

User-centric Broadband Quality Monitoring Approach

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Expert Forum Meeting

Islamabad

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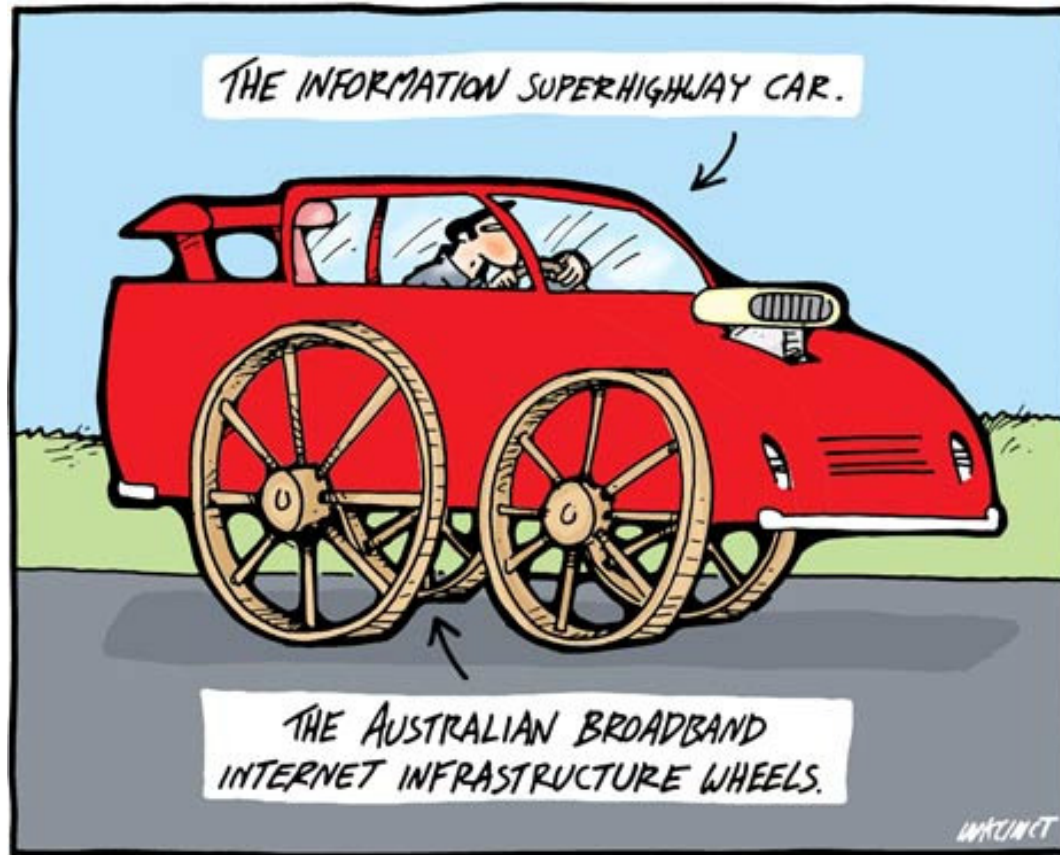
Agenda

1. Broadband Quality of Service Experience (QoSE)
2. LIRNEasia's Broadband QoSE Research
3. Selected Results (tip of the iceberg)
4. Policy Interventions
5. Parallel Developments
6. Mobile Broadband Quality Testing

This work was carried out with the aid of a grant from the International Development Research Centre, Canada and the Department for International Development, UK.



Broadband Quality : An evasive goal?



QoSE is like World Peace

- It is a worthy goal,
- It is difficult to achieve,
- And progress is made in small steps

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Last Updated: Thursday, 2 August 2007, 02:04 GMT 03:04 UK

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Britain 'failing' net speed tests

There is a huge gap between advertised broadband speeds and the actual speeds users can achieve, research has shown.

A survey by consumer group Which? found that broadband packages promising speeds of up to 8Mbps (megabits per second) actually achieved far less.

Tests of 300 customers' net connection average download speed they v

Which? has called on regulator to launch a fresh investigation i

Misleading ads

The speed tests were prompted of the public, unhappy with the connections.

CBCnews.ca

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Canada's broadband networks not ready for future: report

Last Updated: Monday, September 15, 2008 | 3:41 PM ET Comments 79 Recommend 80

By Peter Nowak, **CBC News**



Canada has slipped from its early broadband leadership position to barely ranking in the OECD's Top 10. (Associated Press)

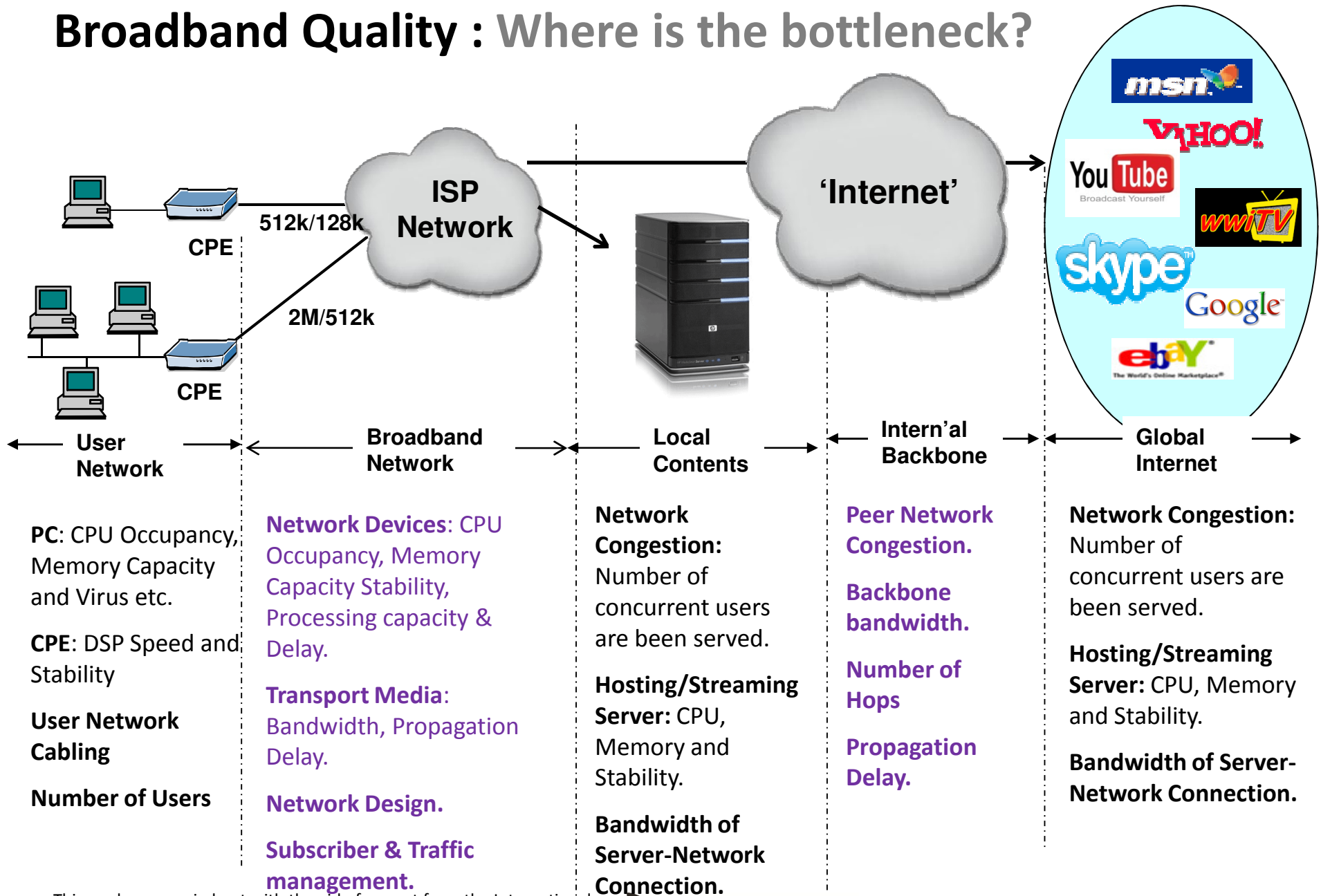
Canada is woefully positioned for future internet usage and the quality of current broadband networks is barely enough to cope with current traffic because of a lack of investment by providers, according to a new study.

The survey, conducted by the Oxford Said Business School in London and the Universidad de Oviedo in Spain and released Friday, found that Canada is below the global broadband quality threshold, which measures the proliferation of high-speed internet in a country, as well as the speeds available and the reliability of connections.

Not just in developing countries!

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Broadband Quality : Where is the bottleneck?



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QoSE Monitoring - Approaches

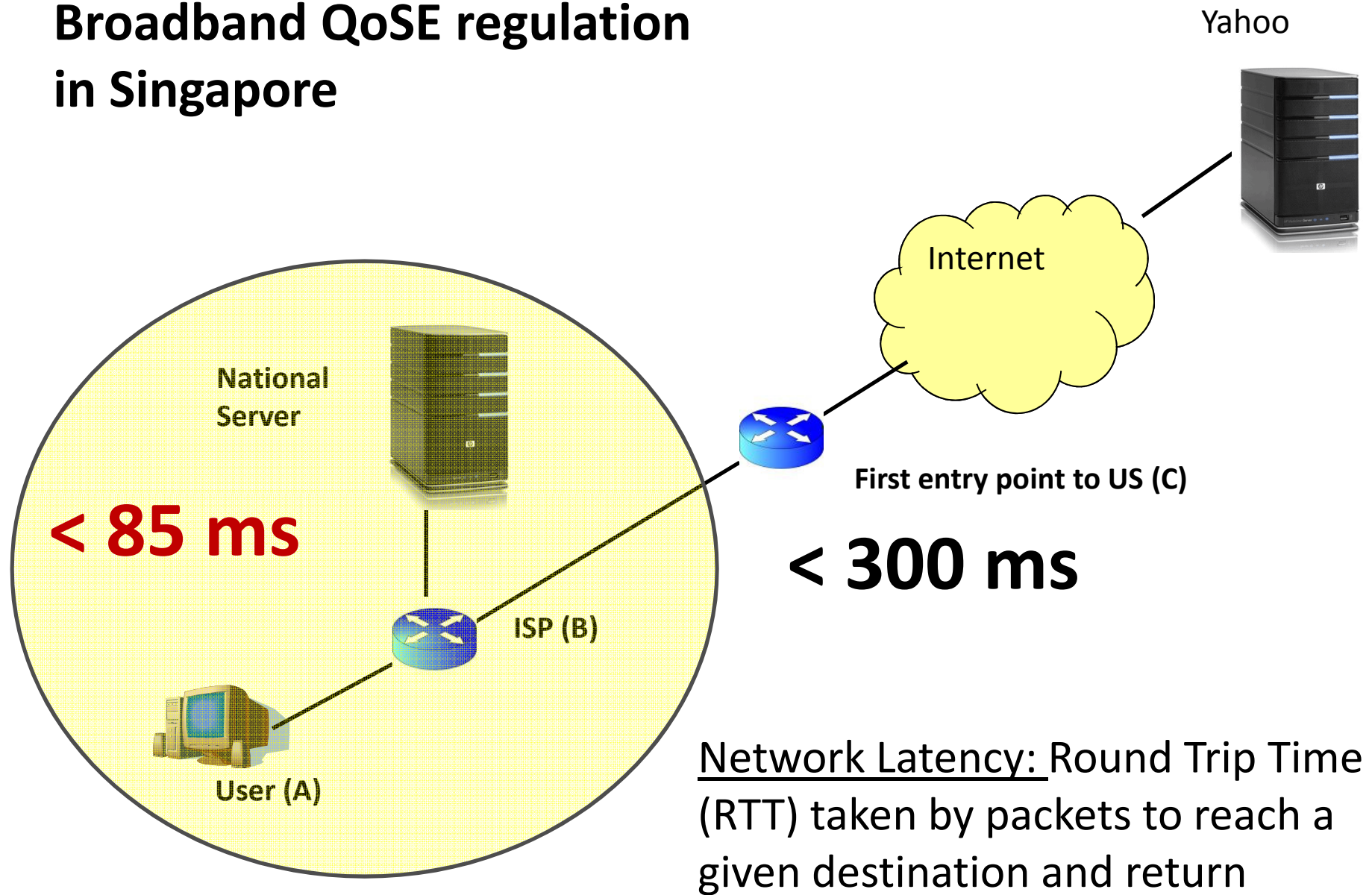
- **Regulator centric (Traditional)** – involves operators, monitor from operator end, checks parameters like Network availability, contention ratio, Bandwidth utilisation
- **User centric (Innovation)** – does not involve operator (or regulator), monitors from user end, more straightforward, checks parameters like throughput, delay, jitter, adv: easier; may not be ideal but serves the purpose

LIRNEasia's QoSE work:





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Broadband QoSE regulation in Singapore



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Regulation in India and Singapore

Parameter	Singapore 	India 
Network Availability	> 99%	> 98%
Latency (Local)	< 85ms	< 120 ms
Latency (Intl)	< 300ms	< 350 ms (ter) < 800 ms (sat)
Bandwidth Utilisation	90% during peak time	< 80% during peak time
Broadband Connection Speed (download)	Not Specified	> 80% of specified from user to ISP
Service Activation	Not Specified	100% in 15 working days
Customer Support	Not Specified	60% calls in 60 sec 80% calls in 90 sec

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LIRNEasia's QoSE work: www.broadbandasia.info



Do you get quality Broadband?



Funded by



Home ISP Summary Report **ISP Detailed Report** Download

ISP Detailed Report

Country	India	Region	Chennai
ISP Name	BSNL	Download speed	256kbps
Type of Test		Global	

Total number of test(s) executed:39

Week End(Sat-Sun)

Time of Day	Download Speed (kbps)	Upload Speed (kbps)	RTT (ms)	Jitter (ms)	Availability (%)	Packet Loss (%)
8:00 AM	397.53	52.16	289.5	4.1	100	0
11:00 AM	247.77	105.44	302	4.25	100	0
3:00 PM	210.52	100.05	311.5	3	100	0
6:00 PM	276.09	104.65	304	9	100	0
8:00 PM	338.36	106.12	63	2	100	0
11:00 PM	317.25	35.11	373.33	8.9	100	0

Week Day(Mon-Fri)

Time of Day	Download Speed (kbps)	Upload Speed (kbps)	RTT (ms)	Jitter (ms)	Availability (%)	Packet Loss (%)
8:00 AM	271.08	108.49	296.25	1.35	100	0

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Trends identified from QoSE testing (just one example!)

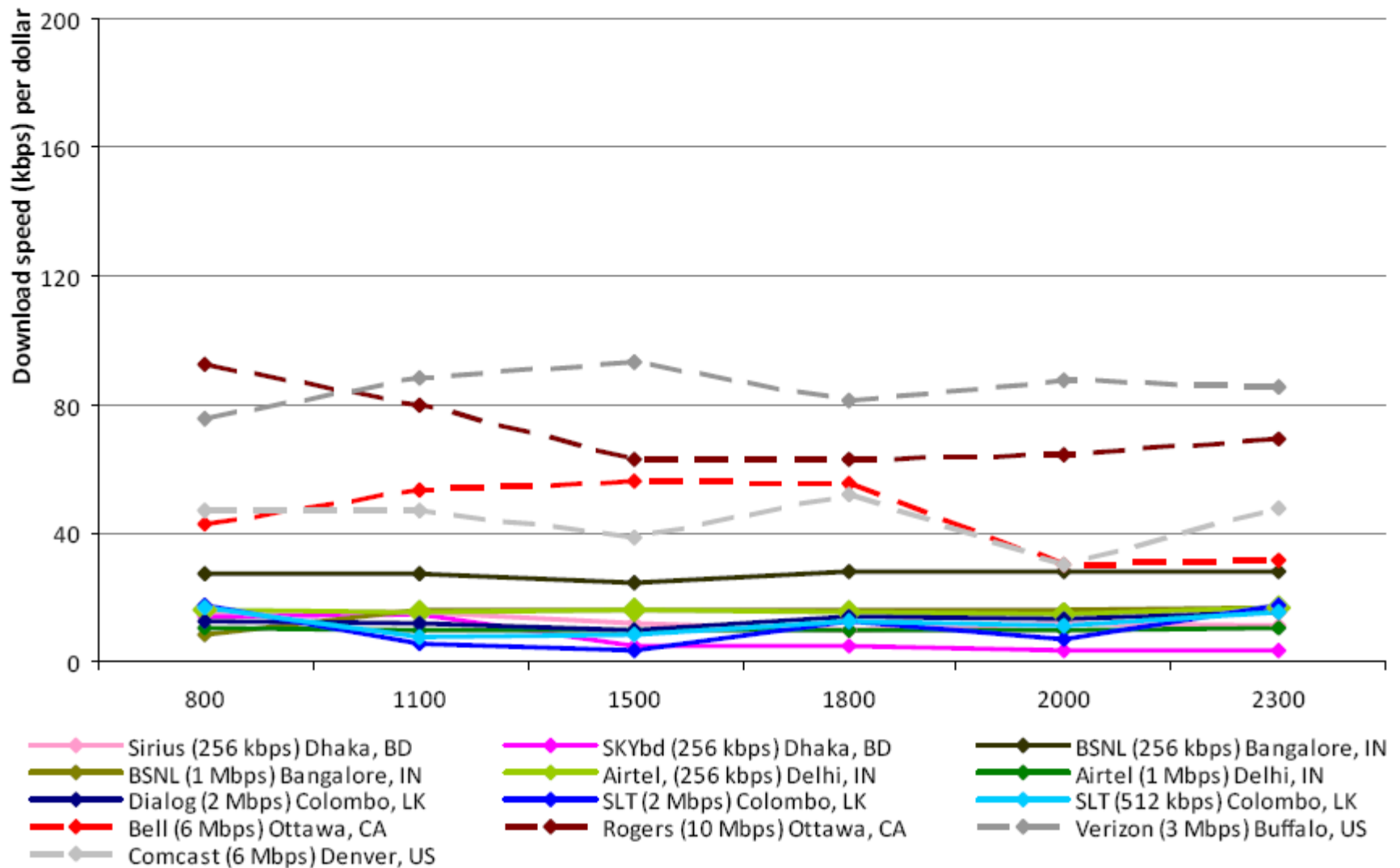
Fixed Broadband

Chennai, Colombo, Dhaka and New Delhi

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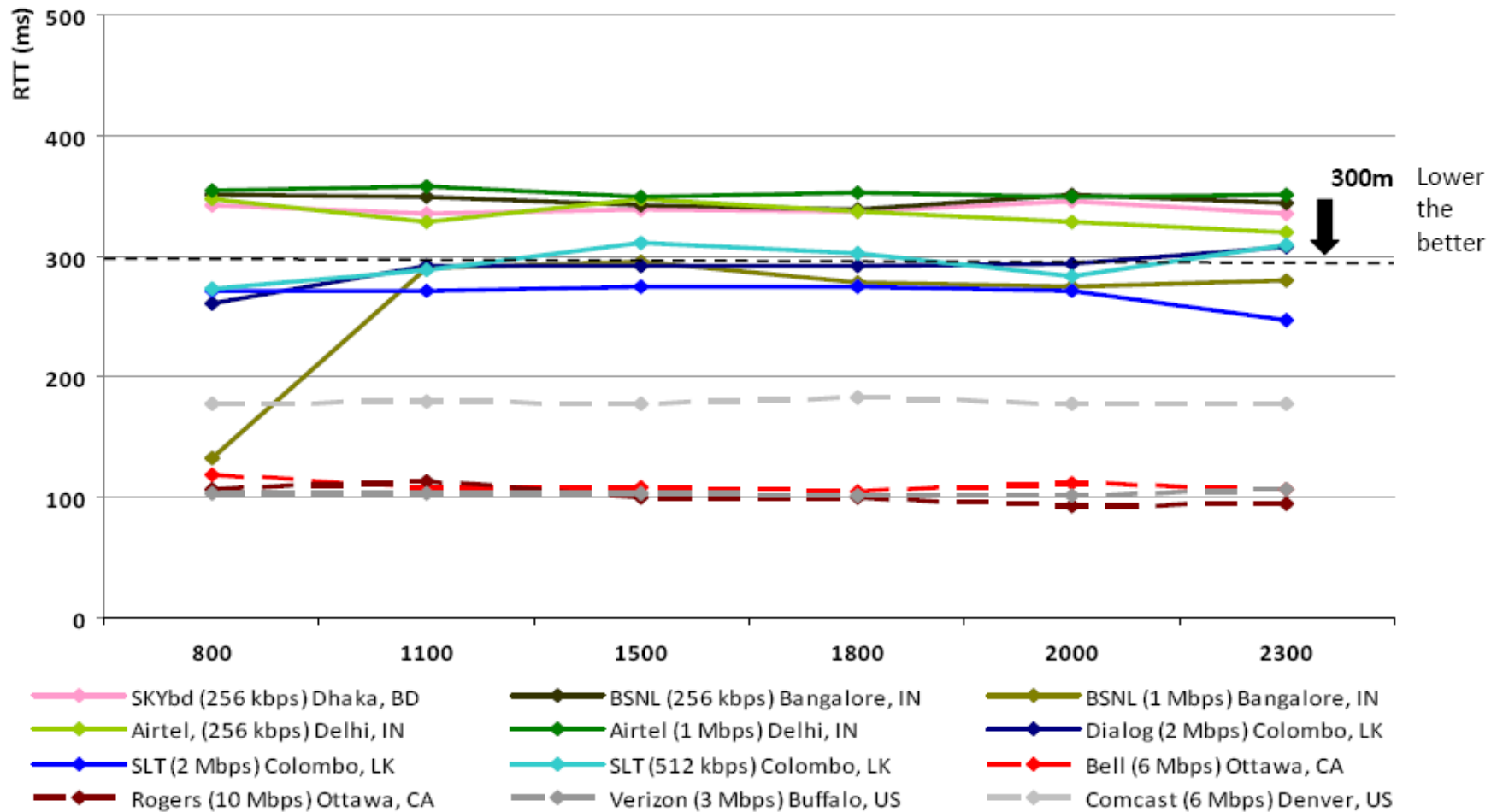


Download from International - kbps per dollar



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RTT when pinged to International



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Policy Interventions: Event at Institution of Engineers, Sri Lanka



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Policy Interventions: Dissemination events



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Policy Intervention: Pressure for ethical advertising

HOW BROAD IS YOUR BROADBAND?

FOUR facts you should know

1

Value for Money

Sri Lankan broadband users receive less value for their money than North American users.
(LIRNEasia's 2009 3rd Quarter test results)

2

Checking Advertised Speeds

When connecting to most international websites, the average Sri Lankan broadband user typically gets only 40-50% of the advertised broadband speed.

3

Bandwidth Bottlenecks

Although international bandwidth prices continue to fall, international bandwidth limitations continue to be a major bottleneck.

4

Contention Ratios

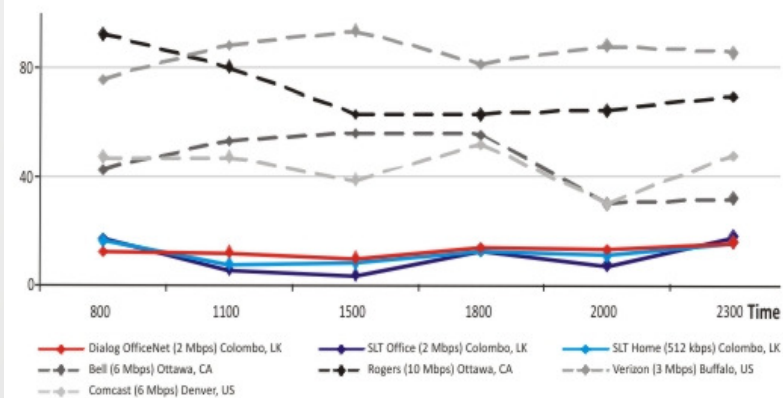
The Sri Lanka Telecommunication Regulatory Commission has still not specified contention ratios, which limit the number of simultaneous users on a shared link, thereby boosting overall bandwidth.

In January 2009, following LIRNEasia's recommendations to adopt contention ratio of **1:20 (Business)** and **1:50 (Residential)**, the Telecommunications Regulatory Authority of India (TRAI) specified contention ratios of **1:30 (Business)** and **1:50 (Residential)**.

Models to emulate

PARAMETER	SINGAPORE	INDIA
Network Availability	> 99%	> 98%
Latency (Local)	< 85ms	< 120 ms
Latency (International)	< 300ms	< 350 ms (terrestrial) < 800 ms (satellite)
Bandwidth Utilization	90% during peak time	< 80% during peak time
Download Speed	Not Specified	> 80% of advertised from user to ISP
Service Activation	Not Specified	100% in 15 working days
Customer Support	Not Specified	60% calls in 60 seconds 80% calls in 90 seconds

Value for money Fixed Broadband Download from yahoo.com (kbps per dollar)



Broadband speed is the best known quality parameter. We measured how much you get for what you pay.

We measured download speed at different times, on multiple days to make readings accurate.

DOWNLOAD THE FREE SOFTWARE from www.broadbandasia.info to test the quality of your broadband link



LIRNEasia is a regional ICT policy and regulation think tank active across the Asia Pacific.

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Bangladesh: Response to the paper on 'BROADBAND WIRELESS ACCESS SERVICES'

- Operators should guarantee QoSE for not within ISP only, but till first entry point to US ✓
- Operators should publish contention ratios ✓
- Assurance at launch is inadequate; QoSE should be regularly monitored ✓
- “Broadband = 128 kbps +” definition should change

India: Response to the paper on 'ISP BANDWIDTH REQUIREMENTS'

- Suggested contention ratios 1:20 (business) and 1: 50 (residential) – Adopted 1:30 and 1:50 ✓
- Information on contention ratios should be made public ✓
- Broadband QoSE is not just speed; need a holistic view
- Operator obligation should be till first entry point to US

Parallel Developments: FCC starts testing broadband quality

The screenshot shows the Broadband.gov website with the FCC logo in the top right. The navigation bar includes links for HOME, ABOUT BROADBAND, EVENTS, INITIATIVES, GET INFORMED, BLOG, THE PLAN, and EN ESPAÑOL. The main content area is titled "CONSUMER BROADBAND TEST BETA" and features a prominent blue button that says "I WANT TO TEST MY CONNECTION QUALITY". Below the button, it states "Java is required to run the test. Get Java". To the right, there is a section titled "Do not have broadband at home?" with links for "Report a Broadband Deadzone" and "About the Report". On the left side, there is a "Consumer Broadband Test" section with a list of links: "About the Consumer Broadband Test & Deadzone Report", "Ookla Net Metrics Application & Methodology", "Measurement Lab (M-Lab) Application & Methodology", and "FCC Consumer Broadband Test Privacy Statement". The main text under "About the Consumer Broadband Test (Beta)" explains that the purpose is to provide consumers with information about broadband quality and that the FCC uses the data for analysis on a geographic basis. It also mentions that the test is currently in beta and provides two tools: Ookla and M-Lab.

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What Next?

Innovation: Mobile Broadband QoSE (Beta)



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Thank You!

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