

Date: 14th March 2017

Shri Asit Kadayan,
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Mahanagar Door Sanchar Bhawan
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Dear Sir,

Re: Comments on Consultation Paper on Net Neutrality dated 4th January 2017

1. We would like to thank Telecom Regulatory Authority of India ("TRAI") on progressing the debate on Net Neutrality ("NN") by issuing this consultation paper. Ensuring an adequate and relevant framework to address concerns over NN and providing an opportunity to all the stakeholders to register their opinions on this very important matter are a step in the right direction by TRAI. This will enable a healthy growth of the Internet and Digital economy in India.
2. As you are aware, India with a population of more than 1,250 million has more than 331 million Internet subscribers, out of which more than 135 million are Broadband subscribers. This reflects that Internet penetration is still relatively low in India and growth, connectivity and coverage are the areas which the industry needs to focus on. Given the stage of Broadband Internet penetration in India, it will be very useful if TRAI provides complete clarity on all the aspects of NN. We feel that such clarity will go a long way in inviting investments into the sector, which investments in turn will enable faster Internet penetration and economic development of the country.
3. In addition, it is also necessary for TRAI and concerned authorities to ensure that there is no over-regulation in this aspect as it may result in stifling innovation in the overall telecom area. Over time, this would result in lower investments in the sector and would result in lower quality of experience for all users.
4. TRAI should also take into account the current market environment where the Telecom sector has seen enormous disruption. The Mobile Network Operators ("MNO") have come under severe pressure on account of cannibalization of most of their conventional services by Over The Top ("OTT") players. This phenomenon can be observed in India in terms of wiping out of revenue streams of MNOs for value added services ("VAS"), messaging ("SMS") and international voice. The proliferation of OTT in domestic voice and video calls is also increasing thereby endangering the last major conventional revenue stream of MNOs.

Further, the emerging competitive landscape among MNOs in India has also started building pressure on new data based revenues.

Therefore, it is imperative that the MNOs should look at more innovations to develop new revenue streams and remain competitive in this environment. In this regard, please see our recommendations and responses to relevant queries below.

5. Consideration for introduction of innovative platforms and models

The TRAI, through the three consultation papers on NN, has primarily discussed the concept of NN under a traditional industry structure. This considers MNOs providing access on one side and OTTs having content and applications on the other side.

With the advancements in technology and innovations in the sector, there is a growing emergence of novel business models in Telecom as well as Internet domain. A prominent area is the emergence of business models based on third party intermediaries or exchanges. Few examples in this regard are provided below.

- a. **Mobile Virtual Network Operators ("MVNOs")**: These are service providers who do not own the underlying network yet provide voice and data services to consumers. MVNOs are essentially Value-Added Resellers ("VARs") who purchase voice/ data resources in wholesale, bundle additional services e.g. ringtones, and resell such bundled services to retail consumers directly using their own brand. In the era of mobile broadband, with apps operating in the cloud, there is significant opportunity for data MVNO's to bundle retain access with app based value-added reselling.
- b. **Messaging Aggregators**: Third party messaging aggregators provide a number of value added services to consumers and enterprises including premium SMS gateways which enable marketers to advertise through text messaging (SMS notifications). These messaging aggregators may earn revenues by charging a fee per message or a share of content revenue in case of advertising. The end consumer is not charged for such notification messages from the third party aggregator.

It may be observed that these platforms have existed in the telecom ecosystem in India and abroad for quite some time and have resulted in unlocking of hidden value in the ecosystem through innovation. It is felt that introduction of similar innovative platforms would also be beneficial in the area of Internet.

Therefore, in the context of this discussion, a possible innovation could be in the form of a third party intermediary or exchange platform which is agnostic to both MNOs as well as OTT content providers. This platform may have following features:

- a. Provide aggregation/ bundling and/or other services for different content types and applications in an MNO and OTT agnostic manner. These could be in the form of application centric services offered to subscribers. For instance, voice is metered using a unit of time (not Bytes); in a similar vein application specific billing units and corresponding innovation should be encouraged with a view towards increased

transparency to end-users. As a further example: it is easier for subscribers to track and count the number of digital videos that they watch, in a video enabled service, compared to tracking the number of MBs that are consumed in that service.

- b. Provide data aggregation services (similar to SMS aggregators) – An innovative aggregator may be able to enable multimedia content based notifications paid for by advertisers (for potential customers) or enterprises (for their existing customers/ employees) in such a way that the end-consumer does not pay for the data charges to receive and consume such notifications.
- c. Provide technology enabled application specific optimization (like CDN/cloud providers). Such a platform, by providing high quality experience based on its innovative technology, could help enable delivery of application specific optimization services e.g. optimized in app VoIP, in a MNO agnostic manner thereby leading to a new generation of digital services to consumers and enterprises.
- d. Provide network enabled specialized services for targeted users. Such innovative platform would have the ability to create new business models for OTTs and enable new revenue streams for the MNOs.
- e. The Aggregation Platform may not own any access network like MNOs; however, may have to be integrated with billing support systems of MNOs and OTTs. Such platform providers would likely own their own datacenters and cloud infrastructure to enable delivery of application data and optimization services.

Such an intermediary or exchange platform will enable further innovations in the ecosystem from OTTs in terms of improving their offering to the consumers. For instance, messaging aggregation services provide significant productivity gains and allow enterprises/businesses to offer crucial digital services with corresponding economic impact. Given the emergence of OTT messaging and app based notification services, there is a significant opportunity for a new class of aggregators to work with MNOs.

In summary, the fundamental recognition of the need for an innovative third party MNO and OTT agnostic platform is significant towards the growth of the Internet services ecosystem, and has the potential to have a corresponding and positive economic impact. It is felt that existing business models in the telecom domain could be easily adapted to serve a new purpose in the context of Internet and thereby create a smarter Internet value-chain. Therefore, TRAI should create appropriate provisions in order to enable the development of such third party independent platforms which would spur new innovations in the sector leading to faster and equitable growth of Internet in India.

6. We would like to register our response on the relevant queries posted in the consultation paper.

Q1: What could be the principles for ensuring nondiscriminatory access to content on the Internet, in the Indian context?

Response: Firstly, we would like to bring to the notice of TRAI that the Internet penetration is still very low in India. Further, the Internet and Digital ecosystem are at a relative early stage of development. Therefore, we feel that the rules should not be rigid but flexible in order to promote innovation and economic growth rather than stifle growth in this sector.

The issue of freedom of choice for a user only arises when there is access to Internet. Without access, the user has no choice. This logic would also be applicable to the users who are not having access to higher speed broadband versions of technology. Therefore, we feel that the policy formulation on the issue of NN should also consider aspects around improving affordable access to the end users and/ or application providers.

Thus, technologies and tools which enable improved and affordable access to many users or enable better functioning of applications on the network may be required to improve the overall unit economics of the entire Internet value-chain.

Q2: How should “Internet traffic” and providers of “Internet Services” be understood in the NN context?

- a. Should certain types of specialized 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?

Response:

- a. Certain types of services require application specific optimizations for their efficient functioning and for the end users to derive economic benefit out of using such services. Without the provision being created for such optimizations for these services, the application becomes ineffective to the extent of becoming non-functional by end users. In our view, a policy which discourages such specialized services by not allowing them the requisite optimization would impede innovation and create a relatively poor internet and application experience across India. Further, MNOs can also enable innovations by leveraging their networks to provide specialized services for targeted users, thereby creating new revenue streams.
- b. In our view, Network Optimization Solutions such as CDNs, Cloud services, and other interconnection arrangements do not entail Prioritization. Prioritization is carried out by assigning some packets higher priority than others. In normal scenario, a packet routed through a network encounters no congestion, and is not placed in any queues. On the other hand, if the packet encounters congestion, it is placed in a queue along with other packets, and priority levels could be used to determine the order in which packets are released from the queue and advanced through the network. As a result, whenever a higher priority packet is advanced in a queue, every packet that it passes by is left worse off and suffers degraded performance, in the form of higher latency, increased risk of packet loss, or in aggregate, lower bandwidth. Therefore, prioritization

is inherently a zero-sum practice, and creates fast and slow lanes and prevents a level playing field.

In contrast, Network Optimization Solutions such as interconnection that involves adding capacity through new ports, or caching, or content delivery network (CDN) services that offer a benefit by reducing the total distance of travel, not only improve application performance for those using the solution but also for other users that share the same local network of the MNO. This is because such solutions de-congest the existing access network, in particular if the last mile is shared. Therefore, offering a benefit of improved performance through Network Optimization Solutions (such as optimized interconnection, caching, or CDN/cloud services) that does not slow down other applications or application providers, rather improves their experience, representing a very distinct issue from Paid Prioritization. In this context, improving overall performance through Network Optimization should be welcomed and should not be treated as Paid Prioritization.

Q7: 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?); and
- c. Preferential Treatment (for example, how can it be established that preferential treatment is being provided to a particular application?).

Response:

- a. As detailed in the consultation paper issued by TRAI, the opinion adopted by regulatory authorities worldwide advocates that MNOs and broadband providers may not block or throttle legal content, or applications.
- b. On the other hand, "Preferential Treatment", especially if practiced by the MNOs in the wireless domain, would lead to inferior network conditions for all users. While this may sound counter-intuitive, it may be explained from a technical point of view in an intuitive manner.
 - a. Unlike fixed line networks, wherein the user connection in the last mile is dedicated to a user, the mobile network last mile is a 'shared' bandwidth environment. This means, various active applications that each user has and many more that are active across different users share a common wireless spectral carrier.
 - b. This implies a finite number of concurrent users in each wireless spectral carrier. However, each consumer will request content and app data of their choice.
 - c. If there is any Preferential Treatment of content or apps, it will result in the user to keep occupying the wireless last mile bandwidth waiting for the response from the app. This will effectively prevent other users from access to the shared last mile.

- d. Thus, such treatment will force subscribers to use last mile wireless bandwidth in a highly inefficient manner. Given the outsized costs of last mile wireless spectrum across the World, there appears to be no economic incentive for the MNOs to practice such Preferential Treatment.
- c. Optimizations in the rest of the network, through storage of popular static objects of content at various strategic locations are already a common practice. While this optimization is applicable less and less, as content and app data become dynamic and secure, the percentage of content amenable to such optimizations is still around ~10% and leads to nontrivial savings for the MNOs. Any selective optimization, will only result in MNOs operators sacrificing on such cost savings.

7. May we request TRAI to consider the submission favourably and issue a clarification in this regard. We will be happy to meet and/or provide clarifications or share further thoughts with respect to the same.

Yours faithfully,



Partner ARUN SAXENA
For Saxena & Saxena Law Chambers