 86.

⁶ CDT discusses this prospect further in response to Q.7.

⁷ 2018 OTT Consultation at 3.1, pg. 11; 3.3, pg. 13-16.

⁸ See, e.g. Pankaj Doval, Reliance Jio crosses 100 million users within 6 months, Times of India, (Feb. 22, 2017) <https://timesofindia.indiatimes.com/business/india-business/reliance-jio-crosses-100-million-users-in-under-6-months/articleshow/57263052.cms>; see also, Internet users in India to double by 2021, YourStory (June 9, 2017) <https://yourstory.com/2017/06/india-internet-users-report/>

⁹ See Internet usage in India - Statistics and Facts, Statista, <https://www.statista.com/topics/2157/internet-usage-in-india/>; see also 2018 OTT Consultation at 3.3.2, pg. 14.

With regard to any perceived regulatory or licensing imbalance between TSPs and providers of OTT communication services, CDT once again suggests that this perception is best assessed by considering the TSPs' communication services separately from their data transmission and network operation roles. In CDT's understanding, and based on information referenced in this consultation, TSPs are free to offer internet telephony services in the same unrestricted manner as other providers of OTT communication services.¹⁰ With regard to TSPs' traditional communication services, namely circuit-switched telephony, CDT posits that the bulk of regulatory and licensing obligations imposed on TSPs derive from a time in which networks were deployed and operated solely to provide that service, with the attendant concerns about ensuring the reliability of a privately-owned utility, protecting consumers from anti-competitive practices, and efficient spectrum allocation. Such obligations include those related to entry and exit from a TSP license, quality of service, network interconnection, billing and metering, emergency services, and spectrum fees. While it is clear that those concerns are still relevant with respect to the networks and their operation, it is less clear that a competitive market for OTT communication services requires the same degree of government oversight or control.

CDT cautions that restricting the market for OTT services with the intent to "level the field" for TSPs might produce a net decrease in the demand for communication services. That is, regulations having the effect of making OTT offerings more expensive for consumers or harder to produce could decrease the demand for both the OTT service *and* the underlying TSP connection. While this might push some customers toward TSP communication services, it may also reduce the overall value an internet connection and, consequently, of TSPs' data services resulting in a decreased demand for them. If the TRAI finds that a regulatory or licensing imbalance exists and decides to take action to remedy the imbalance, the TRAI should consider whether the public is better served by adding regulatory obligations to OTT providers, reducing regulatory obligations for TSPs' communication services, or a mix of both.

Given that the rise of OTT communication services has produced a more competitive market, CDT urges caution with regard to any new obligations for OTT providers that might either favor well-established incumbents or hinder market entry for Indian companies wishing to offer OTT communications. Our comments will address this concern in more detail in the context of Q.5, below, but the basic proposition is this: imposing obligations or service requirements aimed at controlling the practices of the largest, entrenched service providers often creates unintended consequences such as barriers to entry and growth for smaller and emerging providers who are less able to absorb the costs of compliance.

Furthermore, in CDT's experience, telecommunication providers' claims about their own investment incentives are not a reliable metric on which to base policy decisions. For instance, in the context of net neutrality in the United States, TSPs have made, and continue to make, conflicting claims about how

¹⁰ 2018 OTT Consultation at 3.2.4, pg. 12-13.

regulatory policies impact their investment strategies.¹¹ With the net neutrality consultations and the resulting licensing obligations for TSPs, the TRAI has already taken the first steps toward ensuring that all OTT players enjoy equal opportunity to succeed despite TSPs' incentives to leverage their control over data transport to favor some OTT providers over others. CDT posits that TSPs' own OTT offerings already enjoy equal treatment and protection in this regard.

More broadly, a regulatory approach that encourages TSPs to offer OTT services will help to strengthen their incentives to continue investing in network infrastructure. However, an increased presence by TSPs in the OTT market also increases the importance of both a strict regulatory and structural separation between TSPs' various service divisions as well as the non-discrimination protections put in place through the net neutrality proceeding.

Q. 4. Would interoperability among OTT services and also interoperability of their services with TSPs services promote competition and benefit the users? What measures may be taken, if any, to promote such competition? Please justify your answer with reasons.

As a general matter, CDT shares the TRAI's concerns with network effects and the related potential for customer lock-in. However, CDT notes that, with respect to most OTT communication services accessed via smartphone, the costs of switching are relatively low.¹² Many OTT communication services are free to use and it is easy to have more than one application on many mobile devices.¹³ Therefore, CDT is less concerned about the implications of network effects and the potential for lock-in for OTT services. Although an interoperability mandate could offer benefits in terms of reducing the power of network effects, CDT suggests that the potential benefits are outweighed by the costs of such a mandate.¹⁴

¹¹ See Jon Brodtkin, AT&T/Verizon misunderstands arrow of time, makes impossible claim, Ars Technica (Dec. 6, 2018) <https://arstechnica.com/tech-policy/2018/12/attverizon-lobby-misunderstands-arrow-of-time-makes-impossible-claim/>; Jon Brodtkin, Title II hasn't hurt network investment, according to the ISPs themselves, Ars Technica (May 16, 2017) <https://arstechnica.com/information-technology/2017/05/title-ii-hasnt-hurt-network-investment-according-to-the-isps-themselves/>.

¹² CDT understands that many Indians may access OTT communication services via feature phones, which may only offer access to a single OTT communication service. For those users, the switching costs are substantially higher.

¹³ As acknowledged in the previous note, CDT understands that feature phones may limit users' access to multiple OTT communication options. However, smartphone adoption continues to grow in India. See "India set to have 530 million smartphone users in 2018: Study", The Indian Express (Oct. 16, 2017) <https://indianexpress.com/article/technology/india-set-to-have-530-million-smartphone-users-in-2018-study-4893159/>. CDT expects that switching cost will drop more quickly than interoperability could be achieved.

¹⁴ As a separate point, CDT suspects that the first OTT communication provider to support the ability to place and receive calls to and from competing OTT services likely would gain a larger customer base due to the convenience offered by not having to switch between apps.

For instance, although interoperable services may offer enhanced choices for consumers, implementing the necessary technical standards to achieve interoperability across a diverse array of communication services would be time- and resource-intensive for all relevant providers. In addition, mandating interoperability poses a risk of limiting the development of new services and the security of existing services by constraining developers to a narrow set of technical standards.

In addition to the practical concerns about implementing interoperability mandates, the prospect raises difficult questions about how to support encryption across different services and which party should be responsible for providing law enforcement access. Further, CDT notes that an interoperability mandate would not necessarily reduce an entity's market dominance nor would it necessarily produce more favorable conditions for TSPs' offerings to compete with OTT services.

Q. 5. Are there issues related to lawful interception of OTT communication that are required to be resolved in the interest of national security or any other safeguards that need to be instituted? Should the responsibilities of OTT service providers and TSPs be separated? Please provide suggestions with justifications.

CDT suggests that the responsibilities for TSPs and OTTs should be very different with respect to communications interception. TSP requirements to perform interception of telephonic communications – often referred to as “wire-tapping” – originated in a time where a small number of service providers offered access to those services through a small number of switches. However, with OTT services, there are an increasing number of providers offering services through a wide variety of access mechanisms, all over a simple internet data connection or using web technologies like WebRTC, which allows high-definition video and audio calling between web browsers but requires no third-party software and no physical network capable of interconnecting with India's Central Monitoring System (CMS).

In a traditional interception setting, a TSP must purchase network equipment with intercept capability and the TSP performs the wiretap on behalf of law enforcement. In the United States, these TSPs have strict procedures that allow trusted and carefully-supervised employees to perform the intercept and they maintain a level of security designed to detect any unauthorized or illegitimate use of the intercept functionality.¹⁵ Under India's new licensing obligations relating to the Central Monitoring System, TSPs are obliged to interconnect their networks with the system to allow authorities to access and intercept data in a more centralized fashion. While CDT shares the Center for Internet and Society's concerns about the centralization and automation of this system, as well as concerns about the procedural

¹⁵ See, generally, U.S. Department of Justice, “Electronic Surveillance Manual, Procedures and Case Law” (2005) available at <https://www.justice.gov/sites/default/files/criminal/legacy/2014/10/29/elec-sur-manual.pdf>.

safeguards for accessing the system, those concerns are amplified in the context of OTT communication services.¹⁶

For example, because OTT providers themselves cannot interconnect with the CMS, providers of encrypted OTT communication services must do one of the following: 1) design the intercept functionality into its software so that it controls when it is used and decide on a case-by-case basis which requests it receives are legitimate law enforcement requests; or, 2) provide the government with a mechanism it can use to access and decrypt communications and allow the government to decide when and where to use it, without any oversight from the OTT. Both of these “backdoor” options for interception and decryption carry significant burdens and risks to both the OTT and the users of their services.

For the first option, the OTT provider (who may lack expertise in secure communications) must first design an intercept functionality into the software. This creates a risk that the intercept functionality will be insecure and vulnerable to unauthorized use. Additionally, the OTT provider must develop and implement a full-time legal compliance program to respond to requests. Further, because the OTT provider also runs the risk that a rogue or disgruntled employee may use the functionality illicitly, they will need to implement a systematic security program to detect any unauthorized intercepts. Beyond the security concerns, these additional burdens will tend to chill the ability of small and mid-sized entities to offer competing services while favoring the larger, well-established providers.

The second option, providing to governments the capability to directly eavesdrop on users’ communications, is much worse. Given the wide variety of government entities that may request intercept capability over a given OTT product, this would mean that any employee of these agencies would have the ability to eavesdrop on all of the OTT users’ communications without any cooperation or audit capability of the OTT provider or the TSP’s network on which the OTT service is running. Since many of these OTT products operate in the global market, there will be intense pressure to provide access to many other governments once it has been allowed for one government, potentially opening up very different adversarial interests with the OTT users left hanging in the balance and likely not trusting the underlying service at all.

To make it even more complicated, it will be difficult or impossible to stop OTT service providers from operating services that are not compliant with intercept requirements. Many of the basic components that OTT providers use to build low-cost secure communications tools are open source software, with one OTT provider, Whisper Systems’ Signal app, even going as far as to say, “Everything we do is open-source and anyone is free to verify or examine the code for each release,” meaning any intercept

¹⁶ Maria Xynou, “India’s Central Monitoring System (CMS): Something to worry about?” Centre for Internet & Society (Jan. 30, 2014)

<https://cis-india.org/internet-governance/blog/india-central-monitoring-system-something-to-worry-about>

functionality would be quickly identified in the code by observers with access to the public code repository. These observers could easily release versions of the software where intercept functionality is removed.¹⁷

Q. 6. Should there be provisions for emergency services to be made accessible via OTT platforms at par with the requirements prescribed for telecom service providers? Please provide suggestions with justification.

CDT offers no comment on Q.6.

Q. 7. Is there an issue of non-level playing field between OTT providers and TSPs providing same or similar services? In case the answer is yes, should any regulatory or licensing norms be made applicable to OTT service providers to make it a level playing field? List all such regulation(s) and license(s), with justifications.

Before the rise of the internet and the possibility of using a telecommunications network for purposes other than supporting the communication services offered by TSPs, TSPs constructed their networks as a necessary initial investment in the business of offering telephone service.¹⁸ Revenue earned from providing communication services was the only way to recoup the costs of network deployment. Under those circumstances, it was desirable to ensure that TSPs could retain enough customers at a given price point to recoup their investments and encourage further investments in deployment and capacity.

Now, as the TRAI acknowledges, networks carry data for many OTT services and applications, including some that can be used in place of TSPs' traditional communication services.¹⁹ However, as the TRAI is aware, TSPs have already adjusted their business models and billing practices to reflect the change in their roles from that of communication service provider to (primarily) that of a data transmission provider.²⁰ Now, TSPs need not rely solely on revenue from telephone service, but can instead derive income from data customer subscriptions. Under this new paradigm, the value and importance of revenue from TSPs' communication services has decreased, but has been replaced by revenue from data services. Under the old model, the price of TSPs' communication services likely were significantly higher than the costs of providing the service because of the need to recoup the investment in network infrastructure.

¹⁷ See Catalin Cimpanu, "Signal: We can't include a backdoor in our app for the Australian government" ZDNet (Dec. 14, 2018) also quoting Signal developer, Joshua Lund, "the end-to-end encrypted contents of every message and voice/video call are protected by keys that are entirely inaccessible to us." <https://www.zdnet.com/article/signal-we-cant-include-a-backdoor-in-our-app-for-the-australian-government/>.

¹⁸ TRAI Consultation Paper on Regulatory Framework for Over-The-Top Services, at 2.3.4, pg. 25 (Feb. 2015) (2015 OTT Consultation)

¹⁹ See, generally, 2018 OTT Consultation.

²⁰ 2018 OTT Consultation at 3.3.1, pg. 14.

Under the new model, the price of communication services has dropped to near zero. This may be due to the low marginal cost of providing these services, the increased competition from OTT providers, or a mix of these and other factors. From the perspective of TSPs, it may seem like providers of OTT communication services are subject to fewer regulatory restrictions, obligations, and fees, resulting in an unequal competitive landscape, but that perspective overlooks the dual roles played by TSPs.

To the extent that any such restrictions, obligations, or fees are assessed based on an approach that treats TSPs as offering a single service (a combination of the communication and data transmission services discussed above), then perhaps some regulatory inequality could be addressed through a functional separation of TSP obligations, as discussed in response to Q.1 and Q.3. This separation allows a clearer assessment of the need for regulation of communication services as stand-alone offerings and divorces those services from regulations aimed at network operation and the anti-competitive practices inherent to monopoly positions. CDT is aware that this approach may suggest a reduced set of obligations and restrictions for the communication services provided by TSPs, but views that as a better approach than adding regulations to OTT providers to match the obligations currently applied to TSPs, especially where those obligations stem from a TSP's role as a network operator.²¹

In general, CDT agrees with the DoT Committee's recommendations that OTT services should be actively encouraged.²² At least in some ways, the TRAI appears to have already adopted a de-regulatory approach to encourage new OTT services; section 3.2.4 references a change in the TSP license agreement allowing TSPs to provide internet telephony on the condition that such service be untethered from the underlying network. This allows TSPs to compete on equal terms with other OTT communication providers while preventing them from leveraging their position as network operators to "lock" customers to their own networks. Furthermore, a TSP's internet telephony service enjoys the same non-discrimination protections the net neutrality provisions provide to all OTT services, preventing other TSPs from disfavoring the associated data traffic.

Given the multiple roles TSPs may play, and the various regulatory regimes to which they may be subject, it may be necessary to require TSPs to create structural divisions between their network operation and OTT service provision branches. This separation will help to ensure the regulatory distinctions between the two kinds of service, in terms of both the net neutrality provisions of TSP licenses and any obligations imposed on OTT service providers.

²¹ Many of the restrictions, obligations, and fees cited by TSPs in the 2015 OTT consultation do just that, including interconnection, spectrum fees, and quality of service. 2015 OTT Consultation, Table 3.1, pg. 43.

²² 2018 OTT Consultation at 3.3.6, pg. 16.

Q. 8. In case, any regulation or licensing condition is suggested to made applicable to OTT service providers in response to Q.7 then whether such regulations or licensing conditions are required to be reviewed or redefined in context of OTT services or these may be applicable in the present form itself? If review or redefinition is suggested then propose or suggest the changes needed with justifications.

CDT does not suggest that any of the following licensing conditions or regulatory obligations should be made applicable to OTT service providers, and therefore declines to offer suggestions as to how they may be redefined for the OTT context. However, CDT will briefly discuss its views on the purposes of these conditions and obligations and illustrate some of the questions and difficulties arising from their potential application to OTT services.

Lawful Interception - This condition speaks to network management obligations, including monitoring and ensuring connectivity, that seem applicable only to network operators. Application to OTT providers would be redundant because the TSPs are already required to comply with this condition. If the purpose of this condition is to ensure law enforcement access to network traffic, it is unclear why additional interception points or monitoring beyond that performed by the TSP is necessary. To the extent this condition either precludes traffic encryption or requires the ability to decrypt network traffic, CDT opposes its application to any party. See above response to Q.5 for further discussion.

Privacy & Security - This condition seems to be in conflict with itself, even as applied to TSPs. Encryption is the most secure way to ensure the privacy of communications, yet this condition restricts licensees from employing “bulk encryption equipment.” This license condition should NOT be applied to OTTs because it would seem to prevent end-to-end encryption. Alternatively, if encryption is acceptable, then the “lawful interception” condition, above, would seem to require a “backdoor” for the decryption and interception of traffic, but backdoors are inherently vulnerable points, seemingly in conflict with the condition’s mandate to ensure network security. Please see our response to Q.5 for a more detailed discussion.

Roll-out obligations - This condition seems applicable only to network operators for the purpose of ensuring accountability for deployment of network infrastructure or the development of increased network capacity. CDT views this condition as a necessary accountability mechanism where licensees either use a limited public resource, such as spectrum, or receive government funding conditioned on deployment. It is unclear why or how this might apply to providers of OTT communication services.

Identification of callers - This condition seems to require TSPs to ensure that the numbers they assign to subscribers remain correctly associated with them so that no one can assume the telephonic identity of another. If this condition requires only an authentication mechanism to prevent misidentification or impersonation of phone numbers, or their equivalent, then perhaps its application to OTT communication service providers is appropriate. However, if this condition requires further

authentication, such as verifying a subscriber's actual identity and ensuring that only that subscriber is associated with the service's equivalent of calling line information, then this raises significant concerns. CDT discusses some of those concerns in regards to the customer acquisition form, below.

Customer Acquisition Form - CDT would be curious to learn more about the purpose of this condition before commenting on its application in the OTT context. However, to the extent that requiring the verification of subscribers developed from a need to create a public index of subscribers and their contact information, such as a telephone directory, CDT suggests that no such need exists for OTT communication services because such services no longer require a mental association of a network identifier, such as phone numbers, with a person. Furthermore, it is not necessarily desirable, from the users' perspective, to enable any other user to identify or contact them, because this ability increases the likelihood of unsolicited communications.

If this condition is intended to reduce fraudulent activity, CDT suggests it serves limited value because subscriber identification does little to deter fraud, but may present a barrier to people without the necessary documentation. In addition to providing uncertain value, this condition would also pose significant implementation problems for services designed to allow pseudonymous or anonymous communications. For instance, some online word processing services allow users to send text messages via the shared document, even for people with permission to access the document but who do not have an account with the service provider. This condition would seem to require providers to disable this feature, at a minimum, and also collect significantly more information about users for account creation. CDT acknowledges that this condition may serve additional or other purposes, but suggests that its application to OTT communication services would pose greater burdens to providers and users than whatever value it may return.

Customer Grievance Redressal - This condition appears to provide enhanced accountability for service providers who may be either unresponsive due to lack of competition or who provide a crucial service on which many people rely. In that regard, it seems to be more applicable to TSPs in their role as network operators. However, CDT sees no major problems with its application to providers of OTT communication services except that, the compliance costs associated with this obligation likely will be passed on to users, either through billing or more aggressive forms of data monetization and advertising.

Network Interconnection - Network interconnection requirements seem applicable only to network operators. It is therefore unclear how this condition might be made applicable to providers of OTT communication services other than those who also operate networks.

Merger conditions - Although this condition seems intended to protect consumers and market competition from a tendency toward consolidation by network operators, CDT sees no problems with its

application to providers of OTT communication services, especially when mergers amount to a vertical integration of a TSP and an OTT provider.

Emergency Services - CDT takes no position on this condition from a policy perspective, but notes uncertainty about how this obligation might be implemented by diverse OTT services.

Entry/Exit obligations - Discounting the provisions related to spectrum allocation limits, which are not applicable to OTT providers, these obligations seem intended to protect consumers from unexpected service changes or termination due to a TSP's change in license status and to ensure stability of the communication service. These obligations seem far more important in the context of a market served by only one or two service providers since consumers would have fewer choices to fall back on should one provider cease to offer service. The market for OTT communication services, however, offers many options. This diversity of choice reduces the impact of any single provider's decision to enter or exit the market, potentially making the entry/exit obligations unnecessary for OTT providers.

Regulatory Obligations

Requirements under the Telegraph Act -

Interception: Although the wording of the requirements may need modification to be applicable to OTT communication service providers, CDT supports a requirement to prevent unauthorized interception of messages. Any such requirement should reflect the limits of OTT providers' technical control of messages as they cross networks and should not imply that OTT providers have responsibility for the physical or cyber-security of communication networks they do not operate. However, as discussed above and in response to Q.5, CDT does not support extending to OTT providers an obligation to provide access and decryption functions.

Universal service obligations: CDT acknowledges that both TSPs and OTT providers benefit from further network deployment and adoption, but offers no comment with regard to extending universal service fund obligations to OTT providers.

Requirements under TRAI's regulations - As a general matter, CDT views the regulatory obligations related to interconnection, quality of service, and number portability as relevant only to TSPs. However, to the extent that the interconnection obligations could be made to require OTT providers to pay TSPs for data transport, CDT notes the likely significant increase in the need for regulatory oversight of those transactions, especially with regard to discriminatory billing practices by TSPs against competing OTT services.

Of the remaining obligations, CDT sees no problems with the application of the provisions related to billing, metering, and tariff protection to providers of OTT communication services and has already discussed the issues associated with requiring a grievance redress mechanism for OTT providers.²³

As for unsolicited customer communications, CDT recognizes the public interest in preventing or disincentivizing unsolicited communications. However, that interest should be weighed against the compliance costs associated with any regulatory requirements. To that end, CDT suggests that, if the TRAI determines some regulatory intervention is necessary, the TRAI consider an approach that does not overly burden new market entrants. CDT also notes that many OTT communication services allow users to block unwanted communications via controls within the application.²⁴

Respectfully,

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²³ See discussion above in relation to the grievance redress conditions currently imposed through TSP licenses.

²⁴ See, e.g., Whatsapp, Blocking and unblocking contacts,
<https://faq.whatsapp.com/en/android/21080506/?category=5245250>