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Countercomments on the issue of Network Slicing

from Nikhil Pahwa, Founder, Editor & Publisher of MediaNama.com

Dear Sir,

At the outset, given comments on Network Slicing by Reliance Jio and its vendor Ericsson at TRAI Day, and public statements from Reliance Jio, we find this consultation, which focuses on Network Slicing merely from a quality of service perspective questionable.

This is a key Net Neutrality issue, and it impacts access to the Internet for the citizens of India, and the future of India's digital startups and entrepreneurs.

MediaNama has covered issues related to Net Neutrality since 2010, starting with our coverage of MTS's Mblaze plan which allowed browsing of certain websites, including Yahoo India, Wikipedia, Makemytrip, shopping.indiatimes.com and Cricinfo, without data charges.

We have also previously participated in regulatory consultations related to Net Neutrality with the TRAI and DoT, and deposed before India's Parliamentary Standing Committee on IT on this issue.

Over the years, we have focused on policy issues related to Internet Freedom, censorship, paid news, surveillance and privacy, and from a business perspective, lowering of regulatory barriers and the easing of controls on Internet businesses and mobile operators. This, combined with our reportage on business financials and on investments and financing of Internet startups gives us a breadth of understanding of **business and policy across content and carriage, large companies and small, and Internet and mobile.**

I also led the Savetheinternet.in campaign in 2015, which enabled participation in multiple consultations related to Net Neutrality for over 2 million Indian citizens, and was the founding Chairperson of the Internet Freedom Foundation.

Please find attached below our counter comments to Reliance Jio and GSMA.

Thanking you,
Nikhil Pahwa

Our countercomments to Reliance Jio and GSMA:

The neutrality expected of the networks also apply to slices of the network.

India's rules around differential pricing and network neutrality are applicable to the technology of network slicing as well: slices cannot be used to discriminate between applications/services/content on the basis of speed, latency, reliability, packet loss, congestion priority and price.

As a country, we cannot allow telecom operators to manipulate what consumers consume on the Internet by instituting anti-neutrality practices, just as network slicing based on speed, latency, reliability, packet loss, congestion priority and price.

Telecom operators don't own the spectrum: it is licensed to them in public interest, and regulations exist to ensure non-discriminatory behaviour.

There is no set of principles as core to the functioning of the Internet as those of Net Neutrality, and the freedom that users have to view and consume content and services, without the service provider influencing or interfering with their choice.

This is essentially about three principles:

1. All sites and apps must be equally accessible: ISPs and telecom operators should not block certain apps and sites, just because they don't pay them a revenue share. No gateways to the Internet should be allowed, and no preferential listing of certain sites, whether via commercial arrangements or not.
2. All sites must be accessible at the same speed (at an ISP level): This means no speeding up of certain sites because of business deals. More importantly, it means no slowing down some sites.

3. The cost of access must be the same for all sites (per Kb/Mb or as per data plan): This means no “Zero Rating”, or differential rating for different sites, apps or services. In countries like India, Net Neutrality is more about cost of Internet access than speed of Internet access, because we don’t have fast and slow lanes: all lanes are slow.

The Internet is not ten, hundred, ten thousand or even a million websites. It comprises hundreds of millions of sites and applications, which are available to all Internet users to choose from. This has been made possible **because the access service provider does not influence consumer choice by either modifying the speed of Internet access, availability of sites and services and price of accessing a particular website or service.**

All websites are available, all at the same speed of Internet access (per kbps or mbps) and at the same cost (according to a wholesale data pack charge).

As I’ve indicated in my past submissions, including while representing SavetheInternet.in, the Internet Freedom Foundation and MediaNama, there must be:

- No licensing or registration of Internet companies, whether communications or non-communications based, by the TRAI or DoT.
- No manipulation of speed, availability (via packaging of individual sites) or
- No manipulation of the cost of Internet access (via Zero rating or by making some services such as messaging or Internet calling more expensive).

We would urge you to ensure that the petty self-interest of oligopolistic telecom operators and large Internet companies does not hold innovation, freedom of expression, access to information and knowledge to ransom.

A structure needs to be put into place to ensure that providers of Internet access (telecom operators and ISPs) are not in a position to influence which site or service on the Internet consumers prefer to access: that choice must be of the consumer’s alone.

We’re opposed to prioritisation of services on the basis of which provider they are from, and permanent, unnatural prioritization or deprioritisation of specific service types (voice, video, text).

We are not opposed to natural prioritization built into the network, or transparent and disclosed changes in the network in order to ensure that the networks stay stable and functional.

For innovation to take place, platforms have to be affordable, stable and neutral.

A Non-Neutral Internet will set back the growth of the Internet in India, just as the decision from the Reserve Bank of India to restrict mobile payments when Wallet365 was launched in 2006, delayed the financial inclusion being attempted yet again by the government

The problem with app/services/content specific network slicing

Network slicing by itself is not violative of Net Neutrality, but **how the network is sliced can be an issue**: it can be neutral and enable access to all services equally in a slice, or it can violate net neutrality by offering application specific slicing and service-level slicing in different slices, and additionally, price different slices differentially.

Reliance Jio and GSMA statements:

Reliance Jio's Uday Kumar Srivastava, said service-based network slicing is possible under India's current telecom and net neutrality regulations and added that Jio's 5G network is fully ready for it, while speaking at TRAI Day:

"Overall, if you see, the net neutrality regulation of TRAI of 2016 and UL (Universal License) amendment in 2018, they're like a minefield. You see, one works on tariff discrimination. The TRAI regulation is built around tariff discrimination regulation without affecting the speed, etc. The DOT UL modification is there, it is built around content" "Our feeling is that despite these two regulations being in place, it is possible to do the service-based applications. For example, FWA is basically a service-based application. The resource is allocated in the beginning itself for the general public broadband or internet, and for the FWA. There is absolutely no clash. There's no fixed boundary. There is elastically built into this. So if there is more pressure on mobility, obviously, the resource can be diverted towards the general internet and vice versa. So there is no violation as such in our opinion"

"Once a B2B slice is created for an enterprise, the pricing cannot be guaranteed. There could be discrimination of pricing. For enterprises, even the TRAI's existing Telecommunication Tariff Order (TTO) regulation permits charging differentially and not disclosing"

In its submission, Jio has said:

“We respectfully submit that network slicing is a fast-moving, dynamic capability tied to innovative and enterprise-specific 5G services and the mandate of advance notice for every new slice would slow down launches and limit responsiveness to market needs.”

Jio doesn't want to disclose how slicing is going to be done:

“Furthermore, disclosing detailed slice parameters in advance could reveal commercially sensitive product and network strategy information ahead of launch, weakening the competitive edge that comes with innovation. We submit that this will be a regressive step as over the years both DoT and TRAI's broader regulatory direction have been shifting away from prior-approval requirements toward post-launch intimation and this will be a step backward.”

“If at all an intimation is required, it should be post launch in line with tariff reporting.”

GSMA in its submission has said:

“At the same time, some operators are also introducing application-specific services tailored to the needs of particular use cases for specific user groups, including commuters, gamers and social media creators. Demand for these services is growing as users seek not just faster speeds, but also lower latency and a more reliable application-specific experience.”

“Operators in Belgium, Malaysia, Singapore, UK and the US are offering premium mobile broadband services that improve performance for bandwidth-intensive applications. In several markets, operators are also providing priority access passes at major sporting and entertainment events, ensuring applications such as live streaming, video sharing and real-time communications continue to perform well even when networks are heavily congested.”

It points towards

“Quality-on-Demand for applications such as live video streaming, cloud gaming, and live broadcasting;”

Problems with this approach

On the Internet, every millisecond matters. Websites in the past have shown an increase in performance after shaving milliseconds off their loading time. Traffic management may be misused as follows:

1. **Network service providers could make some websites faster than others in exchange for money or via partnership.** For example: Following a partnership with Google, for the Indian Premier League in 2010, Airtel had provided a fast lane to users accessing YouTube, increasing their speed to 2 Mbps.
2. **Network service providers could make some websites slower than others.** For example, in 2014, users found that the video service Ogle was slow even on an 8mbps Airtel connection. It was alleged that Airtel was throttling Ogle.
3. **Network service providers could make their own services faster than others.** For example: prior to Net Neutrality regulations, in 2015, games downloaded from Airtel's "Games on Demand" service were available at a speed higher than that of other service providers, with download speeds for users not on a 2mbps plan upgraded while downloading games from the Airtel service, no matter which plan they have signed up for.

Data is neutral until telecom operators start discriminating on the basis of the source of the byte and what purpose it serves. Reasonable traffic management practices are necessary to ensure reliability and performance of Internet access, but any service/application/content based slicing impacts consumer choice.

Consequences of service/app/content based network slicing

Let's look at the consequences: if you enable Network Slicing without restrictions, including allowing telecom operators to offer network slices by type of service or for a specific service, what is defined as "application-aware route selection", differentiated slices and Quality-on-Demand, you'll enable the following:

1. Video streaming services like Amazon Prime, Netflix and JioStar may be bundled into a separate video slice with higher quality of service on-demand. This will mean that in order to be able to stream a service, these services may have to pay a telecom operator for that slice since the standard slice might have poor quality of service. Alternatively, customers might be charged separately for better quality of service for streaming. This creates an incentive for the telecom operator to degrade the quality of service for video. It also gives JioStar a competitive advantage because of

vertical integration with Reliance Jio. There's a clear conflict of interest for Reliance Jio here. GSMA is anyway a representative body of telecom operators.

2. Telecom operators may create a separate slice for internet telephony, and prioritise certain applications that sign up for this. There is precedence in the past, with Airtel creating a separate pack for VoIP in December 2014, charging customers separately to use VoIP. If you enable service or application specific slicing, companies like Airtel will be able to degrade or make more expensive VoIP services that are outside of these packs, or maybe offer a degraded quality of service to others.

Speed related manipulation or prioritization, when collusive, whether paid or unpaid, lends itself to prioritization of some creators over others, especially businesses over non-business creators.

We would contend that discrimination of applications/services/content in terms of speed of access (including latency, reliability, packet loss, congestion priority and price) will also make certain content more attractive to consumers resulting in altering a consumer's online behaviour. This would lead to severe distortion of consumer choice and the way in which users view the Internet. Such practices result in an indirect restriction by affecting the way consumers view content online.

Implications for India's digital and startup ecosystem

The Internet is a space without precedence, in that it is uniquely non-discriminatory.

A non-discriminatory Internet decentralizes the sources of innovation because everyone can create Internet services and applications without having to obtain permission from telecom companies. It allows collaborators to create open source and free tools to provide an alternative to proprietary tools, and improve on them. Today, a text messaging platform, Whatsapp, can incorporate voice calling over Internet protocol without needing permission. Line has incorporated messaging, calling and games into a single application. WeChat has done this and added e-commerce. There are games that integrate messaging and Internet Telephony, allowing gamers to interact with each other while playing.

Everything is a remix on the Internet. All businesses are about bundling and unbundling, and there is no ecosystem in existence that is as agile, innovative, free and competitive as the Internet.

Zoom out and examine your role in the context of the future for this country, which holds the potential for the creation of thousands of Zomatos, Flipkarts, Zeptos, Shiprockets, Paytms, and whether changing the rules of Internet access hampers or spurs innovation.

Steps must be taken to ensure that telecom operators don't operate like the Land Mafia of the technology space. A government policy that actively permits predatory behavior is either indicative of a scam, or the recipe for many.

A genuine free market requires restrictions on the ability of large predatory companies, whether multinational or otherwise, to create monopolies. It prevents:

1. **Concentration of power with telecom operators:** It enables telecom operators to become kingmakers. We've seen this play out in Mobile VAS, where telecom operators would gatekeep access to services for customers, and take a revenue share. Telecom operators are meant to be pipes: mere access service providers neutral to the content that the user is accessing. This converts them into MSO's, and allows them to choose which service or package of services gets accessed, at what speed and at price.
2. **Concentration of power with large companies:** Large companies like Google and Facebook, both of which have previously inked anti-net neutrality agreements with telecom operators will benefit at the cost of upstart competitors. Remember that an Indian company, Zoho competes with Google Docs. Imagine if it cost more to access Zoho than Google Docs, because of a collusive agreement between Google and Airtel. In AI, OpenAI and Anthropic may partner with Reliance Jio, but an Indian company like Sarvam may not. It would hurt Sarvam if its AI responds more slowly than ChatGPT and Anthropic, or Jio's own AI service. As a reminder: telecom operators are not neutral by nature. In 2008, Airtel and Vodafone had blocked Netcore's MyToday services for no apparent reason.

Telecom Operators are not neutral:

1. **Zero rating own services:** Bharti Airtel, when it launched its online music streaming service Wynk, waived data charges for Airtel users, using its ownership of content and carriage. This effectively puts competitors like Saavn, Gaana and Rdio at a competitive disadvantage, with no means to competing.
2. **Speeding up own services:** Games downloaded from Airtel's "Games on Demand" service are available at a speed higher than that of other service providers, with

download speeds for users not on a 2mbps plan upgraded while downloading games from the Airtel service, no matter which plan they have signed up for.

3. Blocking competing services: Vodafone and Airtel had blocked Netcore's MyToday Mobile VAS service, since MyToday's content over SMS competed with telecom operators vertically integrated service. There is every scope of Reliance Jio and other telecom operators prioritising their own services over others.

It is easy for telecom operators to launch products that compete with existing online products, and degrade the experience of all other services. Therefore, it is essential, in order to maintain fair competition and diversity of availability of both content and services that telecom operators are restricted from adopting anti-competitive and predatory practices.

At the core of this debate is the issue of how we let one business regulate the consumers' ability to access another, given that spectrum is not unlimited. Should better technology, and indeed, the usage of national resources like spectrum, and the future of thousands of Internet companies be forsaken to protect the interests of an oligopoly of 2 telecom operators? In enforcing Net Neutrality in 2016 via the differential pricing order, the Net Neutrality order in 2017/18 and enshrining Net Neutrality in the license conditions, India rejected the idea that telecom operators should be allowed to play gatekeeper.

We'd like to remind you of the implications for the digital ecosystem in India, if you don't protect Net Neutrality or if you allow licensing of online services.

India's startup ecosystem is highly competitive and increasingly global. Startups need low friction, predictable systems where startups can operate without having to negotiate agreements with telecom operators for connectivity or speed. If you allow service/application/content specific slicing, you will facilitate the creation of impediments which will force Internet businesses from India to seek to operate in markets that offer more freedom than ours. In a global economy where countries compete to attract the best businesses, talent and investment, you will leave India worse off if you don't protect Net Neutrality, and prevent service/application specific Network Slicing.

Net neutrality protections are a necessary but insufficient condition to enable Internet growth and there needs to be sufficient competition in the ISP and telecom service provider ecosystem that brings Internet access costs down substantially which leads to growth of more online services. The lack of revenue-sharing agreements with telecommunications operators, such as network usage fees, facilitates a more level

playing field. Startups, including those in their initial stages, can develop their businesses without concern that internet service providers will favor competitors with more substantial financial resources.

This has allowed Indian startups, pushed by greater digital access, to raise \$131 billion in funding since January 2016. There are 122 “unicorn” startups in India, most of them digital-first companies which rely on cheap Internet access. There are over 706 million OTT users, 624 million communication apps users, 575 million social media users, and 427 million e-commerce users.

We’re attaching to this submission, a letter from over 120 Indian startup founders related to Network Usage Fees. The same concerns apply to Network Slicing.

Slicing for Specialised services

In its February 2016 prohibition of discriminatory tariffs for data services regulations, the Telecom Regulatory Authority of India ruled that: “Further, applying the principle that what cannot be done directly, cannot also be done indirectly, TSPs are also prohibited from entering into arrangements that have the same effect as charging discriminatory tariffs on the basis of content.”

We believe the same principle of “what cannot be done directly, cannot also be done indirectly” must also apply in case of specialised services. Thus any provision for specialised services shouldn’t be allowed to be used to circumvent regulations related to prioritization or zero rating. Internet Access Providers must also be prevented from charging services any additional money for preferential treatment, to ensure that an incentive structure isn’t created for more services opting to become “specialised services”.

5G will not need application-specific discrimination: nearly everything will have lower latency and higher speeds in 5G, with very limited use cases like telesurgery that will need prioritisation. While 5G technology makes it easier for ISPs to differentiate, the explosion in capacity reduces the need to do so. The advent of 5G does not change this fundamental trade-off. Just because 5G technology makes creating specialised services easier, that does not mean we should build a new, less open world out of them.

It’s also important to ensure that specialised services do not impact the usage of the open Internet, either in terms of impacting access speeds for users, pricing of Internet access, or data caps imposed on users.

Conclusion

India has one of the largest populations of Internet users in the world, most of whom have come online in a relatively short period of time. At the heart of the Digital India initiative is the goal of providing Internet connectivity to all Indian citizens. It is important that while trying to make the Internet available to every Indian citizen, we are also conscious of what kind of an Internet is being made available to them.

We should not compromise the basic principles of the Internet based on lobbying large telecom operators like Reliance Jio and GSMA: the Internet that we get as Indians get should be open, neutral and non-discriminatory, for it to enable collaboration, innovation and progress. The Internet Freedom of our citizens and startups was not sold to telecom operators with the spectrum auctions.

The focus should be on increasing and improving quality of access in a neutral way, along with improving quality of service.

The government should institute policies that force competition among telecom operators, so that consumer quality of service is forced to go up, and consumer experience of the Internet in terms of speeds of access and latency reduces.

We would urge you to protect Net Neutrality, and not allow telecom operators to manipulate how consumers consume content on the Internet by instituting anti-neutrality practices. There must be no manipulation of speed, availability or cost of Internet access based on the site, app or service used.

To,

Shri Narendra Modi,
Hon'ble Prime Minister,
Prime Minister's Office,
South Block, Raisina Hill
Email: connect@mygov.nic.in

Copy to,

Shri Ashwini Vaishnaw,
Cabinet Minister,
Ministry of Communications,
Department of Telecommunications,
Sanchar Bhawan, 20 Ashoka Road
Email: moc-office@gov.in

Shri Hari Ranjan Rao,
Additional Secretary to the PM
Email: addlsecy.pmo@gov.in; oo.as@gov.in

Shri Amrapali Kata,
Former Deputy Secretary to the PM
Email: amrapali.kata@gov.in

Dated: November 06, 2023

Subject: Letter regarding support to Net Neutrality principles voiced by 132 Indian startups

Dear Hon'ble Prime Minister and Hon'ble Minister of Communications,

On September 29, 2023, over 130 Indian startups signed a letter supporting net neutrality principles, cautioning against licensing of online communication services, and opposing the imposition of network fees on "large traffic generators".¹ Through this joint letter, startups have urged TRAI to ensure that the internet remains a free, open, and non-discriminatory platform, a thought that is closely aligned with the government's aspirations for Digital India and the Startup India Initiative.

Implementing revenue sharing models or "fair share" arrangements between telcos and internet services may lead to bias or discrimination, impacting online consumer choice and experience. Preserving a free and open internet hinges on safeguarding net neutrality principles against such threats, a concern shared by global civil society organisations, academics, and 18 European Union telecom ministries.²

Even though some stakeholders questioned the credibility and validity of the letter, **all of the 132 startups stood by their support to the principles outlined in the letter** and didn't

¹ Indian Startups, "Joint letter from Indian Startups regarding TRAI's paper on Regulation and Selective Banning of OTT Services", September 29, 2023. https://www.trai.gov.in/sites/default/files/India_startups_05102023.pdf.

² "Global Civil Society: Statement on Network Fees", European Digital Rights.

<https://edri.org/wp-content/uploads/2023/10/Global-Civil-Society-Fair-Share-Statement-11-Oct-2023.pdf>.

See also: Foo Yun Chee, "Majority of EU countries against network fee levy on Big Tech, sources say", Reuters, June 3, 2023. <https://www.reuters.com/business/media-telecom/majority-eu-countries-against-network-fee-levy-big-tech-sources-say-2023-06-02/>.

withdraw their support when offered the chance to. Some signatories also publicly reaffirmed their support for the letter through posts on Twitter. Some of these names are listed below:

1. Vijay Shekhar Sharma (Founder & CEO, Paytm)
2. Deepak Shenoy (CEO, Capitalmind Financial Services Limited)
3. C. Chaitanya (CPO, Ozonetel)
4. Ashish Sinha (Director, NextBigWhat)
5. Deepak Abbot (Cofounder, Indiagold)
6. Ranjeet Pratap Singh (Co-founder / CEO, Pratilipi)
7. Hrush Bhatt (Co-founder, Fincent)
8. Vishal Gondal (Co founder, NCORE GAMES / GOQii)
9. Sandeep Srinivasa (Founder, RedCarpetUp.com)
10. Abhimanyu Radhakrishnan (Managing Director, Qyuki Digital Media)
11. Avlesh Singh (Co-founder, WebEngage)
12. Vikas Malpani (CEO, Leher)

In 2016, around 700 Indian startups signed a similar letter drafted by SaveTheInternet, to the Hon'ble Prime Minister Narendra Modi to request him to preserve Net Neutrality.³ We seek your continued support for net neutrality principles in India and urge you to come out and issue a statement in full support of net neutrality.

Regards,
SaveTheInternet Team

³Press Trust of India, "Nearly 700 startup founders urge PM Modi to defend net neutrality," *Times of India*, January 26, 2016. <https://timesofindia.indiatimes.com/tech-news/nearly-700-startup-founders-urge-pm-modi-to-defend-net-neutrality/articleshow/50729785.cms>.