

# **ITU Workshop on Performance, QoS and QoE for Multimedia Services**

Johannesburg, South Africa, 24-25 July 2017

## **Working Party 3/12 Multimedia QoS and QoE**

**Tiago Prado**

Anatel – Brazil

WP3/12 Vice-chairman

[tiago.prado@anatel.gov.br](mailto:tiago.prado@anatel.gov.br)

# Agenda

**Structure overview**

**Questions under study**

**New recommendations consented**

**Resolution 95 (WTSA-16)**

**Management team**

# Structure Overview

<a href="#"><u>Q8/12</u></a>	Virtualized deployment of recommended methods for network performance, quality of service (QoS) and quality of experience (QoE) assessment
<a href="#"><u>Q11/12</u></a>	Performance considerations for interconnected networks
<a href="#"><u>Q12/12</u></a>	Operational aspects of telecommunication network service quality
<a href="#"><u>Q13/12</u></a>	Quality of experience (QoE), quality of service (QoS) and performance requirements and assessment methods for multimedia
<a href="#"><u>Q17/12</u></a>	Performance of packet-based networks and other networking technologies
<a href="#"><u>Q18/12</u></a>	Measurement and control of the end-to-end quality of service (QoS) for advanced television technologies, from image acquisition to rendering, in contribution, primary distribution and secondary distribution networks

# Q8/12 – Virtualized measurement systems

- New question
- Scope:
  - studying how quality metrics, models, and their methods would change or be augmented in the case where network implementation is virtual
  - studying new methods to characterize the deployment and adapt the measurements to better suit network virtualization environment
- Current work items: none

# Q11/12 – Performance considerations for interconnected networks

## ■ Scope:

- providing guidance on general transmission planning, specially with respect to heterogeneous and interconnected networks

## ■ Current work items:

- G.ViLTE “End-to-end QoS for video telephony over 4G mobile networks”
- G.ACP “Guidelines regarding the minimum QoS and QoE threshold to be fulfilled during the use of alternative calling procedures”
- G.Sup.IpaOm “Supplement on IP aware QoS management ”

# Q12/12 – Operational aspects of telecommunication network service quality

## ■ History:

- ➔ Created in ITU-T SG2 (Operational Aspects)
- ➔ Moved from SG2 to SG12 in 2008
- ➔ Parent question of QSDG (2009-2012)

## ■ Scope:

- ➔ Defining operational and regulatory aspects of QoS and QoE assessment and mechanisms to foster improvements on quality

# Q12/12 – Operational aspects of telecommunication network service quality

## ■ Responsible for:

- ITU-T Rec E.420 – E.489 series
- ITU-T Rec E.800 – E.899 series
- ITU-T E.800 series Suppl. 8, 9 and 10
- Y.1500 – Y.1599 series

## ■ Recs Approved (2012-2016):

- ITU E.800-Suppl 9: Guidelines on Regulatory aspects of QoS. 2013
- ITU-T Rec. Y.1545: Roadmap for the QoS of Interconnected networks that use the IP. 2013
- ITU-T Rec. E.804: Quality of Service aspects for popular services in mobile networks. 2014

# Q12/12 – Operational aspects of telecommunication network service quality

- Recs Approved (2012-2016):
  - ITU-T Rec. E.807: Definitions, associated measurement methods and guidance targets of user-centric parameters for call handling. 2014
  - ITU-T Rec. E.803: QoS parameters for supporting service aspects. 2014
  - ITU-T Rec E.800-Suppl 10 : QoS/QoE framework for the transition from network oriented to service oriented operations. 2016



# Q12/12 – Operational aspects of telecommunication network service quality

## ■ Current work items:

- ➔ E.CEMI “CEM Index for services in operators' network used in a high volume”
- ➔ E.NetPerfRank “Statistical Framework for QoE Centric Benchmarking Scoring and Ranking”
- ➔ E.RQUAL “Strategies to Establish Quality Measurement Frameworks”
- ➔ E.RQST “Voice and Data QoS KPI thresholds on mobile networks”

# Q13/12 – QoE, QoS and performance requirements and assessment methods for multimedia

## ■ Scope:

- defining performance requirements for multimedia services and applications and to ensure satisfaction as perceived by the end user

## ■ Current work items:

- G.1010 "End-user multimedia QoS categories"
- G.1070 "Opinion model for video-telephony applications"
- G.IPTV-MP "IPTV monitoring parameters"
- G.OMG "Opinion model for gaming applications"
- G.QoE-gaming "QoE factors in gaming applications"
- Q.QoE-VR "QoE for VR services"

# Q17/12 – Performance of packet-based networks and other networking technologies

## ■ Scope:

- defining network performance parameters and numerical objectives organised in Network QoS Classes, and recommending methods to achieve the network quality objectives.

## ■ Current work items:

- G.1022 "Buffer models for media streams on TCP transport: Annex C - Blackbox Player Measurement and Buffer Model Parameterization"
- Y.1546 "Proposed new Annex for Y.1546: IP-based Service Availability"
- Y.1543 "Measurements in IP networks for inter-domain performance assessment"

# Q18/12 – Measurement and control of the end-to-end QoS for advanced television technologies

## ■ Scope:

- defining perceptual impacts of audio-visual quality and overall QoE of video streams, investigating the needs, requirements and methods for measuring quality of next-generation visual media

## ■ Current work items:

- J.g-uhd "Quality measurement methods for UHD services"
- J.vgm-hevc "Objective perceptual video quality measurement methods for H.265"
- P.av-ims "Immersive Subjective Testing Method for Audio, Video or Audiovisual Stimuli"

# New Recommendations Consented (2017)

- Y.1545.1 (Y.FMIPQoS) “Framework for Monitoring the QoS of IP network services”
  - Diagnostic reference for IP network quality of service monitoring, and a guide to assist regulators monitoring the quality of service of internet that is provided by service providers (although subscribers and network service providers may also derive benefit).

# New Recommendations Consented (2017)

- E.811 (E.QMME) “Quality Measurement in Major Events”
  - Quality assessment of mobile broadband and voice services provided during major events, such as FIFA World Cups and Olympic and Paralympic Games, by creating a useful international reference to be considered by operators and regulators when preparing to host such events.

# New Recommendations Consented (2017)

- E.802 Amendment: “New Annex A on guidelines on selection of representative samples”
  - provides guidance on the selection of representative samples for measurement of QoS parameters
  - provides tools (R coding) to define the number of samples needed to have statistical validation

# Resolution 95 (WTSA-16)

- Res. 95 – “ITU-T initiatives to raise awareness on best practices and policies related to service quality”
- Focus:
  - ➔ defining how the studies related with quality regulatory approaches should be conducted on the next study period, indicating some deliverables to be developed by SG 12 and other relevant ITU-T Study Groups.



# Resolution 95 (WTSA-16)

## ■ Topics to be studied:

- Strategies to establish national quality measurement frameworks
- QoS/QoE evaluation scenarios, testing and sampling methodologies;
- references relating to minimal satisfactory KPIs/KQIs
- Strategies to make users informed
- Identifying human and institutional capacity-building necessities of these countries;
- Promoting wider participation in the international debate on quality

# Resolution 95 (WTSA-16)

## ■ Recent work:

- Operational Plan for Res 95 implementation (TD120R1) was approved in the last SG 12 meeting
  - Involves TSB, BDT, ITU-D SG1 and all SG12 Questions
- Nomination of a Liaison Rapporteur
  - Tiago Prado (ANATEL/Brazil)
- LS sent to ITU-D and Regional Offices
- New work items approved (E.RQUAL/E.RQST)
- Discussion of a Questionnaire to collect information on quality regulatory frameworks

# Management Team

## ■ WP3/12 Chairman

➔ **Paul Coverdale** ([coverdale@sympatico.ca](mailto:coverdale@sympatico.ca))

## ■ WP3/12 Vice-Chairmen

➔ **Al Morton** ([acmorton@att.com](mailto:acmorton@att.com))

➔ **Tiago Prado** ([tiago.prado@anatel.gov.br](mailto:tiago.prado@anatel.gov.br))

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## **Thank you!**

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