3GPP TSG-RAN WG3 #119-bis-e R3-231877

17th - 26th Apr 2023

Online

**Agenda Item: 11.4**

**Source: ZTE - Moderator**

**Title:** **Summary of Offline Discussion on CB: # QoE4\_Others**

**Document for: Approval**

# **Introduction**

**CB: # QoE4\_Others**

**- Check the incoming LSs**

**- Whether to introduce threshold-based trigger, event-based triggers for RVQoE?**

**- Discuss the procedures for DU participation in deactivation of QoE reporting over F1, e.g., class-1 or class 2, to reuse legacy procedure or to define a new procedure?**

**- Whether DU can participate in assembling RVQoE configuration?**

**- Discuss the details of assistance information, e.g. priorities per QoE configuration? Types or characteristics of the consumers?**

**- Proceed to TP(s) if agreeable**

(moderator - ZTE)

Summary of offline disc [R3-231877](https://qualcomm-my.sharepoint.com/personal/shakrish_qti_qualcomm_com/Documents/Desktop/Dropbox/Pentari%20Systems/RAN3/119-bis-e%20Apr%202023%20(E-meeting)/CB/CB%20%23%20QoE4_Others/Inbox/R3-231877.zip)

Please Note:

There would be two rounds of email discussion.

The 1st round is to be closed by 8:00 UTC, 19th Apr, Wednesday.

The 2nd round is to be closed by 6: 00 UTC, 25th Apr, Tuesday.

# **2 For the Chairman’s Notes**

Propose to capture the following for the 2nd round discussion:

# **4 Discussion (2nd round)**

The summary of the first round discussion was not treated online. This part provides the second round discussion, based on the summary of first round.

**4.1 Tentative Agreements**

There are some proposals to be agreed, which are listed here for your checking:

**1) The LSes (R3-231111 and R3-231123) are noted.**

**2) Radio-related event triggers for RVQoE reporting is not supported in Rel-18.**

**3) It should be DU to take control of the deactivation of RVQoE reporting over F1.**

**4) The DU participation in RVQoE configuration is not supported in Rel-18.**

**5) There is no need introduce the type of consumer that will receive the QoE reports, or some characteristics of the consumers as assistance information from OAM.**

**Q1: Please companies provide your comments here for the five tentative agreements above.**

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| --- | --- |
| Company | Comments |
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The other issues to be further discussed are listed in the following parts.

**4.2 Threshold-based Triggers**

During the first round discussion, the majority agree that the periodic reporting (supported since R17) should not be configured together with the event-based trigger, since they are two different features for different ways of reporting. Note that even in MDT, the periodic reporting and trigger events are not allowed to be configured together. So, Moderator would prefer we have the following WA:

**WA: The periodic RVQoE reporting and threshold-based trigger for RVQoE reporting should not be allowed to be activated together in a RVQoE configuration.**

**Q2: Are you fine with this WA?**

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| --- | --- |
| Company | Comments |
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Please note that the above WA does preclude the case that when the intention is to configure threshold-based trigger and a periodicity is used for reporting after the threshold is met, which would be further discussed.

As was proposed by QC in the first round, when the threshold-based trigger is met, there could be two options:

**Option 1: UE should just send RVQoE report only once**

**Option 2: UE can send RVQoE reports at a certain periodicity. (FFS whether RVQoE reporting periodicity defined in Rel-17 can be reused or based on other periodicity information.)**

**Q3: which option do you prefer?**

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| Company | Comments |
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It is also proposed to discuss whether to introduce TTT to ensure that the threshold is met at least for a certain duration and not was just a momentarily blip. ReportAmount is also suggested as a configuration for threshold-based triggers.

**Q4: Do you think there is a need to introduce TTT(time to trigger) and reportAmount for threshold-based triggers?**

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| --- | --- | --- | --- |
| Company | TTT | Report amount | Comments |
|  |  |  |  |
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**Q5: Do you think there is a need to send an LS to RAN2 and/or SA4 to provide our understanding on threshold-based trigger at this meeting?**

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| Company | Yes/No | Comments |
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**4.3 F1AP Deactivation of RVQoE reporting**

In the first round, most companies agreed that the F1AP procedure for DU to deactivate the RVQoE reporting should be a class-2 procedure, while whether it could be a legacy or new procedure was not determined. Considering there is still some concern on the procedure type, it is proposed that we only have a WA as below:

**WA: a class-2 procedure should be used for DU to deactivate the RVQoE reporting over F1AP.**

**Q6: Do you accept the WA above? Do you think there is any available legacy class-2 procedure that could be used for DU to deactivate RVQoE reporting over F1?**

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| --- | --- | --- |
| Company | WA? | Comments |
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One comment during the offline discussion is that, if a new procedure is introduced for the deactivation of RVQoE, the purpose of it would be similar to support pause-resume. So, it seems necessary to clarify the difference between deactivation and pause-resume of RVQoE reporting over F1 if we are to continue discussing the procedure.

Moderator’s understanding is, the deactivation of reporting means the rejection of receiving RVQoE reporting forever, i.e., once the deactivation over F1 is triggered, the gNB-CU would never need to transfer the RVQoE measurement results to that gNB-DU. When we consider about one gNB-CU connecting with multiple DUs, if all the DUs have deactivated the F1 RVQoE reporting, then there is no need for the CU to continue the RVQoE again, which means the CU could release the RVQoE measurement configuration over Uu, because all the consumers (DU) do not need the RVQoE reports.

The following proposals are recommended as agreements for clarification on the deactivation behavior of RVQoE reporting over F1.

**Proposal 1: It is a common understanding that once DU triggers the deactivation of RVQoE reporting over F1, the gNB-CU would stop sending the RVQoE results to that gNB-DU forever.**

**Proposal 2: If all the gNB-DUs connected to one gNB-CU has deactivated the RVQoE reporting over F1 interfaces, the gNB-CU should release all the RVQoE measurement configurations.**

**Q7: Do you agree with the above proposals**

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| --- | --- | --- |
| Company | Yes/No | Comments |
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**4.4 Assistance Information**

One Most of the companies agree that the assistance information in this release should be the priority configured by OAM per QoE Reference. There is still one company have strong concern on the OAM providing priority to RAN node. Some companies tend to check with SA5 about the feasibility of OAM configuring priority for RAN overload scenario.

So, Moderator would prefer to send an LS to SA5 to check whether OAM can configure the priority information in the QMC configuration, which could help us make the final decision.

A draft LS has been put into the CB folder.

**Proposal: Send an LS to SA5 to check the feasibility of OAM configuring priority of QoE configuration to RAN node for RAN overload scenario.**

**Q8：Please share your comments on the above proposal and the draft LS in the CB folder. Revisions on the LS are welcome.**

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| --- | --- |
| Company | Comments |
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Please comment here if you think anything is missed:

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| Company | Comments |
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# **3 Discussion (1st round)**

**3.1 Incoming LSes**

There are two incoming LSes received from other WGs in this CB:

|  |  |  |
| --- | --- | --- |
| [R3-231111](file:///D:\\会议硬盘\\TSGR3_119bis-e\\Docs\\R3-231111.zip) | LS on buffer level threshold-based RVQoE reporting (RAN2, Apple) | LS in |
| [R3-231123](file:///D:\\会议硬盘\\TSGR3_119bis-e\\Docs\\R3-231123.zip) | LS on Approval of eQoE CRs for NR (SA5, Ericsson) | LS in |

R3-231111[1] is an LS cc RAN3, which is purposed to ask SA4 whether APP layer triggering of buffer level threshold-based RVQoE reporting can be supported. But there are some papers in RAN3 showing concern on how threshold-based triggers is used, it is supposed that RAN3 can also have some discussion on this issue, and whether a LS out to RAN2 and/or SA4 is needed can be further discussed at this meeting. **But before we receive the confirmation from SA4, it is suggested that we do not make any assumption like threshold-based trigger is handled in APP layer.**

R3-231123[2] is an LS from SA5 to inform us specification updates on NR QMC, including the completion of Signalling Based Activation with MDT Alignment Information and RAN visible QoE Metrics in 28.404. There seems no problem from RAN3 perspective.

**Proposal 1: The LSes (R3-231111 and R3-231123) can be simply noted.**

**Proposal 2: Whether an LS out related to threshold-based trigger can be further discussed at this meeting based on RAN3 understanding.**

**Question 1: Do you agree with the above proposals?**

Pls leave your comments here.

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | **Yes** | We should send an LS asking RAN2 to specify in RRC signalling **the buffer level threshold** for RVQoE reporting **expressed in terms of remaining playout time of the content currently in the buffer.** |
| Qualcomm | Yes | We should provide guidance to RAN2 on how this buffer level threshold is to be represented. |
| Huawei | Yes | Reword P2 “Whether an LS out related to threshold-based trigger **is needed** can be further discussed at this meeting based on RAN3 understanding.” |
| CATT | Yes | P1 is agreeable. For P2, we do not think there is need to send LS out because our understanding is aligned with RAN2. |
| Samsung | Yes | Share view with CATT. Note that RAN2 has sent an LS to SA4 and ask SA4 to confirm whether the APP layer threshold-based trigger is feasible. |
| China Unicom | Yes | We should send LS to RAN2 based on RAN3 understanding. |
| Xiaomi | Yes |  |
| Nokia | Yes |  |
| ZTE | Yes | We are fine to further discuss whether an LS out related to threshold-based trigger is needed. |

**Summary:**

**All companies agree with the proposals, i.e., to note the LSes, and further discuss whether an LS out related to threshold-based is needed.**

**Proposals to chair notes:**

**P1: The LSes (R3-231111 and R3-231123) are noted.**

**P2: Further discuss whether an LS out on threshold-based trigger is needed at this meeting, based on RAN3 understanding.**

**3.2 Triggers for RVQoE reporting**

3.2.1 threshold-based trigger

*Introduce buffer level as a threshold-based trigger for RVQoE reporting*

*Do not introduce the threshold-based trigger for reporting playout delay for media startup*

Some contributions[4][5][8] provide their discussion on threshold-based trigger this time. Although this issue is quite depended on the discussion on other WGs, e.g., RAN2, SA4. It is no harm that RAN3 have some discussion and provide our understanding to other WGs if we can achieve some consensus.

A common issue that has been mentioned in [4][5][8] is whether periodic RVQoE reporting and threshold-based RVQoE reporting can co-exist.

[4] proposes that ran-VisiblePeriodicity (reporting periodicity) should not be configured in case threshold-based triggers are used for reporting RVQoE metrics (e.g., buffer level).

[8] holds a similar view that RVQoE threshold-based trigger feature and RVQoE reporting periodicity feature should not be activated at the same time.

[5] tends to support that periodic RVQoE reporting has been configured together with threshold-based RVQoE reporting —— when threshold-based RVQoE reporting starts, the reports start to be sent immediately, and are sent periodically.

**Question 2: Do you think periodic reporting for RVQoE can be configured together with threshold-based trigger?**

Note: the question is meant for the same RVQoE configuration.

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| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | What does this mean? | If the question is whether the threshold-based trigger results in sending only one RVQoE report OR it results in periodic reporting, we would say the latter. In this case, **when threshold-based RVQoE reporting starts, the reports start to be sent immediately, and are sent periodically with RVQoE-specific periodicity.**  If the question is whether we can have periodic reporting and then also and active threshold-based trigger waiting to be triggered, we think that this should be allowed.  Moderator’s reply:  The question was meant for the case you mentioned in the second paragraph. I suppose E///’s answer is Yes. |
| Qualcomm | See comments | When threshold-based trigger is met, the following options are possible:   * Option 1: UE should just send only one RVQoE report * Option 2: UE can send multiple RVQoE reports at a certain periodicity. FFS whether RVQoE reporting periodicity defined in Rel-17 can be reused or a new IE is needed.   **We have a slight preference on Option 1** as it is simpler whereas Option 2 introduces more complexities. If Option 2 is considered, RAN3 should also discuss whether to introduce a reportAmount (similar to event triggered RRM) or report periodically till the end of session. We also think that a Time-to-Trigger (TTT) is important to ensure that the threshold is met at least for a certain duration and not was just a momentarily blip. We therefore have the following proposal:  **Proposal: RAN3 should discuss whether to introduce TTT and reportAmount for threshold-based triggers**  Further, we don’t think that the second case mentioned by E/// is needed.  Moderator’s reply:  Agree that when threshold-based trigger is configured, option 1 and option 2 can be further discussed. I suppose QC’s answer to the question above is No.  For the two options, we think it can be modified a bit to make it more clear:   * Option 1: UE should just send RVQoE report only once * Option 2: UE can send RVQoE reports at a certain periodicity. FFS whether RVQoE reporting periodicity defined in Rel-17 can be reused or based on other periodicity information.   Note that this actually depends on the SA4 response on whether the threshold-based trigger can be supported in APP layer. |
| Huawei | No | These two features are contradicting to each other. We can’t guarantee a periodic report if in the meanwhile we need to evaluate the threshold. |
| CATT | Yes | After triggered by threshold, RVQoE report is sent periodically. |
| Samsung | No | Either periodic or threshold-based is allowed to be configured, but not for both simultaneously for simplicity. |
| China Unicom | See comments | If the periodic and threshold-based trigger are all configured to the application layer, only one configuration is clear.  If the periodic is configured to the application layer, the threshold-based trigger condition is configured to the UE AS layer to avoid to much overhead in Uu interface, then both of these two configurations are needed. |
| Xiaomi | See comments | We agree with QC that there’re two options for threshold-based trigger, but we feel that we need to check with SA4 with this, considering UE application layer measurement is different from the AS measurement. |
| Nokia | No | Agree with QC and Samsung |
| ZTE | No | For the last case mentioned by E///, we share the view with QC that there is no need to support this case, which is from the perspective of RVQoE configuration.  For the other case that when threshold-based trigger is configured, whether the UE should report periodically or once, we also prefer option 1 mentioned by QC. The periodic reporting and threshold-based reporting should not be mixed together.  So, at least we could have the following proposal:  **The periodic RVQoE reporting and threshold-based trigger for RVQoE reporting should not be allowed to be activated together in a RVQoE configuration.** |

**Summary:**

**On the question of whether periodic reporting for RVQoE can be configured together with threshold-based trigger:**

**Yes: 2/9**

**No: 5/9**

**Not sure: 2/9**

**On the question raised in the comments about when threshold-based trigger is met, how the RVQoE report is sent, companies are open to discuss the two options.**

**Proposals to chair notes:**

**P3: WA: The periodic RVQoE reporting and threshold-based trigger for RVQoE reporting should not be allowed to be activated together in a RVQoE configuration.**

**P4: Further discuss how to report RVQoE results when the threshold-based trigger is met:**

* **Option 1: UE should just send RVQoE report only once**
* **Option 2: UE can send RVQoE reports at a certain periodicity. FFS whether RVQoE reporting periodicity defined in Rel-17 can be reused or based on other periodicity information.**

**P5: Further discuss whether to introduce TTT and reportAmount for threshold-based triggers.**

Other detailed issues on threshold-based trigger have also been discussed in the papers mentioned, including:

- Whether NG-RAN node can indicate a Time-to-Trigger (TTT) for reporting buffer level, in addition to the threshold. [4]

- Whether and how to stop trigger-based RVQoE reporting. [5]

- Two types of threshold evaluation: a) Report buffer level if greater than a threshold b) Report buffer level if less than a threshold. [8]

**Considering the above issues is depended on the discussion of the Question 2 and probably related to the progress of other WGs, they would NOT be discussed in the first round.**

3.2.2 Event-based trigger

The event-based trigger for RVQoE reporting has been discussed for several meetings but still has no consensus.

[5] supports RVQoE reporting triggered by a radio related event (as defined in TS 38.331), holding the view that it may be useful for optimization of mobility related decisions.

While [3][4][8][9] shared negative opinions on the event-based triggers for RVQoE. The reasons can are summarized as follows:

- it would bring higher UE complexity in UE APP or UE AS layer.

- post-processing in the MCE and RAN already suffice.

- threshold-based triggers may also be used to detect mobility events.

**Question 3: Are you convinced that radio related event triggers can be introduced for mobility optimization?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | **Yes** | Please note that the proposal **pertains to RVQoE**. Radio related events have a great impact on RVQoE. We should be able to measure RVQoE only at “interesting” times, rather than during the entire session. From the UE perspective, isn’t it less cumbersome to measure only when event-based trigger is fulfilled, compared to measuring during the entire session? |
| Qualcomm | No | We already have defined threshold-based triggers to measure RVQoE only at “interesting times”.  Regarding E///’s comment “*From the UE perspective, isn’t it less cumbersome to measure only when event-based trigger is fulfilled, compared to measuring during the entire session?*”  🡪 event based triggers might save a little Uu overhead by reporting RVQoE only during interesting times, but UE has to measure during the entire session anyway for encapsulated-QoE reporting. So there is no savings unless event based triggers also somehow avoids encapsulated-QoE measurements.  Also, if threshold-based trigger is agreed to be evaluated at UE APP (as is RAN2 preference) and we define a radio-based event trigger which needs evaluation at UE AS, this is just making it more complex with threshold/event evaluation at two different places in the UE. |
| Huawei | No | Due to the disadvantages listed by the moderator, we are not very excited to introduce event based triggers for mobility optimization. |
| CATT | No |  |
| Samsung | No | Share view with QC. |
| China Unicom | No | Considering the UE complexity in UE APP or UE AS layer, the event based trigger for mobility optimization may not so valuable. |
| Xiaomi | Yes but | Considering the time left, we think it’s hard to support event-based trigger in R18, but we still believe the mobility event trigger brings benefits and can be further considered maybe in the future. Threshold based trigger cannot be used to detect mobility events, as not all the handover will lead to bad QoE, if the gNB can be aware of QoE during UE’s handover, it would be helpful for mobility related parameter optimization, and it can also ensure UE’s experience during mobility. |
| Nokia | No |  |
| ZTE | No | Share the view with Qualcomm and China Unicom. |

**Summary:**

**Yes: 2/9**

**No: 7/9**

**Proposal to chair notes:**

**P6: Radio-related event triggers for RVQoE reporting is not supported in Rel-18.**

**3.3 DU participation in RVQoE**

3.3.1 Deactivation of RVQoE reporting

*Introduce the deactivation of RAN visible QoE information transfer via F1. No need to introduce pause/resume mechanism in Release 18.*

The deactivation of RVQoE reporting over F1 has been agreed at last meeting. [4][5][6][7][9] provides further discussion on the deactivation mechanism over F1. Based on the contributions, the basic understanding is that DU should send an indication to CU that the RVQoE reporting over F1 can be deactivated. The detailed procedure and signaling design should be discussed at this meeting, e.g., whether to use a class-1/class-2 message and whether to reuse an existing message or define a new message [4].

[5] proposes a new class-2 F1AP UE-associated procedure to control the transfer of RVQoE information from the CU to the DU.

[7] would like to Enhance the F1 SETUP REQUEST message to enable the gNB-DU to provide a deactivation indication.

[9] prefers to add the deactivation indication for RVQoE reporting over F1 in the GNB-DU CONFIGURATION UPDATE message.

In [6], it is proposed that the gNB-CU should take the control of the deactivation of QoE information transfer, instead of gNB-DU. The gNB-CU can decide whether to deactivate the QoE information transfer based on the need information from gNB-DU.

**Question 4: How to define the procedure for deactivation of RVQoE reporting over F1AP, e.g., class-1 or class-2? reuse legacy procedure or define a new procedure?**

|  |  |  |  |
| --- | --- | --- | --- |
| Company | Class-1 or Class-2? | Legacy or new procedure? | Comments |
| **Ericsson** | Class-2 | New | UE-associated. |
| Qualcomm | Class-2 | Depends on UE associated or non-UE associated (see comments) | Regarding UE associated vs. non-UE associated:  Can we get clarification on why a gNB-DU might no longer be interested in receiving RVQoE reports over F1AP **for only certain UEs?** If this is for overload purpose, shouldn’t the gNB-DU deactivate the RVQoE reports for all UEs? Or is this meant to selectively deactivate (e.g., deactivate RVQoE report from only those UEs which send RVQoE report very frequently)?  We are OK with defining a new procedure and using UE associated signaling if clarification is provided for the above. |
| Huawei | Class 2 | Both can work | Both new procedure and legacy procedure can work. We see no need for a response message in this case. The DU knows the CU deactivates the reporting by not receiving RVQoE reports any more. |
| CATT | Class 2 | either | Agree with HW |
| Samsung | Class 2 | No strong view |  |
| China Unicom | Class 2 | Both are OK |  |
| Xiaomi | Class 2 | New | Prefer UE-associated which is more flexible |
| Nokia | Class 1 | Legacy | We can’t see there is any clarification of why we need a UE associated procedure. |
| ZTE | Class-2 | Legacy | Non-UE associated.  There is no reason for DU to ask for the deactivation of RVQoE only for some UEs.  We prefer to reuse GNB-DU CONFIGRUATION UPDATE procedure, which is a non-UE associated class-2 procedure. |

**Summary:**

**Class-1: 1/9; Class-2: 8/9.**

**New procedure: 2/9; Legacy procedure: 2/9; both ok: 4; Depends: 1.**

**According to the comments, it should be clarified in the second round that whether a UE-associated or non-UE associated signaling is needed.**

**Proposals to chair notes:**

**P7: A class-2 procedure should be used for DU to deactivate the QoE reporting over F1.**

**P8: FFS whether a UE-associated or non-UE associated signaling is used, and whether to reuse legacy procedure or define a new procedure.**

**Question 5: Do you think it should be the CU to take control of the deactivation of RVQoE reporting over F1, i.e., DU only provides a suggestion/requirement to deactivate RVQoE reporting.**

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| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | **No** | The DU should have the upper hand here. Why should the CU force the DU to receive the RVQoE reports? |
| Qualcomm | No | DU can decide whether or not it wants the RVQoE reports |
| Huawei | No | The idea was letting DU who is the real consumer to have a final say. |
| CATT | No | Agree above |
| Samsung | No |  |
| China Unicom | No | DU can take control of the deactivation of RVQoE reporting over F1 |
| Xiaomi | See comments | The intention is trying to align the activation and deactivation control of RVQoE transfer over F1AP. We agree that CU should not force DU to receive RVQoE information, but when we saying deactivation, it indicates that the RVQoE transfer over F1AP is already activated by CU. To our understanding, it seems strange that CU is responsible for activating RVQoE transfer over F1AP while DU is responsible for deactivating RVQoE transfer over F1AP.  If RAN3 agrees that DU is responsible for deactivation, DU should also be responsible for activation.  Moderator’s reply:  Our understanding is, the reason why it is CU to activate the reporting of RVQoE over F1 is because the RVQoE reports is received by the CU. As the consumer of RVQoE report, it should be the DU to trigger the deactivation of RVQoE reporting over F1. |
| Nokia | No |  |
| ZTE | No |  |

**Summary:**

**Yes: 1/9**

**No: 8/9**

**Proposal to chair notes:**

**P9: It should be DU to take control of the deactivation of RVQoE reporting over F1.**

3.3.2 RVQoE configuration

The DU participation of RVQoE configuration is mentioned in [4][5][9].

[5] supports to Introduce a new class-1 UE-associated F1AP procedure) initiated by the CU, where:

-The CU indicates to the DU the available RVQoE metrics and the intended reporting periodicity.

-The DU indicates to the CU its preferred available RVQoE metrics and its preferred reporting periodicity.

While [4] provides the view that there is no need for gNB-DU to participate in assembling the RVQoE configuration.

[9] thinks the DU participation in RVQoE configuration can be further discussed.

**Question 6: Do you think the DU participation in RVQoE configuration should be supported?**

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| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | **Yes** | One of the main motivations for introducing the RVQoE concept is scheduling optimization. The scheduler sits at the DU, and the DU should at least be able to express its preferred RVQoE configuration, while the CU would still generate it. **The principle that the consumer should be able to participate in the RVQoE configuration has already been agreed for the NR-DC scenario.** **Why shouldn’t the same principle hold here?** |
| Qualcomm | Not sure | **To Ericsson**: In NR-DC, if MN-DU and SN-DU expresses different preferences to CU, which preference is taken into consideration by CU? Isn’t this a similar concern raised by you on the priorities by different consumers? |
| Huawei | No | Same concern as QC |
| CATT | No |  |
| Samsung | No |  |
| China Unicom | No |  |
| Xiaomi | Yes | If DU is responsible for activation and deactivation of RVQoE transfer over F1AP, it can also require the RVQoE metrices it interested for scheduling. |
| Nokia | No |  |
| ZTE | Maybe yes | DU can provide some configuration as a reference. |

**Summary:**

**Yes: 3/9**

**No: 5/9**

**Not sure: 1/9**

**There is no consensus.**

**Proposal to chair notes:**

**P10: The DU participation in RVQoE configuration is not supported in Rel-18.**

**3.4 Assistance Information for RAN overload**

*In case assistance information for handling of QoE reporting upon RAN overload is sent to the RAN, it is sent together with QoE measurement configuration. RAN3 to further discuss what the assistance information is. From RAN3 perspective, there is no need to send assistance information to UE.*

Among all the contributions, [3][4][8][9][11] agree that priority can be introduced as an assistance information per QoE reference.

1. suggests RAN3 further discuss whether assistance information for handling of QoE reporting upon RAN overload should include the type of consumer that will receive the QoE reports, or some characteristics of the consumers. However, it is mentioned in [8] that although the OAM is not the only consumer, other consumers can participate in setting the assistance information in an implicit way.

**Question 7: Do you think priority can be introduced as assistance information from OAM per QoE reference?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | **No** | As explained x times before, it is not the OAM, but the consumers that know the “importance” of every measurement, and each consumer may have a different view on the priorities, resulting in difficulties to compare different priorities of different configurations. |
| Qualcomm | Yes | Regarding E///’s comment, we have a few questions/comments:   1. Who are these consumers other than OAM/MCE? Can you please point to current specification texts where this QoE report is used by other consumers? 2. Even if there are other consumers, can we establish the following principles as also partly mentioned in Huawei’s paper:  * OAM initially sets the priorities for different QoE configurations per QoE Reference * Other consumers can check the current priorities set by OAM * If these consumers are not satisfied with the current priority, they can simply let OAM know and ask OAM to configure a new QoE measurement with a higher priority * In case of conflict from different consumers, it is up to OAM to decide the final priorities * Even if OAM configures gNB with priorities of QoE configuration as assistance, **it is still upto gNB implementation on how to use this assistance information**   We can even send an LS to SA5 with the above principles to check if this is feasible and makes sense. |
| Huawei | Yes | In our view, the assistance information should be priority information. We are open to discuss what other type of assistance information can be. This does not contradict to what E/// is saying. There can be other consumers, but the main consumer is OAM for sure. |
| CATT | Yes | Priority can be introduced as assistance information from OAM to RAN for management-based QoE. and from CN to NG-RAN for signaling-based QoE. |
| Samsung | Yes | If the consumer is OAM/MCE, then OAM is able to provide the priority information in a unified way. |
| China Unicom | Yes | The assistance information should be priority information. If there are different consumer, the priority can be coordinate between different consumer, and finally send by the OAM. |
| Xiaomi | No strong view | Although we think the priority can be expressed by the content of QoE reference by OAM implementation, we’re open to introduce assistance info if this is the requirement from operators. And agree to check with SA5. |
| Nokia | Yes |  |
| ZTE | Yes | We believe that OAM should have a say on the priorities of different QoE configurations. Agree to check with SA5, if companies have concern on whether other consumers should configure the priority. |

**Summary:**

**Yes: 7/9**

**No: 1/9**

**No strong view: 1/9**

**There is still one company have strong concern on the OAM providing priority to RAN node. There companies tend to check with SA5 about the feasibility of OAM configuring priority for RAN overload scenario.**

**Proposal for chair notes:**

**P11: Send an LS to SA5 to check the feasibility of OAM configuring priority of QoE configuration to RAN node for RAN overload scenario.**

**Question 8: Do you think the type of consumer that will receive the QoE reports, or some characteristics of the consumers can be introduced as assistance information from OAM?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| **Ericsson** | **Yes** | Different consumers have different ambitions – some aim at optimizing the network in semi-static way, some aim at more dynamic optimization. This is reflected, e.g., in how often the reports are sent. These properties should be considered as the assistance information.  For example, one consumer may have a policy that “*QoE reporting for VR is prioritized compared to QoE reporting for legacy DASH streaming*” and another consumer’s policy could be that “*QoE reporting for network slice 1 is prioritized over QoE reporting for network slice 2*”. If we assume that, during RAN overload, there are, e.g.:   * VR users on slice 1. * VR users on slice 2. * DASH users on slice 1. * DASH users on slice 2.   According to “*VR is of higher priority than DASH*” all the VR users have high priority compared to DASH. According to “*slice 1 higher priority than slice 2*”, DASH users on slice 1 have higher priority than VR users on slice 2. Then the question is: which priority prevails, the slice-based on or the service type-based one? |
| Qualcomm | Not clear | How would just including the “type of consumer” help gNB? A gNB might not even know what these consumers are and how to interpret them? |
| Huawei | No | How does information like type of consumer will work? RAN knows there are different types of consumers, and then what? Such information is meaningless to RAN in case of overload scenario.  I assume [5] means OAM is not the only consumer, which is true. Other consumers can participate in deciding the assistance information, but it is finally OAM to take the request of other consumers into account and send the assistance information. |
| CATT | No | NG-RAN is not interested in the consumer type and do not know how to configure QoE for different consumer. Priority is enough for NG-RAN to handle QoE reporting upon RAN overload. |
| Samsung | No | Share view with CATT. |
| China Unicom | No | The OAM should be the only node to send the assistant information, and MCE should be the only node to receive the QoE report. |
| Xiaomi | No | This is R17 leftover, prefer to focus on the basic needs from operators. |
| Nokia | No |  |
| ZTE | No | Share the view with Xiaomi. |

**Summary:**

**Yes: 1/9**

**No: 7/9**

**Not clear: 1/9**

**Most companies are not convinced of the necessity and benefit of sending consumer information to the RAN node.**

**Proposal to chair notes:**

**P12: There is no need introduce the type of consumer that will receive the QoE reports, or some characteristics of the consumers can be introduced as assistance information from OAM.**

**Note:**

- Some issues in companies’ contributions are not listed in the SoD, which are out of the scope of this CB, e.g., intra-5GC inter RAT handover, failure indication.

- Text Proposals and LSes would be handled in the second round if we can achieve consensus.

- Please leave it below if you think anything was missed:

|  |  |
| --- | --- |
| Company | Comments |
|  |  |
|  |  |
|  |  |

# **4 Conclusion, Recommendations**

See section 2.

# **5 References**

[1] R3-231111 LS on buffer level threshold-based RVQoE reporting (RAN2, Apple) LS in

[2] R3-231123 LS on Approval of eQoE CRs for NR (SA5, Ericsson) LS in

[3] R3-231321 Discussion on Left-over issues (CATT) discussion

[4] R3-231347 Enhancements to RAN visible QoE (Qualcomm Incorporated) discussion

[5] R3-231489 (TP for QoE BL CR for TS 38.473) Enhancements of Rel-17 QoE and RVQoE Features (Ericsson) other

[6] R3-231521 Discussion on RVQoE information (TP to BL CR TS 38.473 Enhancement on NR QoE) (Xiaomi) discussion

[7] R3-231627 (TP for BL CR to TS 38.473) Deactivation of RAN visible QoE information transfer via F1 (Nokia, Nokia Shanghai Bell) other

[8] R3-231762 Further discussion on the support of R17 left-over features (Huawei) discussion

[9] R3-231779 Discussion on left-over issues from R17 (ZTE, China Unicom, China Telecom) discussion

[10] R3-231780 TP to BL CR of 38.473 on NR QoE enhancement (ZTE, China Unicom, China Telecom) other

[11] R3-231831 Further discussion on assistance information when RAN overload (China Unicom) discussion