3GPP TSG-RAN WG3 #115e R3-22xxxx

21st Feb – 3rd Mar 2022

Agenda Item: 15.2.2

Source: Huawei (moderator)

Title: Summary of Offline Discussion on CB: # QoE4\_Mobility

Document for: Approval

# Introduction

**CB: # QoE4\_Mobility**

**- Whether/how to transport the s-based QoE configuration container during HO.**

**- Discussion on the code points of the Measurement Status IE and whether/how to transport it during HO.**

**- Whether to re-configure the s-based QoE to UE when it moves back to area scope.**

**- How to include QMC Activation IE in HO messages.**

**- Whether/how to transport Measurement Type IE during HO.**

**- Whether/how to support QMC/MDT alignment for m-based MDT.**

**- Capture agreements and Provide TPs if agreeable.**

**(HW - moderator)**

Summary of offline disc

# For the Chairman’s Notes

**For chairlady to copy:**

Detailed discussions

# Discussion

Similar as what we did for previous meeting, the discussion will try to discuss the further details on the remaining open issues on support of QoE measurement for intra-system mobility, including further details on the transferring of QoE configuration during HO, support QMC/MDT alignment for m-based MDT, measurement type and measurement status transferring, etc. The discussion will take the papers from [1] to [10] into account.

Please note that, for other topics for which dedicated CBs were allocated, e.g. RAN QoE visibility, it might be also involved in mobility support, and NG/Xn impacts might be expected, moderator would leave discussions there.

Moderator’s note: Before stepping into details discussions, moderator would remind that some agreements and WA were already reached during the previous meetings, see below. However, there are some proposals in this meeting trying to revert some of them. We may need to reach some consensus whether this a need to reopen the discussion.

WA: for s-based QoE, the s-based QoE configuration container (XML file) is included in XnAP HANDOVER REQUEST and RETRIEVE UE CONTEXT RESPONSE messages

In case of s-based QMC, the configuration container (XML file) is included as an explicit IE in the NGAP HANDOVER REQUEST.

The QMC Activation IE is placed into the Source to Target Transparent Container IE within the HANDOVER REQUIRED message (rather than sent as an explicit IE).

FFS on the presence of s-based configuration container in NGAP HANDOVER REQUIRED message.

Check RAN2 progress, to be continued...

During handover preparation, source NG-RAN node sends to the target NG-RAN node:

- in XnAP/NGAP IEs: available RVQoE metrics (received as part of QMC configuration);

- (WA) in RRC container: RVQoE metrics configured at the UE

## Handling of QoE configurations

### Whether to turning the WA of the propagation of the s-based QoE configuration container into agreement

A WA was reached as follows, companies are invited to provide views whether to turn this WA into agreement.

WA: for s-based QoE, the s-based QoE configuration container (XML file) is included in XnAP HANDOVER REQUEST and RETRIEVE UE CONTEXT RESPONSE messages

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| Huawei | Yes | In our understanding, the source node sends all the s-based QoE configuration (XML) to the target node regardless whether the source node has configured the QoE configuration to the UE. Then the target node can know the QoE measurement type and which s-based qoe has been configured by the source node. Also the target node can directly reconfigure one s-based QoE measurement if the source node has released this s-based qoe measurement due to some other reasons(e.g. the overload or the area scope) |
| Qualcomm | Yes | The container should be propagated. Presence of this container can be discussed in next question. |
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### The presence of s-based QoE configuration container (XML file) in Xn if the source RAN receives the s-based QoE configuration from CN: mandatory, optional or conditional

Moderator’s Note: if yes to 3.1.1, please companies continue to share your view on the presence of container.

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| --- | --- | --- |
| Company | M, O or conditional | Comment |
| Huawei | M | Same to the above comments, the source node sends all the s-based QoE configuration(XML) to the target node regardless whether the source node has configured the QoE configuration to the UE or not, then the configuration container should be mandatory. |
| Qualcomm | Prefer M  OK with conditional too | We slightly prefer the presence to be mandatory over conditional because:   1. There is no need to include a *QoE Measurement Type* IE. 2. There is no need to define codepoints = {configured, not-configured} for *QoE Measurement Status* IE |
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### Whether to include s-based configuration container as explicit IE in NGAP HANDOVER REQUIRED message

Moderator’s note: this corresponds to the remaining FFS from last meeting.

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| Company | Yes/No | Comment |
| Huawei | No | The CN knows which signalling based QoE configuration has been sent to the source NG-RAN, similar as in the LTE QMC. The source NG-RAN does not need to send the signalling based QoE configurations back to the CN. |
| Qualcomm | Yes | s-based configuration container needs to be included in NGAP HANDOVER REQUIRED so that AMF can propagate it further to the target node over NGAP HANDOVER REQUEST.  We don’t think the AMF will store the s-based QoE configurations and can include QoE configurations in NGAP HANDOVER REQUEST to the target node on its own. |
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## Support the alignment of S-based QoE measurement and M-based MDT during mobility

Moderator’s Note: This might be also treated in another topic, if companies make comments here, please make sure the comments are consistent. ☺

### **m-based MDT inside the *MDT Alignment Information* is not applicable at Xn- and NG-based handover**

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| --- | --- | --- |
| Company | Yes, applicable/No, not applicable | Comment |
| Huawei | No | We think this is only applicable for the case of initial configuration over NGAP. |
| Qualcomm | Not applicable | Same view as Huawei |
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## Measurement type and measurement status indication during mobility

### Whether to introduce an explicit IE like “measurement type” to indicate m-based QoE measurement or s-based QoE measurement.

Moderator’s note: if yes, please also indicate that in which messages this IE should be included (HO required/HO request/UE retrieval etc.), with the presence as M or O.

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Huawei | No | As commented in 3.1, we think the source node will send all the s-based QoE measurement to the target node, then the target node can know the measurement type based on the information in Xn and the RRC container |
| Qualcomm | Only if presence of container is not mandatory | This IE will be needed only if presence of the s-based container (XML file) is not mandatory in section 3.1.2 |
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### Whether to introduce an explicit IE like “measurement status” to indicate the status.

Moderator’s note: if the answer is yes, please indicate your preferred definition, for example, what the code point looks like, “configured”, “not configured”, “ongoing”, etc., in which messages (HO required/HO request/UE retrieval etc.), M or O.

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Huawei | Yes, but only “ongoing” or “started, ended”.  For the NG, it is included in the source to target container.  For the Xn, it is included in the *UE Application Layer Measurement Informatio*n IE in the handover request and UE retrieval response message.  This IE is optional | As commented in 3.1.2, we think the source node will send all the s-based QoE measurement to the target node, then the target node can know the measurement type and which S-based QoE configured has been configured by the source node based on the information in Xn and the RRC container |
| Qualcomm | Yes | The codepoints should be:  {started, ended} if presence of container is mandatory  {started, ended, configured, not-configured} if presence of container is conditional |
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## Others

### Whether to indicate the pause/resume status during mobility?

Moderator’s note: if the answer is yes, please companies also indicate your suggested solutions and stage 3 details, e.g. in which message(s).

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Huawei | No | In previous meetings, RAN3 has agreed to request RAN2 to include pause status information for reporting in RRC container (Source to Target Transparent Container). There is no RAN3 impact. |
| Qualcomm |  | Same view as Huawei |
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### How to handle the pause/resume QoE reporting by the UE during mobility?

Moderator’s note: if the answer is yes, please companies also indicate your suggested solutions.

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Huawei |  | It is RAN2 to decide |
| Qualcomm |  | Target node can know whether a QoE configuration is paused or not via inter-node signaling support of pause status by RAN2. There is no need to enhance QoE Measurement Status to include pause/resume status. |
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### Whether to introduce RVQoE Report Transfer message over XnAP

Moderator’s note: if the answer is yes, please companies also further indicate suggested solutions and stage 3 details, e.g. in which message(s). Similarly, if this was also discussed in another CB, please keep consistent if comments are provided.

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| --- | --- | --- |
| Company | Yes or No | Comment |
| Huawei |  | RAN2 are discussing whether the UE will retransmit the QoE reporting container in the target node during handover. For the RAN visible QoE, we think RAN3 can wait the progress of RAN2 |
| Qualcomm | Discuss in CB#QoE5 |  |
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### Whether to turning the WA of including the RVQoE metrics configured at the UE into agreement

A WA was reached as follows, companies are invited to provide views whether to turn this WA into agreement.

During handover preparation, source NG-RAN node sends to the target NG-RAN node:

- in XnAP/NGAP IEs: available RVQoE metrics (received as part of QMC configuration);

- (WA) in RRC container: RVQoE metrics configured at the UE

Similarly, if this was also discussed in another CB, please keep consistent if comments are provided.

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| --- | --- | --- |
| Company | Yes or No | Comment |
| Huawei | Yes | The source RAN will send all the RRC configuration of the UE in the RRC container to the target node. The RRC configuration of the UE includes the RVQoE metrics configured at the UE. It does not have impact on RAN3. |
| Qualcomm | Yes | Same view as Huawei. Also being discussed in CB#QoE5 |
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### Whether to replace “Trace Reference” to “Any available MDT” in CHOICE MDT Alignment Information IE.

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| Company | Yes/No | Comment |
| Huawei | See comments | We think the motivation is to perform the alignment between the M-based MDT and s-based QoE. We can wait the progress on the alignment. |
| Qualcomm | No | We can stick to Trace ID based MDT-QoE alignment in Rel-17 instead of opportunistically using any available MDT. |
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### How to handle in case UE moves out of area scope

In [6], it was proposed that:

* when UE moves out of area scope, s-based QoE configuration may be released by network;
* when UE moves back within area scope, s-based QoE configuration shall be re-activated.

In order to achieve this, s-based QoE configuration including container shall be propagated and stored by target NG-RAN even if UE QoE configuration has been released.

Moderator’s note: companies are invited to provide understanding on above proposals, whether to agree or not, including the potential foreseen spec impacts if sharing similar view.

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Huawei | Yes | We think the spec impacts is : The source node will send all the s-based QoE configuration to the target node |
| Qualcomm | No | Handling QoE configurations when UE moves outside area scope and ongoing session handling is being discussed in RAN2. No need for RAN3 to discuss this and we don’t for see any new RAN3 impacts. |
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## Miscellaneous

Moderator’s note: companies are invited to add further issues if any.

### Issue 1:

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### Issue 2:

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| Company | Yes/No | Comment |
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# Conclusion, Recommendations [if needed]

If needed

# References

1. R3-221678, (TP for QoE BL CR for TS 38.423) Mobility Support for NR QoE Measurement Collection (Ericsson) other
2. R3-221752, Open issues regarding QMC and reporting continuity in mobility scenarios (Qualcomm Incorporated) discussion
3. R3-221863, (TP for BL CR to TS 38.423) Handling of m-based MDT in case of mobility (Nokia, Nokia Shanghai Bell) other
4. R3-221931, Further discussion on Mobility of QoE measurement (China Unicom) discussion
5. R3-222178, Discussion on remaining issues in NR QoE mobility (ZTE Corporation) discussion
6. R3-222207, Discussion on Measurement Collection and Continuity in Intra-System Intra-RAT Mobility (CATT) discussion
7. R3-222224, Further discussions on mobility support of QoE measurement (Huawei) discussion
8. R3-222279, (TP for BL CR to TS 38.423) Mobility support of NR QoE (Samsung) other
9. R3-222386, Transfer of QMC information during handover (Nokia, Nokia Shanghai Bell) discussion
10. R3-222223, TP to 38.413 on configuration details (Huawei) other