# Reliance Communications Limited's Response to the

# Pre-Consultation Paper on Net Neutrality

## Executive Summary

A. **In the "Indian Context", only (a) No Blocking, (b) No Throttling and (c) No paid Prioritization for any content / stakeholder in the Internet eco-system / user over the network should be regarded as the core principles of net neutrality.**

B. **Video Traffic should be considered as an exception to the 'paid prioritization' principle of net neutrality and prioritization paid or otherwise should be allowed for handling video traffic.**

C. **'No Inspection of data Packets' should not be included as part of the core principles of net-neutrality as packet inspections whether 'stored' or 'in motion' are more of a privacy / data protection concern. However, discretion should be mandated for permitting packet inspection for DoT directed requirements / LIM only on explicit permissions from the relevant level of authority on need basis.**

D. **For ensuring better affordability of Indian content for the Indian Users, the authority should regulate the peering of the foreign Content Providers / Aggregators / Distributors with the Indian TSPs.**

E. **In a purely "Indian Context", affordability of data services and proliferation of broadband services are the most critical factors for the Indian Diaspora accordingly, 'pricing of data services' should be left to the competitive market forces independently which are better placed to ensure affordability of services instead of their being restricted through active regulations by the Authority. The precedence of voice services, in this regards, bears testimony to the same.**

F. **The key issue that is required to be considered so that the principles of net neutrality are ensured is adherence to the core principles of net neutrality by all the stakeholders in the internet eco-system viz, TSPs, ISPs, Content Providers / aggregators / distributors and device OEMs.**

G. **The existing fair usage policy of reduction of access speed beyond a certain data usage, congestion management, traffic restrictions imposed by the Government / LEA agencies and prioritization of emergency communications are considered reasonable traffic management practices that may need to be followed by TSPs while providing Internet access services and should be permitted.**

H. **'Enterprise access services' related traffic management practices too should be considered legitimate.**

I. **There is a genuine need to Indianize Indian content distribution and allowing telecom operators to have a separate Video Class of service in their network as video cannot be treated like other data packets due to its stringent constant jitter.**

J. **MIBs Video Archival monitoring should now start mandating such Content Providers / Aggregators / Distributors to store their archives in local TSPs domestic cloud setup and incentivize them to increase their traffic.**

K. **There is a teething need to regulate the issue of customer consent for allowing the apps to mine their handsets data as well as for auto updates in exchange for using the apps for the sake of Net Neutrality.**

L. **The Authority, while formulating it's regulations, should look at ways and means of ensuring transparency at the level of each and every stakeholder in the internet eco-system.**

M. **The authority needs to adequately regulate the conditions for provisioning of M2M services to ensure security of the smart cities and individuals using M2M services balancing their requirements along with ensuring Net Neutrality. IP data w.r.t Public safety, disaster management, medical data etc should have guidelines for being treated as a separate traffic class.**

N. **The authority while formulating its recommendations for DoT and (or) its own regulatory guidelines is requested to ensure that,**

   a. **Adequate measures are adopted to ensure equitable traffic management practices for the TSPs, Content Providers / Aggregators / Distributors and Device OEMs.**

   b. **An Administrative Price Mechanism is setup, similar to petroleum industry, for bandwidth prices especially to large Content Providers / Aggregators / Distributors to cross subsidize the Indian Startups.**

   c. **The regulation prohibiting discriminatory pricing by the TSPs alone be revisited and it's applicability as being restrictive towards provisioning access to the internet and a violation of a principle of net neutrality be done away with. Else, the applicability of the said regulation should be extended to the other stakeholders of the internet eco-system as well.**

   d. **Mining and analysis of personal data from a users' handset / a user's internet usage pattern, should be regulated to ensure user's privacy and security and prevent it's misuse.**

   e. **The conditions for provisioning of OTT and M2M services should be regulated to ensure security of individuals and civic infrastructure.**

   f. **A level playing field is ensured for similar services irrespective of their means of provisioning.**

O. **There is a need to establish a well defined LIM process and procedure for the OTT services as well, for which these services are required to be regulated.**

P. **Adequate guidelines for functioning, utilization of services and auditing of e-commerce sites, especially cash handling services sites, should be mandated through regulations to prevent any kind of money laundering.**

Q. **The hosting of applications, being used for providing services to Indian citizens, should be mandated to be within India to enable their regulation as per Indian requirements.**

R. **The OTT players should be asked to register themselves as OSPs, with DoT for provisioning services in India, albeit with certain essential responsibilities and accountability being obligated on them in national and societal interest, especially for LIM and sharing of revenue with the national exchequer.**

S. **Similar to the mutual commercial agreements between the DTH infrastructure providers and Content Providers / Aggregators / Distributors, TSPs too should have the freedom of commercial negotiation with OTTs who are utilizing the TSPs' network and bandwidth for delivery of its services.**

T. **A mechanism of ensuring that commercials negotiations are not discriminatory and do not shift the balance of power to a particular set of OTTs has to be in place.**

U. **Pricing model and options, i.e. bandwidth / time / website access based, to be adopted for the commercial agreement between the TSP and the OTT service provider and the same should be left to the mutual arrangement between them.**

V. **Security concerns, maintaining data records, logs etc. and ensuring security, safety and privacy of the consumer data as well as their compliance can be addressed by mandating (a) OSP registration of OTT service providers, (b) institutionalizing internet content regulation, (c) local hosting of their infrastructure.**

## Detailed Response

**Question 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?**

## Our Response

In the "Indian Context", only (a) No Blocking, (b) No Throttling and (c) No paid Prioritization for any content / stakeholder in the internet eco-system / user over the network should be regarded as the core principles of net neutrality.

'No Inspection of data Packets' should not be included as part of the core principles of net-neutrality as packet inspections whether 'stored' or 'in motion' are more a privacy / data protection concern. However, discretion should be mandated for permitting packet inspection for DoT directed requirements / LIM only on explicit permissions from the relevant level of authority on need basis.

In a purely "Indian Context", affordability of data services and proliferation of broadband services are the most critical factors for the Indian Diaspora accordingly, 'pricing of data services' should be left to the competitive market forces to decide instead of including it as a core principle of net neutrality.

The key issue that is required to be considered so that the principles of net neutrality are ensured is adherence to the core principles of net neutrality by all the stakeholders in the internet eco-system viz, TSPs, ISPs, Content Providers / aggregators / distributors and device OEMs.

1. Internet is an eco-system in itself which encompasses different stakeholders such as access services provisioning entities (TSPs and ISPs), content services provisioning entities (Content Providers / Aggregators / Distributors, services enabling entities (Device Manufactures) and services subscription entities, i.e the users. It is the unbiased or neutral (No Blocking, No Throttling and No Paid Prioritisation) symbiotic networking relationship amongst all these stakeholders, which can be termed as 'Net-Neutrality', which has resulted in the phenomenally fast paced adoption and growth of internet across the globe, especially in India. Apart from the users, all the other stakeholders have the potential to upset this unbiased or neutral nature of this symbiotic networking relationship resulting in a non neutral network.

2. Therefore, for the internet to remain neutral it is imperative that all the stakeholders should ensure that they on their part should not indulge in (a) Blocking, (b) Throttling and (c) Paid Prioritization of any content / stakeholder / users on a selective basis. Accordingly, **most of the regulators across the world have defined the core principles of net neutrality as, (a) No Blocking, (b) No Throttling and (c) No paid Prioritization for any content / stakeholder in the internet eco-system / user over the network and it is recommended that the same should be enunciated for India as well.**

3. However, we posit that Video Traffic should be kept outside the ambit of net Neutrality discussions as large scale video streaming did not exist when the Internet's underlying peering and transit arrangements were put into place. These arrangements were, and are, based on bilateral traffic flows whereas video is a one way flow from the content provider to the user through the TSP's network. Therefore, it is imperative to have a separate Video Track and for such similar traffic to be kept outside Net Neutrality discussions. Hence, **it is strongly suggested that the Video Traffic should be considered as an exception to the 'paid prioritization' principle of net neutrality and prioritization, paid or otherwise should be allowed.**

4. In the Pre-CP two additional issues such as (a) "No Inspection of the data packets" and (b) "Pricing of data services" have also been suggested as part of the core principles of Net Neutrality. Packet inspections whether 'stored' or 'in motion' are more of a privacy / data protection concern and therefore should not be a part of net neutrality discussion. Albeit, given the volatile political situation being forced on India by external forces, there could be requirements of packet inspection, for ensuring security of the citizens. Therefore, **just as for voice communication, discretion should be mandated for permitting packet inspection, i.e. to be allowed only on explicit permissions from the relevant level of authority.**

5. Despite having one of the largest internet user base India still has extremes of data users from the uninitiated to the avid users. There is a teething need to narrow down this gap for which affordability of data services shall play an important role. The same is reinforced through various independent research works conducted by reputed organizations such as the IAMAI and Ericsson. As per an IAMAI and Boston Consultancy Group report titled "India@Digital.Bharat creating a $200 billion internet economy" published in Jan 2015, *"reach, affordable access and improved awareness"* have been listed as being *"the primary drivers of the rapid growth, or lack thereof, in India's online population"*. As per Ericsson's Apr 2015 Consumer Insight Summary Report titled, "The changing mobile broadband landscape: Understanding the diverse behaviour and needs of smartphone mobile internet users in urban India", one of the key findings for "barriers to mobile broadband", especially *"for those who do not use mobile broadband, affordability and digital literacy are prime obstacles to adoption"*. As per the Global Survey on Internet Security and Trust (2014), conducted by the Centre for International Governance Innovation and Ipsos, a market research company, by polling over 23,000 internet users in 24 countries (https://www.cigionline.org/internet-survey), "*some 83 percent of users said they believe that affordable internet access should be a basic human right*". As per the UN Broadband Commission 2014, "*high-speed, affordable broadband has been described as a foundation stone of modern society*".

6. Realising the need for increasing the affordability of data services, the entire internet eco-system has been endeavouring to provision services at least prices / free of cost. If the content services providers have provisioned their services free to their customers, the device OEMs on their part have been bringing better handsets at lower prices for the masses. In line

with this requirement of increasing the affordability of data services, the TSPs too had launched innovative tariff structures for the data services, including free services, for the masses.

7. As per the World Bank's website, the per capita income of the countries that have been cited in this pre-consultation paper is in the range of USD 11000 to 54000 (Australia is USD 61900, EU on an average would be USD 40000, Brazil is USD 11700, Japan is USD 36100 and USA is USD 54600). As compared, India's per capita income of USD 1500 is still in the lowermost quarter of their ranking table (Please refer the map on the next page). This disparity of income is distinctively discernable from the fact that the Indian consumer is extremely price sensitive and they always try to push the envelope for maximising gains on every penny spent by them. Therefore, **emulation of a net neutrality template for access to internet services of these countries for defining net neutrality principles for the Indian scenario would be unfair to the Indian consumer.**



| Thousands | |
|---|---|
| | < 6.67 |
| | 6.67 - 16.81 |
| | 16.81 - 29.72 |
| | 29.72 - 47.77 |
| | > 47.77 |
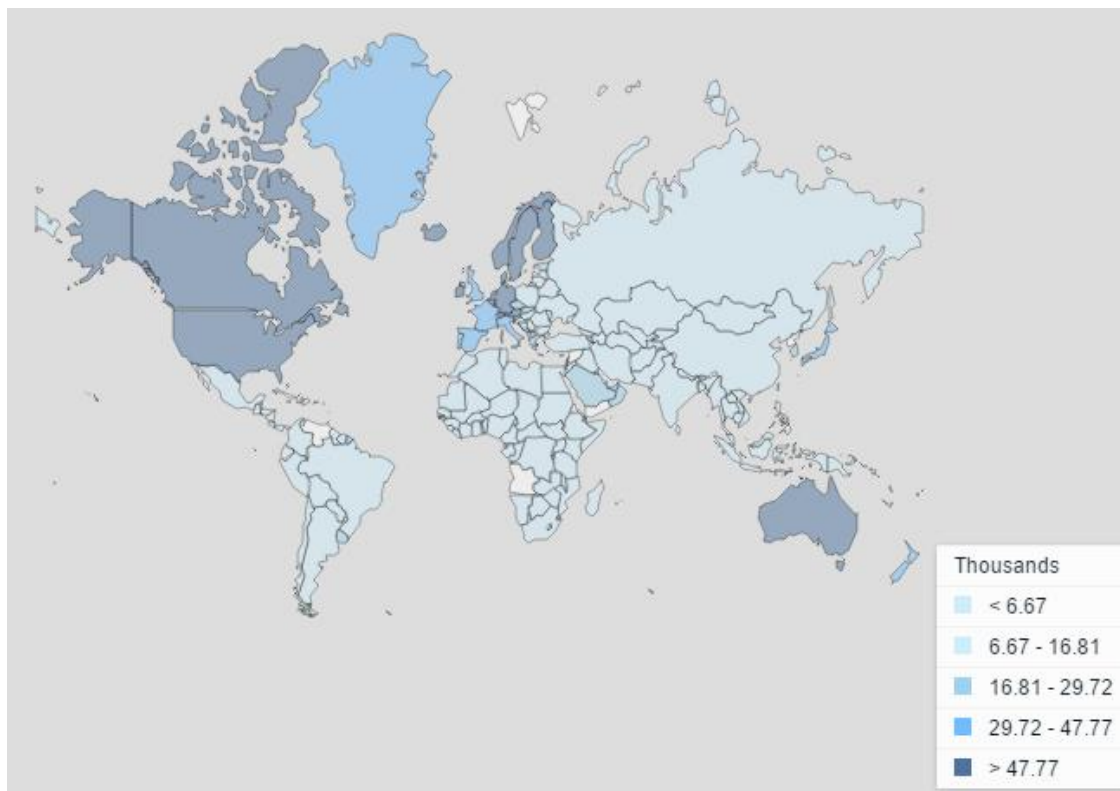
**Picture 1: Map Showing GDP per capita (current US$) as per World Bank Web Site**

Source :http://beta.data.worldbank.org/indicator/NY.GDP.PCAP.CD?view=map

8. Another important aspect that affects 'affordability of content', especially the 'Indian content' is the disparity in size of foreign owned Content Providers / aggregators / distributors and domestic Content Providers / aggregators / distributors. Out of 75 K Autonomous Systems Number (ASN) India has only 1503+ ASNs. Consequently, based on the amount of content owned / aggregated and traffic demand within Indian Territory, by the foreign Content Providers / Aggregators / Distributors, there exists a highly skewed traffic imbalance in favour of the foreign Content Providers / Aggregators / Distributors. The foreign Content Providers / Aggregators / Distributors, almost without exception, leverage this dominant traffic imbalance to get preferential domestic Internet peering on their own terms, typically free of cost. This is termed by them as 'Settlement Free Peering' (SFP).

9. Additionally, the content providers / aggregators / distributors have their own commercial arrangements in place for preferential treatment of traffic with content owners thereby affecting the neutrality of the same content over the TSP's network. Apart from creating a non neutral situation over the network, within India, this also disadvantages Indian Content Providers / Aggregators / Distributors in terms of higher cost of operations and makes it not only harder for them to grow, but also affects the affordability of Indian content for the Indian user viz-a-viz foreign content. This also explains why India is among the dark continents from a content perspective as is illustrated in the map below. SFP also impacts the exchequer as every such SFP arrangement denies the government the revenue share it gets today from peering arrangements between TSPs and TSPs and Indian Content Providers / Aggregators / Distributors. In Europe and other parts of the world there have been numerous investigations over content owners and device OEMs for misusing there dominant position in the market[1]. Therefore, **for ensuring better affordability of Indian content for the Indian Users, the authority should regulate the peering of the foreign Content Providers / Aggregators / Distributors with the Indian TSPs.**
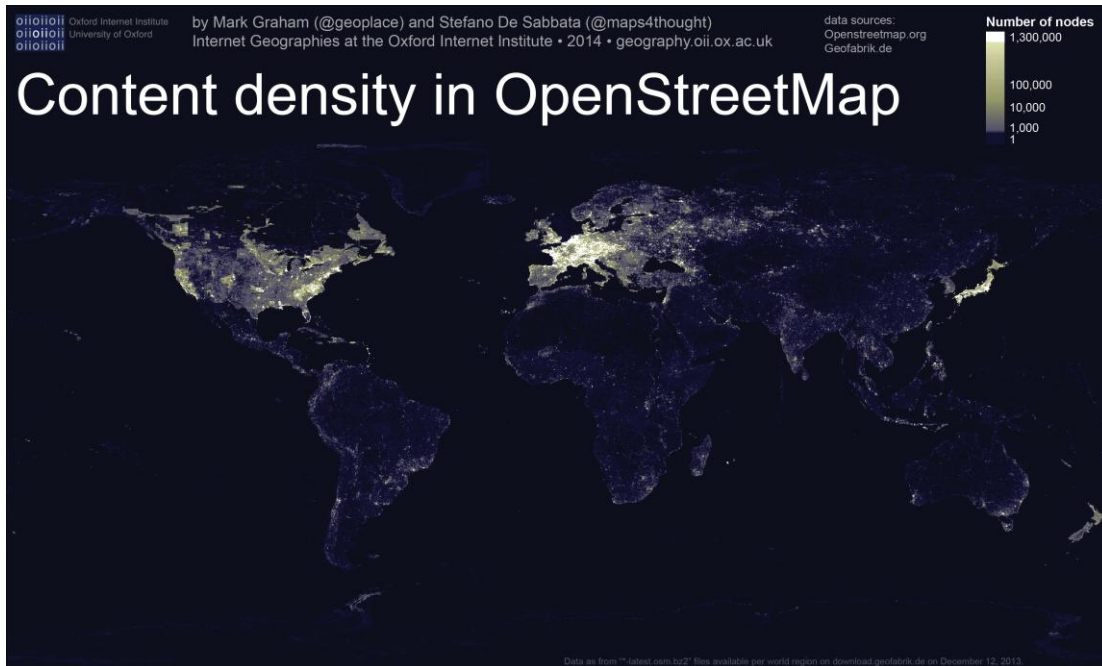


**Picture 2: Content Density as per OpenStreet Map**
**Source : OpenStreet.com**

10. Hence, **in a purely "Indian Context" it is felt that affordability of data services and proliferation of broadband services are the most critical factors for the Indian Diaspora, consequently we have very strong reservations about including 'Pricing of Data Services' as part of the core principles of 'Net-Neutrality'. It is our strong belief that competitive market forces independently are better placed to ensure affordability of services instead of their being restricted through active regulations by the Authority. The precedence of voice services, in this regards,bears testimony to the same.**

11. Apart from the issues already highlighted in the Pre CP, **the key issue for ensuring Net neutrality is that all the stakeholders in the internet eco-system viz, TSPs, ISPs, CPs**

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[1] http://europa.eu/rapid/press-release_STATEMENT-16-1506_en.htm and http://www.wsj.com/articles/eu-files-formal-charges-against-google-over-android-conduct-1461145354

and device OEMs should not violate the core principles of net neutrality as enumerated above.

## Our Recommendations

12. In the "Indian Context", only (a) No Blocking, (b) No Throttling and (c) No paid Prioritization for any content / stakeholder in the internet eco-system / user over the network should be regarded as the core principles of net neutrality.

13. Video Traffic should be considered as an exception to the 'paid prioritization' principle of net neutrality and prioritization paid or otherwise should be allowed for handling video traffic.

14. 'No Inspection of data Packets' should not be included as part of the core principles of net-neutrality as packet inspections whether 'stored' or 'in motion' are more of a privacy / data protection concern. However, discretion should be mandated for permitting packet inspection for DoT directed requirements / LIM only on explicit permissions from the relevant level of authority on need basis.

15. For ensuring better affordability of Indian content for the Indian Users, the authority should regulate the peering of the foreign content providers with the Indian TSPs.

16. In a purely "Indian Context", affordability of data services and proliferation of broadband services are the most critical factors for the Indian Diaspora accordingly, 'pricing of data services' should be left to the competitive market forces independently which are better placed to ensure affordability of services instead of their being restricted through active regulations by the Authority. The precedence of voice services, in this regards, bears testimony to the same.

17. The key issue that is required to be considered so that the principles of net neutrality are ensured is adherence to the core principles of net neutrality by all the stakeholders in the internet eco-system viz, TSPs, ISPs, CPs and device OEMs.

18. There is a teething need to regulate the issue of customer consent for allowing the apps to mine the subscriber's handset data as well as for auto updates in exchange for using the apps for the sake of Net Neutrality.

19. The authority needs to adequately regulate the conditions for provisioning of M2M services to ensure security of the smart cities and individuals using M2M services balancing their requirements along with ensuring Net Neutrality.

**Question 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?**
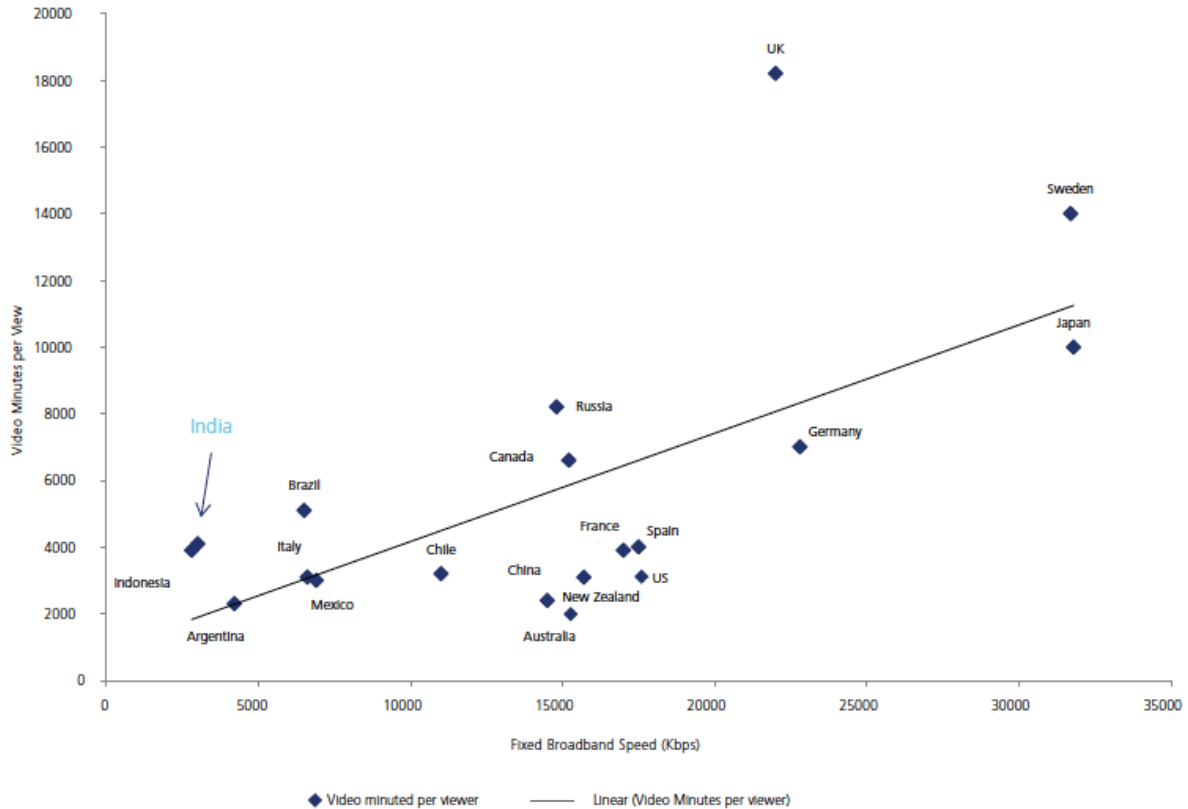
## Our Response

The existing fair usage policy of reduction of access speed beyond a certain data usage, congestion management, traffic restrictions imposed by the Government / LEA agencies and prioritization of emergency communications are considered reasonable traffic management practices that may need to be followed by TSPs while providing Internet access services and should be permitted.

**No, there are no other current or potential practices in India that may give rise to concerns about net neutrality.**

1. IP was designed for provisioning services on best effort basis, i.e. it is conservative on send and best effort on receive. Though the entire non differentiated traffic is handled on the best effort basis, however, there can be instances wherein the TSPs are required to intervene with some form of traffic differentiation for network management and optimization which should be permitted.

2. As highlighted in our response to question 1 above, 'Net Neutrality' should construe that all data traffic over the data network and services eco-system should be treated equally. All stakeholders in the data network and services eco-system should not be permitted to block / throttle / prioritize any data traffic without legal permissions for parochial incentives. Only exceptions to this rule, enforcement of which is not the TSPs discretion but mandated for implementation, should be as given below,

    a. The existing fair usage policy of reduction of access speed beyond a certain data usage.

    b. Congestion management for,

        i. Ensuring that the application latency is maintained within permissible limits at all times.

        ii. Controlling any sabotage of the network through any kind of malpractice, such as flooding, DDOS attack, Malware, etc, which affects services for a large number of customers.

    c. Lawful restrictions directed to be imposed by the Government / LEA agencies.

    d. Prioritization for communications for emergency and disaster management services.

3. In addition to the above reasonable traffic management exceptions we would also recommend that the 'Enterprise access services' related traffic management practices too should be considered legitimate and should be covered under the exception rule.

4. **Why should video be kept out of the purview of Net Neutrality?** According to the 11th Annual Cisco Visual Networking Index (VNI) Forecast, in India, the total Internet video traffic will be 80 per cent of all Internet traffic in 2020, up from 51 per cent in 2015 and a large portion (49%) of this is will be HD video. This coupled with the unprecedented increase in the volume of traffic will put enormous strain on the operator's infrastructure in terms of both engineering and operations. It is estimated that with the rollout of LTE and the predominance of mobile data in India these figures would be breached much ahead of time.

5. A snapshot of how the average speed impacts the increase in video traffic is detailed below for reference. Various studies have enumerated this and have suggested usage of alternative QoS mechanisms rather than the current ones[2]. Consequently, the operator has to classify traffic types (data vs Video vs HD video etc.), use differentiated traffic treatment, use specialised equipment to handle this video tsunami. This however should not differentiate based on content owners and should be limited to the traffic classes.

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[2] https://www.researchgate.net/publication/221324318_Impact_of_the_Multimedia_Traffic_Sources_in_a_Network_Node_Using_FIFO_scheduler and http://airccse.org/journal/cnc/5313cnc08.pdf and https://www.cs.utah.edu/~kobus/docs/wcw2002.slogan.2.pdf

**Picture 3: Showing a snapshot of how the average speed impacts the increase in video traffic**
**Source : CISCO VNI Report 2015**

6. The net neutrality forum in fact, cites as an exception to net neutrality that the subscriber can on his own, without any incentives being granted to him, ask for a specific content to be given and the TSP can handle traffic in a specific manner without violating any net neutrality principles[3]. In fact 3GPP has already expanded traffic class definitions to include varied types of video instead of having a singular video class as shown in the table given at **Annexure I**.

7. In the past live events such as cricket matches have accounted for 17 million concurrent live streams. This kind of traffic is capable of overwhelming network and interconnects capacities needed for delivering content across networks. This kind of traffic for short periods of time will keep testing the engineering and traffic management capabilities of the TSP. Ensuring TSP's manage event based video traffic based on their own classification, will ensure overall better quality of internet experience. Therefore, **this should thus not be considered as a violation of net neutrality guidelines.**

8. To draw an analogy, India has around 800 live television channels that are pumping an average 4 Mbps to 1 Billion Indian population. If this were digitized, then 3.2 Gbps of SD Video data or 10% of HD will add another 3.2 Gbps of live video into India's Internet infrastructure. To enable this, let's say Google deploys human resources at the premises of every Indian television channel to acquire their content for YouTube. Thus, Indians would be accessing Indian content through a US distributor resulting in no contribution to the Indian exchequer. Therefore, **there is a genuine need to Indianize Indian content distribution and allowing telecom operators to have a separate Video Class of service in their**

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[3] https://www.thisisnetneutrality.org

**network as video cannot be treated like other data packets due to its stringent constant jitter.**

9.  Another aspect as to why video should be taken more seriously in our country is because it is far easier to reach out to people through video than via texts /data, which can reach only a select population. Given our vast array of local vernacular, a few Internet companies like Ustream are eating out the ISRO's OU bandwidth & DSNG market & retaining the content as theirs. It is suggested that the **MIBs Video Archival monitoring should now start mandating such Content Providers / Aggregators / Distributors to store their archives in local TSPs domestic cloud setup and incentivize them to increase their traffic.**

10. While the misuse of these above mentioned reasonable traffic management measures cannot be ruled out, however, it is brought out that resorting to any of the services prohibiting techniques viz, Blocking / Throttling / Paid Prioritization / unwarranted Packet inspection shall be detrimental to thebusiness of the TSPs themselves as it would lead to preclusion of a set of customers from their subscriber base.

<u>Our Recommendations</u>

11. **The existing fair usage policy of reduction of access speed beyond a certain data usage, congestion management, traffic restrictions imposed by the Government / LEA agencies and prioritization of emergency communications are considered reasonable traffic management practices that may need to be followed by TSPs while providing Internet access services and should be permitted.**

12. **'Enterprise access services' related traffic management practices too should be considered legitimate.**

13. **There is a genuine need to Indianize Indian content distribution and allowing telecom operators to have a separate Video Class of service in their network as video cannot be treated like other data packets due to its stringent constant jitter.**

14. **MIBs Video Archival monitoring should now start mandating such Content Providers / Aggregators / Distributors to store their archives in local TSPs domestic cloud setup and incentivize them to increase their traffic.**

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

<u>Our Response</u>

The Pre CP has identified (a) reasonableness of traffic management tools that may be adopted by TSPs; (b) unrestricted access to the Internet; (c) transparency and informed choice by users; (d) customer privacy and (e) national security as the relevant issues that merit a deeper enquiry into the various issues for the subject of net neutrality. While we do agree to these, however, our detailed comments and suggestions for policy guideline and / or regulatory approach in dealing with issues relating to net neutrality on each of these and some additionalissuesare as given in the succeeding paragraphs.

**Traffic Management**

1.  **By the TSPs.** The reasonable traffic management tools that may be adopted by TSPs have been covered in detail in our response to question no 2 above. The authority while formulating its recommendations for DoT and (or) its own regulatory guidelines is requested to **ensure**

**that these traffic management practices are included as part of legitimate exceptions for maintenance of QoS.**

2. **By the Content Providers / Aggregators / Distributors and User Device OEMs.** While discussing "various issues relevant to the subject of net neutrality" it is observed that the pre CP has restricted itself to investigating the reasonableness of traffic management tools that may be adopted by TSPs only. The pre CP has inadvertently missed out on the capabilities of the Content Providers / Aggregators / Distributors and even the device OEMs for indulging in practices that can lead to restriction on accessing of content or can result in unreasonable traffic management, or lead to opaqueness of services.

3. Just as TSPs are being perceived to indulge in selective blocking / throttling / paid prioritization, similarly, it is the Content Providers / Aggregators / Distributors who have the potential to ensure that the traffic from a particular TSP is selectively blocked / throttled / subjected to prioritization on payment. E.g. a music provider resorting to biased user experience for subscribers of different TSPs by blocking / throttling their content selectively for different TSPs or the content aggregator / distributor indulging in paid prioritization for the contents of his content provisioning clients.

4. On 24 Mar 16, in an article, titled "Netflix: We're the ones throttling video speeds on AT&T and Verizon" written by Steven Musil and published in the online magazine CNet[4], Netflix has themselves claimed that they are the ones who are throttling their services over the wireless network in the garb of protecting consumers from exceeding mobile data caps.

> *"If you watch Netflix on Verizon or AT&T, the streaming video service is keeping you from getting the full picture -- and it claims it's for your own good.*
>
> *A week after the wireless carriers were accused of throttling video speeds on their networks, Netflix has stepped forward to take the blame for the degraded video quality. The popular streaming-video service told the Wall Street Journal on Thursday it has been slowing its video transmission on wireless carriers around the world, including Verizon and AT&T, for five years to "protect consumers from exceeding mobile data caps.""*

5. The authority while formulating its recommendations for DoT and (or) its own regulatory guidelines is requested to **ensure that adequate measures are adopted to ensure equitable traffic management practices for the TSPs, Content Providers / Aggregators / Distributors and Device OEMs.**

6. **Impact on startups**. India has to nurture 3100 startups & additional 800 per year in the net neutral India to make them the likes of Whatsapp 62 Million & Facebook 92 Million Indian users. The ability of smaller and start-up Apps to compete with established players would be affected if their content is unfairly treated by the content aggregators / distributors and they are unable to secure access to specific telecom operators or afford access-tiering charges. This may deter start-ups from joining the market. It is suggested that the government should consider setting up Administrative Price Mechanism, similar to petroleum industry, for bandwidth prices especially to large Content Providers / Aggregators / Distributors to cross subsidize the Indian Startups.

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[4] http://www.cnet.com/news/netflix-admits-throttling-video-speeds-on-at-t-verizon/

**Unrestricted Access to the Internet**

7. It is observed that at para 19 of this pre CP, while discussing unrestricted access and transparency "User Choice" has been listed as the foremost contributing factors for "the internet to serve as a platform for application innovation". We totally agree to this view point and have been advocating the same in all our earlier submissions to the TRAI that except the users, none of the other stakeholders in the internet eco-system have the ability to fabricate motivation for the growth of internet.

8. Paid prioritization by the search engines (Say job portals or the matrimonial portals, etc) to display links to contents, of entities that pay them, in the beginning of the search results is a known biased business practice by the Content Providers / Aggregators / Distributors. Such practices result in restricted / limited user exposure to the content available over the internetand have the ability to shaping of customer choice as well. Similarly, Content Providers / Aggregators / Distributors like Movie aggregators / distributors holding rights to a large data base of movies, indulge in restrictive access to their data base by choosing to provide access to 2 movies to the subscribers of a TSP say 'A' and 4 movies to the subscribers of another TSP say 'B' for the same price. Even aggregators of say restaurants can indulge in restrictive information provisioning through paid prioritization of search results as well as indulging incustomer choice shapingpractices by offering differential discounts to the subscribers of different TSPs on ordering food through their app.

9. Let us assume, there are 3 TSP agnostic m-commerce websites (A, B, C) and all the three websites are giving rewards to the consumers in the form of unequal amounts of data recharge if the consumers access their websites. Further, there can be some new websites which may not be in a position to provide benefits as provided by A, B and C. The access to these websites can only be classified as discriminatory as the non level playing field that gets created through the differential rewards of these websites clearly violates the open internet, equal access theory as advocated by the Authority. Offering rewards / benefits by certain Content Providers / Aggregators / Distributors will play a role in influencing the decision making of the consumers to prioritize access to a particular content over the other based on the better enticements.

10. The device manufacturers too are in contravention of the norms for unrestricted access to theinternet when they preload their devices with their respective or contracted third party apps on their devices and the user has no choice but to accept the device as it is.

11. However, the internet is replete with examples that bear testimony to the fact that "Users Choice" is supreme while deciding the success of any app over the internet. E.g. Facebook succeeding despite Orkut, a similar social interaction platform, being in the market much before Facebook was launched. Similar was the case with Google overtaking Yahoo as the preferred search engine.

12. Dovetailing the legitimate business requirements of increasing their services subscription as well as data usage volumes by the subscriber, the TSPs leveraged "User Choice" for the same. Despite the obvious advantages of increased affordability of data services for the masses and also the potential to ensure that the uninitiated users cross the line and are able to graduate to becoming higher level data services users, these initiatives of the TSPs were viewed to be restrictive for the access to the internet. Consequently, leveraging of the "User Choice" for innovation in pricing of data services has been denied to TSPs by way of TRAIs regulation on discriminatory prices.It is therefore strongly recommended that **the regulation**

**prohibiting discriminatory pricing by the TSPs alone be revisited and it's applicability as being restrictive towards provisioning access to the internet and a violation of a principle of net neutrality be done away with. Else, the applicability of the said regulation should be extended to the other stakeholders of the internet eco-system as well.**

### Transparency and Informed Choice by Users

13. While we completely agree to the pre CP (Para 21) stand that "adoption of clear transparency standards is one of the methods that can be used to check TSPs from imposing unreasonable restrictions on provision of internet access", however, as brought out earlier, for ensuring a neutral network, it is imperative that the standards for transparency are also imposed on other stakeholders of the internet eco system. It is suggested that the CP later should also focus on the transparency of searches and other activities that the users indulge on over the internet. Just the fact that Content Providers / Aggregators / Distributors are not charging for their services, should not entitle them to indulge in opaque, behind the scene practices that are anti net neutrality and that endeavour to shape user's choice. Therefore, **the Authority, while formulating it's regulations, should look at ways and means of ensuring transparency at the level of each and every stakeholder in the internet eco-system.**

### Customer Privacy

14. It is open knowledge that the Content Providers / Aggregators / Distributors indulge in mining of private data from the subscribers handsets and monetise the same in different ways. With the emergence of highly advanced techniques for data mining and data analytics, extraction of business intelligence through an individual's usage pattern of the internet services and correlation and corroboration of information from multiple sources results in complete compromise of an individual's privacy. The app providers and even the device OEMs put the customer's privacy and security at risk by leaving trapdoors open for regular update of their apps / OS. These loopholes in the apps / OS are known to have been exploited for unlawful extraction of personal information of the consumers. Therefore, **there is a teething need to regulate the issue of customer consent for allowing the apps to mine their handsets data as well as for auto updates in exchange for using the apps.**

### National and Customer Security

15. The pre CP has mentioned about the security risks that the OTT services pose to national security. However, another major aspect that needs to be addressed for security requirements is that for M2M communications. With the emergence of smart health devices, smart homes and ambitious programs such as 'Smart Cities' being implemented, there would be requirements for prioritised traffic over the existing networks. Additionally, the possibility of wilful sabotage of an individual's home / the city's infrastructure through dubious means cannot be ruled out. **This calls for the authority to adequately regulate the conditions for provisioning of OTT and M2M services as well. Also, IP data w.r.t Public safety, disaster management, medical data etc should have guidelines for being treated as a separate traffic class.**

### Similar Services Regulatory Parity

16. An important issue that needs to be taken care while formulating recommendations for DoT / regulatory guidelines is the **requirement of ensuring a level playing field for similar services irrespective of their means of provisioning**. E.g. the TSPs being licensed entities are mandated to adhere to certain requirements of LIM, provisioning customer care for

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addressing customer issues, etc. The same should be made applicable to the other stake holders of the internet eco-system as well.

**Our Recommendations**

17. The authority while formulating its recommendations for DoT and (or) its own regulatory guidelines is requested to ensure that,

   a. **Traffic management practices for TSPs, as elucidated in our response to question no 2 are included as part of legitimate exceptions for maintenance of QoS.**

   b. **'Enterprise access services' related traffic management practices should be considered legitimate.**

   c. **Adequate measures are adopted to ensure equitable traffic management practices for the TSPs, Content Providers / Aggregators / Distributors and Device OEMs.**

   d. **An Administrative Price Mechanism is set up, similar to petroleum industry, for bandwidth prices especially to large Content Providers / Aggregators / Distributors to cross subsidize the Indian Startups.**

   e. **The regulation prohibiting discriminatory pricing by the TSPs alone be revisited and it's applicability as being restrictive towards provisioning access to the internet and a violation of a principle of net neutrality be done away with. Else, the applicability of the said regulation should be extended to the other stakeholders of the internet eco-system as well.**

   f. **The Authority, while formulating it's regulations, should look at ways and means of ensuring transparency at the level of each and every stakeholder in the internet eco-system.**

   g. **Mining and analysis of personal data from a users' handset / a user's internet usage pattern, should be regulated to ensure user's privacy and security and prevent it's misuse.**

   h. **The conditions for provisioning of OTT and M2M services should be regulated to ensure security of individuals and civic infrastructure.**

   i. **IP data w.r.t Public safety, disaster management, medical data etc should have guidelines for being treated as a separate traffic class.**

   j. **A level playing field is ensured for similar services irrespective of their means of provisioning.**

**Question 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.**

**Our Response**

1. **LIM.** A major condition of the telecom services license is the requirement to provide adequate mechanisms for Legal Interception and Monitoring (LIM) of services in national interest. OTT services provide the same telecom services capability to one and all but without any LIM responsibilities, they are liable to be used (or misused) for circumventing the established LIM processes and procedures by elements inimical to India and its citizens. It is brought out that, France, a politically highly stable region, has mandated licensing of the Skype services with

mandated obligations for legal interception. Given the volatile political situation within India and on its borders, LIM responsibilities need to be accorded the highest priority for ensuring country's integrity and security of the citizens. It is for this reason only that the GoIwas able to persuaded BlackBerry to provide decryption capability. Similarly, other communication OTT service providers too should be asked to deposit their decryption keys with the CMS (Central Monitoring System) deployed by the Government to facilitate the real time monitoring by LEA's.Advocating a uniform policy for all OTT players, DoT has passed explicit orders for blocking of content for which decryption capability is not available with the TSPs.Therefore, **there is a need to establish a well defined LIM process and procedure for the OTT services as well, for which these services are required to be regulated.**

2. **Money Laundering.** With the availability of multiple e-commerce sites, especially cash handling services providers like e-wallets, money pooling sites, etc, it is imperative that due caution is taken to ensure that all such sites are not able to aid in money laundering by unscrupulous persons. Therefore, it is suggested that **adequate guidelines for functioning, utilization of services and auditing of such sites should be mandated through regulations to prevent any kind of money laundering.**

## Our Recommendations

3. **There is a need to establish a well defined LIM process and procedure for the OTT services as well, for which these services are required to be regulated.**

4. **Adequate guidelines for functioning, utilization of services and auditing of e-commerce sites, especially cash handling services sites, should be mandated through regulations to prevent any kind of money laundering.**

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

## Our Response

**Local hosting of content.** India being one of the largest consumers of internet services is presently a net exporter of information. Apart from the customer privacy issues highlighted above in our response to earlier questions, it is imperative that due consideration for local availability of services and their usage data be made available within India itself. Moreover, with maturing and wide scale acceptability of M2M applications, there is little doubt that it's the machines and devices that shall overtake humans in data generation. There shall be a need for storing, processing and analyzing the data generated by the humans, machines and devices. Similar to human usage data, the data generated by the machines / devices shall not only provide information about its usage but shall also reveal the characteristics of its user, like where all does a user drive? Is that area prone to accidents? Needless to say, the data being generated by the human and that will be generated by M2M communications mechanism shall be as personal to an individual or a machine as that gets generated through daily human to human interactions. Protection of this data hence becomes paramount for maintaining the privacy of an individual and at times its availability shall be a must in the interest of national security. Therefore,**it is suggested that the hosting of applications, being used for providing services to Indian citizens, should be mandated to be within India to enable their regulation as per Indian requirements.**

**Our Recommendations**

**The hosting of applications, being used for providing services to Indian citizens, should be mandated to be within India to enable their regulation as per Indian requirements.**

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

**Our Response**

1. The introduction of OTT communication services (Voice & Video, Messaging & E-mailing and Social networks & E-commerce) have had the disruptive effect of separating the network from the services. OTTs provide the content, similar to DTH, which is made available through the TSPs network under a mutual agreement with the Content Providers / Aggregators / Distributors. TSPs are just a connectivity provider between the subscriber wanting to access the data services available over the internet and the OTT service provider. The TSPs are the facilitator (just a pipe) for provisioning these services as free to air or HD channels (Paid) of DTH services and have no role / inclination / incentive to either censor the OTT content / to block / throttle / prioritize traffic over their network. Resorting to any of the services prohibiting techniques shall be detrimental to their business itself as it would lead to preclusion of a set of customers from their subscriber base. In the interest of public good, maintenance of national social fabric and national security the government should balance the requirement of exercising control over the OTT service providers and the freedom of speech of the citizens..

2. The advent of internet has not only separated the network and services but has also led to creation of different innovation services being provisioned over the network. Each type of service has a different requirement in terms of bandwidth, latency, pricing and viewership. Accordingly, it is suggested that the comprehensive policy framework should take into account not only the differentiation of OTT services vis-à-vis TSP services but should also take into account the differentiation of services based on (a) content such as information, entertainment, educational, etc, (b) Social Networking, (c) video services, (d) gaming, etc.

3. Both telecom operators and Internet companies (OTTs) are capable of providing the same service to customers. Telecom operators bear the cost of infrastructure, and face the following government obligations while Internet companies don't pay for Spectrum allotment and use, Licensing, Space & Infrastructure sharing, etc.

4. Such Content Operators of US & UK have got an arrangement with telecom operators by virtue of hosting or Cache in their premises with Settlement Free Internet peering arrangement. Interestingly, NIXI had just done 20 Gbps i.e.10% of India's content goes through the government Internet Exchange. It is because none of the big names Google, Akamai, Limelight, Microsoft, root servers networks, Verisign, Yahoo, etc. doesn't connect directly with NIXI. For example, Google AS15169 cannot be reached through NIXI. Typically, the Content operators cache saves 30% - 40% of international bandwidth i.e. roughly 600 Gbps of International bandwidth's Service Tax, Access Facilitation Charges, Revenue Sharing , etc. is lost to government and of operators.

**Our Recommendations**

5. In view of the foregoing, it is recommended that,

   a. **The OTT players should be asked to register themselves as OSPs, with DoT for provisioning services in India, albeit with certain essential responsibilities and**

accountability being obligated on them in national and societal interest, especially for LIM and sharing of revenue with the national exchequer.

b. **Similar to the mutual commercial agreements between the DTH infrastructure providers and Content Providers / Aggregators / Distributors, TSPs too should have the freedom of commercial negotiation with OTTs who are utilizing the TSPs' network and bandwidth for delivery of its services.**

c. **A mechanism of ensuring that commercials negotiations are not discriminatory and do not shift the balance of power to a particular set of OTTs has to be in place.**

d. **Pricing model and options, i.e. bandwidth / time / website access based, to be adopted for the commercial agreement between the TSP and the OTT service provider and the same should be left to the mutual arrangement between them.**

e. **Security concerns, maintaining data records, logs etc. and ensuring security, safety and privacy of the consumer data as well as their compliance can be addressed by mandating (a) OSP registration of OTT service providers, (b) institutionalizing internet content regulation, (c) local hosting of their infrastructure.**

# Table showing 3GPP traffic class definitions which include varied types of video instead of having a singular video class

| QCI | Resource Type | Priority | Packet Delay Budget | Packet Error Loss | Example Services |
|-----|---------------|----------|---------------------|-------------------|------------------|
| 1 | GBR | 2 | 100ms | $10^{-2}$ | Conversational Voice |
| 2 | GBR | 4 | 150ms | $10^{-3}$ | Conversational Video |
| 3 | GBR | 3 | 50ms | $10^{-3}$ | Real Time Gaming |
| 4 | GBR | 5 | 300ms | $10^{-6}$ | Non-Conversational Video (Buffered Streaming) |
| 65 | GBR | 0.7 | 75ms | $10^{-2}$ | Mission Critical user plane Push To Talk voice (e.g., MCPTT) |
| 66 | GBR | 2 | 100ms | $10^{-2}$ | Non-Mission-Critical user plane Push To Talk voice |
| 5 | non-GBR | 1 | 100ms | $10^{-6}$ | IMS Signalling |
| 6 | non-GBR | 6 | 300ms | $10^{-6}$ | Video (Buffered Streaming) TCP-Based (for example, www, email, chat, ftp, p2p and the like) |
| 7 | non-GBR | 7 | 100ms | $10^{-3}$ | Voice, Video (Live Streaming), Interactive Gaming |
| 8 | non-GBR | 8 | 300ms | $10^{-6}$ | Video (Buffered Streaming) TCP-Based (for example, www, email, chat, ftp, p2p and the like) |
| 9 | non-GBR | 9 | 300ms | $10^{-6}$ | Video (Buffered Streaming) TCP-Based (for example, www, email, chat, ftp, p2p and the like). Typically used as default bearer |
| 69 | non-GBR | 0.5 | 60ms | $10^{-6}$ | Mission Critical delay sensitive signalling (e.g., MC-PTT signalling) |
| 70 | non-GBR | 5.5 | 200ms | $10^{-6}$ | Mission Critical Data (e.g. example services are the same as QCI 6/8/9) |