Bharti Airtel Ltd.
India & South Asia
Airtel Center, Plot No. 16,
Udyog Vihar, Phase - IV,
Gurugram - 122 015

www.airtel.in
Call +91 124 4222222
Fax +91 124 4248063

Ref No: RP/FY 19-20/037/517
Dated: 13th February 2020

To,
Shri Asit Kadayan,
Advisor (QoS),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg,
New Delhi – 110 002.

Subject: Response to Consultation Paper on Traffic Management Practices (TMPs) and Multi-Stakeholder Body for Net-Neutrality

Reference: TRAI Consultation paper dated 2nd January, 2020.

Dear Sir,

This is with reference to your above mentioned consultation paper. In this regard, please find enclosed our response for your kind consideration

Thanking you,

Yours Sincerely,
For **Bharti Airtel Limited.**

Tarun Chitkara
General Manager - Regulatory Affairs

Enclosed: As mentioned above

Bharti Airtel Limited (Airtel)'s Response to TRAI's Consultation Paper on Traffic Management Practices (TMPs) and Multi-Stakeholder Body for Net-Neutrality

BACKGROUND

At the outset, we would like to submit that we fully support the principle of enabling unhindered and non-discriminatory access to the Internet for all stakeholders while believing that any policy decision on implementation of Net-Neutrality in India should be aligned with three following fundamental aspects:

- Telecom market scenario in India
- Technological developments like 5G
- Shift in control of Internet traffic flow (from networks to other entities such as handsets, operating systems etc. in internet ecosystem)

Indian Telecom Scenario:

India is a unique telecom market in the world where a subscriber, at an average, consumes over 10 GB of data per month on mobile internet. Many users in India have started accessing the internet for the first time on their mobile devices and the country has over 600[1] million mobile broadband connections. In fact, mobile is playing a central role in connecting more people to financial services with mobile banking, mobile wallets/payment banks, UPI service, USSD payment, etc. Other critical government services are also being offered on mobile platform (UMANG, CBEC GST, Aaykar Setu).

These dynamics have made Indian network unique as compared to other global networks. We have the highest loading on the network from the perspective of both payload (voice, data & video services) and also the density of concurrent users. Even though Telecom Service Providers (TSPs) are continuously investing in expanding 4G networks, it is difficult to manage these capacities due to finite resources (such as access spectrum) and the susceptibility of wireless networks to various external factors such as interference, local overload resulting from sudden movement of customer in mobile environment etc.

Thus, the high usage of mobile internet networks in India necessitates the TSPs to optimize their networks and use traffic management practices (TMPs) continuously to maintain integrity of networks while meeting these high usage demands.

Technological Developments:

Unlike the previous generation of technologies which focussed only on P2P communication, 5G is associated with three fulfilment areas- enhanced Mobile Broadband (emBB), Ultra Reliable Low

[1] **"TRAI Telecom Subscriptions Report"** dated 16th January, 2020, available at https://main.trai.gov.in/sites/default/files/PR_No.09of2020_0.pdf

Latency Communications (URLLC) and massive Machine Type Communications (mMTC). 5G focuses extensively on various industrial use-case scenarios, such as Machine to Machine (M2M) Communication, automation in industry verticals (such as manufacturing, healthcare, logistics), self-driving cars etc. Therefore, innovative approaches to data delivery will be necessary to take full advantage of 5G capabilities such as network slicing, edge computing and quality based prioritization.

Services such as remote monitoring of critical infrastructure (IoT sensors for industries), remote diagnosis / healthcare are just some of the critical time & latency sensitive services that the networks will have to cater to. Networks will also need to cater to non-critical services like streaming music, video, emails, website content, etc. Allocation of network resources/bandwidth as per the applications' requirements or criticality is akin to what is done for emergency vehicles on the highways/roads.

Thus, 'one size fits all' approach has become obsolete in the context of 5G and the **policy on Net-Neutrality needs to be reconsidered and aligned with the principles and standards of technologies like 5G. In fact, the investments in newer technologies like 5G will depend on the enabling regulatory provisions which will help in unlocking the full potential/benefits of these technologies.**

Shift in control of Internet Traffic Flow

The Internet services sector is not limited to TSPs/ISPs alone; it includes content providers, equipment/handset manufacturers, OTT players, entities dealing with smartphone operating systems, browsers, cloud service providers, caching and content delivery network (CDN) providers, etc. Today, these entities have significant control over internet traffic. For example, content providers now have distributed deployments all over the world and can control/divert traffic/requests from users to specific locations and can also manage the throughputs towards users based on the networks from where they are accessing their content or services. OTTs have algorithms to adopt resolution of the content based on loading on their content servers, device types and state of broadband network. Browsers which tunnel user traffic in data save mode can cause the traffic to flow through some specific points impacting user experience. Encryption at the OS level greatly impacts TSPs' ability to drive quality services and de-facto transfers control to the OS. Therefore, control of internet traffic is now distributed to various entities in the Internet Ecosystem and is not limited only to TSPs.

Moreover, Internet access has become a commodity and customers have various options in terms of choosing their TSP. However, content providers and mobile applications cannot be substituted easily by other content providers or mobile applications, due to the unique features or content provided by them. However, until now no steps have been taken to apply Net-Neutrality principles to these entities, despite the fact that power of these entities in Internet Ecosystem is

well known. In the past, Netflix[2] has admitted that they were throttling their content on AT&T and Verizon networks.

Thus, these entities (other than TSPs) have become more powerful in the internet ecosystem and **Net-Neutrality principles should apply to these entities also to ensure that they remain neutral towards the internet access networks.**

We sincerely hope that the Hon'ble Authority would consider our above submissions while taking any further decision on Net-Neutrality and in the above backdrop, we are providing our inputs on the issues raised in the Consultation Paper:

ISSUES FOR CONSULTATION:

Q.1 What are the broad types of practices currently deployed by the Access Providers (APs) to manage traffic? Out of these practices, which ones can be considered as reasonable from perspective of Net Neutrality? Whether list of Traffic Management Practises (TMPs) can be prepared in advance or it would be required to update it from time to time? If later is yes, then what framework would be required to be established by Multi-Stakeholder Body to keep it up to date? Please suggest with justification.

Airtel's Response:

TMPs are implemented in various segments of the network to manage end to end flow of data packets. These are required for the efficient working of networks and for maintaining their integrity.

In Indian context, where data usage on wireless networks is comparatively higher than any other country, it is all the more critical to give maximum flexibility to the TSPs to manage their networks and to make efficient use of the precious spectrum & deployed infrastructure.

Broadly, TSPs are required to adopt TMPs to achieve various objectives, such as:

a) **Management of Network Congestion:** This is required especially for mobile networks to counter localized congestion and balancing of resources between real time applications like voice, latency sensitive streaming applications like Video and other background internet applications.

b) **Network integrity:** It is required to adopt TMPs to protect end users from online threats such as spam and malware. Without such protection, end users would be exposed to a

[2] https://www.theverge.com/2016/3/24/11302446/netflix-admits-throttling-video-att-verizon-customers

range of undesirable issues such as lower network performance, greater risk of identity theft, and viruses.

c) **Child protection:** Traffic management also helps to apply content filters that allow access only to age-appropriate content.

d) **Delivery requirements for 'delay sensitive' services:** Traffic management helps TSPs to ensure that delay sensitive services such as voice calls and video streaming work smoothly. This may require the use of prioritization techniques. Services that are non-real time, e.g., email, web browsing, etc., can be provided a lower priority during periods of congestion with little or no impact on user experience.

e) **Emergency calls:** Routing calls to emergency services, too, can be more efficiently performed through traffic management techniques.

Such practices keep on evolving as per the changing technological developments, hence, it would be very difficult to prepare a final list of reasonable TMPs. Therefore, **any TMP, which is employed by the TSPs for meeting objectively different technical QoS requirements and to maintain the overall transmission quality in an agnostic manner, should be treated as reasonable**.

Since, TMP is an essential tool for enhancing or improving the customer experience, it is important to give maximum flexibility to TSPs to apply these practices. **Therefore, any policy framework on TMP should be applied only at 'principle level' to ensure transparency and safeguard against anti-competitive behavior**.

To ensure transparency, TSPs may be required to submit the list of TMPs employed by them periodically. Additionally, we submit that **TMPs used for specialized services and other related aspects should be kept out of the scope of Net-Neutrality and TSPs should be free to deploy any techniques in case of specialized services.**

If it is still decided to prepare a granular list of the reasonable TMPs in context of Net-Neutrality principles for Internet Access Services, then the following TMPs should be included in the list:

- Differentiating between voice / data services to prioritize voice over data and manage bandwidth for voice efficiently
- Admission prioritization of voice against data
- Prioritization of data on microwave & transport as per the QoS assigned to packets
- Packet scheduling in Radio & Core network
- Port blocking for security reasons etc.

- Prioritization of Network Management Traffic
- Manage or block content/data in case of any security threats detected by TSPs
- Deep Packet Inspection (DPI) should be allowed to be conducted for management of traffic. TSPs should be allowed to inspect generic information in the packets such as Packet header etc., so that traffic flow can be optimized.
- Specific content, such as the transport layer protocol payload, should be allowed to be monitored in case of any threat to network security and integrity.

To ensure that TSPs are able to make use of any further technological developments which require the use of a TMP which is not included in the list, TSPs should be allowed to make use of such new TMP after giving an intimation to DoT. While the DoT can include such TMP in the list of reasonable TMPs, by following the prescribed process, in the interim duration, the TSP should be allowed to use the TMP so that it is not deprived of making use of such proposed TMP, in the event of technological advancements.

Further, TSPs can offer plans to customers for offering different data speeds or priorities. Thus, TSPs should be allowed to deploy techniques for prioritizing data traffic of the users as per the plan subscribed by them. These plans should not be considered as a deviation to the Net-Neutrality principles to allow innovation in pricing of services.

Q.2Whether impact of TMPs on consumer's experience can be interpreted from its name and short description about it or detailed technical description would be required to interpret it in objective and unambiguous manner? In case of detail technical description, what framework need to be adopted by Multi-Stakeholder Body to document it. Please suggest with justification.

Airtel's Response:

We submit that name and a short description is sufficient to interpret the impact of TMP on the consumer's experience as these practices are either widely accepted industry principles or are based on technical documents standardized by standard making organizations.

Defining a detailed technical description may not be practically feasible due to the following reasons:

- The requirement of updating such document from time to time with the evolving technological landscape.
- For the practices which are based on principles, such as prioritization of network management traffic, actual implementation may vary from operator to operator and making a document that holistically covers all the techniques may prove to be cumbersome.

- For the practices based on technical standards, such as prioritization of voice over data in a radio network, the detailed standards are already available in the public domain which are also updated from time to time.

Q.3What set up need to be established to detect violations of Net Neutrality, whether it should be crowd source based, sample field measurements, probe based, audit of processes carried out by access providers or combination of above? How to avoid false positives and false negative while collecting samples and interpreting Net Neutrality violations? Please suggest with justification.

Airtel's Response:

We strongly believe that submission of self-compliance certificates should be sufficient. Notwithstanding this, we submit that **c**rowd source data or any app based audit may not be effective in detecting such violations as there will be no control over sample collections and may lead to erroneous or biased results. The crowd sourcing methods suffer from various limitations such as user's device behavior, software settings, user location, etc. In the past also, such concerns have been highlighted with regard to TRAI based benchmarking application, which has shown bias in sample collection for good samples for one TSP vs. the other.

On the other hand, collection of samples in a controlled environment in the field will be a better approach as there will be no ambiguity, complexity or difference of opinion with respect to the sample collection and the computed results. Moreover, all planned scenarios can be covered in a controlled environment which may not be possible in the crowdsourcing methods.

Q.4What should be the composition, functions, roles and responsibilities of Multi-stakeholder Body considering the decision of DoT that Multi-stakeholder body shall have an advisory role and formulation of TMPs and Monitoring & Enforcement (M&E) rest with DoT? Please suggest with justification.

Airtel's Response:

Since, Net-Neutrality principles are already a part of licensing conditions, and the DoT is fully empowered and capable of ensuring that licensees are compliant to licensing conditions, there is no need for establishing a Multi-Stakeholder body.

Notwithstanding the above, if it is decided to establish a multi-stakeholder body for advising DoT, we recommend that the Multi-stakeholder body can be formed with representatives from licensed operators (all TSPs, ISP-A and the representatives chosen by ISP-B and ISP-C ISPs on their behalf).

Further, it will not be feasible to include all the content providers or academia in the body, and thus it is suggested that they may nominate their representatives from the respective associations. The inclusion of National Level associations in the body will ensure that content providers have their fair representation in the forum.

The candidature of any applicant association can be verified at the time of enrolment and accordingly some minimum criteria/eligibility can be set after evaluating the applications received from the applicant associations.

It is important to ensure that the recommendations given by the body are practical and implementable. Since, TSPs/ISPs will be required to implement these recommendations, it is important that the recommendations should be finalized only if these have been consented to by the TSPs'/ISPs' representatives as a whole.

The body can give its advice to DoT on matters pertaining to best practices to be adopted for TMPs. **As already stated, entities other than TSPs/ISPs (such as content providers, device manufacturers, browsers, etc.) also have significant impact on Internet Traffic. Therefore, it should be mandated that the Multi-Stakeholder body should give its advice to DoT on the enforcement of principles of Net-Neutrality on these entities to ensure that these remain neutral towards access networks.**

Q.5Whether entry fee, recurring fee etc for membership need to be uniform for all members or these may be on the basis of different type or category of membership? What may be these categories? What policy may be adopted for initial set up of Multi-stakeholder Body. Please suggest with justification.

&

Q.6What mechanism may be prescribed to determine fee and other contributions from its members towards expenditure in a fair and non-discriminatory manner? Please suggest with justification.

Airtel's Response:

If it is decided to establish a Multi-Stakeholder body then we recommend that only two categories should be introduced:

- Service Providers (TSPs/ISPs)
- Others (including representatives of content providers and academia)

The fee should be payable by members for only meeting the operational expenses of the body. Differential fee may be charged from different categories of members. It would be mandatory to have TSP/ISPs in the body as they will be required to implement the recommendations of

the body if these are accepted by DoT. As TSPs/ISPs will mandatorily be required to become members of the body, these should not be required to pay any subscription fee.

Members in "Other" category can be classified in three sub-categories – Members, Associates & Observers, with different slab of subscription fees. Members would be having right to take part in the review & the decision making of the multi-stakeholder body, while associates would have right to only assess information available on this platform. Observers would not have access to the information but may be permitted to request for information by paying fees per requisition.

Industry forums such as COAI can be entrusted with the task of setting-up this body in coordination with association/forums chosen by other stakeholders.

Q.7What should be the guiding principles and structure of governance of Multi-stakeholder Body? What may be the roles and responsibilities of persons at different positions such as chairing the organisation or working groups, governing the functioning, steering the work etc. Please suggest with justification.

Airtel's Response:

The multi-stakeholder body should ensure that the views of all stakeholders are captured. It can have its executive council, which should have representation from all categories of membership. The Chairman and Vice-Chairman of the executive council should be chosen by the members for two-year terms. The body can function through its committees and the different proposals for recommendations should be deliberated by these committees. As stated earlier, it is important to have the consent of the TSP/ISP members (as a whole) for any proposal as the responsibility of implementing the recommendations lies with them, if these are accepted and enforced by DoT.

Q.8Any other issues which is relevant to this subject?

Airtel's Response:

No comments