**3GPP T****SG-RAN WG3 Meeting #109e R3-20xxxx**

**17th Aug - 28th Aug 2020**

**Agenda item:** 15.1

**Source:** China Unicom, Ericsson

**Title:** Discussion on SI scope and time plan for NR QoE Management and Optimizations for Diverse Services SI

**Document for:** Discussion and Decision

Introduction

This document is proposed for discussion on the scope and time plan for the “NR QoE Management and Optimizations for Diverse Services SI” as defined in RP-193256 [1], which was approved at the 3GPP TSG RAN #86 meeting.

Discussion

In UTRAN and E-UTRAN, QoE measurement for DASH and MTSI services have been specified [2]. The current LTE QoE solutions are highlighted as follows.

- QoE measurement is activated by Trace Function from the MDT framework.

- Both signalling based and management based QoE measurement are allowed.

- Both QoE measurement configuration and report are encapsulated in a transparent container and delivered via downlink/uplink RRC message in SRB4.

- QoE measurement configuration and report are supported in RRC\_CONNECTED state only.

For NR QoE, Trace Function and MDT mechanism could be considered as one of the possible solutions . In addition, both signalling based and management based QoE measurement could be studied for NR QoE mechanism as well.

**Proposal 1: Study LTE QoE solution as one of the possible solutions for NR QoE SI.**

NR is designed for new emerging 5G services, e.g. eMBB and URLLC service, and operators have strong demand to optimize 5G network and provide better user experiences to fulfill the requirement of various types of services.

QoE management for 5G will not just collect the metrics of DASH and MTSI services but also consider the typical performance requirements of diverse services (e.g. AR/VR and URLLC). The service requirements for VR related QoE metrics are defined in TS26.118[3] and other service also need to be studied.

**Proposal 2: New 5G service and the metrics should be studied in NR QoE SI.**

LTE QoE measurement report is delivered in the uplink RRC message over SRB4, which is CP solution. The CP solution could be studied as one of the candidate solutions. And if the CP solution is studied, discussion on the new type of SRB(i.e. similar as SRB4 in LTE) should be initialed in RAN2.

For NR QoE, if companies are interested, RAN3/2 could initial discussion on UP solution,

**Proposal 3: The CP solution should be studied in NR QoE SI.**

LTE QoE measurement configuration and report are encapsulated in a transparent container and transferred to server, and the information is not accessible by eNB. To 5G new service such as URLLC service, some new QoE metrics related with air interface should be studied, which can be beneficial for optimization for lower layer resource allocation.

**Proposal 4: Some new metrics related with new 5G service for air-interface could be studied for better supporting network optimization for resource allocation.**

At present, management based QoE measurement is for a specific area and the target area is specified by the *Area scope* IE, which is a list of cells/ Tracking Area.

As NR introduced slicing to meet the demand of vertical industries, QoE measurement of service running on particular slice is quite beneficial for operator’s evaluation and optimization of service quality.

Therefore, NR QoE SI should study how to support slice-level QoE measurement to indicate the QoE status of specific slices.

**Proposal 5: The slice-level QoE measurement should be studied in NR QoE SI.**

Schedule

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| Meeting | Description |
| RAN3#106 ( November, 2019) | Agreement on SI in RAN3 |
| RAN#86 (December 2019) | Approval of SID in RAN |
| RAN3#109 (August 2020) | Discussion on the scope, time plan and TR skeletonConsider technical input contributions on  * + Discussion on the high-level solution(s) for NR QoE framework   + Key QoE metrics of 5G services for network management and optimization.   + Candidate solution (i.e. CP solution). Study CP solution or study other solution to relieve the load of SRB.   + Discuss on new solution to fulfill new service and new metrics. Some key metrics could be defined as new IE, which can be beneficial for resource allocation and optimization.   + RAN2 related work could be started in Q4. |
| RAN#89 (September 2020) |  |
| RAN2#112 (November 2020) | Discussion on technical input contributions on  * + RAN2 related work based on RAN3 conclusion |
| RAN3#110 (November 2020) | Consider technical input contributions on  * + Discuss on how to support slice-level QoE. As NR support slicing to meet the demand of vertical industries, NR QoE should be slice-level correspondingly to reflect the QoE status of specific slices.   + Potential impact on existing protocols and interfaces. |
| RAN#90 (December 2020) |  |
| RAN3#111 (TBC) | Discussion on technical input contributions on  * + TPs for TR 38.890. * finalizing the open issues and capture the agreements in TR |
| RAN#91 (March 2021) | Approve TR |

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References

1. RP-193256: " New SID: Study on NR QoE management and optimizations for diverse services "
2. 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); Overall description; Stage 2".
3. 3GPP TS 26.118: "Virtual Reality (VR) profiles for streaming applications".