Comments by LIRNE*asia* on the *Consultation Paper on Regulatory Framework for Over-the-top (OTT) Services*, submitted to the Telecom Regulatory Agency of India on 24th April 2015.

LIRNEasia appreciates the opportunity to offer comments on the consultation paper on Regulatory Framework for Over-the-top (OTT) Services. LIRNEasia is a regional information and communication technology (ICT) policy and regulation think tank active across the Asia Pacific. We provide our opinions and recommendations as a think tank that has been engaged in telecom/ICT regulatory and policy issues in India and the Asian region since 2004, and one that considers part of its mission to get the citizens of South Asia connected to the Internet, and using the same to make their lives better.

The issue of net neutrality (NN) is fundamental to the proposed framework, even though its title is framed as one dealing with the regulation of OTT services. And we are aware that the NN issue has generated huge interest in India and resulted in a large number of responses by users. We therefore limit our comments to what we deem to be the most important questions asked by TRAI.

Question 9: What is your view on Net Neutrality (NN) in the Indian context? How should the various principles be dealt with?

The Indian Context
The Indian context is a conundrum: low prices[1], moderately high levels of affordability[2], high levels of competition[3] in the mobile sector, yet low (around 15%[4]) penetration of broadband. This is fundamentally different from the developed world (US, EU etc.) context, which have lower levels of competition (especially in the US, where majority of households have acess to two providers), yet high broadband penetration (of over 80% in the US). Any rule-making needs to take into account these differences, and realize that *increasing penetration of BB in India should be given primacy over much else*. This means the regulator needs to take a hard look at the actions it has so far not taken or where it has failed – for example, in the timely allocation of sufficient spectrum, delays in stimulating the roll-out of high-speed backbone networks nationwide – and address these as matters of priority. It's correct to suggest (as others have done) that these matters be addressed <u>prior</u> to embarking on Net Neutrality (NN) regulations.

It is also important to note that the US in particular arrived at NN regulation in the context of low retail competition for broadband services (where most households have at most two

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[1] Indian mobile-broadband, prepaid handset-based (500 MB) prices in India is very low, at USD 3.38, compared developed economies (US D 65.33 in the USA and USD 23.45 in the UK). Source: ITU, 2014. Measuring the Information Economy Report (available at https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf)

[2] The ITU Broadband Commission's target is that broadband access cost less than 5% of monthly income. In India, the cost is around 5% of monthly income. But for Indians in the 7th income decile, the cost is 8% of income. For details see *How affordable is broadband?*, http://blogs.worldbank.org/ic4d/how-affordable-broadband.

[3] India's mobile HHI (Hirschman Herfirndahl Index, a measure of market concentration) is one of the lowest in the world, at 0.14. It's classified as a 'highly contestable' market by most measures. Source: New Driving forces of Telecommunication http://ideasmakemarket.com/2013/08/aug-entry6-analysis-of-the-indian-telecommunication-industry-the-changing-forces.html

[4] Source: ITU 2014, Measuring the Information Society 2014 (available at https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf (page 95)

service providers to choose from – one cable TV operator and one fixed line company), thereby making NN regulations an important part of correcting the power of the last-mile providers. The situation in India is different – even though fixed penetration is negligible, mobile is widespread, and there is choice for consumers. So different tools are available to the Indian regulator compared to the US.

If, however, TRAI insists on ruling on NN, it is vital to realize that the rules will have an impact on the broad Internet ecosystem well beyond the TSP/OTT players of today, and that any rules will have to be nuanced enough to accommodate the capabilities of future technologies and an evolving understanding of what is defined as NN. Unfortunately the track record of most emerging Asian regulators to engage in nuanced, flexible and timely rule making is poor.   As such, doing nothing maybe better than doing the wrong thing.

In terms of regulatory priorities, getting the majority of Indian citizenry connected to the Internet at reasonably good speeds and affordable prices should be the primary objective of TRAI. Therefore, maintaining a competitive broadband market that provides consumer choice and innovative price-quality bundles is key.

Principles of NN as applicable to India
Broadly, the net neutrality debate is about preserving the open nature of the Internet – that is, the idea that any user can access any content irrespective of the type of content or its producer. Specifically, it breaks down into three principles commonly referred to as: no blocking, transparency of traffic management practices, and, no throttling or paid prioritization.

1) Blocking refers to making certain types of content or certain types of web sites unavailable to all users or to a group of users. This is to be avoided at all costs, except when there is clear mandate to block content based on other laws in a country (such as legal blocking of child pornographic content, for example) or broadly agreed Internet codes of practice (such as the ISP or email application service providers blocking the generating of junk mail/spam).

2) Transparency of traffic management is necessary because most networks need to engage in what is termed reasonable network management practices, which necessitates giving preference to certain content at a given time.   Such prioritization is required because the Internet is not an unlimited resource and there are bottlenecks in the Internet pipeline at a given point in time. These scarce resources need to be managed. Examples may be prioritizing delay sensitive traffic (e.g. voice before email or FTTP), rendering resolution of content dynamically (video over wireless to big screens vs. small screens), reserving bandwidth for delay-sensitive traffic (voice over LTE), or prohibiting high bandwidth traffic (e.g. video on airplanes)[5]. The way to handle reasonable traffic management is to enforce transparency – that is, requiring that all ISPs (TSPs) regularly publish the methods of 'reasonable traffic management' they undertake on a routine or one-off basis. The public should have access to this data. The regulator should review the same.

3) Paid prioritization refers to the ISP/TSP prioritizing a particular type of content or a particular content creator's traffic over others, in return for payment (in kind, or direct financial payments both count)[6].   There are different flavors of 'paid prioritization' and each

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[5] Christopher Yoo, presentation at GSMA Mobile World Congress 2015 Ministerial Program contains more on these types of prioritizations.
[6] Note the term 'prioritization' here is not used it's purely technical sense (as used by the IP/telecom community, and refers to the first-in-first-out principle of packet prioritization). Instead it refers to the

should be evaluated on the ways in which it impacts welfare (i.e. how it enhances or reduces consumer/producer welfare) and the ways in which competitive dynamics are impacted (is it creating more competition or less?).

a) *ETNO/WCIT type paid prioritization*: At one end of the paid prioritization spectrum is the example seen in the US when Comcast throttled Netflix traffic for a period of time, until interconnection agreements between Comcast and the sending network were re-negotiated[7]. This is also the type of payment that has been argued for and promoted by ETNO's proposals that were prominent in the early discussions leading up to the 2012 ITU/WCIT.

The problem with paid priority is two fold – ISPs refusing to carry traffic of content providers who do not pay them, and making the creation of internet 'fast lanes', where only the content for which the creator pays for is prioritized, making the rest effectively unreachable due to poor quality (de-prioritization). While deep-pocketed content providers (such as Netflix) may be able to pay, what does a not-for-profit like Khan Academy do? Does this mean that users in India won't be able to access educational content via Khan Academy? In theory, both problems find solution in a competitive market and in the enforcement of strong broadband quality of service (QoS) standards. For example, while it is possible that ISP A won't carry a particular type of content (because ISP A isn't getting paid by the content owner), ISP B competes for the same consumer and will want to differentiate themselves by carrying that content. In a sufficiently competitive market, users can switch. Moreover, every ISP is faced with network-effects, where the value of the network increases as more users utilize it, and as more content becomes available on it. As such, one could argue that an ISP can decide to subsidize certain non-paying content in order enhance the positive network effects. In addition, if TRAI is able to monitor and effectively ensure that ISPs are delivering the promised speed/throughput to every user, then it has a way to ensure that the creation of fast-lanes (highways) does not impact the people on the regular road. I.e., Netflix (if it pays an ISP, in this example) may be faster-than-normal to download, but even Khan Academy content (which in this example is not paying the ISP) will arrive at the minimum guaranteed speed that the user has paid for.

Both these pre-conditions (i.e. of the regulator being able to monitor/enforce retail QoS standards and to ensure the existence of a competitive retail broadband market) are necessary to counter-balance the dangers of ETNO-type payment systems. Unfortunately, the track record of most regional regulators in monitoring and strictly enforcing QoS standards for all users is questionable –LIRNEasia's broadband testing results shows Indian users repeatedly experience less than promised broadband speeds from their ISPs[8]. Furthermore, Indian mobile operators have repeatedly shown 'cartel-like' behavior (e.g. when it comes to price setting). As such, this type of paid prioritization, while theoretically acceptable, in practice (i.e. when faced with the realistic ability to monitor the pre-conditions mentioned above) could be seriously detrimental to the open nature of the Internet.

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concept of positive or negative discrimination, which may involve payment by players in different layers of the network

[7] Seward, N. (2014, August 27). *The inside story of how Netflix came to pay Comcast for internet traffic*. Retrieved from http://qz.com/256586/the-inside-story-of-how-netflix-came-to-pay-comcast-for-internet-traffic/.

[8] LIRNEasia. (2014, March). *Broadband Quality of Service Experience (QoSE) Indicators Q1-2014*. Retrieved April 24, 2015, from LIRNEasia : http://lirneasia.net/wp-content/uploads/2010/10/BBQoSE-Report_Final.pdf ; and [8] LIRNEasia. (2013, March). *Broadband Quality of Service Experience (QoSE) Indicators Q1-2013*. Retrieved April 24, 2015, from LIRNEasia : http://lirneasia.net/wp-content/uploads/2013/03/Broadband-QoSE-report-March-2013_V2.pdf

b) *Zero Rating (ZR)*: Somewhere in the middle of the spectrum is Zero Rated content, where certain types of content do not count towards the data cap of users. The most common form of ZR is where popular content (social media such as Facebook, Twitter) or communication services (Viber, WhatsApp) are zero rated, either for free or for a nominal fee. The danger is that price sensitive users will only consume these zero rated content, and never experience the vast and rich Internet (i.e., stay within the ISPs walled garden or stay within Facebook only, etc.). This danger is something we are concerned about. But we have little evidence that this is a real danger simply because it's just too early to find concrete evidence of zero-rated content creating a different type of Internet experience. This is because the phenomenon of ZR is relatively new. We also know that the phenomena of people thinking that Facebook = the Internet (i.e. consuming the Facebook, but not thinking they are on the Internet or not consuming the broader Internet) is not a new one. It was happening well before the ZR phenomena, as found separately in research carried out by LIRNEasia, RIA and Quartz[9]. The other danger is that ISPs/TSPs will zero rate content from organizations they have vertical alignments with, and make it impossible for users to access other similar/competing content - for example, an ISP can promote their subsidiaries' music content, and block or throttle/downgrade other music streaming content. This would be a clear violation of the open Internet principle. There are two ways to ensure this doesn't happen. First, is the enforcement of QoS standards (so the minimum promised speed for which the user is paying for is guaranteed even for non-ZR content) and 'no-blocking' principle. Second is active monitoring and rulings against anti-competitive behavior – where the competition commission and TRAI need to clearly coordinate and act.

The first question to ask about ZR is whether it promotes economic activity that would otherwise not have taken place. The answer seems to be yes, anecdotally at least, since high numbers of new users start consuming the ZR content when it's offered. And new firms such as Syntonic has emerged to managed sponsored data on behalf of content providers and telcos – an economic activity that would not have taken place without ZR. The second question to ask about ZR is what impacts it is having on competitive dynamics in the market – is it (or will it in the future) increase or decrease competitive at different points of the value chain? It is possible that TSP walled gardens give significant powers to them, and may stifle innovation by small/new app developers. It is also possiblet hat one platform/OTT (such as Facebook) is Zero Rated and gains so much power because users only are inside the Facebook platform. The network effects then lead all other content to try to be on Facebook, giving Facebook significant power. On the other hand, banning ZR has at least on one occasion has reduced competition in the market. Metro PCS5[th] largest US mobile operator developed a zero rated You Tube as an answer to its financial struggles. Net Neutrality advocates argued against the ZR plan, leaving the struggling company no choice but to sell itself to T-Mobile, reducing overall competition in the market. But such examples are yet to be systematically documented.

On the other hand, only thing we know about ZR is that when it's offered, it has the effect of attracting users to the zero rated content, and that these users are more frequent users of the specified content. There is possibly a 'conversion effect' (i.e. users convert from 'ZR consumers' to 'regular Internet' consumers after getting their first experience via ZR), but this is not systematically documented (except perhaps in the case of Turkish telco

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[9] Mirani, L. (2014, February 9). *Millions of Facebook users have no idea they're using the internet.* Retrieved from http://qz.com/333313/milliions-of-facebook-users-have-no-idea-theyre-using-the-internet.

Turkcell's ZR offering a few year's back[10]). But we believe it is worth understanding the impacts of ZR before it is banned. As such, we present the possible other ways to make ZR more palatable from the Net Neutrality point of view such as:

- *One-click-away-ZR*: Where a popular app (e.g., Facebook) is zero-rated, but so is the first URL users click through to, outside of the app. This way, they are not always inside Facebook, but have a chance to visit (for free/uncapped) the first level links outside Facebook (clicking through to subsequent links is charged as normal).
- *Time-limited ZR:* Limiting ZR to a particular promotional time period. After this, users who see the value of consuming the content will pay normal rates and have access to the whole internet at the same price
- *ZR in return for ad viewing*: Users are asked to watch 5 minutes of advertisements, in return for getting 1 hour of free internet
- *ZR 2G access*: Internet access on 2G is automatically zero rated, while 3G access is charged as normal. This has the benefit of getting free (albeit slow) access to the Internet for our citizens
- *Anyone can zero rate*: in theory, anyone who negotiates with the ISP/TSP is able to zero rate their content

c) *Different speeds for different prices:* At the other end of the spectrum is the practice of different speeds for deferent prices. This is only mentioned because some strong NN advocates have argued that this violates net neutrality - some users get a fast lane to the Internet based on their ability to pay. We clearly do NOT see this as any violation of NN, since differentiated price-quality bundles are a natural, and desirable feature of a mature, competitive market.

Question 1: Is it too early to establish a regulatory framework for Internet/OTT services since the Internet penetration is still evolving, access speeds are generally low and there's limited coverage of high speed BB in the country? Or should some beginning be made now with a regulatory framework that could be adapted to frameworks in the future.

TRAI/Indian regulators has a choice of doing something now (i.e. in the classic tradition of ex-ante regulation, making a set of rules that define the parameters within which players in the market can operate) or waiting till later until something prompts/forces action (i.e., in the tradition of ex-post regulation, perhaps a market actor files a case citing anti-competitive behavior, for example).   Ex-ante rule-making may create a level playing field for all (not just those currently in the market), but needs to be able to take into account the ecosystem of the Internet (not just of the telecom 'pipes') and be able to handle future technologies and business models. Ex-post rule-making may require resources and capabilities inside the various regulatory bodies (TRAI, the Competition Commission of India (CCI)) that may not currently exist.

In this context, we see that TRAI/regulators have several ways to react today, as shown in Table 1. Each approach has pros and cons.

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[10] Shears, M. (n.d.). *Net Neutrality, Zero-Rating & Development: What's the Data?* Retrieved from http://www.intgovforum.org/cms/wks2014/index.php/proposal/view_public/208

Table 1: Possible courses of action for TRAI

Possible course of action by TRAI	What would be allowed	What would NOT be allowed	Why this could be good	Why this approach could be bad	LIRNEasia's recommendation
A) Implement "All out NN regulation" Ban all forms of blocking, throttling, paid prioritization, zero rating, etc. Enforced transparency of traffic management practices by TSPs	> Only narrowly defined 'reasonable traffic management practices'. All such practices must be disclosed to users/TRAI	> Blocking of any content. > Throttling of any content > Paid prioritization of any form > Zero rated content	Requires only moderate regulatory capacity implement, since 'best practices' from other countries can be imposed directly.	> May dissuade the emergence of creative business models that induce higher broadband access by Indian users. > May possibly dissuade network investment by TSPs > May increase price of data since TSPs can only make money on metered use	Not recommended at this point in time
B1) Impose minimal NN definition now. Decide the rest ex-post Define NN narrowly now and implement (e.g. no blocking, and no throttling of traffic, with transparency of traffic management practices) but leave the rest (e.g. paid prioritization, Zero Rated content, other) to decide later, as and when violations are perceived and/or brought to the attention of authorities.	> 'Reasonable traffic management practices', with public disclosure of same > Various forms of paid prioritization (but subject to anti-competitive behavior) review > Zero rated content (but subject to anti-competitive behavior review)	>Blocking of any content >Throttling of any content in a manner that degrades quality of other content (min. speed guarantees enforced)	Signficantly increase TSP revenues and provide necessary inducement for rolling out higher-speed networks	> Gives operators significant control over what goes inside the walled-garden. > May create 'Internet fast lanes' if TRAI doesn't impose strict retail QoS standards and disallows carte-like behavior. > Requires very high level of competency by regulators to monitor, detect and take actions against violations of anti-competitive behavior, violations of QoS standards. These are the minimal conditions for maintaining a level playing field	Not recommended since burden of enforcing the minimal necessary conditions for not disadvantaging users is hard to implement given regulatory capacity

B2) Impose broader NN definition that allows zero rating now. Decide the rest ex-post Agree on broad principles of NN (e.g. no blocking, transparency of traffic management practices) and allow Zero Rated content (subject to anti-competitive behavior reviews). But leave the rest (forms of paid prioritization) to decide later, as and when violations are perceived and/or brought to the attention of authorities. This is more-or-less the USA/FCC approach.	> 'Reasonable traffic management practices', with public disclosure of same > Zero rated content, subject to review for anti-competitive practices	> Blocking of any content > Throttling of any content in a manner that degrades quality of other content (min. speed guarantees enforced) > Paid prioritization of various form	> May increase Internet adoption since popular content is zero rated and induces users to access the Internet	> The possibility of committing a Type 2 (false negative) error exists – i.e. allowing zero rating now, and finding out in the future that it is harmful for competition. The mitigating factor is that Type 2 errors are more easily self-correcting than Type-1 (false positive) errors in a a competition regulation context (see option C below) > Requires moderate levels of competency by regulators to monitor, detect an take actions against violations of anti-competitive zero rating business practices, and QoS standards. These are the minimal conditions for maintaining a level playing field	T**his is our preferred option,** specially since TRAI seems intent on acting on NN issues, and the tone of the consultation paper is to protect TSP's interests. Even here, the regulatory capacity to enforce the minimal conditions (of monitoring QoS and ensuring against cartel behavior) needs to be evaluated
C) Do nothing now. Watch, monitor, be ready to act in the future	> All activity is allowed	> None, unless regulators make a determination of anti-competitive behavior	>In a situation where insufficient information is available about the positive or negative effects of various business models, this approach avoids Type 1 (false positive) errors – i.e. ruling that, for example, zero rating is anti competitive and banning it, when in fact it could have been useful.	> May seriously change the competitive dynamics in the market, where ISPs/TSPs have long-term advantages that are hard to correct, creating negative welfare effects. In other words, economic activity that may have taken place otherwise does not take place. And example would be new, local app developers being unable to reach certain consumers due to their lack of negotiating power with ISPs.	> We see some merit in taking this approach in the near-term as long as TRAI and other regulators can monitor anti-competitive behavior and are ready to act in the future

Question 2: Should the Internet/OTT players offering communication services (voice, messaging and video call services through applications (resident either in the country or outside) be brought under the licensing regime?

No, OTT players offering communication services should not be brought under the licensing regime.

Many of the most commonly used OTT apps and their creators are from outside of India. It is not possible to easily enforce licensing requirement on them. Therefore, practically, only the local OTTs (i.e. those with a physical and/or legal presence in India) will be subject to registration requirements. This will put the local OTTs at a further disadvantage, leaving them little choice but to register overseas in order to avoid the asymmetry in registration requirement. This is the opposite of what the Indian authorities are attempting to achieve – the creation of a vibrant community of Indian OTT apps.

Communication-OTTs thrive because they provide a superior user experience (e.g. attachment of video, downloading of stickers etc. on messaging apps, for example) and because the price differential between alternatives makes them more attractive (e.g. cheaper to send a WhatsApp message than to send SMS). Both are normal evolutions of a mature and competitive market, and should not be banned.

Question 6: How should the security concerns be addressed with regard to Internet/OTT players providing communication services? What security conditions such as maintaining data records, logs etc. need to be mandated for such Internet/OTT players? And, how can compliance with these conditions be ensured if the applications of such Internet/OTT players reside outside the country?
AND
Question 7: How should the Internet/OTT players offering app services ensure security, safety and privacy of the consumer? How should they ensure protection of consumer interest?

There are legitimate concerns about the data privacy, consumer rights or safety of users OTT content. But such concerns exist irrespective of whether the OTT is an overseas entity or Indian company. And such concerns exist with regard to TSPs too, not just OTTs. These are important things for a regulator to consider. Yet the place is not here, inside a set of rules that consider OTT regulation. And certainly not in the short time frame provided to stakeholders to respond.

A separate consultation should be undertaken on these matters, where the relevant government entities should be involved, since any such rules/laws will span jurisdictions well beyond TRAI. Furthermore such rules (for example, on the retention of records) are relevant to online and off-line businesses alike. One cannot deal with these important issues through licensing or inside a regulation that is primarily about Net Neutrality.

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