



Telecom Regulatory Authority of India



Recommendations

On

Net Neutrality

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Chapter-1 Introduction

- 1.1 In the last few decades, the Internet has emerged as an important resource for innovation and economic growth and as a medium to support information exchange within and across borders. It has attained a size unrivalled by any other network by several orders of magnitude. The Internet has come to be created by the cooperative efforts of several stakeholders, but is controlled in its entirety by none.
- 1.2 The future growth of telecom sector and of other access networks is contingent upon innovation in and growth of the Internet infrastructure and the many applications, content and services linked to it. However, increasingly, concerns have been raised globally as well as in India relating to the potential for discriminatory treatment of Internet traffic by the entities that control access to the Internet. These concerns regarding non-discriminatory access have become the centre of a global policy debate, often referred to as the debate on “network or net neutrality”.
- 1.3 In the Indian context as well, there have been multiple consultations on the issue of net neutrality and related aspects. The following timeline mentions the various initiatives taken by the Telecom Regulatory Authority of India (TRAI or Authority) as well as the Department of Telecommunications (DoT) on the subject:

Date	Initiative
19 th Jan 2015	Committee established by DoT to provide recommendations on net neutrality.
27 th Mar 2015	TRAI's consultation paper on regulatory framework for over-the-top (OTT) services.
May 2015	Release of DoT committee report on net neutrality.
9 th Dec 2015	TRAI's consultation paper on differential pricing for data services.
8 th Feb 2016	TRAI's regulation on prohibition of discriminatory tariffs for data services.
3 rd Mar 2016	DoT sought TRAI's recommendations on net neutrality.
19 th May 2016	TRAI's consultation paper on free data.

30 th May 2016	TRAI's pre-consultation on net neutrality.
19 th Dec 2016	TRAI's recommendations on provisioning of free data.
4 th Jan 2017	TRAI's consultation paper on net neutrality.

- 1.4 As noted in the table above, the DoT, vide a letter dated March 3, 2016 (Annexure-I), requested TRAI to provide its recommendations on the subject of net neutrality, in accordance with the provisions of Section 11(1)(a) of the TRAI Act, 1997. This was preceded by the constitution of a Committee on Net Neutrality by the DoT (Refer Annexure-II for Summary of recommendations of DoT Committee on Net Neutrality), which submitted its recommendations in May 2015.¹ The committee recommended that all licenced telecom service providers (TSPs) providing Internet services in India should be bound to follow the “core principles” of net neutrality. They also suggested that legitimate traffic management practices may be allowed subject to the core principles. The general criteria proposed by the Committee against which such practices could be tested included - adequate disclosure to users about traffic management policies and tools to facilitate informed choices; and restrictions on (i) application-specific control within an “Internet traffic” class; (ii) practices like deep packet inspection for gaining unlawful access to the type and contents of an IP packet; and (iii) improper (paid or otherwise) prioritisation.
- 1.5 In its letter to TRAI, the DoT also made a reference to issues such as traffic management, economic security and privacy aspects of OTT services and other relevant standpoints covered in TRAI’s consultation paper dated March 27, 2015. This consultation paper had raised issues relating to the regulatory framework for OTT services and included questions on the principles of net neutrality, reasonableness of traffic management practices, non-price based discrimination of services and transparency requirements.

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DoT Committee Report, May 2015, available at http://www.dot.gov.in/sites/default/files/Net_Neutrality_Committee_report%20%281%29_0.pdf

- 1.6 Following the receipt of this letter, TRAI initiated a detailed consultation on issues relating to net neutrality. This included publication of a pre-consultation paper on May 30, 2016, aimed at identifying the key issues to help TRAI proceed in the matter. Following a review of the responses received from various stakeholders, TRAI issued a detailed consultation paper on January 4, 2017 that focused specifically on questions of requirements, design, scope and implementation of a net neutrality framework in India. This was done to enable a focused discussion on this subject without digressing into other areas, which although important, were not found to be central to the questions relating to net neutrality. This approach was also found to be in line with the spirit of the reference received from the DoT, seeking recommendations that would be relevant *“in arriving at final viewpoint on various aspects and nuances of net neutrality”*.
- 1.7 The consultation paper issued by the Authority on March 27, 2015 covered a broad range of issues ranging from OTT regulation to net neutrality to differential prices for data services. A number of key developments have taken place since the completion of that consultation process, some of which are also highlighted in the table above. In February, 2016, the Authority issued the Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016, following a detailed and widespread consultation process on that issue. The regulations restricted TSPs from directly or indirectly charging discriminatory prices to consumers based on the content, applications, services or any other data being used by them. As elaborated in the Explanatory Memorandum accompanying that regulation, the Authority’s decision was prompted by the view that that prohibition of discriminatory tariff for data services was necessary to ensure that service providers continued to fulfil their obligations in keeping the Internet open and non-discriminatory.
- 1.8 Several developments have also taken place in the sphere of privacy and security of user data, issues that were covered in detail in the March 27, 2015 consultation paper. These developments include the nine judge bench decision of the Hon’ble Supreme Court in Retd. Justice K S Puttaswamy v. Union of India (W.P. (Civil) No. 494 of 2012) which has affirmed that the right to privacy constitutes an intrinsic

part of the right to life and personal liberty under Article 21 and the freedoms guaranteed by Part III of the Constitution. The Supreme Court's judgment also refers to the committee constituted by the Union Government, under the chairmanship of Retd. Justice B N Srikrishna, to review the existing data protection norms in the country and make its recommendations on a draft data protection bill.

- 1.9 Further, it is well recognised that the evolving nature of technology in the digital age poses a variety of security and data privacy concerns. This is a complex issue which has implication for various stakeholders including TSPs, OTT service providers, devices, browsers, etc. In light of this, TRAI has, on August 9, 2017, initiated a consultation process on privacy, security and data ownership issues in the telecom sector. TRAI will analyse and deliberate over the submissions that have been received through this process before determining its recommendations on the subject.
- 1.10 While issuing the consultation paper on net neutrality on January 4, 2017 the Authority chose to focus only on the core areas of net neutrality. This was done to allow for a more focused discussion on the subject and prevent digressions into other areas, which although important, were not central to the determination of the specific issues of net neutrality. With this in focus, TRAI conducted an extensive consultation process on net neutrality on which 61 comments and 8 counter comments were received from a variety of stakeholders followed by three open house discussions (in Mumbai, Bangalore and Delhi). This process sought inputs not only on the questions highlighted in the OTT consultation paper, i.e. principles of net neutrality, scope for reasonable traffic management and transparency, but also delved deeper into the monitoring and enforcement questions that would be key to any regulatory action. (As mentioned before, this was preceded by a consultation paper on net neutrality that was issued by the Authority on May 30, 2016.)
- 1.11 Having completed its detailed, two-stage, consultation process, the Authority has considered the various points of view and formulated its recommendations on the subject. This document lays down the Authority's recommendations starting with a discussion in Chapter 2

on the principle of non-discriminatory treatment, which forms the underlying basis of the net neutrality debate. This is followed in Chapter 3 by a discussion on the applicability of this principle to different categories of services, drawing a distinction between “Internet Access Services” and other “specialised services” that currently exist or may evolve in the future.

1.12 Chapter 4 outlines the Authority's recommendations on reasonable traffic management practices identifying permitted exceptions. Chapter 5 lays down the supplementary requirements of a robust framework for transparency and disclosures. Chapter 6 provides a monitoring and enforcement framework to implement the recommendations on non-discrimination, reasonable traffic management and transparency. Finally, Chapter 7 ends with a summary of the recommendations made in all the previous sections.

1.13 While issuing these recommendations, the Authority has also decided to initiate a separate consultation process on questions relating to regulation of OTT service providers, including OTT communication services. This work will build on the information collected by the Authority in the prior consultations and include an investigation into questions relating to the potential market failures in that segment, the appropriate tools to address those failures and the costs and benefits of any possible regulatory interventions. Keeping in view the fast-evolving nature of the sector and the changes that have taken place in the regulatory and policy framework since March, 2015, the Authority finds that it would be useful to have a separate consultation process on these issues. However, the inputs that have already been received in response to the March 2015 consultation paper will also be considered while examining these issues.

Chapter-2 Principle of Non-Discriminatory Treatment of Content

A. The principle of non-discriminatory treatment:

- 2.1 The term “net neutrality” was coined to represent the idea that “a maximally useful public information network aspires to treat all content, sites and platforms equally”.² Over the past few years, this term has acquired a central place in many global debates on Internet policy and governance. Interestingly, most jurisdictions, including those that are said to have adopted a “net neutrality” framework, do not explicitly define the term in their policy or regulatory framework. Instead, they have tried to evolve appropriate principles of non-discrimination and neutral access in their respective contexts. In general, these principles try to encapsulate the idea that the providers of Internet access should seek to ensure equal or non-discriminatory treatment to all categories of content, application and services on the Internet, subject of course to the flexibility to carry out reasonable traffic management, which is necessary for the delivery of an acceptable level of quality of services.
- 2.2 Recognizing the significant variations in the context and requirements of different countries, the Authority also found that a one-size fits all approach could not be adopted. Accordingly, it was pertinent to begin with an examination of what would be the principle most suited in the Indian context. This context was defined in terms of the telecom regulatory and licensing framework in India; the state of Internet adoption, particularly of broadband services; the high share of wireless networks in the Internet services market and some specific challenges in the design and delivery of services through wireless networks. While these factors do not necessarily have a direct impact on the basic principles of non-discrimination that Internet service providers might be required to adhere to, they would have a bearing on the practical implications and enforcement of those requirements.
- 2.3 The basic design principles that have been instrumental to the

² Tim Wu, Network Neutrality FAQ, available at http://www.timwu.org/network_neutrality.html.

development of the Internet were noted by the Authority in the Explanatory Memorandum to the Prohibition of Discriminatory Tariff for Data Service Regulations, 2016. They are summarized below:

- a) *End-to-end design principle*: The end-to-end principle suggests that the “intelligence” in a network should be located at the ends of the system. The communications protocols themselves (the “pipes” through which the information flows) should be as simple and general as possible and should not interfere with the traffic flow.
- b) *Adoption of universal network protocols*: The use of open protocols developed collaboratively by users has enabled private networks to communicate with each other through standard packets and flow rate. This has led to the creation of the decentralized architecture of the Internet.
- c) *Transit and peering arrangements*: In the physical infrastructure enabling the Internet, service providers are connected with each other and with Internet backbone systems through a web of transit and peering arrangements.
- d) *Other governing principles*: Heterogeneity support principle; Robustness and adaptability principle among others.

2.4 Although the above-mentioned design features have been an essential part of the development of the Internet architecture, as technology evolves, some of these features are also undergoing a change. This is particularly true in case of the end-to-end principle. To address scalability requirements, the networks underlying the Internet architecture are also increasingly becoming more “context aware” and “intelligent”.

2.5 In case of context aware networks, it is no longer true that intelligence subsists solely at the edges of the network. Such networks can now dynamically adapt to the needs of the users, devices and applications. For instance, Information Centric Networking (ICN) presents an example of a context aware network that incorporates new design principles to facilitate scalable content distribution, mobility and security. These design features provide a flexible mechanism, with an

enhanced role of the TSPs, to realise intelligent and context aware control of content storage and delivery.

- 2.6 While the design and structure of networks continues to evolve, it is essential to recognise that the basic principle of non-discrimination continues to remain equally relevant, if not more. It is against this background that the Authority initiated its consultation process on the principles and practices relevant to the subject of net neutrality in the Indian context.

B. Consultation issues and responses

- 2.7 In the consultation paper on net neutrality released by TRAI in January 2017, a question was posed to stakeholders asking them to suggest principles for ensuring non-discriminatory access to content on the Internet, which would be most suited to the Indian context. This was coupled with a discussion on whether certain practices like blocking; slowing down or throttling; and preferential treatment of certain content over others, should be explicitly barred and how should these be defined.
- 2.8 Several stakeholders in their responses, including access providers, content providers, consumer organisations and consumers, etc., agreed that the users should be free to access, create and disseminate lawful content of their choice on the Internet. In addition, many respondents submitted that certain discriminatory practices by TSPs—like blocking, throttling and preferential treatment—should not be allowed. Others were of the view that the core principles should also incorporate the point that application specific discrimination would not be allowed; and that the access network would not be permitted to impose restriction on attachment of a device, if it does not harm the network.
- 2.9 Many stakeholders stated that “blocking” means “*restricting access to*” particular content, application, services or devices. Some others emphasised that making content “*effectively inaccessible*” also amounts to blocking. One TSP and an industry association were, however, of the view that such practices should be restricted only if

done in exchange for commercial considerations or pursuant to anti-competitive agreements.

- 2.10 To define the term “throttling”, many TSPs and a few others suggested that this should mean “*intentionally degrading quality of service*” when accessing particular content/services or applications. Others, however, proposed a broader scope covering any type of practice that slows down, alters, restricts, interferes with, degrades, discriminates, or otherwise unreasonably manipulates Internet traffic. Like in the case of blocking, there were some TSPs who proposed that any such actions should be restricted only if done in exchange for commercial considerations or for anti-competitive reasons. TSPs also highlighted that any fair usage policy (FUP) based throttling should be kept out of the preview of the definition.
- 2.11 “Preferential treatment”, which was the term used by the Authority in the consultation paper was defined by many as any practice of transmitting particular content and/or services available on the Internet at a higher priority than others. Some stakeholders, which included TSPs and others, suggested that only “paid prioritization”, the term used by the United States Federal Communications Commission (FCC) in their Open Internet Order, 2015, should be used instead. This refers to prioritization done in exchange for commercial considerations or through anti-competitive agreements either with a third party or otherwise. Others noted that the rule should outlaw preferential treatment based on content, applications or services within the same class of Internet traffic, unless governed by any QoS regulation.
- 2.12 The stakeholders invariably agreed that reasonable exceptions need to be created for deploying restrictions for congestion management, for blocking unlawful content, for maintaining security and integrity of the network, etc. These aspects are discussed further in the chapter relating to reasonable and permitted traffic management.

C. Position in some other jurisdictions

2.13 The suggestions received from stakeholders are broadly in line with the positions adopted in some of the other jurisdictions. Many stakeholders referred to the position under Article 3(3) of the EU Regulations,³ which requires that providers of Internet access services shall treat all traffic equally, when providing internet access services, without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment⁴ used. This is accompanied by a right under Article 3(1) allowing end-users to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the user's or provider's location or origin or destination of the information transmitted through the Internet access service.

2.14 The adoption of the EU Regulation has also led to corresponding legal and regulatory changes in European domestic laws. For instance, Norway, which was among the first few countries in Europe to establish a regulatory regime for net neutrality, has now adopted specific provisions on net neutrality in its Electronic Communications Act. Paragraph 2-16 of the Electronic Communications Act authorises introduction of regulations that provide rules on net neutrality, and contains the following definition: "net neutrality means that all Internet traffic should be treated equally, regardless of sender, recipient, equipment, application, service or content". Furthermore, paragraph 1-12 of the regulations states that EU Regulation 2015/2120 shall apply as a Norwegian regulation from 20 March 2017.⁵

2.15 Net neutrality has also been the subject of extensive debate in the United States for many years now. In 2015, the FCC's Open Internet Order classified Internet service providers (ISPs) as common carriers under Title II of the Communications Act. It also identified certain

³ Article 3, EU Regulation 2015/2120 of the European Parliament and of the Council of 25 November 2015.

⁴ Directive 2008/63/EC defines "terminal equipment" as "equipment directly or indirectly connected to the interface of a public telecommunication network".

⁵ NKOM, Net neutrality in Norway, Annual Report 2017, available at https://eng.nkom.no/topical-issues/news/attachment/29398?_ts=15d4ef8080c.

specific practices - blocking, throttling, and paid prioritization - that were found to invariably harm the open Internet and accordingly decided to ban each of them, for both fixed and mobile broadband Internet access services. In addition, the rules also included a “no unreasonable interference/ disadvantage” standard requiring that Internet access service providers shall not unreasonably interfere with or unreasonably disadvantage (i) end users’ ability to select, access, and use broadband Internet access service or the lawful Internet content, applications, services, or devices of their choice, or (ii) edge providers ability to make lawful content, applications, services, or devices available to end users. Reasonable network management is however not to be considered a violation of this rule.

2.16 Recently, the FCC revisited its position on net neutrality and initiated a roll back of the provisions of the Open Internet Order, 2015, including the bright-line rules relating to blocking, throttling and paid prioritization.⁶ Following a revised consultation process, the FCC has released a copy of its Declaratory Ruling, Report and Order through which it intends to return broadband Internet access service to its prior classification as an information service, and reinstate the private mobile service classification of mobile broadband Internet access service and eliminate the bright-line rules. Additionally, it will also modify the transparency rules laid down under the Open Internet Order, 2015 to “promote additional transparency, while eliminating burdensome and unnecessary requirements”. This issue will be voted upon at the next meeting of the FCC on December 14, 2017.

D. Recommendations on non-discrimination

2.17 In spirit, the idea that an Internet service provider should treat all content, sites and platforms equally is already encapsulated in the licensing terms and conditions applicable to service providers in India. For instance, Chapter IX, Clause 2.1(i) of the Unified License provides that “*The subscriber shall have unrestricted access to all the content available on Internet except for such content which is restricted by the Licensor/ designated authority under Law*”. The same provision is also found in the Virtual Network Operator (VNO) license agreement (Clause

⁶ FCC, Restoring Internet Freedom, <https://www.fcc.gov/restoring-internet-freedom>.

2.1(i) of Chapter IX)⁷. On similar lines, the ISP license also provides as follows - *“Internet access means use of any device/technology/methodology to provide access to internet including IPTV and all content available without access restriction on Internet including web hosting, webcolocation but it does not include service provider’s configured Closed User Group Services (VPN)”*. In contrast, the provisions of the the Unified Service Access License (UASL) and the Cellular Mobile Telephone Service (CMTS) license do not contain such requirements relating to provision of unrestricted access to content on the Internet.

2.18 In the context of the UL, VNO license and ISP license, the requirement of unrestricted treatment of Internet content by TSPs follows as a logical corollary to the subscribers’ unrestricted right to access content. This stems from concerns that TSPs may otherwise exercise their ability to disadvantage/ advantage certain content over others thus creating the potential to harm innovation and competition in the Internet ecosystem, with a negative impact on the telecom sector as a whole. As highlighted by the Authority in its Explanatory Memorandum to the Prohibition of Discriminatory Tariff Regulation, 2016, allowing the gatekeepers of the infrastructure to differentiate on the basis of content, would impose negative externalities on the rest of the network. The Internet serves as the basic infrastructure for the development of many other markets and the imposition of restrictions on access to the Internet could therefore hinder the growth and innovation in those markets. This in turn would have a direct impact on the health of the Internet services sector as a whole, which both supports and is supported by the use of various form of content on the Internet.

2.19 In addition, the Authority also reiterates that the use of Internet should be facilitated in such a manner that it advances the free speech rights of citizens, by ensuring plurality and diversity of views, opinions, and ideas. To refer to an example used in the Explanatory Memorandum to the Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016 – a user could be a simple subscriber at one moment (when she accesses the Internet through a data pack), and become a content provider (when she writes a blog post) at the

⁷ Available at http://www.dot.gov.in/sites/default/files/2016_06_3020VNO-20AS-I.pdf?download=1

next.

- 2.20 In light of the above discussion and the existing provisions in the license agreements, the Authority notes that the principle of non-discriminatory access to content, application and services on the Internet is already covered under the scope of the licensing terms and conditions in certain categories of licenses (UL, VNO and ISP). Further, one crucial aspect of non-discrimination, relating to discriminatory tariff for data services based on content has already been addressed by the Authority through the Regulations issued in February 2016. However, to comprehensively cover all other potential types of discrimination, the Authority notes that the existing provisions of the UL, VNO license and ISP license need to be amended.
- 2.21 In addition, the provisions of the UASL and CMTS license, which currently do not contain the requirement of unrestricted access to content on the Internet, would also need to be amended to ensure that all providers of Internet services are governed by similar requirements of non-discrimination.
- 2.22 The principle stated above, also needs to be supplemented with the identification of certain typical violations of the core principle, which need to be expressly prohibited.
- 2.23 **The Authority, therefore recommends amendments to the license conditions as indicated in Table 1 in Para 4.19 at pages 29 to 32.**

Chapter-3 Applicability of Non-Discrimination Principle and Exclusions

A. Applicability of the principle

3.1 The Authority had posed a question in the consultation paper regarding which specific stakeholders should be subject to any rules on net neutrality. In addition, stakeholders' views were also sought on whether there are any categories of services that may need to be specifically excluded from the scope of any such restrictions.

B. Defining Internet Access Services

3.2 The term "Internet" is defined under the various categories of license agreements (UL, VNO license and ISP license) to mean a global information system that is:

- a) logically linked together by a globally unique address, based on Internet Protocol (IP) or its subsequent enhancements or upgradations;
- b) able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent enhancements or upgradations, or other IP compatible protocols.

3.3 While the term "Internet" is defined broadly, it was felt that there may be a need to be more specific about the scope of the services that are sought to be covered within the ambit of the suggested principles. For instance, services which may be construed to be "specialised services" on account of requiring a specific level of quality should perhaps not be captured within the scope of this provision as a "non-neutral" treatment may inherently be required for such services. Similarly, the rule should also not restrict any developments that improve the overall quality and capacity of the Internet or hinder the possibility of emergence of new categories of services or innovative ways of delivering existing services.

3.4 Accordingly, the Authority sought the views of stakeholders on the meaning of "Internet services" in the context of net neutrality and the

persons or entities who should be regarded as being providers of such services. As a logical corollary to this discussion, stakeholders were also asked to share their views on whether there is a need to define the residual category of services that do not qualify as Internet services and would accordingly fall outside the purview of the present discussion.

- 3.5 In the consultation responses, stakeholders responded with diverse views and suggested definitions. Some respondents submitted that definition of the Internet as currently specified in the telecom license is adequate. Some others were of the view that Internet access service should be defined separately for the purposes of non-discriminatory treatment of content. A suggestion that emerged from many quarters was to use the definition of “Internet access service” as defined in the EU Regulations. These regulations define “Internet access service” as “a publicly available electronic communications service that provides access to the Internet, and thereby connectivity to virtually all end points of the Internet, irrespective of the network technology and terminal equipment used”.
- 3.6 It would also be useful to refer to the definitions used in some other jurisdictions. The law in Brazil defines the Internet as a system consisting of the set of logical protocols, structured on a global scale for public and unrestricted use, in order to enable communication of data between terminals, through different networks. The FCC's Open Internet Order of 2015 referred instead to the term “broadband Internet access service”, which it defined to mean “a mass-market retail service that provides the capability to transmit and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to these services”. Critically, the FCC clarified that the term also encompasses services that provide “a functional equivalent” to the above-mentioned service, or that which is being used to evade any protections set forth in their order. Relying on this, some stakeholders proposed that the definition in India should also include all functional equivalents of Internet services.
- 3.7 Another suggestion that emerged was that for the purposes of net neutrality, Internet traffic should mean best effort traffic between endpoints on the open Internet. One stakeholder also suggested that Internet traffic should be divided into different categories like

enterprise solution, Internet of Things (IoT), emergency services, etc. and separate regulatory practices should be applicable to each of these categories.

- 3.8 Following an analysis of all the relevant issues, **the Authority recommends that the principle of non-discriminatory treatment of content should apply specifically to Internet Access Services, as defined in Table 1 of these recommendations (in Para 4.19 at pages 29 to 32).**

C. Specialised services

- 3.9 In the consultation paper stakeholders were asked if any particular kinds of services, including what are sometimes referred to as “specialised services” should be kept outside the scope of any rules on net neutrality. Specialised services are commonly understood to mean services which are provisioned for specific content, requiring a minimum quality of service. These services may sometimes be provided over the Internet but do not serve the same functionality as Internet Access Services, as defined above. To avoid any confusion, some jurisdictions have found it useful to specifically exclude certain types of services from the scope of their net neutrality rules.
- 3.10 In their responses, most stakeholders agreed that specialised services should be excluded from the scope of a net-neutrality framework. Several reasons were put forth for this suggestion. First, it was noted that there are certain types of services that require a minimum assured quality of service for their functioning, which cannot be guaranteed by flow of traffic on a best efforts basis. Second, the development of such services could promote consumer interest, foster innovation and investments and therefore the regulatory framework should facilitate their unhindered development. Third, it was suggested that services that are of a specialised nature generally involve negotiated commercial agreements between sophisticated players and are thus not “mass market” services. Some stakeholder also pointed out that the Committee on net neutrality set up by the DoT had also suggested excluding these services from the scope of net neutrality. They noted that this was also in line with the practices adopted by other jurisdictions.

- 3.11 There were, however, some stakeholders who expressed contrary views. Some advocacy groups argued that all Internet traffic, including any kind of enterprise traffic, should be made subject to net neutrality requirements. Some of them also argued that no proprietary specialised services should be allowed to be offered over public resources. Another concern that was expressed was that TSPs may enter into cross ownership and privileged arrangements in the name of specialised services, which would have a negative effect on start-ups and new businesses.
- 3.12 In addition to this, stakeholders also commented on the importance of ascertaining whether the provision of Internet access may be impacted by the exclusion of specialised services. One view that emerged was that there is the need to ensure transparency by TSPs on the provision of specialised services. Another perspective was that any arrangement that allows for the sharing of physical and logical infrastructure between Internet and specialised services, where the same bandwidth is used with different priority levels, would amount to the same result as paid prioritisation and must be treated as such.
- 3.13 One criterion that has been used by other jurisdictions to define specialised services is that such services require a guaranteed level of QoS that cannot be offered on the public Internet. Accordingly, the EU regulations, which exclude services that are “optimised for specific content, applications or services”, where such “optimisation is necessary in order to meet requirements of a specific level of quality”. Examples include health-care services like tele-surgery, Voice over Internet Protocol (VoIP) and IPTV services.
- 3.14 The FCC's Open Internet Order, 2015, on the other hand, has observed that the use of the term “specialised services” can be confusing as the critical point is not whether the services are “specialised” but that they are not broadband Internet access services. They give the following as examples of such services – connectivity bundled with e-readers, heart monitors, energy consumption sensors, limited-purpose devices such as automobile telematics, and services that provide schools with curriculum-approved applications. While choosing not to define the scope of these non-broadband services on the ground that this may limit future innovation and investment, the FCC did however refer to the following general characteristics that were identified by the Open

Internet Advisory Committee in the United States:

- a) These services are not used to reach large parts of the Internet;
- b) They are specific application-level services, and not generic platforms; and
- c) They use some form of network management to isolate the capacity being used from that used by broadband Internet access services.

3.15 Both EU regulation and the FCC's Open Internet Order, 2015 also impose certain conditions on providers of specialised services so that provision of such services does not negatively impact the general quality or availability of Internet access services.

3.16 The consultation paper also raised a question about the applicability of net neutrality provisions in the IoT context. Most TSPs were of the view that IoT services should be kept outside the purview of net neutrality. Many other respondents, however, disagreed. They suggested that IoT traffic should generally be included within the framework except for limited exceptions like emergency services and services with real time data transfer. Some stakeholders however highlighted that IoT is a broad concept that captures a large gamut of devices and services. They emphasised that any exclusions for IoT services needs to be specifically and narrowly defined and the category as a whole should not be excluded from the regulatory framework.

3.17 After considering the views expressed by stakeholders, review of the relevant literature and international experience, the Authority recommends that the principle of non-discriminatory treatment by TSPs should not be interpreted or applied in a manner that could deter future innovations or the development of new categories of services.

3.18 The license agreement identifies the categories of services that can be offered by licensed service providers. This includes the provision of VoIP and IPTV services, which may also qualify as specialised services under the suggested definition. In the event that a service provider proposes to carry out any other categories of specialised services an enabling provision relating to the same may need to be introduced in the license. Accordingly, the DoT may amend the license from time to time to specify the categories of services permitted to be carried out by licensed service providers. To the extent that such services are

permitted under the license and also fall under the definition of specialised services, they would not be subject to the principles of non-discriminatory treatment.

3.19 While allowing for the provision of specialised services, service providers should ensure that they have adequate network capacity to offer the critical services in addition to the overall provision of Internet Access Services.

3.20 Accordingly, the Authority recommends that

- a) the provision of any specialised services, as defined in Table 1 of these recommendations (in Para 4.19 at pages 29 to 32), should be explicitly excluded from the principle of non-discrimination. However,**
 - **IoT as a class of services, should not be specifically excluded from the scope of the restrictions on non-discriminatory treatment.**
 - **Those critical IoT services, which may be identified by DoT as satisfying the definition of specialised services (as stated above), would be automatically excluded.**
- b) Further it recommends that specialised services should be provided only if:**
 - **such services are not usable or offered as a replacement for Internet Access Services; and**
 - **the provision of such services should not be detrimental to the availability and overall quality of Internet Access Services. This could be monitored using various quality of service parameters.**

D. Content delivery networks

3.21 In the consultation paper the Authority identified the increasing role of content delivery networks (CDNs) in shaping the manner in which traffic flows over the Internet. A report issued by Body of European Regulators for Electronic Communications (BEREC) notes that “generically, a CDN is a system of servers, deployed at the edge of (or

within) the terminating network of an access provider, that content provider can use to distribute their content.”⁸ Studies estimate that by 2020, 64 percent of total Internet traffic will be carried on CDNs, up from 45 per cent in 2015.⁹ Large content providers may also directly host their content inside the TSPs network through direct interconnection arrangements. While the net neutrality related frameworks adopted by some other jurisdictions had clarified that they do not regard such services and arrangements as falling within the scope of Internet traffic, the Authority felt that it was necessary to debate these issues in the Indian context. Accordingly, stakeholders were invited to provide inputs on how services provided by CDNs and direct interconnection arrangements should be treated in the context of net neutrality.

3.22 In their responses, most of the stakeholders agreed that CDNs should be kept outside the scope of any net neutrality regulation. Several reasons have been cited in favour of such an exclusion. First, it has been contended that CDNs reduce latency and congestion and improve the overall efficiency in the delivery of traffic. Second, it is not a consumer based offering - there is no direct link with end-user, nor is it a licensed service. Third, CDNs do not slow down other applications; to the contrary, they benefit other users by decongesting the network. One of the providers of CDN services also pointed out that the use of CDNs to relieve capacity constraints is particularly important in the wireless Internet services market, the predominance of which was noted by TRAI in its consultation paper. They note that given the hurdles faced by wireless providers in providing reliable and robust Internet services, CDNs can offer a viable solution in terms of reducing the load on TSP networks and processing requests from the most geographically efficient location.

3.23 However, some differing views also emerged during the consultation process. One of the respondents suggested that CDNs with their own content should come under the purview of net neutrality while another was of the view that since CDNs can influence the QoS experience by

⁸ “BEREC, An assessment of IP interconnection in the context of net neutrality”, 2012.

⁹ White paper: Cisco VNI Forecast and Methodology, 2015-2020, 6 June, 2016, available at <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html>.

the user there should be no arrangements between CDNs and TSPs/ISPs. Many other stakeholders were of the view that there is a basic lack of information on the arrangements between CDNs and TSPs due to which it is difficult to take a more informed view on the issue.

- 3.24 The Authority is of the view that CDNs perform an important function in delivery of traffic on the Internet. They add efficiency to the network by reducing latency, mitigating congestion and freeing up network capacity for various other purposes. In doing so, CDNs serve to benefit not just the faster delivery of content housed on these networks but also other content that can travel faster due to freeing up of network capacity.
- 3.25 At the same time, the Authority also notes that there is a need for more transparency relating to the arrangements between TSPs and CDNs. Knowledge of such arrangements would be useful for gaining a proper understanding of the factors affecting the flow of traffic on the Internet, potential for anti-competitive practices and to monitor violations of the non-discrimination requirements by TSPs. The Authority may frame appropriate regulations to specify the disclosure and transparency requirements in this regard.
- 3.26 **Accordingly, the Authority recommends that CDNs should not be included within the scope of any restrictions on non-discriminatory treatment, which are designed specifically to cover the providers of Internet Access Services.**

Chapter-4 Reasonable Traffic Management

A. Reasonable and permitted traffic management

- 4.1 In general, TSPs have the incentives to ensure that their networks are managed in a manner that offers the best possible experience to a large number of users using different categories of content. However, the same commercial considerations that prompt TSPs to use traffic management practices (TMPs) to improve network performance can also become the cause of certain exclusionary or discriminatory practices. This forms the basis for the non-discriminatory principle discussed above. However, this should not in any way affect the ability of TSPs to manage their networks in a reasonable and efficient manner so as to optimise overall network performance and offer satisfactory quality of services to the users of a diverse variety of content.

B. Scope of reasonable traffic management

- 4.2 During the course of the consultation, stakeholders were asked to comment on two possible approaches to regulate traffic management practices. The first was a broad approach that would lay down the broad principle that TSPs are permitted to undertake all reasonable traffic management practices while also laying down certain standards of reasonableness. For instance, the EU Regulations require that any TMPs must be deployed in a manner that is “transparent, non-discriminatory and proportionate”. Their proportionality standard frames reasonable TMP as practices that occur in order to respond to exceptional circumstances; are temporary in nature; and offer the least restrictive means possible.
- 4.3 The other, narrower approach, would assume that TSPs have a legitimate interest in managing their network, and the policy/regulation will only specify prohibited activities stemming from particular kinds of commercial agreements or relationships. Accordingly, such an approach would not prescribe standards of reasonableness but instead only declare that certain TMPs are not regarded as being reasonable, due to their ability to impede user choice and deter innovation. For example, it could be stated that any TMP

that is commercially motivated would be regarded as being discriminatory, and is therefore barred.

4.4 In their responses, a significant number of stakeholders preferred the broad approach of laying down certain standards of reasonableness. A few others suggested the explicit prohibition of certain practices, through "bright line" rules (no blocking, throttling or prioritisation) , in addition to this broad approach. Another approach suggested by some TSPs and their associations was to lay down high level principles for traffic management while refraining from any ex-ante regulation.

4.5 The following points were suggested by various stakeholders while discussing the applicable standards of reasonableness:

- a) Some stakeholders suggested that a TMP should be regarded to be reasonable if it is not commercially or strategically motivated. However, a counter-view to this was that commercial motivation should not be seen as the only criteria for reasonableness, for instance, blocking of content can cause *per se* social harm, irrespective of the motivation behind its deployment.
- b) Several respondents were of the view that TMPs must be application agnostic i.e. their deployment should not involve discrimination between applications.
- c) Many respondents submitted that the TMPs must be proportionately deployed and narrowly tailored for specific purposes. The TMPs should also be exceptional and temporary in nature, unless extension of their deployment is justified on account of legitimate public interest.
- d) On the question of defining categories of traffic for TMPs, one view was that there should not be any pre-defined categories of traffic as any categorisation may lose its relevance with the evolution of technologies. However, some other stakeholders suggested that such categories should be defined, and the categorisation could be on the basis of objectively different technical QoS requirements like time sensitivity, bandwidth requirements, etc.
- e) A civil society organisation suggested that reasonableness must be determined based on the rational nexus test: (i) Whether aim sought to be furthered by TSP is legitimate (ii) Whether the measures adopted by the TSP were reasonably and narrowly

tailored to meet those aims.

- 4.6 Majority of the stakeholders contended that any form of application specific TMPs within a class of Internet traffic should be treated more strictly, on account of the harm it can cause to the competition between the application/content providers. Some stakeholders, however, disagreed with the very idea of classification of traffic. They submitted that there is no strictly objective basis of defining application specific traffic management. This could lead to overlap/misidentification of applications as being part of a particular category. On the contrary, one TSP and an association submitted that application specific discrimination should not be considered non-reasonable per se and the Authority should look into the reasons for such discrimination.
- 4.7 Another question posed in the consultation paper was in relation to the possibility of preferential treatment of content based on a selection made at the users' choice and without any arrangement between a TSP and content provider. Most of the stakeholders agreed that such user initiated TMPs should be acceptable. However, some of them suggested that their acceptability should be subject to conditions like informed, explicit, and affirmative request for such prioritisation by the user and the user's ability to revoke or modify the request at any time, without incurring a penalty.
- 4.8 Turning to the comments on the narrow approach of prescribing a list of non-permissible TMPs, some stakeholders endorsed this approach on the grounds that monitoring and compliance would be a difficult task in case of the broad approach. Some other stakeholders preferred the narrow approach on the ground that the Authority would, in any case, have the power to intervene *suo-moto* in the event that an undesirable TMP is detected.
- 4.9 Stakeholders shared the following examples of practices which would constitute non-reasonable TMPs in case of a narrow approach:
- a) Application class-specific discrimination
 - b) Practices like blocking, throttling and preferential treatment
 - c) Commercially motivated TMPs
 - d) Internet shutdowns

- e) Giving differential access to applications, content or services to CDN or cache facilities

4.10 The Authority finds that allowing TSPs to carry out reasonable traffic management practices is necessary for delivering IP traffic on best efforts, which is essential to the design of the Internet.

4.11 **The Authority may, from time to time, frame appropriate regulations to specify further details regarding the scope and assessment of reasonable traffic management practices.**

C. Permitted exceptions

4.12 In addition to their ability to undertake reasonable TMPs, there are many other legitimate purposes for which TSPs may need to intervene in the traffic flowing through their networks. In the consultation paper, the Authority sought the views of stakeholders on whether the following or any other heads should be treated as exceptions to a restriction on discriminatory traffic practices:

- a) Emergency situations and services;
- b) Restrictions on unlawful content;
- c) Maintaining security and integrity of the network; and
- d) Services that may be notified in public interest by the Government/ Authority, based on certain criteria.

4.13 Most of the stakeholders agreed that emergency services or services used during emergency situations should be an exception to any restrictions on TMP. This exception was also included in the Prohibition of Discriminatory Tariff Regulation, 2016, which provided that the restriction on discriminatory tariff would not apply in emergency services, or at times of grave public emergency. The provision further required the TSP to report such circumstances to the Authority within 7 days and specified that the Authority would have the discretion to decide if any reduced tariff offered by the TSP qualifies for the exemption under the regulation.

4.14 As per the definitions given under the UL, an “emergency” means an emergency of any kind, including any circumstances resulting from major accidents, natural/ man-made disasters and incidents involving toxic or radio-active materials or as declared by the Government from

time to time. Further “emergency services” are defined to mean the relevant public, police, fire, ambulance, coast guard or any other services so declared by the Government. The terms of the license provide that in case of disasters, the licensee must facilitate priority routing of emergency/ public utility or any other type of user calls.

4.15 The UL terms also provide that the licensee remains completely responsible for security of their networks. TSPs are therefore required to create facilities for the monitoring of all intrusions, attacks and frauds on their technical facilities. Accordingly, TSPs may need to impose certain restrictions on the flow of traffic on their networks in order to maintain its security and stability.

4.16 As regards the blocking of unlawful content, it was highlighted by stakeholders during the consultation process that any such blocking requests must be initiated only in accordance with the process established by law. Section 69A of the Information Technology Act, 2000 empowers the Central or a State Government to order the blocking of public access to information in a computer resource if it is necessary or expedient on any of the listed grounds. These grounds are: interest of sovereignty and integrity of India, defence of India, security of the State, friendly relations with foreign States or public order or for preventing incitement to the commission of any cognizable offence relating to above. The rules to be followed in this regard have also been specified under the IT Act. The constitutionality of this provision was upheld by the Hon’ble Supreme Court in *Shreya Singhal vs. Union of India* on the grounds that it is a narrowly drawn provision with several safeguards.

4.17 Further, Section 79 of the IT Act provides that the exemption from liability of intermediaries, which includes TSPs, applies only if it complies with certain conditions. This includes the requirement under Section 79(3)(b) that the intermediary must expeditiously remove or disable access to any information, data or communication controlled by it which is being used to commit an unlawful act. In the *Shreya Singhal* case, the Supreme Court read down this provision to mean that the intermediary would be required to carry out such an action either upon receiving actual knowledge that a court order has been passed asking it remove or disable access to certain material or upon receipt of a notification from the appropriate Government. Accordingly,

the Authority finds that any action taken by a TSP to implement any order of a court or direction issued by the Government, in accordance with law, or action taken in pursuance of any international treaty must be regarded as a valid exemption.

- 4.18 **The Authority recommends in Table 1 of these recommendations (in Para 4.19 at pages 29 to 32) that reasonable traffic management practices and certain other legitimate purposes must be regarded as exceptions to the requirements of non-discriminatory treatment in the provision of Internet Access Services.** Any such exceptions would however need to conform with the basic requirements of reasonableness (i.e. the restrictions or interventions must be proportionate, transient and transparent in nature).
- 4.19 **Based on the discussions in Chapters 2, 3 and 4 the Authority recommends that the terms of various license agreements governing the provision of Internet services in India (UL, VNO license, UASL and CMTS) need to be amended in order to incorporate the principles of non-discriminatory treatment of content by Internet Access Services along with the appropriate exclusions and exceptions. This will also help in building uniformity in the terms governing the provision of Internet services by different categories of licensees. The specific amendments recommended to be made in each of the license agreements are listed in Table 1 below:**

Table 1: Recommendations on principle of non-discriminatory treatment, its application, exclusions and exceptions

Subject	License and provision to be inserted	Proposed text
<p>Principle of non-discriminatory treatment</p> <p>Definition of specialised services</p> <p>Reasonable traffic management and other exceptions</p>	<p>UL - Insertion of new Clause 2.3 in Chapter IX</p> <p>VNO License - Insertion of new Clause 2.3 in Chapter IX</p> <p>ISP License - Insertion of new Clause 2.5</p> <p>UASL - Insertion of new Clause 2.7</p> <p>CMTS - Insertion of new Clause 2.4</p>	<p>i. A Licensee providing Internet Access Service shall not engage in any discriminatory treatment of content, including based on the sender or receiver, the protocols being used or the user equipment.</p> <p>ii. The Licensee is prohibited from entering into any arrangement, agreement or contract, by whatever name called, with any person, natural or legal, that has the effect of discriminatory treatment of content.</p> <p>iii. Nothing contained in this provision shall restrict:</p> <p>a) the provision of any Specialised Services by a Licensee, provided that:</p> <ul style="list-style-type: none"> ▪ the Specialised Services are not usable or offered as a replacement for Internet Access Services; and ▪ the provision of the Specialised Services is not detrimental to the availability and overall quality of Internet Access Service. <p>b) any measures adopted by the Licensee that are</p>

		<p>proportionate, transient and transparent in nature and fall under any of the following categories:</p> <ul style="list-style-type: none"> ▪ Reasonable traffic management practices, as may be further specified by TRAI from time to time; ▪ Provision of emergency services or any services provided during times of grave public emergency, as per the process laid down by the Licensor/ TRAI; ▪ Implementation of any order of a court or direction issued by the Government, in accordance with law; ▪ Measures taken in pursuance of preserving the integrity and security of the network and equipment; and ▪ Measures taken in pursuance of an international treaty, as may be specified by the Government. <p>iv. For the purposes of this provision:</p> <ul style="list-style-type: none"> a) “Content” shall include all content, applications, services and any other data, including its end-point information, which can be
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		<p>accessed or transmitted over the Internet.</p> <p>b) “Discriminatory treatment” shall include any form of discrimination, restriction or interference in the treatment of content, including practices like blocking, degrading, slowing down or granting preferential speeds or treatment to any content.</p> <p>c) “Specialised services” shall mean services other than Internet Access Services that are optimised for specific content, protocols or user equipment, where the optimisation is necessary in order to meet specific quality of service requirements.</p> <p>Provided that the Licensee is authorised to provide such services in accordance with the provisions contained in this License, as modified from time to time.</p>
<p>Definition of Internet Access Service</p>	<p>UL - Insertion of new Clause 44A in Annexure- I</p> <p>VNO License - Insertion of new Clause 45A in Annexure- I</p> <p>ISP License - Insertion of new</p>	<p>Internet Access Service is a service to access the Internet that is:</p> <p>i. generally available to the public; and</p> <p>ii. designed to transmit data to and receive data from all or</p>

	<p>Clause 16A in Annexure - I</p> <p>UASL - Insertion of new Clause 26A in Annexure- I</p> <p>CMTS - Insertion of new Clause 16A in Annexure- I</p>	<p>substantially all endpoints on the Internet</p> <p>Explanation: Any service that offers capabilities that are incidental to or provide the functional equivalent of Internet Access Services, shall also be included within the scope of this definition.</p>
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Note: In case of the UASL and the CMTS License, which do not contain a definition of Internet, that definition of Internet also need to be included along with the new definition of Internet Access Service.

Chapter-5 Transparency and Disclosures

A. Transparency and disclosures

- 5.1 Transparency regarding practices adopted by TSPs can be a critical factor towards ensuring adherence to the principles of non-discrimination. Public dissemination of information relating to the characteristics of the services being provided and TMPs being adopted contributes to reducing information asymmetries in the market, thereby leading to a competitive market and pro-consumer behaviour. Transparency by TSPs also enables regulators and other stakeholders in the ecosystem to detect any violations and monitor the QoS being made available to users.
- 5.2 Transparency obligations in the context of non-discriminatory treatment of Internet content typically cover the terms on which the Internet access service is being provided; performance characteristics of the service; TMPs being deployed; and link with other specialised services being rendered by the TSP.
- 5.3 Here, it is important to note that TSPs in India are already under the obligation to disclose certain information pertaining to performance characteristics and QoS benchmarks to the Authority under various regulations, orders and directives issued by TRAI. For instance, TSPs are presently required to report details pertaining to broadband speed, packet loss and network latency to the Authority on a quarterly basis.¹⁰ Further, TSPs are also required to file tariff plans with the Authority within 7 days of the offering.¹¹ Additionally, TRAI's Direction dated September 1, 2008, and 48th Amendment to Telecommunication Tariff Order, 2008 require TSPs to publish tariffs in regional languages as well.
- 5.4 As regards direct transparency to the consumers, the existing regulations already require TSPs to provide information to consumers regarding data price, data usage, data caps, and consequence of exceeding such caps.¹² The goal of the Authority was therefore to

¹⁰ Regulation 4, Quality of Service Broadband Regulations, 2006.

¹¹ The Telecommunication Tariff Amendment Order, 2004.

¹² Telecom Consumer Protection Regulations, 2012.

identify any further transparency measures that may need to be introduced specifically in the context of the principle of non-discriminatory treatment of content, protocols or user equipment.

D. Consultation issues and responses

- 5.5 In the consultation paper on net neutrality, the Authority noted that the scope of the disclosures as well as the mode and manner of disclosures is important to ensure that TSPs are able to effectively deliver critical information to users. Accordingly, the Authority solicited stakeholder opinions on what should be the model of disclosure, i.e whether disclosures should be made directly to the consumer, or to the regulator, or should they be made available publicly.
- 5.6 Most stakeholders were of the opinion that all three models of disclosures should be adopted by TSPs, first, direct disclosure to the general public, i.e through their websites. Second, to the consumer of the internet service and last, to the regulator as well. However, many stakeholders suggested that simpler disclosures should be made to the consumer through a disclosure format while more technical disclosures pertaining to net neutrality should be required to be made to the regulator.
- 5.7 During the consultation process, the Authority also invited suggestions on what should be the trigger for such transparency disclosures and how frequently should they be provided by TSPs. While most stakeholders suggested that disclosures should be made by TSPs at point of sale, along with advertisements and other communications on data plans, some were of the view that net neutrality specific disclosures should be made by TSPs when there is a material change in TMPs. According to one stakeholder, TSPs should also be under an obligation to notify specific users when their individual use of a network will trigger a TMP.
- 5.8 On the content of the disclosures, the Authority had sought views on a sample disclosure template that was included in the consultation paper. Most of the respondents agreed with the sample template attached to the consultation paper; however they proceeded to suggest a few modifications. Some respondents also submitted that there is no

need for an information disclosure format as most consumers would not understand complex information pertaining to TMPs. They suggested that information on TMPs can broadly be disseminated on the TSP's websites and detailed information on TMP policy adopted by TSPs can be filed with the regulator. Few respondents suggested that the information disclosure form should be filed with the regulator only as it would be too complex for the consumers to understand.

E. Position in other jurisdictions

5.9 As highlighted in the consultation paper, most jurisdictions that have adopted provisions on net neutrality deemed it fit to impose certain disclosure obligations on TSPs. In this context, transparency obligations typically seek to ensure that users who are affected by TMPs should have access to relevant information about the types of TMPs being deployed by TSPs, the reasons for which they are being deployed and the manner in which they are likely to impact the day-to-day Internet experience of users. The design of the disclosures may follow either of the following approaches or a combination of the two:

- a) **Direct disclosure**- Under this approach, TSPs may be required to disclose information regarding the identified parameters directly to the consumers. In the EU, the BEREC Guidelines highlight that direct disclosures to the public can be effective by providing less rather than more information about TMPs. Further, the information made available to the consumers should be “accessible, understandable, meaningful, comparable and accurate”.¹³
- b) **Indirect disclosure**- Under the indirect approach to disclosure, third parties help in making information more accessible and understandable for end users. Price comparison websites and content providers could be examples of such third parties who can help disseminate information more effectively.¹⁴

5.10 Some of the details of transparency models adopted across jurisdictions are as follows:

¹³ BEREC Guidelines on Transparency in the scope of Net Neutrality: Best Practices and Recommended approaches (2011).

¹⁴ Id.

- a) *EU Regulations*: The EU Regulations state that the disclosures should be published in two parts, first, with details such as speeds, examples of applications that can be used with a sufficient quality and how such applications are impacted by TMPs. Second, it should provide more detailed technical parameters and other relevant information. In relation to trigger of disclosure obligations, the EU Universal Service Directive, 2009 requires service providers to provide specified information in a clear, comprehensive and accessible form at the time of signing the contract.¹⁵
- b) *United States*: Following a direct disclosure model, the FCC Open Internet Order creates a “safe harbour” for disclosures that will be considered effective both for consumers and for third parties like content/device providers. They also specify a safe harbour format for disclosure at the point of sale. The FCC Open Internet Order, 2015 mandates prominent display of disclosures relating to commercial terms, performance characteristics and network management on a publicly available website and disclosure of relevant information at the point of sale. It also expanded the notification requirements to include mechanisms for directly notifying end users if their individual use of a network will trigger a TMP, based on their demand prior to a period of congestion, and that is likely to have a significant impact on their experience of the Internet.
- c) *France*: ARCEP, the French telecom regulator, has recommended that service providers must, in both their sales material and the contractual terms and conditions, and in the information that publicly available, provide clear, precise and relevant information pertaining to the effect of TMPs on user experience, any restriction on a data transmission service that deviates from the principles of freedom of use and non-discrimination between data streams etc.¹⁶
- d) *Japan*: In Japan, the Packet Shaping Guidelines encourage service

¹⁵ Article 20, EU Universal Service Directive, 2009, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex3A32009L0136>.

¹⁶ ARCEP, Internet and network neutrality-proposals and recommendations, available at https://www.arcep.fr/uploads/tx_gspublication/net-neutralite-orientations-sept2010-eng.pdf

providers to issue specific notices to heavy users.¹⁷

- e) *United Kingdom:* Ofcom, the telecom regulator in United Kingdom, is of the view that direct disclosures to consumer can be effective only if they are conveyed in an accessible and comparable format. Accordingly, the regulator has specified a simple keys facts disclosure format which seeks to provide accessible and comparable disclosures directly to end-users.¹⁸

F. Decision on transparency

5.11 The Authority's current regulatory framework imposes a number of transparency obligations on TSPs, including those pertaining to disclosure of data limits, performance characteristics, price information, etc. However, other transparency requirements relevant to the principles of non-discriminatory treatment, such as disclosures pertaining to TMPs implemented by TSPs; the impact of such TMPs on user experience; the impact of critical services on user experience; are not mandated by the present regulatory framework.

5.12 **The Authority accordingly proposes to supplement its existing disclosure and transparency requirements by framing additional regulations in this regard.**

¹⁷ Guideline for Packet Shaping, Japan Internet Providers Association (JAIPA) Telecommunications Carriers Association (TCA) Telecom Services Association (TELESA) and Japan Cable and Telecommunications Association (JCTA), (2008), available at https://www.jaipa.or.jp/other/bandwidth/1006_guidelines_e.pdf

¹⁸ Ofcom, Traffic Management Key Facts Indicators, available at <https://ee.co.uk/content/dam/ee-help/Help-PDFs/May20-20EE20Traffic20Management.pdf>

Chapter-6 Monitoring and Enforcement

A. Monitoring and enforcement

6.1 Establishing a robust monitoring and enforcement framework is critical to implementing the principles of non-discriminatory treatment in a realistic and effective manner. While transparency pertaining to TMPs can play an important part in ensuring adherence to the key principles, relying on transparency alone may not be sufficient in the long run. Therefore, in addition to setting out transparency obligations, the Authority also found it pertinent to raise questions relating to the relevant body that should be tasked with monitoring and enforcement of net neutrality violations; the composition of such a monitoring body; the tests, thresholds and technical tools that may be adopted to detect any violations; and finally, the remedies that will be available to address detected violations. At the same time, setting out a dynamic and suitable framework that would keep pace with constant upgrades in technology and changing business models was also identified to be a key element.

B. Consultation issues and responses

6.2 In the consultation paper, the Authority invited comments and suggestions pertaining to all the aforementioned issues. Specifically, the Authority asked stakeholders, what would be most effective legal/policy instrument for implementing a net neutrality framework in India? The Authority also encouraged respondents to indicate the challenges that could arise in monitoring for violations of any agreed principles and to state which of the following monitoring mechanisms would be preferable:

- a) disclosures and information reported by TSPs;
- b) collection of information from users (complaints, user-experience apps, surveys, questionnaires); or
- c) collection of information from third parties and from the public domain.

6.3 In response to the question on challenges to monitoring of violations, some stakeholders cited the authentication challenge that could arise

wherein TSPs could make fraudulent, misleading disclosures pertaining to net neutrality obligations. Many stakeholders also highlighted that a problem of inaccuracy and false positives could arise if the monitoring mechanism relied too heavily on user complaints. Stakeholders therefore suggested that the Authority should develop applications along the lines of its MySpeed App and use crowd-sourced reporting and consumer surveys to monitor compliance with the proposed framework.

- 6.4 With regard to the preferred monitoring model, a large number of stakeholders including TSPs, civil society organisations and academic research centres suggested that third party reports should be relied upon to monitor adherence and detect violations. Some stakeholders proposed that the Authority should create a third-party audit mechanism and engage independent technical experts to audit TSPs/ISPs. However, many stakeholders were also of the view of that the existing model that requires TSPs to disclose relevant information was already working successfully and should be continued.
- 6.5 Delving deeper into the design and composition of a possible monitoring mechanism, the Authority had asked stakeholders if a collaborative mechanism, with representation from TSPs, content providers, consumer groups and other stakeholders, could be adopted for managing the operational aspects of a net neutrality framework. A large number of stakeholders agreed with this suggestion and proposed that a multi-stakeholder committee should be set up for management of the net neutrality framework. Stakeholders, however, had differing views on the role to be played by the multi-stakeholder committee. Some suggested that this committee should participate in monitoring, measurement, collect public inputs, and look into complaints. Others, however, strongly opposed such a role and stated that any such committee should perform only recommendatory and advisory functions. They also cautioned that setting up such a committee could throw up certain challenges such as institutional capture and difficulty in deciding fair representation.
- 6.6 Finally, the Authority had asked stakeholders to suggest mechanisms that could be deployed so that the net neutrality policy/regulatory framework may be updated on account of evolution of technology and use cases. A large number of stakeholders responded to this by stating

the Authority should continue to follow consultative processes with stakeholders. On the other hand some stakeholders pointed out that the proposed collaborative or advisory body should play a role in ensuring that the regulatory framework remains updated.

C. Position in other jurisdictions

- 6.7 As highlighted above, a critical challenge surrounding the enforcement of net neutrality is the accurate analysis of TMPs deployed by TSPs, and the adoption of sound technical tools to detect violations arising from such TMPs. Several other jurisdictions have also considered this problem and have arrived at different approaches through which net neutrality violations can be monitored and penalised.
- 6.8 In the EU, national regulators are advised to “closely monitor” and “ensure compliance” with provisions of their net neutrality regulation. Based on this monitoring process, they are given the option to impose requirements concerning technical characteristics, minimum QoS and other appropriate measures on “one or more” providers. The BEREC guidelines further explain that the supervisory duties and powers of national regulators include monitoring and gathering information from TSPs and users, taking appropriate enforcement actions; and preparing annual reports containing a description of the status of monitoring and compliance in their jurisdiction.
- 6.9 In many countries, proactive monitoring by national authorities is also being supported by the use of Internet measurement platforms. For instance, BEREC has issued "Net neutrality Regulatory Assessment Methodology" and "Net neutrality measurement tool specification" on 5th October 2017. In the course of the consultation process it was noted that there are a number of other such tools that may be used for traffic monitoring purposes, including M-Lab and Measurement Kit. Stakeholders also suggested enhancing the Authority’s MySpeed application or creating similar platforms which would gather crowd sourced reports on net neutrality violations.
- 6.10 Given that the dynamic nature of technology can pose certain challenges in accurately analysing TMPs adopted by TSPs on a real-time basis, some countries also have formal/ informal frameworks to supplement the implementation of their net neutrality frameworks. For

instance, in the United States, the Broadband Internet Technical Advisory Group is a multi-stakeholder organisation that operates as a technical working group for developing consensus on broadband network management practices and other technical issues.¹⁹

6.11 The Brazilian law on net neutrality states that any discrimination or degradation of traffic shall be regulated in accordance with law, “upon consultation with the Internet Steering Committee and the National Telecommunications Agency”.²⁰ Notably, the Brazilian Internet Steering Committee is a multi-stakeholder body comprising of members from the government, the corporate sector, non-government bodies and the academic community. It has been constituted through an Inter-ministerial Ordinance for the purpose of coordinating on all Internet service initiatives in Brazil, promoting technical quality, innovation and greater dissemination of services.

D. Recommendations on monitoring and enforcement

6.12 There have been many developments in the advancement of tools and models for monitoring of Internet traffic. The Authority also proposes to deploy appropriate tools for this purpose, as may be required from time to time. The Authority may frame appropriate regulations in this regard.

6.13 In addition to any direct monitoring and enforcement actions that may be adopted by TRAI, the Authority also recommends the setting up of a collaborative mechanism to deepen the knowledge of various stakeholders on issues relating to traffic management, implementation of exceptions, implementation of transparency measures and other relevant aspects. The following specific recommendations are being made in this regard:

- a) A collaborative mechanism may be established in the form of a multi-stakeholder body comprising members representing different categories of TSPs and ISPs, large and small content

¹⁹ BITAG report on Differentiated Treatment of Internet Traffic, press release available at <https://www.bitag.org/documents/>

[Press-Release-Announcing-Publication-of-Report-on-Differentiated-Treatment-of-Internet-Traffic.pdf](#).

²⁰ Section 1, Internet Rights Law, 2014

providers, representatives from research and academia, civil society organisations and consumer representatives.

- b) The body would be tasked with the responsibility of developing technical standards pertaining to monitoring of TMPs and enforcement of the principles on non-discriminatory treatment and making appropriate recommendations to the Authority. However, this collaborative mechanism is not intended to replace the monitoring and enforcement powers that the Authority may exercise, if required. Accordingly, any recommendations made by the body will only be advisory in nature and will not be binding either on TSPs or the Authority.
- c) Appropriate checks and balances will need to be adopted to ensure fairness and competence in the formation and functioning of the body. This may include mechanisms through which the Authority remains responsible for the administration of the collaborative committee.
- d) The Government/ Authority may reserve the right to seek any information from the body, investigate its conduct to ensure transparency and fair treatment to all its members, and issue appropriate regulations, directions, orders or guidelines, as and when needed.

6.14 In view of above, Authority recommends that for monitoring and enforcement, DoT may establish a multi-stakeholder body with framework for collaborative mechanism among the stakeholders. The multi-stakeholder body, not for profit, led by industry may comprise members representing different categories of TSPs and ISPs, large and small content providers, representatives from research and academia, civil society organisations and consumer representatives. The terms, conditions and governance structure etc. would be recommended by TRAI once this recommendation is accepted by the Government in principle.

6.15 The Authority has recommended an amendment to the license agreements to clarify the principle of unrestricted access given under the appropriate license agreements. It has also expressed other views relating to the applicability of the principle; acceptable traffic management practices and permissible exceptions. **However, the Authority notes that these recommendations are being made**

without prejudice to the powers and functions conferred upon it under the TRAI Act, 1997, including on issues relating to quality of services, consumer protection, transparency, and monitoring of compliance.

Chapter-7 Summary of Recommendations

Internet access services should be governed by a principle that restricts any form of discrimination or interference in the treatment of content, including practices like blocking, degrading, slowing down or granting preferential speeds or treatment to any content.

This principle would apply to any discriminatory treatment based on the sender or receiver, the network protocols, or the user equipment, but not to *specialised services* or *other exclusions*. It would also not restrict adoption of reasonable *traffic management practices* by the service provider. All of these exclusions and exceptions are described earlier in the document.

The Authority has recommended an amendment to the license agreements to clarify the principle of unrestricted access given under the appropriate license agreements. It has also expressed other views relating to the applicability of the principle; acceptable traffic management practices and permissible exceptions. **However, the Authority notes that these recommendations are being made without prejudice to the powers and functions conferred upon it under the TRAI Act, 1997, including on issues relating to quality of services, consumer protection, transparency, and monitoring of compliance.**

A. Recommendations on principle of non-discriminatory treatment, application, exclusions and exceptions:

- 7.1 **The Authority recommends that the terms of various license agreements governing the provision of Internet services in India (UL, VNO license, UASL and CMTS) be amended in order to incorporate the principles of non-discriminatory treatment of content by Internet Access Services along with the appropriate exclusions and exceptions. This will also help in building uniformity in the terms governing the provision of Internet services by different categories of licensees. The specific amendments recommended to be made in each of the license agreements are listed in the table below. (para 4.19)**

Subject	License and provision to be inserted	Proposed text
<p>Principle of non-discriminatory treatment</p> <p>Definition of specialised services</p> <p>Reasonable traffic management and other exceptions</p>	<p>UL - Insertion of new Clause 2.3 in Chapter IX</p> <p>VNO License - Insertion of new Clause 2.3 in Chapter IX</p> <p>ISP License - Insertion of new Clause 2.5</p> <p>UASL - Insertion of new Clause 2.7</p> <p>CMTS - Insertion of new Clause 2.4</p>	<p>i. A Licensee providing Internet Access Service shall not engage in any discriminatory treatment of content, including based on the sender or receiver, the protocols being used or the user equipment.</p> <p>ii. The Licensee is prohibited from entering into any arrangement, agreement or contract, by whatever name called, with any person, natural or legal, that has the effect of discriminatory treatment of content.</p> <p>iii. Nothing contained in this provision shall restrict:</p> <p>a) the provision of any Specialised Services by a Licensee, provided that:</p> <ul style="list-style-type: none"> ▪ the Specialised Services are not usable or offered as a replacement for Internet Access Services; and ▪ the provision of the Specialised Services is not detrimental to the availability and overall quality of Internet Access Service. <p>b) any measures adopted by the Licensee that are proportionate, transient and transparent in nature and fall under any of the</p>

		<p>following categories:</p> <ul style="list-style-type: none"> ▪ Reasonable traffic management practices, as may be further specified by TRAI from time to time; ▪ Provision of emergency services or any services provided during times of grave public emergency, as per the process laid down by the Licensor/ TRAI; ▪ Implementation of any order of a court or direction issued by the Government, in accordance with law; ▪ Measures taken in pursuance of preserving the integrity and security of the network and equipment; and ▪ Measures taken in pursuance of an international treaty, as may be specified by the Government. <p>iv. For the purposes of this provision:</p> <ul style="list-style-type: none"> a) “Content” shall include all content, applications, services and any other data, including its end-point information, which can be accessed or transmitted over the Internet.
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		<p>b) “Discriminatory treatment” shall include any form of discrimination, restriction or interference in the treatment of content, including practices like blocking, degrading, slowing down or granting preferential speeds or treatment to any content.</p> <p>c) “Specialised services” shall mean services other than Internet Access Services that are optimised for specific content, protocols or user equipment, where the optimisation is necessary in order to meet specific quality of service requirements.</p> <p>Provided that the Licensee is authorised to provide such services in accordance with the provisions contained in this License, as modified from time to time.</p>
<p>Definition of Internet Access Service</p>	<p>UL - Insertion of new Clause 44A in Annexure- I</p> <p>VNO License - Insertion of new Clause 45A in Annexure- I</p> <p>ISP License - Insertion of new Clause 16A in Annexure - I</p>	<p>Internet Access Service is a service to access the Internet that is:</p> <p>i. generally available to the public; and</p> <p>ii. designed to transmit data to and receive data from all or substantially all endpoints on</p>

	<p>UASL - Insertion of new Clause 26A in Annexure- I</p> <p>CMTS - Insertion of new Clause 16A in Annexure- I</p>	<p>the Internet</p> <p>Explanation: Any service that offers capabilities that are incidental to or provide the functional equivalent of Internet Access Services, shall also be included within the scope of this definition.</p>
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Note: In case of the UASL and the CMTS License, which do not contain a definition of Internet, the definition of Internet also need to be included along with the new definition of Internet Access Service.

B. Recommendation on applicability to Internet of Things (IoT) and Specialized services

7.2 The Authority recommends that [refer Para 3.20]

- a) **the provision of any specialised services, as defined in Table 1 of these recommendations (in Para 4.19 at pages 29 to 32), should be explicitly excluded from the principle of non-discrimination. However,**
 - **IoT as a class of services, should not be specifically excluded from the scope of the restrictions on non-discriminatory treatment.**
 - **Those critical IoT services, which may be identified by DoT as satisfying the definition of specialised services (as stated above), would be automatically excluded.**
- b) **Further it recommends that specialised services should be provided only if:**
 - **such services are not usable or offered as a replacement for Internet Access Services; and**
 - **the provision of such services should not be detrimental to the availability and overall quality of Internet Access Services. This could be monitored using various quality of service parameters.**

7.3 The Authority recommends that CDNs should not be included

within the scope of any restrictions on non-discriminatory treatment, which are designed specifically to cover the providers of Internet Access Services.

C. Recommendations on Transparency and disclosures:

- 7.4 The Authority proposes to supplement its existing disclosure and transparency requirements by framing additional regulations in this regard.**

D. Recommendations on monitoring and enforcement:

- 7.5 Authority recommends that for monitoring and enforcement, DoT may establish a multi-stakeholder body with framework for collaborative mechanism among the stakeholders. The multi-stakeholder body, not for profit, led by industry may comprise members representing different categories of TSPs and ISPs, large and small content providers, representatives from research and academia, civil society organisations and consumer representatives. The terms, conditions and governance structure etc. would be recommended by TRAI once this recommendation is accepted by the Government in principle.**

List of Acronyms

API	Application program interface
BEREC	Body of European Regulators for Electronic Communications
CMTS	Cable Modem Termination System
CDN	Content Delivery Networks
DoT	Department of Telecommunications
EU	European Union
FUP	Fair Usage Policy
FCC	Federal Communications Commission
IoT	Internet of Things
IP	Internet Protocol
IPTV	Internet Protocol television
ISP	Internet Service Providers
OTT	Over-the-Top
QoS	Quality of Service
TRAI	Telecom Regulatory Authority of India
TSP	Telecom Service Providers
TMP	Traffic Management Practices
TCP	Transmission Control Protocol
UL	Unified License
UASL	Universal Access Service License
VNO	Virtual Network Operator
VoIP	Voice over Internet Protocol

**Reference from DoT seeking recommendations of TRAI
(refer para 1.1)**

Government of India
Ministry of Communications & IT
Department of Telecommunications
Sanchar Bhawan, 20 Ashoka Road, New Delhi
[Networks & Technologies(NT) Cell]

No: 12-30/NT/2015/OTT (Pt)
Dated - 3rd March 2016

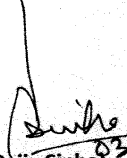
Sub: Recommendations on Net Neutrality-regarding.

TRAI had initiated public consultation on OTT services vide its consultation paper "Regulatory Framework for Over-The-Top (OTT) Service" issued on 27.03.2015, which included specific reference to Net Neutrality in chapter 5 of the consultation paper and related questions thereon. The consultation paper comprehensively dealt with various related issues like international experience with net neutrality and regulation of OTTs (communications and non-communications). The consultation process was open for stakeholder's comments & counter comments till 24.04.2015 & 08.05.2015 respectively.

2. Subsequently, TRAI has issued another related consultation paper titled "Differential Pricing of Data Services" on 09.12.2015. This paper deals with potential economic and regulatory effect in cases, where tariff is tied to the type of content and was open for comments and counter comments by 07.01.2016 & 14.01.2016 respectively. TRAI has since released Regulation on "Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016" on 8th Feb 2016.
3. In various chapters/clauses of its consultation paper "Regulatory Framework for Over-The-Top (OTT) Service" (like Clause 6.2, 6.13 etc), TRAI has expressed desirability of an overarching framework of net neutrality, so as to define the extent of regulatory intervention required.
4. DoT, on its part, had constituted a high level committee, chaired by Member(T) vide its letter No12-30/NT/2015/OTT dated 19.01.2015 to examine net neutrality and other associated issues and recommend overall policy & technical response required to deal with it. The committee has submitted its recommendations, which was placed in public domain for inputs. A copy of the same was forwarded to TRAI as well vide this office letter no 12-30/NT/2015/OTT dated 17th July 2015.

5. TRAI, in its letter No 301-7(1)/ 2014-F&EA dated 23rd Jan, 2015 (copy enclosed), had stated that it would make suitable recommendations to the Government based on the outcome of the consultation process. Also, TRAI is already engaged in the OTT & Net Neutrality related consultation process vide its consultation paper "Regulatory Framework for Over-The-Top (OTT) Service" issued on 27.03.2015 & no related recommendation has been submitted to Government.
6. Though finalizing a viewpoint on net neutrality is a policy matter, yet the Government proposes that recommendations of DoT Committee on net neutrality, other inputs available/sought earlier & recommendations of TRAI be taken into account by DoT in arriving at final viewpoint on various aspects and nuances of net neutrality.
7. Accordingly, TRAI is requested to provide its recommendations under Section 11(1)(a) of TRAI Act, 1997, as amended by TRAI (Amendment) Act 2000, on net neutrality including traffic management and economic, security & privacy aspects of OTT services apart from other relevant standpoints as covered in the above-referred consultation paper dated 27.03.2015.

Annex: As above


(Rajiv Sinha) 27/02/15
DDG (NT)

To
Shri Sudhir Gupta,
Secretary,
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
J L Nehru Marg,
New Delhi-110002

Summary of recommendations of the DoT Committee on Net Neutrality (refer para 1.1)

The Committee on Net Neutrality formed in DoT submitted its recommendations in May 2015. The salient points of the recommendations made by the Committee are as follows:

- a) All licenced TSPs providing Internet services in India should be bound to follow the “core principles” of net neutrality.
- b) Legitimate traffic management practices may be allowed subject to the core principles. The general criteria against which these practices can be tested may *inter alia* include:
 - Adequate disclosure to users about traffic management policies and tools to allow them to make informed choices.
 - Application-agnostic controls may be used but application-specific control within the “Internet traffic” class may not be permitted.
 - Practices like deep packet inspection should not be used for unlawful access to the type and contents of an application in an IP packet.
 - Improper (paid or otherwise) prioritisation may not be permitted.
- c) There should be a separation of “application layer” from “network layer” as application services are delivered over a licensed network.
- d) In case of VoIP OTT communication services, there exists a regulatory arbitrage wherein such services also bypass the existing licensing and regulatory regime creating a non-level playing field between TSPs and OTT providers both competing for the same service provision. Public policy response requires that regulatory arbitrage does not dictate winners and losers in a competitive market for service provision.
- e) The existence of a pricing arbitrage in VoIP OTT communication services requires a graduated and calibrated public policy response. In case of OTT VoIP international calling services, a liberal approach may be adopted. However, in case of domestic calls (local and national),

communication services by TSPs and OTT communication services may be treated similarly from a regulatory angle for the present. The nature of regulatory similarity, the calibration of regulatory response and its phasing can be appropriately determined after public consultations and TRAI's recommendations to this effect.

- f) For OTT application services, there is no case for prescribing regulatory oversight similar to conventional communication services.
- g) Suggested enforcement process is as follows:
 - i. Core principles of Net Neutrality may be made part of License conditions and the Licensor may issue guidelines from time to time as learning process matures.
 - ii. Since Net Neutrality related cases would require specialized expertise, a cell in the DoT headquarters may be set up to deal with such cases. In case of violations, the existing prescribed procedure may be followed. This would involve a two-stage process of review and appeal to ensure that decisions are objective, transparent and just.
 - iii. Tariff shall be regulated by TRAI as at present. Whenever a new tariff is introduced it should be tested against the principles of Net Neutrality. Post implementation, complaint regarding a tariff violating principle of Net Neutrality may be dealt with by DoT.
 - iv. Net Neutrality issues arising out of traffic management would have reporting and auditing requirements, which may be performed and enforced by DoT.
 - v. QoS issues fall within the jurisdiction of TRAI. Similarly reporting related to transparency requirements will need to be dealt with by TRAI. TRAI may take steps as deemed fit.