**3GPP TSG-RAN3 Meeting #122 R3-237935**

**Chicago, US, 13th – 17th November, 2023**

**Title:** (TP to BL CR of 38.300) on QoE measurement enhancements in DC

**Source:** Huawei

**Agenda item:** 11.3

**Document Type:** for approval

# 1. Introduction

In this contribution, we provide the TP to 38.300 based on the discussion in [1] [2] [3] [4].

# 2. TP to 38.300

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21.3 QoE Measurement Continuity for Mobility

QoE measurement collection continuity for intra-system intra-RAT handover is supported, with the Area Scope parameters configured by the OAM, where the network is responsible for keeping track of whether the UE is inside or outside the area scope. A UE continues an ongoing QoE measurement even if it leaves the area scope, unless the network indicates to the UE to release the application layer measurement configuration.

For handover, the source gNB may transmit the information related to one or more application layer measurement configurations of the UE to the target gNB via XnAP or NGAP. For signalling-based QoE, the service type indication, QoE reference, and, optionally, the MCE IP address, measurement configuration application layer ID, MDT alignment information, area scope, slice support list for QMC, available RAN visible QoE metrics and measurement status are passed to the target gNB. For management-based QoE, the service type indication, measurement configuration application layer ID, the MCE IP address and QoE measurement status are passed to the target gNB. For RRC\_INACTIVE state mobility, QoE measurement configuration(s) of a specific UE can be retrieved from the gNB hosting the UE context when it resumes to the RRC\_CONNECTED state.

For signalling-based QoE, at handover to a target gNB that supports QoE measurement collection, the target gNB decides which of the application layer measurement configurations should be kept or released, e.g., based on application layer measurement configuration information received from the source gNB in Xn/NG signalling.

The continuity of QoE measurement configuration and reporting in NR-DC scenario is supported as specified in TS 37.340 [21].

In NR-DC, the SN should inform the MN if the SN has released a QoE configuration, via the QMC coordination procedure.

For QoE sessions pertaining to data flows received via MBS broadcast, QoE measurement collection may continue during RRC\_INACTIVE and RRC\_IDLE, and the QoE measurement results, if collected, may be provided to the network when the UE returns to the RRC\_CONNECTED state.

Upon UE’s transition from RRC\_IDLE to RRC\_CONNECTED, the gNB serving the UE should ensure that it does not release an already configured signaling based QoE measurement configuration for the sake of configuring a new management-based QoE measurement configuration.

When the UE resumes the connection with a gNB that does not support QoE, the UE releases all application layer measurement configurations.

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### 21.x.2 Support for RAN visible QoE measurements and reporting in NR-DC

Either the MN or the SN can generate and send a RAN visible QoE configuration to the UE. The gNB that has initially configured a UE in NR-DC with an RVQoE configuration can modify and release the RAN visible QoE configuration as long as the UE is connected to this gNB. The gNB that configures the encapsulated QoE to UE is the RAN visible QoE-configuring gNB, the peer node is the non-RAN visible QoE-configuring gNB. Upon mobility, the RAN visible QoE-configuring gNB may be changed.

The UE may send RAN visible QoE reports to the network using either SRB4 or SRB5. In addition, the gNB that received a RAN visible QoE report can forward the report to the other gNB (the SN or the MN). QoE reports and RAN visible QoE reports pertaining to the same QoE Reference can be sent over the same SRB or they can be sent over different SRBs.

The RAN visible QoE-configuring gNB can configure RAN visible QoE measurements at a UE without a priori knowledge about which gNB(s) will provide the bearer(s) for a future application session. During the lifetime of an application session, to ensure that the RAN visible QoE reports are sent to the gNB(s) that provide the bearer(s) which carry the data flow(s) associated with the RAN visible QoE measurement result in a RAN visible QoE report, the gNB receiving the RAN visible QoE reports determines the bearer(s) used to deliver the application session data flow(s) and the associated gNB (s). The determination may be based on the PDU session ID(s) and the QoS flow ID(s) indicated in a received RAN visible QoE report.

When the RAN visible QoE-configuring gNB receives a RAN visible QoE measurement report and determines that the non-RVQoE-configuring gNB provides at least one bearer for the application session, the RVQoE-configuring gNB indicates that to the non-RVQoE-configuring gNB. The non-RVQoE-configuring gNB can then, if needed, indicate to the RAN visible QoE-configuring gNB its preference with respect to the reporting path for the subsequent RAN visible QoE reports and its preferred RAN visible QoE configuration parameters.

If a gNB receives a RAN visible QoE report from a UE in NR-DC, and determines that the bearer(s) for the application session data flow(s) is (are) also provided by the other gNB, or only, provided by the other gNB, the gNB that received the RAN visible QoE measurement report may forward the received RAN visible QoE report to the other gNB. The RAN visible QoE configuration may also be modified or released.

The RAN visible QoE reports can be transferred between MN and SN via RRC Transfer message.

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-------------------------------------------End of change-------------------------------------------

# 3. Reference

[1] R3-237720, Further discussions on the support for QoE in NR-DC, Huawei

[2] R3-237180, (TP for QoE BL CR for TS 38.423, TS 37.340, and TS 38.300) QoE and RVQoE Measurements and Reporting in NR-DC Scenarios (Ericsson)

[3] R3-237656, Stage 2 TPs to BL CR of 37.340 and 38.300 on QoE in NR-DC (ZTE, China Telecom)

[4] R3-237716, (TP to BL CR of 38.300 38.423 37.340) QoE in NR-DC (China Unicom)