

**DEVELOPMENT OF A QAULITY OF SERVICE (QOS)
POLICY FRAMEWORK FOR MOBILE BROADBAND
SERVICES IN SRI LANKA**

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University of Moratuwa, Sri Lanka.
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Degree of Master of Science in Telecommunication

Department of Electronics and Telecommunication Engineering

University of Moratuwa
Sri Lanka

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Science in Telecommunication

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above candidate has carried out research for the Masters thesis under my supervision.

Signature of the supervisor:

Date

ABSTRACT

Development of a QoS Policy Framework for Mobile Broadband Services in Sri Lanka

Quality of Service (QoS) has become an important aspect of regulation as part of industry monitoring and consumer protection objectives. The statutory framework that exists currently in Sri Lanka for mobile broadband QoS regulation is elementary, outdated and no proper monitoring mechanism in relation to the telecommunications environment today. Therefore, the current regulations falls short of driving improvements in quality of service in the telecommunications industry, promoting investment and innovation in the provision of services, and empowering consumers to make informed decisions about the choice of services and service providers.

This research is mainly focused to identify the most suitable parameters required to measure the broadband QoS in mobile telecommunication; define target values for those parameters; define the procedures to get the measurements and define the auditing procedures for the regulator. There are few steps used to gather information for the policy framework. A survey was conducted among the professional in mobile telecommunication industry in Sri Lanka as the premier step. Then a study was done about the already implemented broadband policy frameworks in other countries. And also, it was thoroughly followed the definitions and standard introduced by ITU and ETSI.

Finally seven QoS parameters were identified which are suitable for the proposed QoS policy framework and defined their target values. The measurements for three parameters have to get from live tests and remaining four can be calculated from the network tools already used by the operators. Therefore first three measurements should be taken by the regulator and remainings should be taken by the operator and required to send them to the regulator. It is proposed to do these testings once a month and the regulator should do an audit once a quarter for each and every operator.

Keywords: *QoS, Broadband, Mobile telecommunication, Policy*

DEDICATION

To my loving wife Anusha and my little princess - daughter Sethuli



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LIST OF ABBREVIATIONS

Abbreviation	Description
3G	3rd Generation
BER	Bit Error Rate
BOI	Board of Investment
CE	Channel Element
CQI	Channel Quality Indicator
DL	Downlink
ETSI	European Telecommunications Standards Institute
GDP	Gross Domestic Product
GGSN	Gateway GPRS Support Node
HSPA	High Speed Packet Access
IMF	International Monetary Fund
Inter-RAT	Inter Radio Access Technology
IT	Information Technology
ITU	International Telecommunication Union
KPI	Key Performance Indicator
KQI	Key Quality Indicator
LAN	Local Area Network
LTE	Long Term Evolution
MIMO	Multiple Input Multiple Output
NBCC	National Broadband Consultative Committee
NTA	Nepal Telecommunication Authority
PDP	Packet Data Protocol
PS	Packet Switching
QoE	Quality of Experience
QoS	Quality of Service
RAB	Radio Access Bearer
RF	Radio Frequency



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RNC	Radio Network Controller
RRC	Radio Resource Control
RTWP	Received Total Wideband Power
SGSN	Serving GPRS Support Node
SINR	Signal to Interference plus Noise Ratio
SNDR	Signal to Noise plus Distortion Ratio
SNR	Signal to Noise Ratio
TRAI	Telecom Regulatory Authority of India
TRCSL	Telecommunications Regulatory Commission of Sri Lanka
UAE	United Arab Emirates
UE	User Equipment
UL	Uplink
UMTS	Universal Mobile Telecommunications System
UTRAN	Universal Terrestrial Radio Access Network
WCDMA	Wideband Code Division Multiple Access
WLL	Wireless Local Loop



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