Comments by LIRNE*asia* on the draft Quality of Service Regulations, submitted to the Nepal Telecommunication Authority

LIRNE*asia* appreciates the opportunity to offer comments on the draft regulation and trusts that its research based comments will contribute to the improvement of the 'Fixed and Mobile Quality of Service (QoS) Regulations 2013'.

LIRNE*asia* is a regional information and communication technology (ICT) policy and regulation think tank active across the Asia Pacific. It has commented on numerous consultations issued by National Regulatory Agencies in the region.

Preamble

In wireline and fixed wireless networks, there is a static relation between the number of users and the exchange/base station. In cellular networks, the number of users served by a Base Transceiver Station (BTS) is not under the control of the operator, nor is it under the control of any user. Therefore, the load on a BTS can vary within a very short span of time, resulting in variation on QoS. Based on operator configurations, such occurrences may cause the cell to dynamically resize (the cell breathing phenomenon) thereby affecting changes to the user experience, including, in some cases, disruption of service.

News reports[1] as well as research by LIRNEasia[2] carried out in October 2011, 2013 and on multiple occasions prior, indicate that user experience of broadband rarely matches advertised promises.

Recommendation 1: On Part II: 4 (1) (c) Data Services

It is recommended that the regulation specifies the mode of access of data services; i.e., via fixed networks or mobile networks or both.

Recommendation 2: On Part II: 4 (1) (c) Data Services | Data Download and Data Upload

The availability and feasibility of measuring the number of attempted and successful uploads and downloads via the operator's network is questionable. Requesting for such measurements is likely to incur exponential cost and burden on the network operator. Further, it does not appear to be a parameter of significant value.

Recommendation 3: On Part II: 4 (1) (c) Data Services | Throughput

1. Upload speeds are often neglected. However with the proliferation of cloud services, upload speeds become more relevant. Therefore it is recommended that the measurement of both upload and download speeds are explicitly specified.
2. Network operators usually advertise download speed but fail to mention expected upload speeds. It is recommended that the NTA issues a directive to the network operators requesting for uploads speeds to be given due considerations and the expected upload speed advertised / specified when data services are being sold. This is imperative in order

[1] E.g., The Sunday Times (2008, April 15). Broadband Speeds 'less than half those advertised'. http://technology.timesonline.co.uk/tol/news/tech_and_web/article3750426.ece; The Hindu (2010, December 12). How fast are they? http://www.hindu.com/2010/12/12/stories/2010121256561000.htm

[2] LIRNE*asia*. Broadband Quality of Service Experience Indicators. http://lirneasia.net/projects/2010-12-research-program/indicators-continued/benchmarks/

to achieve the current benchmark of achieving "75 percent of the subscribed network speed".

Recommendation 4: On Advertised Speeds

Often it is the theoretical maximum that is advertised, which is misleading to consumers. Therefore, it is recommended that the NTA includes a regulation to say that service providers must refrain from advertising theoretical maximum speeds and should measure and publish typical download speeds.

Recommendation 5: On Part II: 4 (1) (c) Data Services | Data Latency

The Infocomm Development Authority of Singapore classifies the benchmark of latency based on two network domains; 50 ms for traffic within the national domain (for local traffic) and 300 ms for the international domain (http://www.ida.gov.sg/applications/rbs/chart.html). In the case of Nepal, latency for international traffic will suffice, however, it is recommended to consider international benchmarks before setting the benchmark at 250 ms. It is also recommended that the distinction between local traffic and international traffic is made and that the regulation specifies this benchmark for international traffic.

Recommendation 6: On the Test Methodology

1. It is recommended that other broadband characteristics such as Jitter (variation of latency or the variation in time of data packets arriving) and packet loss (refers to the share of packets that fail to arrive at the destination server) are included (Refer Annex 1).
2. It is recommended that the regulation specifies the domains in which the diagnostics are carried out for. At a minimum, two domains are recommended – National (a server located within the country) and International (a server located at the first U.S. Point-of-Presence).
3. The regulation does not specify the frequency of diagnostics the operators must adhere to for the measurements of these service parameters. At a minimum, it is recommended that the service providers carry out these diagnostics four-hourly over a seven day testing period.

Contact

For further information please contact:

Helani Galpaya
CEO
helani@lirneasia.net

Shazna Zuhyle
Research Manager
shazna@lirneasia.net

Annex 1: Relevance of broadband characteristics by service

Various applications demand different performance measures in order to function within acceptable standards. For example, throughput is vital for streaming media but, round trip time (RTT or latency) is more important for networked games.

Service	Download speed (kbps)	Upload speed (kbps)	Latency (ms)	Jitter (ms)	Packet Loss (%)
Basic Services					
Browsing	++	-	++	-	-
Web-based email	+++	++	++	-	+
Streaming media (Consumption)	+++	-	++	++	++
Streaming media (Production)	++	+++	++	++	++
Data storage	-	+++	-	-	-
VOIP	+	+	+++	+++	+++
Gaming	++	+	+++	++	++
Cloud Services					
Data storage & analysis (Real-time)	+++	+++	++	-	+
Web services	+	++	+++	++	+++
Management Information Systems (ERP / CRM)	++	++	+++	+	++
Software development services	-	++	++	-	+++

+++ Highly relevant; ++ Very relevant; + Somewhat relevant; - Irrelevant