



Vodafone Response to TRAI Consultation Paper on Net Neutrality dated 4 January 2017

Summary:

1. We believe that the entire debate around net neutrality needs to be anchored around public policy objectives – whether to listen to the voice of the million “haves” versus the billion “have-nots”. India is a market where only 20% of the existing subscribers are availing broadband services; it may however be noted that of these, 92% of broadband users are mobile users (as of Dec 2016). It is estimated that over 90% of the internet users have their first experience of the internet through their mobile phones. It is clear that mobile/wireless will be the platform to achieve Government’s vision to transform India into digitally empowered society and knowledge economy.
2. The **clear** priority in India **at this stage is to drive the proliferation and adoption of broadband** and ensure that the **1 billion unconnected are enabled and empowered to use mobile broadband services** and that we achieve the vision of a Digital India.
3. As opined by the DoT Committee, **innovation and infrastructure have both to be promoted simultaneously** and the endeavor in policy approach should be to **identify and eliminate actions that inhibit the innovation abilities inherent in an open Internet or severely inhibit investment in infrastructure**. As also noted, the primary goals of public policy in the context of Net Neutrality should be directed towards achievement of developmental aims of the country by facilitating “Affordable Broadband”, “Quality Broadband” and “Universal Broadband” for its citizens.
4. **Transparency is the primary way in which to protect end users and safeguard the open internet**. As highlighted by the Digital India Programme, **consumers and businesses should be empowered to decide what services are best for them** and should be able to choose from innovative new business models, whether that means free services for consumers or meeting the quality of service needs of businesses. There is no evidence of harm which needs to be addressed by additional regulation – in fact the opposite is true, as differential pricing in particular has been shown to help users manage their costs¹. Regulation should focus on transparency and the ability to easily switch to another operator rather than restricting the price or services which can be offered. In order to deliver better quality to consumers, traffic management should be encouraged, to ensure networks are run efficiently. Mobile networks

¹ http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2016/11/MeasuringImpactsOfMobileDataServices_ResearchBrief3.pdf



in particular need **more flexibility in relation to traffic management with finite resources and the growth in video services**².

5. **Traffic management is essential to ensure quality of service and manage networks efficiently and should not be restricted.** Traffic management is already employed by network operators for a wide range of different purposes. Mobile networks in particular need more flexibility in relation to traffic management. As users place ever greater demands on finite resources and the technology continues to evolve, traffic management will be more user centric and complex.
6. Consequently, at this stage, **a wait and see approach** would be more desirable and proportionate to both maintain the current open, democratic, affordable and non-discriminatory internet and address any new risks that emerge. The TRAI has itself suggested that in the consultation it may consider the options of a 'wait and see approach' or a 'self-regulatory approach'. As submitted, we believe that a wait and see approach may be a desirable option with regulatory oversight via competition law to address possible instance of misuse.
7. The US, who introduced a strict net neutrality regime are now already moving to a lighter touch framework. The FCC has ended investigations into current differential pricing offers. The Chairman of the FCC, Ajit Pai has said

"It is evident that the FCC made a mistake ... [and] injected tremendous uncertainty into the broadband market, and that's the enemy of growth. ...The U.S. experienced first-ever decline in broadband investment outside of a recession."

He went on to state that

"We will not focus on denying free data or issuing heavy-handed decrees inspired by the distant past....We should not try to intervene in this marketplace."

This is supported further by an article titled "Antitrust over Net Neutrality: Why We Should Take Competition in Broadband Seriously,"³ in which Maureen Ohlhausen, acting Chairwomen of the FTC argues for an antitrust approach to internet openness which would allow regulators to intervene if competition fails to protect consumers, without distorting the market. Given the

² Cisco - mobile data traffic will grow seven-fold from 2016 to 2021 in India, a compound annual growth rate of 49% and globally, globally, mobile video will increase 8.7-fold from 2016 to 2021 and will have the highest growth rate of any mobile application category - <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html>

³ <https://www.ftc.gov/public-statements/2017/01/antitrust-over-net-neutrality-why-we-should-take-competition-broadband>



minimal harm, her position is that ex ante regulation has little benefit but imposes real costs on consumers and innovation by restricting choice.

8. It is not clear from the present consultation whether the TRAI will also be addressing the OTT issues which were a part of the detailed consultation initiated by TRAI in 2015. This issue was also a part of the recommendations by the DoT Committee in May 2015 and further recommendations regarding the same have also been sought by DoT in its March 2016 reference to TRAI. We believe that the TRAI should **also address the issue of OTT players which is an important and inter-linked issue** with Net Neutrality, for which a decision needs to be taken in a holistic and comprehensive manner.
9. We also submit that in the TRAI Tariff Regulation on Differential pricing, the TRAI has stated that it has been guided by the principles of Net Neutrality; which, as noted in the present consultation, are yet to be defined in the Indian context. We request that these may also be revisited by TRAI as a part of the present consultation and consequent recommendations to the Government.
10. We maintain and reiterate that **differential pricing can provide choice to consumers** and help them manage their costs. It can also help to drive data for social good – in markets where there is no restriction on differential pricing, such as in our African markets, we have seen the emergence of free access for education, health, jobs and other services⁴. We would also like to highlight the policy recommendations of the Alliance for the Affordable Internet, which follows detailed research into differential pricing⁵. The Alliance recommends that in many cases, ex post regulation is sufficient, especially in markets where there are low barriers to entry, a competitive market structure and competition law remedies. On the wider context, they also suggest that policy guidelines for mobile data services should be aligned with national broadband goals and that any rules should be based on detailed analysis of examples of differential pricing and the impact of this on competition.
11. We also request if TRAI could share the reference received from DoT and put the same up on its website as a part of the present consultation. This will be in the interests of transparency.

Issue-wise Response:

Q.1. What could be the principles for ensuring non-discriminatory access to content on the Internet, in the Indian context?

⁴ Examples include http://www.vodacom.co.za/vodacom/services/vodacom-siyakha?cid=ntrn_0_dsgn_6848 – a site providing free access to health, education and other sites, <https://instantschools.vodafone.com.gh/> - a first example of the Instant Schools service to be offered for free across all of Vodafone's African markets, combining global and local educational content

⁵ http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2016/11/MeasuringImpactsOfMobileDataServices_ResearchBrief3.pdf



- a. As set out above, there is a careful balance to be maintained between non-discrimination, consumer welfare, investment and innovation in order to achieve the vision of a Digital India. Focusing on just one of these areas is likely to have a negative impact on overall welfare.
- b. Consequently, a general principle could be that consumers should have the right to access and use applications and services of their choice.
- c. We again draw attention to the TRAI's principle of non-discrimination enunciated in 1999 that the TSP shall not discriminate between subscribers of the same class and such classification shall not be arbitrary. We believe that this principle holds good even today – both for the voice as well as the data market, for the consumers as well as the content providers and once again urge that the TRAI define NN in terms of this abiding principle.
- d. We suggest the following principles/guidelines may be adopted:**
 - The starting point should be the consumer. Consumers should have the ability to choose to access or not to access services that they want.
 - Consumers should be empowered via transparent information in relation to their plans, so they understand pricing, traffic management and prioritisation clearly and can make informed decisions.
 - An ex ante approach should only be taken where differential pricing or prioritisation is provided by a vertically integrated operator to its own services or where differential pricing is applied on an exclusive basis which results in anti-competitive effects between operators or content providers.
 - In general, any regulations should avoid restricting the ability of operators to manage traffic efficiently or from offering prioritisation for services which require a different quality of service or differentiated pricing for specific services.
 - The treatment of public services should follow all the same guidelines as other services.
 - Specifically, operators should not block or throttle specific content, applications or services, or specific categories thereof, except as necessary to:
 - block unlawful content
 - preserve the integrity and security of the network, handsets and services;
 - implement reasonable traffic management for the benefit of end users
 - implement data caps
 - implement video optimisation
 - prevent the transmission of unsolicited communications
 - implement parental controls
- e. We also note that the suggested principles enunciated by the DoT Committee are in broad alignment with our suggested principles /guidelines and are underpinned by the need to follow a balanced approach and ensure consumer freedom and choice.



Q.2 How should “Internet traffic” and providers of “Internet services” be understood in the NN context?

a) Should certain types of specialised services, enterprise solutions, Internet of Things, etc. be excluded from its scope? How should such terms be defined?

b) How should services provided by content delivery networks and direct interconnection arrangements be treated?

a. As highlighted by TRAI, an open and non-discriminatory access to the Internet has revolutionized the way people communicate and collaborate, entrepreneurs and corporations conduct business, and governments and citizens interact.

b. We submit that it is essential to achieve a balance, in order to maintain the current open internet that we have today whilst also avoiding any negative impact on growth of businesses, consumer welfare and innovation and investment.

c. It is our view that Internet traffic should be understood to mean services that offer the general public the ability to access all, or substantially all end points of the internet.

d. The Open Internet Order in the US applies to consumer-facing service that broadband networks provide, which is known as “broadband Internet access service” (BIAS) and is defined to be:

“A mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service. This term also encompasses any service that the Commission finds to be providing a functional equivalent of the service described in the previous sentence, or that is used to evade the protections set forth in this Part.”.

e. The European regulation applies to “Internet Access Services”, defined 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*”⁶.

f. The discussions on net neutrality have, as yet, not been extended beyond the network, for example to the provision of transit, transport or data centres, including CDNs or the provision of other services elsewhere in the value chain, such as operating systems or search engines. It is submitted that these are important technical solutions that are aimed at delivering the most optimal user experience to consumers. We submit that the need to optimize the network and internet experience is valuable for all components of the internet ecosystem.

⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015R2120&from=EN>



Specialised services

- g. Specialised services should be excluded from the scope of any net neutrality discussions. Specialised services are essentially individual services where there is a demand on the part of providers of content, applications and services to be able to provide electronic communication services other than internet access services, for which specific levels of quality are necessary. As technology evolves, future services could include things like **telehealth, connected cars, Smart Grids, massive multiplayer video games, live broadcast events, emergency services and others which have specific quality of service needs, such as latency, resilience and capacity**. Creating specialized services not only drives innovation but also creates new business models which can drive investment, which will benefit all end users. Costs, and therefore prices, will be lower for everybody.
- i) US approach – under the Open Internet Order, specialised services are permitted. The FCC considered whether to address this area expressly but decided not to on the basis that this would risk potentially limiting future innovation and investment, ultimately negatively impacting consumer welfare as suggested by many stakeholders.⁷
- ii) European approach - the Open Internet Regulation permits prioritisation of specialised services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality.
- iii) Future technological developments - Going forward, the ability to optimise 5G network performance to ensure that applications critical to life, that can control the means of production, or that can flexibly meet unanticipated or unpredictable broadband demands, will be key. In turn, this means that the networks must be able to recognise and respond to these requirements in real time.

Enterprise services

- h. Enterprise services should not fall within the remit of NN. Businesses have specific quality needs which are essential to compete on the global marketplace and enter into customised or individually negotiated arrangements.

⁷ See, e.g., ETNO Comments at 4 (“We believe that the FCC chooses a future-proof path by not formally defining ‘specialized services.’”); MIT Media Lab Comments at 2-3 (“As long as non-discriminatory Internet access is available, we see no reason to prevent the addition of other specialized, for-fee services. Nor do we see the need to restrict a vibrant market in developing and implementing them.”); TIA Comments at 30 (“[S]pecialized services can help to spur investment in broadband facilities,” and “[r]egulatory intervention in this nascent area would suppress these innovative enhancements to consumer welfare.”).



- i. Apart from the above, other reasons why enterprise services need to be excluded from the scope of NN are:
 - Prevalence of customized and bilaterally negotiated contracts with enterprise users including with managed SLAs for differentiated/prioritized and guaranteed services as per their specific demands and needs.
 - Service requirement of enterprise users primarily towards private data network or virtual private network (not public internet) with dedicated network management for enhanced/guaranteed QoS and additional services (such as security solutions which include intrusion detection services, vulnerability assessments, denial of service protection).
 - Enterprise users' ability to configure their IP services at their will.
- j. This is also the global practice. In the US enterprise services are expressly excluded from the Open Internet Order. In Europe, while end users who are protected *include* businesses, the BEREC Guidelines also provide that quality of service might be especially important to corporate customers and these customers might be in need of specialised services which – as they are addressing businesses – are often referred to as “business services”.
- k. Similarly, Telecom operators in India have been offering managed data services to enterprise customers for years over their data connections and private IP infrastructure. Any limitation placed on enterprise or managed services, will jeopardize and limit the functionalities that enterprise customers expect from telecom operators and stifle development of the market.
- l. Moreover, the very nature of the Indian business services market, and the high level of competition in India, gives the large business/enterprises customers a high degree of control and leverage in striking the business deal they desire in a way not generally available to consumers of mass-market Internet access services.
- m. It is important to note that the DoT Committee has also taken the considered view that managed services are a necessary requirement for businesses and enterprises, and suitable exceptions may be made for treatment of such services in the Net Neutrality context.

Internet of Things

- n. An IoT device does not necessarily connect to the Internet. An example is distributed sensors connected over a radio network, with their signals processed only within that network rather than over the internet interface. These are clearly not internet services.
- o. Narrowband IoT is another example of this. It is a dedicated frequency range for IoT which (1) does not interfere with consumer Internet access and (2) is a low throughput frequency range, meaning it is not appropriate for consumer Internet.



- p. In addition, regulators in Europe have excluded any application of NN requirements to services where the number of reachable end-points is limited by the nature of the terminal equipment used with such services (e.g. services designed for communication with individual devices, such as e-book readers as well as machine-to-machine devices like smart meters etc.)
- q. Cisco has predicted that machine to machine traffic will grow 17-fold from 2016-2021, a compound annual growth rate of 76%. Sanjay Kaul, Managing Director of Cisco India stated that

“As India leaps towards a digital economy, 2016 alone saw a huge growth in mobile traffic – by 76% from last year and, by 2021 consumer mobile traffic will grow 7.4-fold at a CAGR of 49% y-o-y. Much of this growth will be fueled by massive consumer adoption of smartphones, IoT, smart devices and use of machine-to-machine connections with an estimated 1,380 million mobile-connected devices by 2021”.

Application of any NN requirements to IoT services is likely to hamper development of this nascent area and limit India’s future in a digital economy. In view of our submissions above, this is neither necessary nor desirable.

CDNs

- r. Many services, especially video providers, use CDNs to bypass the public internet and deliver their packets to users (or to the telecoms networks the users subscribe to). Routing traffic in this way improves video quality for those watching video services whilst releasing capacity on the public internet for other services that are more tolerant of congestion. CDNs effectively provide dedicated servers located physically close to the end user’s access network. Some CDNs (such as Level 3 or Limelight) operate networks, whilst others (for example Akamai) have traditionally only provided the server service.⁸
- s. The benefits to the content providers of being able to use a CDN are that as the data is delivered locally, latency is reduced and quality is enhanced, whilst the potential for congestion when traffic is routed across multiple international links is reduced. The CDN owner retains a greater control over the quality of service and, ultimately, quality of experience for the end users. This is similar to the use of traditional Virtual Private Networks by those providing telecoms services to business users, or business users themselves using dedicated capacity to connect their facilities.
- t. The DoT Committee has opined that CDN is an arrangement for management of content as a business strategy. Making available one provider’s CDN to others on commercial terms is a

⁸ See BEREC, December 2012, ‘An assessment of IP interconnection in the context of Net Neutrality’



normal business activity. Discrimination in access or adoption of anti-competitive practices by them is best left to be covered under the law related to unfair trade practices.

Local caches

- u. Content providers may also store content on local caches close to the end user's network. Companies like Google have found that users of their search engine get frustrated if responses to search enquiries are delayed, so Google installs local caches (servers) in each country with copies of the most popular search results (which may also include video searches on YouTube and content sourced from other Google platforms). Most search queries can then be answered without packets ever having to be routed outside the country. Results are delivered more quickly and quality is higher as a result. Caches can also be installed on servers located within an end user's ISP network in order to maximise the quality and speed of delivery.
- v. Caches often need to be regularly updated as user demands change (and new search queries replace old ones), with demands likely to differ between countries, and even within them. Caching is suitable for content where there is popular demand that is relatively localised, but less suitable for the 'long tail' of internet content for which demand may be both more global and much less predictable. Facebook data, for example, is frequently updated but is also much more widely distributed (in the sense that different users will access different content of different friends in different locations, rather than all users accessing the same content posted by one person at a single location). Thus, although Facebook is a large source of traffic on the internet, it concentrates its data in a small number of datacentres around the world and uses its own CDN facilities but does not typically use local caching.
- w. Modern technology also makes it possible to integrate a server with high storage capacity with the Wi-Fi hotspot equipment. As the cost of such servers has come down significantly, along with the cost of storage, and the form factors of such devices are very small, it should be possible to cache or download content for easy browsing even when the backhaul connectivity is not available

Private peering

- x. A variety of factors will shape the peering and transit markets, namely transport unit costs, continued price decline in the transit market, and the use of private networks, as well as the increasing localisation of traffic. Overall, strong internet traffic growth fuelled by video demand will ensure a dynamic system with competition driving technological innovation as well as an economic mix of commercial models, including peering and transit arrangements. Given the competitive nature of the market, there is no market failure that would warrant ex-ante intervention. Where internet interconnection disputes arise, competition law mechanisms and existing regulations are best placed to resolve the issue, as is illustrated by existing precedent.



Equal treatment to all components of the Internet eco-system

- y. As submitted above, we note that the net neutrality requirements have traditionally been applied only to telecoms operators, while other providers in the internet value chain as mentioned above, can also differentiate in terms of quality and service.
- z. TRAI should ensure that **there is level playing field amongst all components of the Internet eco-system**, keeping in mind that first, software or other solutions that improve efficiency of delivery of data are inherently beneficial for the end user and also for the network operator as they mean that networks are being used efficiently and secondly, that the boundaries between the network and the end user service are blurring, due to all IP network migration, 3rd party innovations, cloud and SDN advent and data centre consolidation.
- aa. It is important to note that the DoT Committee has recommended that content and application providers cannot be permitted to act as gatekeepers and use network operations to extract value in violation of core principles of Net Neutrality, even if it is for an ostensible public purpose. This is line with our submission that the same rules need to be applied to all components of the internet ecosystem.

Q.3. In the Indian context, which of the following regulatory approaches would be preferable:

- a) Defining what constitutes reasonable TMPs (the broad approach), or**
- b) Identifying a negative list of non-reasonable TMPs (the narrow approach).**

Please provide reasons.

- a. The TRAI itself has recognized /acknowledged that the fundamental feature of the internet is that it operate on a best efforts basis; that the diverse range of content available on the internet has varying characteristics, uses and bandwidth requirements; that competitive forces compel TSPs to manage their networks in a manner that is conducive to attracting new customers and retaining existing ones; that traffic management techniques are deployed for delivering satisfactory QOS. Thus clearly it is recognized by all that traffic management is essential and required for improving the internet access service experience for all.
- b. There are however many challenges in relation to regulating traffic management as these are often dependent on extraneous and dynamic factors.
- c. Further, methods which are used today are likely to change rapidly, as the technology evolves, which makes it difficult to define what is or is not reasonable. For example, an approach which imposes a non-discriminatory requirement is unlikely to be in the end users interests in a 5G world. In the words of the United Kingdom's 5G innovation Centre, 5G networks will be



optimising traffic flows on the basis of “*user and network context information such as where, when, why, who and what is being requested*”.⁹

- d. There are also a number of exceptions which need to apply to any generic approach on traffic management, to enable compliance with legal requirements, to ensure security and offer consumers the ability to choose to implement traffic management themselves, whether as part of a service such as parental controls, which blocks access to inappropriate content or as part of their normal tariffs, such as blocking access to the internet once a data cap is reached. Specialised services are clearly also an exception to normal traffic management.
- e. Transparency is not about completing forms, but instead about providing users with the tools which allow them to really understand the characteristics of the service they can expect to receive and the terms on which they can expect to do so. Many of the characteristics which engineers use to define services – data rates in MB/s or concepts such as latency or jitter- are not well understood by users. This is an even greater challenge in wireless environments where it is impossible to ‘guarantee’ or even predict a particular level of network performance (which will depend on variables such as the location of the user and the device they are using, the behaviour of other users on the cell, or the local climate). Any information provided to users must be understandable.
- f. We believe **that a broad principles based approach that also provides for necessary exceptions as submitted above, would be the preferable approach at this stage.**

Q.4. If a broad regulatory approach, as suggested in Q2, is to be followed:

- a) **What should be regarded as reasonable TMPs and how should different categories of traffic be objectively defined from a technical point of view for this purpose?**
 - b) **Should application-specific discrimination within a category of traffic be viewed more strictly than discrimination between categories?**
 - c) **How should preferential treatment of particular content, activated by a users choice and without any arrangement between a TSP and content provider, be treated?**
- a. Traffic management has long been an important tool in meeting the diverse and heterogeneous needs of different types of traffic and users of internet services. Traffic management is already employed by network operators for a wide range of different purposes, and more are likely to emerge as the requirements which users and services impose on the network become more complex. Examples of current and anticipated network management practices include:

⁹ See Institute for Communication Systems 5G Innovation Centre (in association with University of Surrey), “5G Whitepaper: The Flat Distributed Cloud (FDC) 5G Architecture Revolution”, January 2016, at p.2.



- i) Blocking spam, malware, denial of service attacks and other security threats to the network or to user devices
 - ii) Blocking sites which are unsuitable for minors as part of parental controls tools, either at the network or device level
 - iii) Prioritising voice and video services, which require specific quality of service levels to function effectively
 - iv) Implementing data caps
 - v) Optimising video, both in terms of available bandwidth and resolution of mobile screens. Note that content providers also address this issue, by offering end users the ability to watch video in SD or HD and via caching content/investing in CDNs and other technologies.
 - vi) Ensuring that specialised applications such as emergency calling, voice over IP, multi-player gaming or some medical applications can be delivered in a way which ensures optimal performance of those applications
- b. For mobile networks in particular, traffic volumes can be very difficult to predict, especially given the varying number of users at certain periods and in certain locations. There would be a very high likelihood that QoS levels and speed of content delivery would be compromised without proper traffic management.
- c. Going forward, it is difficult to predict how traffic management practices might evolve in future. Users are placing ever greater demands upon finite network resources and at the same time internet services are becoming more complex and will require something more than 'best efforts' management by the network to perform well. The needs of users themselves are also becoming richer and more varied. In an environment where network resources are shared amongst users – as is the case in mobile radio access networks and core fixed networks – network management tools perform a critical function in allocating resources to the right users and the right services at the right time.
- d. A central principle of net neutrality is that the customer should be able to choose what they want to access and what they do not want to access. So if a customer chooses to optimise treatment of content, there is no reason why this should not be permitted. For example, many customers choose to access videos in SD rather than HD quality in order to reduce the data cost or ensure less buffering when in a low coverage or highly congested area.
- e. Agreements between TSPs and content providers can support this overriding principle of customer choice and freedom, by creating a range of options so that a customer can choose the service which best meets their needs.

Q.5. If a narrow approach, as suggested in Q2, is to be followed what should be regarded as non reasonable TMPs?



- a. For the reasons set out above, defining a narrow list of non-reasonable TMPs can be very challenging and is unlikely to be future proof.
- b. The practices of prohibiting blocking and throttling are intended to ensure that consumers must be able to access all parts of the Internet without discrimination. Both the US and Europe prohibit “blocking” and “throttling”. However, in both examples, here are a number of exceptions to this:
 - for security/legal reasons
 - to protect consumers (e.g. enabling customers to set parental controls and spam, permitting the blocking of child pornography content, permitting prioritisation of emergency services)
 - for traffic management reasons (e.g. managing congestion, compression of video for overall quality welfare)
 - to deliver specialised services
 - to deliver tariffs (fair usage caps, data caps)

Q.6. Should the following be treated as exceptions to any regulation on TMPs?

- a) Emergency situations and services;**
- b) Restrictions on unlawful content;**
- c) Maintaining security and integrity of the network;**
- d) Services that may be notified in public interest by the Government/Authority**
- e) Any other services**

- a. We first submit that there is no need for any regulation on traffic management practices and a broad principles based approach is desirable. The TRAI also appreciates that traffic management is essential to manage mobile networks and deliver an optimal user experience.
- b. As we have submitted earlier, traffic management is also essential to take care of emergency situations and services, restrictions on unlawful content and maintaining security and integrity of the network and these should in any event, be treated as exceptions to any NN requirements /principles.
- c. We do not believe that any services notified in public interest by the Government/Authority should be excluded from the purview of traffic management and accorded any preferential /prioritized treatment except to the extent of para (b) above.
- d. Further and especially, no government service which is offered in a competitive market environment should be entitled to any favourable treatment.

Q.7. How should the following practices be defined and what are the tests, thresholds and technical tools that can be adopted to detect their deployment

- a) Blocking;**



- b) Throttling (for example, how can it be established that a particular application is being throttled?);**
- c) Preferential treatment (for example, how can it be established that preferential treatment is being provided to a particular application?)**

a. The DoT Committee has recommended the following guidelines/principles for blocking, throttling and prioritization.

Blocking	No blocking of any lawful content
Throttling	No degradation of internet traffic based on the content, application, services or end user
Prioritization	No paid prioritization which creates discrimination

b. We would recommend implementing the following exceptions to these rules:

No blocking or throttling of specific content or services except where required to:

- block unlawful content
- preserve the integrity and security of the network, handsets and services;
- implement reasonable traffic management for the benefit of end users
- implement data caps
- implement video optimisation
- implement parental controls

c. On paid prioritisation, we believe that the principle of non-discrimination laid down by TRAI in 1999 should be adhered to and no position should be taken that inadvertently prevent prioritisation that is necessary (such as for emergency services) or beneficial (such as for health, IPTV, voice over LTE).

d. As regards the issue raised on tests, thresholds and technical tools that can be adopted to detect the deployment of such techniques, it is submitted that the issue raised is premature as first the core principles and definition need to be laid down before operational or implementation framework is discussed.

e. It may however be noted that we are not aware of any single instance or apprehension that has been voiced in any quarter about any such there is no evidence or any of any improper blocking, throttling and prioritization by any TSP.

f. In view of the above, the TRAI should consider on balance the very need for going in for any prescriptive approach at this stage and should, in our view confine itself to recommending a broad principles-based approach.



Q.8. Which of the following models of transparency would be preferred in the Indian context:

- a) **Disclosures provided directly by a TSP to its consumers;**
- b) **Disclosures to the regulator;**
- c) **Disclosures to the general public; or**
- d) **A combination of the above.**

Please provide reasons. What should be the mode, trigger and frequency to publish such information?

&

Q.9. Please provide comments or suggestions on the Information Disclosure Template at Table 5.1? Should this vary for each category of stakeholders identified above? Please provide reasons for any suggested changes.

- a. Transparency is essential, but information should be provided to both customers and prospective customers in an understandable and comparable way before they commit to a particular operator and service.
- b. The present information disclosures as already prescribed by TRAI are sufficient for this purpose. Any further requirements on transparency can be discussed /examined only when there is a definitive Government view on NN.
- c. However, as a general rule, the disclosures to consumers may be on issues and in a form and manner that is understandable and useful to the consumer in order to make their product and pricing decisions. Disclosures to the regulator should be in a form and manner that is designed to achieve a defined end-objective.

Q.10. What would be the most effective legal/policy instrument for implementing a NN framework in India?

- a) **Which body should be responsible for monitoring and supervision?**
- b) **What actions should such body be empowered to take in case of any detected violation?**
- c) **If the Authority opts for QoS regulation on this subject, what should be the scope of such regulations?**

- a. It is first submitted that the answer to this question will depend upon the NN framework that is finally adopted in India.
- b. Regarding the NN framework, we believe that given India's ambitions to create a Digital India and the competitiveness of its marketplace in relation to the supply of internet access services, focus should be on investment and use of the internet. There is no universally correct policy response to net neutrality as the end user's needs are driven by the current state of competition and development in their country. Currently we know in India that there is no evidence of consumer harm, and no evidence of detrimental effects on competition.



- c. It may be noted that the DoT Committee too has highlighted this issue, recommending that
- *3. Innovation and infrastructure have both to be promoted simultaneously and neither can spread without the other. The endeavor in policy approach should be to identify and eliminate actions that inhibit the innovation abilities inherent in an open Internet or severely inhibit investment in infrastructure.*
 - *4. The primary goals of public policy in the context of Net Neutrality should be directed towards achievement of developmental aims of the country by facilitating "Affordable Broadband", "Quality Broadband" and "Universal Broadband" for its citizens.*
- d. In view of the above, we believe that a wait and see approach would be a desirable approach to be adopted at this stage.
- e. In view of the above, we believe that it is premature at this stage to raise issues with regard to implementation for NN framework, body responsible for monitoring & supervision, etc., until the approach to and definition of NN is determined in the Indian context.

Q.11. What could be the challenges in monitoring for violations of any NN framework? Please comment on the following or any other suggested mechanisms that may be used for such monitoring:

- **Disclosures and information from TSPs;**
 - **Collection of information from users (complaints, user-experience apps, surveys, questionnaires); or**
 - **Collection of information from third parties and public domain (research studies, news articles, consumer advocacy reports).**
- a. As mentioned above, the approach to and definition of NN needs to be first decided before the TRAI raises issues on monitoring or enforcement or compliance.
- b. Assessing traffic management measures is technically very challenging as set out in a report commissioned by Ofcom¹⁰. As set out in this report, none of the currently available techniques meet the desired key attributes of a traffic management system.¹¹ A further difficulty identified was the need to attain a broader understanding of what the various actors in the UK digital supply chain may or may not be doing from a TM perspective and how these activities interact. Consequently, it is essential that information requirements and reporting focuses on traffic

¹⁰ https://www.ofcom.org.uk/__data/assets/pdf_file/0024/71682/traffic-management-detection.pdf

¹¹ This is because: 1. Some attempt to establish where TM is occurring along the path examined, but only at the IP layer, which will only localise TM performed at user-visible Layer 3 routers; in the UK context there may not be any such between the user and the ISP. This localisation also relies on a highly restricted router resource, which would limit the scale at which such techniques could be deployed. 2. They aim only to detect the presence of differential TM within the broadband connection of a particular end user. 3. Those that are currently in active deployment generate significant volumes of traffic, which may make them unsuitable for large-scale use. A key constraint of most of the currently available tools is that they focus on detecting a particular application of a particular TM technique. Even in combination they do not cover all of the potential TM approaches that could be applied



management which a consumer can understand and which can be measured in terms of the experience of the consumer.

Q.12 Can we consider adopting a collaborative mechanism, with representation from TSPs, content providers, consumer groups and other stakeholders, for managing the operational aspects of any NN framework?

- a) **What should be its design and functions?**
 - b) **What role should the Authority play in its functioning?**
- a. It is important that the contours of the framework are known before stakeholders can comment on managing the operational elements of the same.
 - b. We also believe that any policy or regulatory initiative must have a justified trigger and should not be created in a vacuum. As we have maintained repeatedly, we are not aware of any instances of consumer harm that have arisen in the Indian market that justify any prescriptive approach at this stage.
 - c. In fact the proliferation of the Internet itself is still at a nascent stage and the first priority, as the TRAI is aware, is to drive the growth of broadband in the country.
 - d. We therefore support adopting a wait and watch approach at this stage.

Q.13 What mechanisms could be deployed so that the NN policy/regulatory framework may be updated on account of evolution of technology and use

- a. As submitted above, we believe that a wait and see approach is more desirable at this stage.
- b. It would also be desirable that there is first, a decision, on the definition of NN and a proposed NN framework before raising issues regarding implementation of the same.

Q.14. The quality of Internet experienced by a user may also be impacted by factors such as the type of device, browser, operating system being used. How should these aspects be considered in the NN context?

- a. It is submitted that there are many factors which impact quality but which are also outside of the control of the operator. This is also relevant for any form of transparency in relation to speeds, as ISPs cannot be responsible for factors which affect speed but are outside their control, whether that is the device, access to third party infrastructure, weather conditions etc.
- b. Operators can also optimise delivery of content to be appropriate for the type of device used. This is a form of traffic management which is dependent on the user and their own



circumstances, rather than the categorisation of the content. This demonstrates the challenge of defining reasonable traffic management.

Any Other Issues

Level Playing field with OTT communication Services

- a. Although the TRAI has not raised this as a specific issue, we would like to take this opportunity to urge the TRAI to also address the issues related to OTT communication players, which have been pending since they were first raised by TRAI in 2015. The consultation in this regard was carried out and completed in 2015 and recommendations in this regard are urgently awaited.
- b. Although the TRAI has taken the view that the issue of OTT is not central to the present exercise, we humbly beg to differ with this view.
- c. The fact that the issues are inter related and inter-linked is evident from the fact that both the TRAI as well as the DoT Committee in 2015 dealt with both these issues of OTT and NN and the DoT recommendations encompassed both NN as well as OTT players.
- d. The final Government decision on both these issues has been pending since 2015 as the TRAI recommendations in this regard are awaited – in fact, we believe that this may have been the context of the DoT reference/letter of March 2016.
- e. Our issues and concerns with regard to the non-level playing field with OTT players are well known to the TRAI and have been elaborately discussed in our earlier submissions to TRAI. We urge the TRAI to come out with holistic and comprehensive recommendations on both these issues so that the same can be considered in totality by the Government and a considered decision is taken keeping in mind all aspects, impacts and implications.
- f. It may be noted that the DoT Committee, after due consultation with all stakeholders, has noted and recommended that:

9. 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.

10. 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.

- g. The Committee has also further stated that “*On the limited aspect of domestic OTT communication services, where the regulatory arbitrage arising from similar services being provided by such service providers in competition with licensed telecom service providers and this arbitrage is a matter of serious concern for policy makers, the Committee reiterates its view that domestic OTT communication services should be regulated through exercise of licensing powers available under section 4 of the Indian Telegraph Act to ensure a level playing field.*”

Review of Differential Tariff Regulation

- h. There is also this issue with regard to the Differential tariff regulations of TRAI issued on 8 February 2016. In framing the Regulations, the TRAI had stated that it was guided by the principles of Net Neutrality.
- i. However, as is evident from the present consultation, the principles of Net Neutrality are yet to be defined by the Government and hence, the regulation of TRAI, may, in this view, be considered pre-mature.
- j. The DoT Committee has rightly recommended that the Tariff plans offered by TSPs/ISPs must conform to the principles of Net Neutrality set forth in guidelines issued by the Government as Licensor. TRAI may examine the tariff filings made by TSPs/ISPs to determine whether the tariff plan conforms to the principles of Net Neutrality.
- k. We thus believe and submit that it would be desirable for TRAI to review this Regulation, and possibly put it into abeyance, pending a final decision on the issue of NN.
- l. **We once again advocate that differential pricing has a number of potential benefits.** Differential pricing provides **choice and flexibility** for customers, and creates new ways for content providers and operators to compete. Researchers at Aalborg University and the London School of Economics studied the impact of zero-rating programs in several countries, concluding that they “cannot find evidence that shows that zero rating creates harm” to competition¹². Ellen Goodman, professor at Rutgers Law School, explains, “The data seem to show that price differentials do not substantially change consumption patterns or advantage incumbent applications.”¹³ Indeed, it is much more likely that zero-rating programs are a pro-

¹² Roslyn Layton and Silvia Monica Elaluf-Calderwood, “Zero Rating: Do Hard Rules Protect or Harm Consumers and Competition? Evidence from Chile, Netherlands and Slovenia,” August 15, 2015, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2587542.

¹³ Ellen P. Goodman, “India’s Ban on Facebook’s Free Service Is an Overreaction,” *The Guardian*, February 2016 <https://www.theguardian.com/technology/2016/feb/08/indias-ban-on-facebooks-free-service-is-anoverreaction>.



competitive tool for mobile operators to differentiate their services, and for applications to expand their user base.

Developing Countries

- m. In developing countries, **differential pricing** is a **low cost mechanism** to address the **digital divide** and “**jumpstart**” the **local internet ecosystem**. As more people connect, local content and service providers will create and expand content to meet growing demand. If high demand services are zero rated, such as Facebook and Google, people are free to use a higher percentage of their existing data cap on other content. This in turn will boost the economy, which will generate more demand for local content.
- n. A recent study found that **45 percent of global mobile operators** offer some form of zero rating. This includes offerings in many of the countries with the lowest incomes and broadband adoption rates, like Tanzania, Cameroon, Ivory Coast, India, Moldova, Uzbekistan, and Pakistan.¹⁴
- o. Diana Carew’s report on Kick Starting Internet Ecosystems in Developing Countries¹⁵ identifies that:

“in several developing countries where mobile operators have already offered zero-rated content, Internet ecosystems are taking off....The Philippines, for example, a country whose mobile operators actively engage in zero-rating, has recently begun to enjoy a prosperous Internet start-up culture. A basic search online shows a large and wide variety of Filipino Internet companies, offering services like digital queuing, selling products like folding bicycles, and helping citizens monitor their electricity use in real time. Further, the Philippines has seen rapid growth in the population connecting to the Internet, including a double-digit rise in the last year”

- p. In his paper, “The Economics of Zero Rating,” Jeff Eisenach explains the welfare effects of zero rating, and states that “*because of the characteristics of IT markets—where both content or “edge” firms as well as network operators make large investments in establishing platforms that have relatively low marginal costs, and gain value with each additional user—the ability to identify customers with lower ability or willingness to pay through, and offer them a discount through zero rating will expand a firm’s customer base, enhance the value of the product, and provide additional revenues to defray the costs of up-front investment and additional innovation*”.

1. Allot Mobile Trends, “App Centric Operators on the Rise,” H1/2014: <http://www.allot.com/resource-library/mobiletrendscharging-report-h1-2014/>.

¹⁵ http://www.progressivepolicy.org/wp-content/uploads/2015/03/2015.03-Carew_Zero-Rating_Kick-Starting-Internet-Ecosystems-in-Developing-Countries.pdf



Europe/US

q. All U.S. mobile operators have introduced zero-rating programs of one kind or another. The programs vary considerably as carriers attempt to differentiate their services in a competitive market. T-Mobile has introduced two zero-rating programs, one for streaming music and another for video, under the brands “Music Freedom” and “Binge On” respectively. Verizon has also introduced a zero-rating service, called “FreeBee Data.” It is a platform for sponsoring data use, similar to AT&T, and allows businesses to sponsor up to 30 seconds of video or 30 minutes of audio streaming, as well as app downloads and use, and browsing particular mobile websites.

r. Attention is also drawn to FCC’s recent announcement as below:

“...These free-data plans have proven to be popular among consumers, particularly low-income Americans, and have enhanced competition in the wireless marketplace. Going forward, the Federal Communications Commission will not focus on denying Americans free data. Instead, we will concentrate on expanding broadband deployment and encouraging innovative service offerings.”

s. In Europe, there are also many differentially priced services emerging, which offer consumers’ the ability to consume more of bandwidth hungry services such as video and social, without worrying about bill shock. Most of these tariffs offer access to a category of content, such as music or video, for a set price¹⁶.

t. The advantage of such offers to customers are that:

- Customers can design their payments around the content they prefer
- Understanding per MB usage is difficult; having an unlimited category is easier for customers to understand and manage their costs
- Differentiation is driving competition between the operators
- Smaller entrants have a way of reaching new customers by being part of a innovative or customized product offering

Instant Schools: Example of our services

u. **We would also like to highlight an example of our services, viz. Instant Schools. The goal of Vodacom e-school is to provide access to free quality digital content and enable teachers and learners to access the content anytime and anywhere.** Vodacom e-school is a secure online learning platform with free access to basic educational content for all Grade R

¹⁶ There are similar offers throughout Europe, such as Virgin Media¹⁶ - free access to messaging services, enables any messaging provider to join the category, free access to social providers in Sweden by Telia¹⁶ and many others



to 12 learners in South Africa. The portal offers daily lessons, consisting of notes, videos and assignments in the form of quizzes as well as personalised progress reports, providing students with the opportunity to self-learn, self-assess and complete online tests. The main partner of this project is the Department of Basic Education (DBE). The DBE endorsed the portal and is responsible for approving the content. Furthermore, Vodacom has acquired additional content from its partners Mindset (educational solutions provider) and Siyavula (educational technology company). The programme also leverages Vodacom's 'digital classroom', a digital portal for teachers.

- v. **We current have 208,101 registered users of Vodacom's e-school service. Around 15,000 students register every month**, with this figure expected to increase in the future. The educational content is being rolled-out in English but also **local languages** (e.g. isiZulu, Afrikaans, isiXhosa) as learners assimilate concepts easily and better in their mother tongue. In addition, there are ongoing discussions regarding adding more content and rich media sets to the platform to make the platform more attractive.

We would therefore request that the TRAI Tariff Regulation on Differential pricing be revisited by TRAI as a part of the present consultation and consequent recommendations to the Government and ideally withdrawn, to align with a more flexible, wait and see approach which allows regulators to respond proactively to issues without preventing the benefits of differential pricing.

New Delhi
12 April 2017