

Reliance Communications Ltd (RCOM) response to TRAI's consultation paper on Amendment to the 'Standards of Quality of Service for Wireless Data Service Regulations, 2012'.

RCOM welcomes the opportunity to submit our stance on the consultation paper issued by TRAI for amendment to the Standards of Quality of Service (QoS) for Wireless Data Service Regulation 2012.

Executive Summary

1. The proliferation of smart mobile devices coupled with the awareness of ease of internet access through mobile services has led to significant loading of the mobile networks.
2. The TSPs on their part have been proactive in creation of additional capacities and optimization of their networks to ensure better user experience for the subscribers. But the extraneous factors that are beyond the control of the TSPs contribute majorly towards reduction of data throughput from theoretically prescribed limits.
3. Commercial mobile networks are challenged in controlling the usage conditions of a users' User Equipment (UE) and data services delivery servers.
4. Highly dynamic factors such as number of subscribers accessing data services simultaneously, physical location of the customer, peak/ off peak network usage time, and kind (quality) of device being used by the user, location and loading of the servers, etc, directly affect the throughput experienced by the user.
5. The quantity of spectrum available with the operators in India is not commensurate to support the large subscriber base and poses implicit restrictions for improving the QoS.
6. Inordinately high Cost of small chunks of spectrum prevents TSPs from acquiring additional spectrum for improving QoS.
7. The EMF restrictions and challenges in getting ROW permissions are major roadblocks to the TSPs efforts for improving their network coverage.
8. Frequency interference being experienced by the subscribers too leads to reduced data throughput speeds.
9. The existing financial woes of the telecom industry have forced the TSPs to withhold any network expansion plans especially for improvement of the QoS in congested BTSs.
10. Simultaneous optimization of a plethora of network equipment, from an equally large number of OEMs, is an onerous task resulting in sub-optimized network.

11. **No binding benchmarks for minimum download speeds should be prescribed for the data services.**
12. **Service providers' should not be mandated to inform the minimum download speed to customers along with each tariff plan.** Any regulatory requirement wrt the minimum download speed will create confusion in the customer mind and hence lead to more consumer complaints.
13. **The authority is requested to continue with light touch regulation for QoS for wireless data services.**

Preamble:

1. The mobile telecom industry is experiencing a paradigm shift from being voice centric to being data centric. Progressive generations of the mobile telephony technologies have been introduced with enhanced capabilities for delivery of high speed data to the UE. The rapid adoption of smart mobile devices viz. tablets, dongles, PDA, smart phones etc has increased the demand for mobile broadband globally. India too is catching up with the world at a tremendous speed. Mobile subscribers, both urban and rural, access plethora of useful applications and online services which is leading to generation and transportation of significant amount of data over the mobile networks. Accordingly, the TSPs on their part have been proactive in creation of additional capacities and optimization of their networks to ensure better user experience for the subscribers when they access the internet based data services over their network.
2. Though each equipment in a communication system is individually designed to support throughputs as per international standards, however prescribing theoretical benchmarks for commercial networks are fraught with challenges due to factors that are not under the control of the network operators. The ideal or theoretical through puts may be achieved in certain controlled environment whereas commercial networks are plagued by extraneous and uncontrollable factors as listed in our response to the questions posed by TRAI as below:

Q.1 What are your views on prescribing benchmarks for minimum download speed as above? Please give your comments with justification.

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Q.2 Should the service provider be mandated to inform the minimum download speed to customers along with each tariff plan? Please give your comments with justification

RCom Response:

1. **RCOM is of the view that TRAI should not resort to prescribing benchmarks for the minimum download speeds as given in the consultation paper.**

2. Informing the customer about the minimum download speed will create unwarranted confusion in the market resulting in unnecessary increase in complaints registration.
3. Establishing a communication system today is more of a design aspect rather than simple baseband patching. A communication eco system today can be subdivided into 3 distinct parts viz, **User Equipment (UE), Access and Core Networks and Web Services Hosting Servers**. The data download throughput at the UE, i.e. from the Web Services Hosting Server to the UE, depends on the optimal performance of all these systems that get involved in delivering the said content from the server to the UE. Apart from the network, both the UE and Servers operating conditions are beyond the control of the TSPs. Detailed description of all the parameters that affect the data throughput and that are beyond the control of the TSPs are elucidated in the subsequent paragraphs.
4. **Users' Service Access Dynamics.** How a user accesses the services over a TSPs network has a major bearing on the data throughput QoS experienced by him. These factors that affect users' QoS experience and are beyond the control of the TSP, are listed below:-
 - a. Number of simultaneous live applications working on the users' UE.
 - b. Activity (download / upload) of applications, like anti-virus, etc, functioning in the background in the UE.
 - c. Malicious activities of virus, TROJANS, malware, etc denuding the processing power of the UE.
 - d. Distance of the UE from the BTS.
 - e. Place of usage of UE, e.g. Basement of a building, inside a Metro tunnel, Army cantonment / areas where there is restriction on putting up a BTS, under high tension wires, etc.
 - f. Atmospheric conditions prevalent during the time of internet access using the UE.
 - g. Optimization of the UE device settings.
5. **Website Hosting Dynamics.** How a user is provided service from the website servers too is a major contributor to the data throughput QoS experienced by the customer. The server hosting factors that affect QoS and which are beyond the control of the TSP, are given below:-
 - a. **The Optimization and loading capacity of the Websites' server** decides the speed with which it can serve the customers and the number of simultaneous customers it can serve. Despite the best possible server sizing, users can experience low throughput/speed due to overwhelming of the server itself. The

best example of suboptimal service delivery is of the IRCTC site/server at the time when tatkal bookings are done. Additionally, in case a server is under DOS attack or even if any of the network elements, to which this server is connected, is experiencing congestion on any account, the user shall be oblivious to the same and would be experiencing dismal data throughput rates.

- b. **Physical Location of Website hosting.** The physical location of hosting of the website can be anywhere across the globe. A user accessing a website which is outside the country can experience congestion in another TSPs network in another country.
6. **Quantity of Spectrum Availability.** The quantity of spectrum available with the operators in India, too is limited which poses implicit restrictions for improving the QoS despite the best of the intentions of the TSPs. The average spectrum with an operator in India is much below the international average. This forces them to plan their networks in a much different manner than compared to their counterparts globally.
7. **Cost of Spectrum.** Spectrum availability being limited in India has led to it being priced astronomically. The cost of acquiring a small chunk of spectrum, as compared to the international TSPs, is abnormally high and prevents the TSPs from acquiring additional spectrum for improving the QoS.
8. **EMF issues.** TSPs are facing challenges / opposition from RWAs in erection of towers due to misconceptions regarding the ill-effects of EMF radiations. This prevents TSPs from improving the network coverage by decreasing the cell size; so very important for delivery of data services as per the stipulated benchmarks.
9. **Frequency Interference.** Interference from other EM sources in the vicinity of the users' UE can be a factor denying him the stipulated throughput. Interference issues within the country are generally taken care by WPC while allocating the spectrum itself. However, in case the interference is from across the international boundary of India, as is being experienced by RCOM in Jammu region, it is impossible to get the same coordinated. Provisioning benchmarked data throughput in such scenarios is beyond the control of the TSP. Another instance of interference that is yet to be addressed and often results in suboptimal throughput for the users is that of interference from the local cable operator's signal boosters and installation of jammers at high security installations like Jails, etc.
10. **Delayed / Denied ROW permissions.** Operators are either being denied or are granted RoW permissions with substantial delay resulting in constricted coverage area.

11. **Finances.** The financial woes of the telecom industry too have forced the TSPs to withhold any network expansion plans especially for improvement of the QoS in congested BTSs.
12. **Network Elements and UE Optimization.** Modern digital communication networks are an amalgamation of a number of individual equipment integrated together. Even a similar category of equipment having similar stated capabilities, say a switch, but from different OEMs, may vary in performance (Throughput) due to their individual proprietary designs. The network equipment is required to be configured optimally with latest OS and interface drivers to enhance their respective throughput capabilities and (or) to plug any security related vulnerability. Though the TSPs are vigilant at all times to ensure the currency of network equipment and their interface drivers, however, the multiplicity of equipment and correspondingly the OEMs precludes simultaneous availability of latest OS and interface drivers for all the equipment. Therefore despite the best efforts of the TSPs, delivery of benchmark speeds often gets compromised due to such extraneous factors.
13. It is once again reiterated that despite the best efforts of the TSPs towards ensuring delivery of the technology dictated QoS speeds, the extraneous factors which are beyond the control of the TSPs, especially of the UE, data services delivery servers, limitations of improving network coverage, frequency interference, etc, shall lead to sub-optimal download speeds. Though adequate capacities exist in TSP network to ensure the requisite QoS for data services, but it has been our experience that the users' usage pattern, on account of the points listed in the preamble above, cannot be predicted and that they often are responsible for the below par data speeds experienced by them.
14. It is to the Authorities credit that the Indian telecom market is one of the most competitive markets in the world. TSPs have no choice but to provide the highest level of services to firstly contain any decrease in revenues due to MNP and secondly attract more customers. The stringent SLAs that the consumers are demanding to be enacted with the TSPs would lead to further competition gearing up for provisioning the maximum data throughput speeds.
15. Accordingly, following are recommended:-
 - a. **No binding Benchmarks for minimum download speeds should be prescribed for the data services.**
 - b. **Service providers' should not be mandated to inform the minimum download speed to customers along with each tariff plan.** Any regulatory requirement

w.r.t the minimum download speed will create confusion in the customer mind and hence lead to more consumer complaints.

- c. **The authority is requested to continue with light touch regulation for QoS for wireless data services.**