3GPP TSG-RAN WG3 Meeting #111-e R3-211235

E-meeting, 25 January – 4 February, 2021

**Agenda item: 15.2**

**Source: Nokia (moderator)**

**Title: (TP for TR 38.890) RAN3#111-e agreements on mobility**

**Document for: Text Proposal**

# 1 Introduction

ThisTP captures agreements on mobility taken at RAN3#111-e.

The following TPs towards clause 6.6 of the TR were submitted to the present meeting:

* R3-210529 (Ericsson)
* R3-210658 (Nokia, Nokia Shanghai Bell)
* R3-210771 (CATT)
* R3-210849 (ZTE)
* R3-210863 (Huawei)

# Annex - TP for TR 38.890 v0.2.0

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## 6.6 Support for Mobility

Seamless mobility is a key functionality in NR and its impacts should be measurable at the application layer. To enable measuring the impact of the mobility on the application and users’ QoE, it is required to support QoE measurement reporting continuity in intra-system intra-RAT intra-node and inter-node handover scenarios for intra-node mobility for both management-based and signalling-based QoE. At least signalling-based QoE supports this also in case of inter-node mobility, FFS on support for management-based QoE.

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In LTE, to support the QoE measurement in mobility scenarios, the QoE configuration is forwarded from the source eNB to the target eNB inside the *Trace Activation* IE over X2 interface. The same IE is sent over S1 interfaces for mobility scenarios when the X2 interface is not established between the source and target.

In NR, to support mobility for QoE measurements in CONNECTED state, the QoE measurement configuration transfer is supported on the Xn and NG interfaces, inside the *Trace Activation* IE as a part of *UE Application Layer Measurement Configuration IE* that may contain multiple QoE configurations for multiple service types. FFS whether there can be only one QoE configuration for one service type at a UE. To support keeping QoE measurement configuration in INACTIVE state mobility, QoE measurement configuration for a UE can be fetched from the node hosting the UE Context.

In addition, the SA4 requirements for QoE measurements stipulate that the client shall check the QoE configuration only when a session starts (see " Requirements from SA WGs" below). This means that the client shall continue the QoE measurements for an ongoing session even if the UE moves out of the configured area. The SA4 requirements are RAT-independent and shall therefore be applied to the mobility solution for QoE measurement in NR, as well. QoE measurement reporting continuity in intra-system inter-RAT handover scenarios should therefore be prioritized in Rel-17. QoE measurement reporting continuity in inter-system handover scenarios may be handled in Rel-18. Appropriate action for the case where the target RAT does not support the source RAT configurations (including QoE configuration) is to be defined in normative phase in coordination with RAN2. Other issues requiring clarification in normative phase include how the area scope is configured to cover inter-RAT/inter-system, how service continuity is dealt together with QoE measurements for intra-RAT inter-node mobility, how the target RAT/System knows if the source side has configured the QoE measurement for the concerned UE.

Editor's NOTE: the solutions enabling the fulfilment of the SA4 QoE requirements are FFS.

Editor's NOTE: FFS whether, and under which conditions, the target node may decide the subsequent handling of management based QoE configuration.

For support of MR-DC, choice between one or more of the following alternatives may be done in normative phase:

* Alternative 1: No support - only the MN can configure QoE in the UE, and QoE measurement reports are sent from the UE to the MN.
* Alternative 2: Flexible QoE configuration, i.e. may be done by either MN or SN.
* Alternative 3: Flexible QoE measurement reporting, i.e. may be done via either MN leg or SN leg (e.g. depending on load situation).

Alternatives 2 and 3 may be combined.

One example use case for MR-DC QoE support is that for a DC - capable UE, the RAN may want to determine whether to set up the DC for this UE or not. For instance, if QoE performance with only one leg set up is sufficiently good, then setting up the other leg may be unnecessary, i.e. it would unnecessarily drain the UE’s battery.

**Requirements from SA WGs:**

LS (1) from SA5 states "*It is essential that handover is supported for QoE measurements*", and refers to:

(a) TS 28.404 **REQ-EUSPC-CON-1:** Theoperator shall have a capability to request collection of QoE information per end user service/end user service type for a specified area. The request may include an address of a collection centre to which the collected information shall be delivered.

(b) TS 26.114 clause 16.3, TS 26.247 clause 10.5 LocationFilter: "When present, this element indicates the geographic area(s) or location(s) where quality metric collection is requested."

(c) TS 26.114 clause 10.1, TS 26.247 clause 16.3: "The QoE configuration shall only be checked by the client when each session starts, and thus all logging and reporting criteria for an ongoing session shall be unaffected by any QoE configuration changes received during that session. This also includes evaluation of any filtering criterias, such as geographical filtering, which shall only be done when the session starts. Thus changes to the QoE configuration will only affect sessions started after these configuration changes have been received."

(d) TS 26.114 clause 16.5.2 XML configuration

"Note that if geographical filtering is handled on the network side (i.e. QoE reporting is turned on/off by the network depending on the UE location), no LocationFilter should be specified in the QoE Configuration, as this would mean two consecutive filterings."

The LS (1) from SA5 also states "*There is also the requirement that the measurements shall continue until the application session stops even if the UE goes outside the specified area*", however neither (a), (b) or (c) provides such requirement.

However, if the Within-Area indication is used (not currently supported by RAN specification), the following MTSI client behaviour is described in TS 26.114 clause 16.5.1: "*The QoE configuration AT command +CAPPLEVMC [161] may also indicate with an Within-area Indication if the UE is inside or outside a wanted geographic area. Such an indication may arrive with or without any QoE configuration container attached. If the MTSI client is informed that it is not inside the area, it shall not start any new QoE measurements even if it has received a valid QoE configuration container, but shall continue measuring for already started sessions.*" The same behaviour is described for the DASH client in TS 26.247 annex L.

LS (2) from SA4 indicates: "*Currently SA4 has only specified QMC functionality (for QoE configuration and reporting) for UMTS and LTE. When the RAN3 NR QoE work has concluded, SA4 will also expand the specified QMC support to include 5G NR accordingly.*"

References:

(1) R3-206919 - S5-205347, "LS on QoE Measurement Collection", SA5

(2) R3-210041 - S4-201576, "Draft LS Reply on New service type of NR QoE" (reply to R3-205724), SA4

(3) R3-210042 - S4-201600, "LS reply on QoE Measurement Collection" (reply to S5-205347), SA4

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