Telecom Regulatory Authority of India

Pre- Consultation Paper

on

Net Neutrality

30th May, 2016

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Stakeholders are requested to send their comments, preferably in electronic form, by 21ˢᵗ June 2016 on email id <u>advqos@trai.gov.in</u>. For any clarification /information, Shri A. Robert J. Ravi, Advisor (QoS) may be contacted at Tel. No. +91-11-23230404, Fax: +91-11-23213036.

INTRODUCTION

Background

1. During the last decade, the telecom industry in India has grown tremendously, both in terms of penetration as well as connectivity. Today, India is one of the fastest growing information and communication technologies markets in the world, fuelled largely by the cellular mobile revolution. Starting from a few million connections in 1997, we now have more than a billion connections, with 97.5% of them being wireless subscribers. With this, the overall teledensity in India at the end of 2015 stood at 81.83%.

2. India has also witnessed tremendous growth in terms of the total number of Internet users. At the end of December 2015, we had over 331 million Internet subscribers in the country, of which about 94% (over 311 million) were wireless Internet users.[1] The current nature of telecommunications and internet access services in India is therefore largely wireless.

3. The number of broadband users has also been increasing steadily over the years. At present, India has approximately 136.5 million broadband subscribers, a figure that is expected to rise significantly in the coming years, particularly in light of the Government's 'Digital India' initiative. This initiative emphasizes the electronic delivery of services to all citizens as an urgent national priority, with 'Broadband for All' as one of its fundamental pillars. Providing broadband to all will require a significant expansion of service providers' networks, with substantial investments in infrastructure development.

4. Access to information and communication technologies has helped fuel the rapid growth of the Indian economy. Increased connectivity to the Internet has increased consumer welfare, through better information dissemination, increased access to markets, growth of social networks, and proliferation of online media and content. It has also resulted in the creation of a new class of service providers that offer services through the Internet, employing new and innovative business models.

5. The growth in the number of Internet users and rise in Internet traffic has also led telecommunication service providers (TSPs) to seek innovative solutions. While TSPs must cater to the increasing demand by increasing the investment in network infrastructure, they could also use traffic management tools to deal with problems of congestion on the network. This has resulted in new debates about the appropriateness of the tools and policies that may be used by TSPs for traffic management and the

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[1] The Indian Telecom Services Performance Indicators, September-December, 2015 released by TRAI.

potential for abuse by TSPs for discriminatory or anti-competitive purposes.

Previous Consultations on related issues

6. In an endeavour to get stakeholders views on Regulatory Framework for Over-the-top (OTT) services, TRAI had issued a consultation paper on "Regulatory Framework for Over-the-top (OTT) services" on 27th March, 2015. The views on the framework are under consideration by the Authority.

7. In December, 2015, TRAI issued a Consultation Paper on 'Differential Pricing for Data Services'. Based on the responses received from stakeholders and internal deliberations, TRAI released the "Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016". The regulation prohibits TSPs from offering or charging discriminatory tariffs for data services on the basis of the content being accessed by a consumer.

8. In addition, the Department of Telecommunications (DoT) had also constituted a high level committee to examine the issue of net neutrality and other associated areas. The Committee submitted its recommendations vide a detailed report,[2] which was released in May, 2015. Some of the key recommendations of the Committee are discussed in para 24.

9. In light of the above , DoT has sought the recommendations of TRAI on the subject of net neutrality, including traffic management techniques; the economic, security and privacy aspects of OTT services; and other relevant areas covered in TRAI's consultation paper dated 27th March 2015.

10. This pre-consultation paper is an attempt to identify the relevant issues in these areas, which will help TRAI in formulating its views on the way forward for policy or regulatory interventions.

NET NEUTRALITY AND RELATED ISSUES

Net Neutrality

11. There are several definitions of Net Neutrality (NN). The term "network neutrality" generally refers to the principle that TSPs must treat all Internet traffic on an equal basis, without regard to the type, origin, or destination of the content or the means of its transmission. It therefore

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[2] Net Neutrality DoT Committee Report, May 2015, available at
http://www.dot.gov.in/sites/default/files/u10/Net_Neutrality_Committee_report%20%281%29.pdf

implies that all points in a network should be able to seamlessly connect to all other points, without any discrimination by the TSP on aspects of speed, access or price. Adherence to this principle of net neutrality is arguably necessary for maintaining the open and non-discriminatory character of the Internet, features that are responsible for the phenomenal growth of the Internet in the past decades.

12. The proliferation of a vast variety of applications, websites, and other forms of content on the Internet, has enhanced user choice and paved the way for greater innovation and competition. The diverse range of services available on the Internet have varying characteristics, uses and bandwidth requirements. Increasing Internet usage, particularly of services that consume high bandwidth, may require TSPs to adopt certain reasonable measures to protect the integrity of the network and provide appropriate quality of services to their users, while working within the 'best efforts' design of the Internet.

13. This merits a deeper enquiry into the various issues relevant to the subject of net neutrality, including determining the reasonableness of traffic management tools that may be adopted by TSPs; understanding the importance of unrestricted access to the Internet; transparency and informed choice by users; customer privacy and national security.

Traffic management

14. Traffic management can be defined as a set of techniques that may be used by a TSP to plan and allocate available resources to attain optimum performance for diverse classes of users across a network. These techniques often include the use of performance measures to define optional service levels tailored to different user needs, and to assure appropriate quality of service or safeguard network security.

15. The tremendous growth in Internet traffic, particularly of video content, has prompted TSPs to devise strategies to address network related capacity and capability issues. As per CISCO's Visual Networking Index Forecast, Internet video traffic (business and consumer, combined) is expected to constitute 74% of all Internet traffic in India by 2019, up from 46% in 2014.[3] Any capacity constrains being faced on account of increased user traffic will eventually have to be addressed through an overall improvement in the network infrastructure. However, use of reasonable traffic management techniques may sometimes become

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[3]   CISCO VNI Forecast Highlights – India, available at http://www.cisco.com/c/en/us/solutions/service-provider/visual-networking-index-vni/vni-forecast.html.

essential to protect the quality of the consumer's experience, especially in times of extreme network congestion.

16. There is a fine line between correctly applying traffic management to ensure a high quality of service and wrongly interfering with internet traffic, for instance, to limit applications that threaten the TSP's own lines of business or to adopt more profitable business and revenue-sharing models.

17. The following are some practices that may be regarded as unreasonable interference with Internet traffic by a TSP:

   • Blocking of applications, websites or any other content on the Internet;

   • Slowing or "throttling" Internet speeds;

   • Preferential treatment of applications, websites or any other content on the Internet;

   • Discriminatory tariff for data services based on the applications, websites or other content being accessed by the user, which has already been prohibited by the Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016;

   • Inspection of the contents of data packets, except to meet lawful requirements or to maintain the security of the network.

18. In the absence of a clear regulatory framework on net neutrality, advanced traffic management techniques can potentially be used by an operator for discriminatory or anti-competitive purposes. For instance, a TSP could use its control over internet access services to discriminate against any competitors that rely on its network or offer paid prioritisation to certain services. On the other hand, adherence to strict net neutrality rules could make it difficult for TSPs to deal with congestion and deliver the desired quality of service (QoS) to their users. An appropriate policy and regulatory approach on these issues will therefore have to strike a fine balance between these competing interests.

Unrestricted access and transparency

19. User choice, innovation without permission, and low costs of application innovation[4] are among the key factors that have allowed the Internet to serve as a platform for application innovation, free speech and decentralized economic, social, cultural and political interaction. Keeping

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[4] Barbara van Schewick, Network Neutrality and Quality of Service What a Non-Discrimination Rule Should Look Like, available at http://cyberlaw.stanford.edu/downloads/20120611-NetworkNeutrality.pdf .

this in view, the terms of the Unified License that set out the scope of Internet services specifically require TSPs to ensure that subscribers have unrestricted access to all content available on Internet, subject only to lawful restrictions.

20. Any action by TSPs to intentionally and arbitrarily apply restrictions on users' access to the open and neutral Internet would impede user choice. Such actions may include practices like blocking, throttling or preferential treatment, discussed in para 17 above.

21. The adoption of clear transparency standards is one of the methods that can be used to check TSPs from imposing unreasonable restrictions on the provision of Internet access. Accurate information about the terms on which Internet services are being offered to users, including on aspects of bandwidth, price and the network management policies of the TSP, can help users in making more informed choices.

Customer privacy and National security

22. OTT communication services, like Voice over Internet Protocol (VoIP) and instant messaging use the Internet for their transmission. While such services are governed in some respects by the provisions of the Information Technology Act, 2000, they are not subject to the same regulatory regime that is enforced on conventional voice and messaging services provided by TSPs. The absence of a detailed regulatory framework governing OTT communication services can have a number of implications, including for telephone number management, public safety, emergency number access and national security.

23. Besides security challenges at the national level, OTT communications and OTT media can also pose a threat to the privacy of individual users. While the open architecture of the Internet is responsible for the phenomenal growth of OTT services, it also causes the transfer of personal information on the Internet to be fraught with potential risks and scope for misuse. This calls for a need to examine the legal and regulatory framework required for governing the privacy of users of OTT services.

DoT Committee on Net Neutrality

24. The DoT Committee on Net Neutrality submitted its recommendations in May 2015. Some of 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.

INTERNATIONAL EXPERIENCE

25. Worldwide, various regulatory approaches are being followed in relation to net neutrality. The International Telecommunications Union (ITU) in its report[5] in 2013 classified these approaches into-

    1) Cautious Observation
    2) Tentative Refinement
    3) Active Reform

26. The countries following 'Cautious Observation' approach have taken note of net neutrality issues and have currently chosen not to take any specific measures to address them.

27. Countries that have adopted 'Tentative Refinement' are following a light-handed approach, with some refinements to the existing regulatory regime governing communications services, but not going so far as to prohibit certain behaviours.

28. There are some other countries that have followed the path of 'Active Reform' and sought to prohibit specific behaviours by TSPs, most often subject to an exception for reasonable network management practices. While some of these countries have chosen to enact a comprehensive law on the subject of net neutrality, there are others that have opted for non-

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[5] International Telecommunication Union, Trends in Telecommunication Reform (Chapter-2), 2013.

statutory mechanisms like issuance of guidelines by the regulator or cooperation mechanisms between the regulator and TSPs. The following section illustrates the diverse range of approaches being followed in other jurisdictions.

Australia

29. At present, Australia[6] does not have any specific ex-ante law governing net neutrality. Issues relating to net neutrality can however be addressed through the general competition regime administered by the Australian Competition and Consumer Commission (ACCC) and some sector-specific telecoms regulation. In the absence of any specific restrictions, ISPs have adopted practices of zero rating and other forms of traffic differentiation. In the recent years this has given rise to an intense public debate on this issue by Australia is yet to adopt a policy stance on the matter.

European Union

30. In October 2015 the European Parliament voted in favour for the EU-wide open Internet access regulations. The regulations[7] enshrine the principles of net neutrality into EU law: obligation to treat all traffic equally, without discrimination, restriction or interference and transparency requirements. Reasonable traffic management is permitted, provided that any such measures should be transparent, non-discriminatory and proportionate, and not based on commercial considerations.

31. Exemptions have been made to allow providers to offer priority to "specialised services", which are optimised to meet specific quality requirements, provided that they do not harm open internet access. While the regulation does not bar specific commercial practices, all such agreements and practices must comply with the provisions relating to non-discriminatory traffic management. The regulations allow national regulators to decide whether or not to allow any specific practices, such as zero rating, in their own country. The guidelines for enforcement of the regulation by national authorities are currently being framed by the Body of European Regulators for Electronic Communications.

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[6] Angela Saly, *Net Neutrality in Australia: the debate continues, but no policy in sight*, Net Neutrality Compendium, 2016.

[7] Regulation (EU) 2015/2120 of the European Parliament and of the Council laying down measures concerning open internet access, available at http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015R2120&rid=2

Brazil

32. Brazil enacted the *Marco Civil da Internet*, popularly known as the Internet Bill of Rights, in 2014. The Marco Civil lays down strong privacy, data security, freedom of expression and network neutrality rules. The network neutrality provisions in the law require Internet providers to treat all data on the Internet equally, regardless of content, origin and destination, service, terminal or application. According to the law, discrimination or degradation of Internet traffic is allowed for only two exceptional purposes: (1) technical requirements that are essential to the provision of Internet service, and (2) prioritization of emergency services.

Japan

33. Japan, along with South Korea, has the fastest commercially available Internet speeds in the world, as well as the lowest prices for bandwidth. In response to public concerns about ISP traffic management practices, in 2007 the government mandated Japan's telecommunication industry and Internet service providers to create a set of operational guidelines for traffic management, which would be compatible with Japanese law and government policies. This eventually led to the publication of the national ISP "Guideline for Packet Shaping" (2008), which provides a clear set of prioritized responses to traffic management issues on Japanese networks[8].

34. The Guideline state that its "basic concept" is that the first response to network congestion should be increasing network capacity. Only in "exceptional circumstances" should traffic shaping be used "where the traffic of a specific heavy user excessively occupies the network bandwidth and consequently degrades the service of general users". The Guideline describes two types of acceptable traffic shaping: restricting the bandwidth, or cancelling the access of heavy users and restricting the bandwidth use of specific network applications.

35. Consumers must be informed about their ISP's packet shaping policy in their contract terms and conditions, and agree to them. Service providers are also required to present relevant information to content providers and other ISPs about any traffic shaping that may impact them. The Guideline explicitly states that traffic shaping must respect individual user privacy, therefore making such technologies as deep packet inspection unusable in Japan. The Guideline allows packet shaping without consent of the user only if such network management is "lawfully

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[8] John Harris Stevenson and Andrew Clement, *Regulatory Lessons for Internet Traffic Management from Japan, the European Union, and the United States: Toward Equity, Neutrality, and Transparency*, 2010, Global Media Journal - Canadian Edition, Volume 3, Issue 1, pp. 9-29, available at http://www.gmj.uottawa.ca/1001/v3i1_stevenson%20and%20clement.pdf.

justifiable", typically in cases where the integrity of the network is threatened from a security standpoint.

United States

36. The Open Internet Order released by the Federal Communications Commission (FCC) in February, 2015 provides an interesting precedent[9]. Recognising advances in technology and the growing significance of mobile broadband internet access, the FCC order applies to both fixed and mobile broadband services. Through this order, the FCC has laid down the following bright-line rules:

    a. No Blocking: broadband providers may not block access to legal content, applications, services, or non-harmful devices.

    b. No Throttling: broadband providers may not impair or degrade lawful internet traffic on the basis of content, applications, services, or non-harmful devices.

    c. No Paid Prioritization: broadband providers may not favour some lawful internet traffic over other lawful traffic in exchange for consideration of any kind from a third party or to prioritize content and services of their affiliates.

37. In addition, the order lays down a general standard that ISPs cannot "unreasonably interfere with or unreasonably disadvantage" the ability of consumers to choose or that of content providers to offer any lawful content. Such practices will be addressed on a case-by-case basis. The order also creates an obligation of greater transparency in the interaction between internet providers and users.

38. Reasonable network management has been allowed as an exception. However, the network practice must be primarily used for and tailored to achieving a legitimate network management goal - and not for a business-purpose. For example, a provider cannot cite reasonable network management to justify reneging on its promise to supply a customer with "unlimited" data. The FCC will enforce the open Internet rules through investigation and processing of formal and informal complaints.

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[9] FCC Press release on February 26, 2015, available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-332260A1.pdf

Questions:

1) What should be regarded as the core principles of net neutrality in the Indian context? What are the key issues that are required to be considered so that the principles of net neutrality are ensured?

2) What are the reasonable traffic management practices that may need to be followed by TSPs while providing Internet access services and in what manner could these be misused? Are there any other current or potential practices in India that may give rise to concerns about net neutrality?

3) What should be India's policy and/or regulatory approach in dealing with issues relating to net neutrality? Please comment with justifications.

4) What precautions must be taken with respect to the activities of TSPs and content providers to ensure that national security interests are preserved? Please comment with justification.

5) What precautions must be taken with respect to the activities of TSPs and content providers to maintain customer privacy? Please comment with justification.

6) What further issues should be considered for a comprehensive policy framework for defining the relationship between TSPs and OTT content providers?