



Quality of Service Regulation

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Presentation Layout

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INTRODUCTION

The main purposes of QoS regulation are (ITU-T Supp. 9 of E.800 Series):

- ❖ Helping customers to be aware of the QoS provided by telecommunication operators/ ISPs through networks (mobile and fixed), so that they can make their own choices;
- ❖ Checking claims made by operators;
- ❖ Understanding the state of the market;
- ❖ Maintaining or improving QoS in the presence of competition;
- ❖ Maintaining or improving QoS in the absence of competition;
- ❖ Helping operators to achieve fair competition; and
- ❖ Making interconnected networks work well together.

QoS Standards

- ❖ In most countries, the regulatory framework sets out QoS regulation by setting minimum QoS standards, defining minimum value of QoS parameters, monitoring QoS, defining measurement methods and setting targets, reporting and publication procedures.
- ❖ In other countries, persistent failure to achieve committed levels of QoS can be actionable.
- ❖ Telecommunication networks are interconnected on a national, regional, and global basis, and the quality of telecommunication services applied in one network or one country influences the end-to-end quality of that service, so the quality cannot be considered only at national or regional level, but also needs to be considered globally.

CRASA CHALLENGES

- Crasa Member countries are not immune to Quality of Service (QoS) and Quality of Experience (QoE) issues.
- Over the years, CRASA have been receiving QoS complaints from
- consumers and other stakeholders.



CRASA APPROACH

- ❑ CRASA developed QoS/ QoE Guideline which provides a reference for members of South African Development Community (SADC) as a guiding tool for the national regulatory agencies (NRAs)
- ❑ government ministries in charge of QoS and QoE (quality of experience) parameters and measurements as defined by ITU-T, as well as enforcement mechanisms.
- ❑ The Guidelines extend ITU Manual on QoS Regulations further by introducing more hands-on information outlining practical approaches in QoS regulation for telecommunication/ICT services.
- ❑ NRAs should have the appropriate skill-set to carry out QoS regulation, and continuous capacity building is key to adapting to market and regulatory changes.
- ❑ NRAs can benefit greatly by learning from each other.



LEGAL ENACTMENTS

CRASA COUNTRIES (I)

The details on the legal enactments used at SADC countries are as follows:

Botswana

- The mandate of NRA on QoS Regulations and enforcement is in the Communications Act. The Act provides that NRA can make Industry Regulations, guidelines or Code of Conducts for better carrying out its mandate.

Lesotho

- Communications Act 2012 gives the Authority mandate to protect interests of consumers of communications services
- facilitate provision of good quality communication services at reasonable prices and establish and enforce quality of service standards for communications services.
- The Lesotho Communications Authority (Quality of Service) Rules 2016 is the legal instrument that specifies quality of service standards and the enforcement measures.

CRASA COUNTRIES (II)

Malawi

- MACRA has the mandate to “protect the interests of consumers, purchasers and other users of communication services in respect of the prices and quality of the services provided and terminal equipment supplied” – Sec 4(2)(a).
- The Communications Act mandates MACRA with the responsibility of “monitoring the activities of licensees to ensure compliance with the terms and conditions of their license and applicable regulations” – Sec 5(2)(g)(iii).
- Currently QoS parameters and targets are set in operator licences. There are currently draft regulations being developed on QoS.

Mauritius

- ICTA referred to the legal enactments on QoS monitoring and enforcement under ICT Act 2001 as amended (https://www.icta.mu/documents/laws/ict_act.pdf) as below:

The ICTA under section 18(1)(b) of the ICT Act 2001 is to provide economic and technical monitoring of the information and communication industry in accordance with recognised international standard practices, protocols and having regard to the convergence of technology.

CRASA COUNTRIES (III)

The QoS regulation (<https://www.icta.mu/documents/laws/qos.pdf>) was released in April 2014 which empowers the ICTA to enforce QoS measures. The next step is to update the QoS monitoring and enforcement framework to deploy the appropriate mechanisms to monitor QoS.

Mozambique

- Updated Act 4/2016, the Article 41 gives a mandate to the Communication Regulatory Authority to define the parameters, indicators and define the methodology of measuring the QoS.
- The QoS Indicators are defined in Annex I in QoS Regulation approved by the Decree n6/ of May 2011. In 2015, the Annex I was revised to amend the parameters, indicators, targets and introduced the Annex II which defines the methodology which includes Network Performance Monitoring and Drive testing.

Namibia

- The objects of Communication Act of 2009 in terms of section 129 (Act No.8 Of 2009) include promotion of availability of high quality, reliable and efficient telecommunications services to all users in the country and ensure consumer protection.
- Section 129 empower the Authority to make Regulations prescribing quality of service.

CRASA COUNTRIES (IV)

The Regulations regarding Licence Conditions for Telecommunications Service Licensees (2012) states that Telecommunications Licensees shall comply with quality of service standards as prescribed by the Authority from time to time in terms of the rule-making regulations regarding network quality, infrastructure, billing and service quality.

South Africa

- The Electronic Communications Act No. 36 of 2005, mandates Independent Communications Authority of South Africa (ICASA) which is established by Independent Communications Authority of South Africa Act No. 13 of 2000, to set out the minimum standards for the end-user and subscriber service charter.
- The provisions on the quality of service and its enforcement are in End-user and subscriber service charter, 2016. SANS 1725 national standard defines the QoS parameters and measurement methods.
- The Licence terms and conditions commits to the Service Charter and SANS 1725.

CRASA COUNTRIES (V)

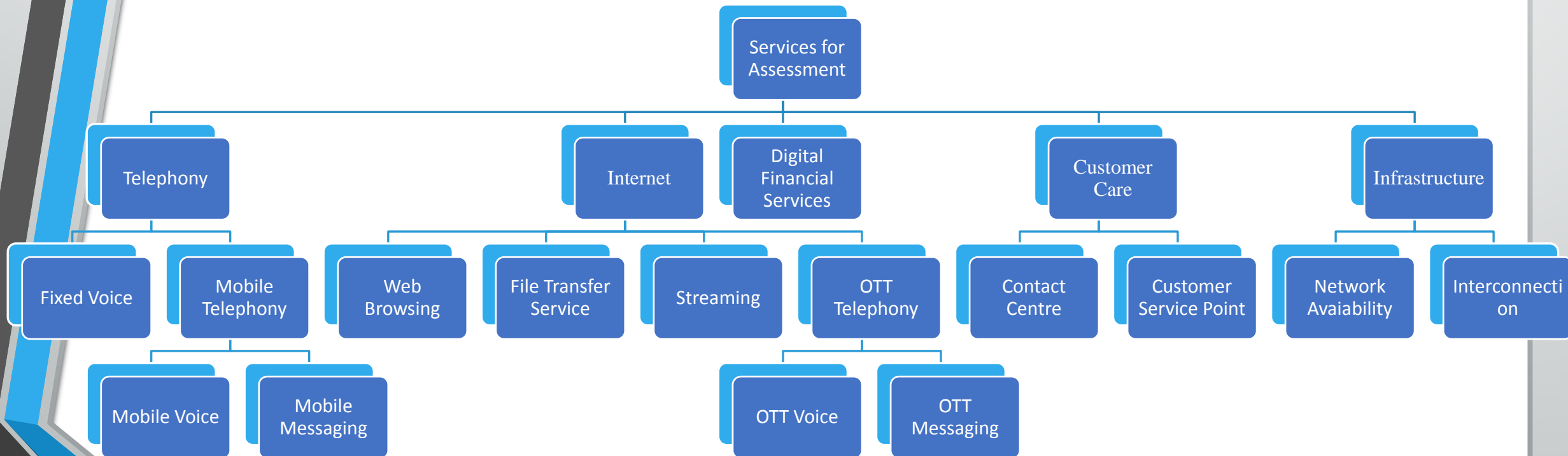
eSwatini

- SCCOM has QoS regulations enacted in 2016 yet to be implemented with activities such as monitoring and enforcement.
- The Regulations have both penalties and compensation to the user as part of sanctions.

Zimbabwe

- The Postal and Telecommunication Act [Chapter 12:05] of 2001 give POTRAZ the mandate to monitor Quality of Service in Zimbabwe.
- The Postal and Telecommunications (Quality of Service) Regulations, 2016 - Statutory Instrument 42 of 2016 is the legal instrument that specifies quality of service standards and the enforcement measures.

CRASA CHOSEN SERVICES





**Quality of
Service &
Quality of
Experience
Guidelines**

CRASA QoS Parameters (I)

- QoS is defined through a given set of parameters that are measurable. Such quality parameters that are defined for QoS measurements can be technical and non-technical.
- The technical parameters for popular mobile services are defined in ITU-T Recommendation E.804.
- The non-technical parameters are meant for customer management and are defined in ITU-T Recommendation E.803.
- Different measurement methods can be used; this may differ from one country to another.
- QoS monitoring may be done by the NRA as well as by operators (network providers and/or service providers) or independent organizations.
- Different approaches exist in the monitoring of technical and service management parameters.

CRASA QoS Parameters (II)

- ❖ When defining QoS parameters, the involvement of operators is beneficial and desirable.
- ❖ The following factors, among others, should be taken into consideration:
 - the practicability for operators to make the required measurements;
 - the practicability for regulators or any independent entity to audit the results;
 - the measurement being made should retain the customer experience aspect.
- ❖ QoS regulation is based on the definition of QoS parameters that will be monitored for the purposes of QoS enforcement. A target is defined as a potential value (or a range of values) for a parameter that must be reached if quality is to be regarded as satisfactory.

CRASA QoS Parameters (III)

- ❖ Three classes of parameters determine the user experience:
 1. Customer interface parameters.
 2. Network infrastructure parameters.
 3. Service functionality parameters.
- ❖ Service functionality parameters are organized according to service type (such as voice, SMS, etc.) rather than by operator type (fixed wireless, wireline, mobile, etc.) to help with comparability between countries and consistency in the treatment of operators.

CRASA QoS Parameters (IV)

Measurement mechanisms and tools

- ❖ Technical monitoring of parameters can be performed using real and or test traffic.
- ❖ Real traffic may be sourced from Operations Subsystems (OSS) and Network Management Systems (NMS).
- ❖ Network auditing, drive tests (in mobile networks), probe stations on selected locations may be used for test traffic.
- ❖ The service management parameters can be monitored by customer surveys, trouble ticketing systems as well as complaints management systems.

CRASA QoS Parameters (V)

Targets and Enforcement mechanisms

- ❖ Different countries have specific characteristics regarding their QoS parameters and therefore their target values may vary from country to country for a number of reasons (e.g. low penetration of certain services, early years of development of certain services in that country, etc.).
- ❖ Some variations of standard parameters may be necessary, depending on the specific situation in a given country or sector.
- ❖ Targets are normally set by the regulator based on consultation and prior monitoring of operator data.

CRASA QoS Parameters (VI)

- ❖ The purpose of monitoring the values of the defined parameters (used to define the required QoS in a given country) is to detect degradation of the QoS when it appears, and to apply appropriate actions to enforce QoS.
- ❖ Such QoS enforcement can be performed through a regulatory notice (e.g. publishing KPI monitoring results on a public website, through press releases, via directives, etc.) with the aim of informing customers.
- ❖ However, if such enforcement approaches are not enough to enforce QoS, then more drastic QoS enforcement should be undertaken through financial penalties (to non-conforming telecommunication operators or service providers) or through dispute resolution mechanisms.

CRASA QoS Parameters (VII)

- ❖ The cooperation between regulators is necessary for bringing substantive benefits through the sharing of good practice and mutual learning.
- ❖ Quality of Service Regulation is part of customer protection.
- ❖ In this fast changing ICT environment, the NRA needs to keep pace with technology, market and business innovations, while ensuring consumers make informed decisions and benefit from reasonable quality services.



END