3GPP TSG-RAN WG3 #119bis-e R3-231873

Online, Apr 17th – Apr 26th, 2023

**Agenda item: 14.2**

**Source: Huawei (rapporteur)**

**Title: Summary of offline discussion for** **CB: # SONMDT6\_MDT**

**Document for: Discussion**

# 1 Introduction

This document contains the summary of offline discussion for the following CB:

**CB: # SONMDT6\_MDT**

**- Priority handling for signalling logged MDT configuration between different RAT type?**

**- Cross-RAT logged MDT reporting?**

**- Signalling based immediate MDT in NR-DC?**

**- Check details of TPs**

(moderator - HW)

Summary of offline disc [R3-231873](file:///D:\RAN3\119be\Docs\R3-231873.zip)

Deadline for first round comment: **End of Thursday online session.**

# 2 Proposals for chair notes.

Proposals for agreements:

**Proposal 1: RAN3 confirms that the scenarios for inter-RAT signalling based logged MDT protection includes the following:**

**Scenario 1: Inter-system inter-RAT : EPC –> 5GC**

**Scenario 2: Intra-system Inter-RAT and intra-5GC: LTE –> NR**

**Proposal 2: RAN3 confirms that NR requested M-based logged MDT should never override LTE s-based logged MDT.**

**Proposal 3: Discuss the draft LS in R3-23xxxx in second round to ask the feasibility of the new indicator to SA5.**

OAM provides an LTE S-based logged MDT protection indicator to gNB and cause value on NGAP for NR Signalling based logged MDT failure indication?

No consensus.

# 3 Discussion

## Issue 1: Signalling based MDT override protection

In R3-231711, a couple of proposals are made for enhancement to signalling based MDT override protection.

**Proposal 1:** **RAN3 to confirm the scenarios for inter-RAT scenario for signalling based logged MDT protection including the following:**

**Scenario 1: Inter-system :EPC –> 5GC**

**Scenario 2: Intra-system Inter-RAT and intra-5GC: LTE –> NR**

**Scenario 3: Intra-system Inter-RAT and intra-EPC: eNB –> en-gNB**

**Question 1: Are the scenarios above agreeable?**

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| --- | --- | --- |
| **Company** | **Answer to above question** | **Comments** |
| CATT | yes |  |
| Qualcomm | Yes, but.. | RAN2 is designing a UE based solution where UE reports LTE logged MDT availability indication to NG-RAN node to avoid m-based MDT overwriting already configured s-based MDT. With this UE based solution, **do we even foresee any impacts to RAN3 specs for scenarios 1-3?** |
| Samsung |  | We are not sure if we need to distinguish. It seems during the WID discussion, the scenarios are already discussed? |
| Ericsson | Not entirely | Inter System EPC->5GC includes an E-UTRAN to E-UTRAN scenario that is not covered in the WID, hence it is out of scope  Intra System eNB->en-gNB does not seem a valid scenario in this context because a UE cannot establish a connection to an en-gNB, it will have to first connect to an eNB. Hence this seems also out of scope |
| Huawei |  | Same view as Ericsson.  The scenarios in proposal 1 is not clear.  For example, at least scenario 3 is not inter-RAT. It is intra-RAT although it is inter-system.  I remember that RAN3 has agreed to follow the scope of WID?? |
| Nokia | No | The scenario in the WID is inter-system (EPS -> 5GS) inter-RAT where the UE reselects to an NR cell while it previously camped on an EUTRA cell. |
| Lenovo | No | We should follow the scenarios included in the WID. |
| ZTE | Yes with modify | 1: Scenario 1 can be further updated to **Inter-system inter-RAT :EPC –> 5GC**  2: Actually Scenario 2 is not clear still in the scope yet based on description of WI scope or based on RAN2 ‘s UE based solution.  From our point of view, it is beneficial to add this scenario into R18 scope to protect more user case.  3: Accept E///’s point, this scenario can be removed.  Response to QC:  RAN2 only provide a mechanism to enable UE provide an indication whether a on-going LTE S-based MDT exist to gNB.  While the gNB receive a S-based MDT from NR, gNB could not aware whether which one should be override.  The possible impact would be OAM may provide an override indication to the gNB. |

Moderator’s summary:

Few companies don't support the proposal. Some companies think that it can be agreed with modification. The moderator would like to try the following proposal:

**Proposal 1: RAN3 to confirm the scenarios for inter-RAT scenario for signalling based logged MDT protection including the following:**

**Scenario 1: Inter-system :EPC –> 5GC**

**Scenario 2: Intra-system Inter-RAT and intra-5GC: LTE –> NR**

**Scenario 3: Intra-system Inter-RAT and intra-EPC: eNB –> en-gNB**

Then, the contribution has the following proposal for priority handling for signalling logged MDT configuration between different RAT type.

**Propose 2:** **NR requested M-based logged MDT should never override LTE s-based logged MDT.**

**Question 2: Is proposal 2 above agreeable?**

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| --- | --- | --- |
| **Company** | **Answer to above question** | **Comments** |
| CATT | Yes | m-based MDT never can override s-based MDT |
| Qualcomm | Yes |  |
| Samsung | Yes |  |
| Ericsson | Yes but | This agreement has been taken in RAN2 and RAN3 is working on it to develop a solution. What would be the purpose of agreeing to this in RAN3? |
| Huawei | yes |  |
| Nokia | Yes but | Agree with E/// |
| Lenovo | Yes |  |
| ZTE | Yes | Response E/// and nokia, RAN2 agreements in Rel-17 only cover NR case. |

**Moderator’s summary:**

**Propoal 2: RAN3 confirms that NR requested M-based logged MDT should never override LTE s-based logged MDT.**

In the end, the contribution proposes the following RAN3 changes for the MDT data override protection issue.

**Proposal 3:** **OAM provides an LTE S-based logged MDT protection indicator to gNB when Operator‘s policy need to protect LTE S-based logged MDT. The indicator should be conveyed from Core network to RAN and propagated during mobility.**

**Proposal 4: A new cause value introduce in NGAP to inform Core network and OAM that** **NR Signalling based logged MDT failed due to protection of LTE ignaling based logged MDT.**

**Question 3: Are proposal 3 or 4 above agreeable?**

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| --- | --- | --- |
| **Company** | **Answer to above question** | **Comments** |
| CATT | no | No need to set priority for s-based MDT in different RAT.  If a UE is configured s-based MDT in NR, it means the performance of this UE in NR-RAN is not good, the OAM of NR want to trace it.  If a UE is configured s-based MDT in E-UTRAN, it means the performance of this UE in E-UTRAN is not good, the OAM of LTE want to trace it.  So, they are for different purpose, we cannot say which one is more important, no reason for us to set the priority for s-based MDT in different RAT. |
| Qualcomm | No | Similar view as CATT. No need to set priorities/policies for LTE s-based MDT vs. NR s-based MDT. It is also possible that LTE and NR has different OAM; so each of them might want their s-based MDT to have the highest priorities thereby creating conflict.  Once we resolve how to handle multiple trace sessions in the other CB, this can be handled automatically at the gNB |
| Samsung | No |  |
| Ericsson | No | We assume that OAM systems will need always to be coordinated about how to configure MDT at the UE. Hence it will be up to the operator to setup policies to ensure which MDT configuration is triggered |
| Huawei | Yes for P3 | P4 seems not needed. |
| Nokia | no | The UE will indicate that it has s-based logged MDT configured, and we expect this information is used by the gNB to avoid selecting this UE for m-based logged MDT. So there should be no RAN3 impact. |
| Lenovo | No | Agree with Nokia. |
| ZTE | Yes for both | OAM coordination can not guaranteed for inter-system scenario.  For P3, it is RAN2 ‘s requirement for RAN3, please check RAN2’s last meeting minutes.  RAN2 only provide a mechanism to enable UE provide an indication whether a on-going LTE S-based MDT exist to gNB.  While the gNB receive a S-based MDT from NR, gNB could not aware whether which one should be override.  The possible impact would be OAM may provide an override indication to the gNB. |

Moderator summary:

**No consensus.**

The contribution also proposes to send a LS to inform other groups.

The LS out and TPs will be treated in 2nd round if above proposals are agreed.

## Issue 2: Signalling based immediate MDT in NR-DC

In R3-231744, it states that due to lack of consensus on introducing an explicit indication “MN Only” from OAM to direct the gNB as MN to forward the *MDT-Configuration NR* IE to another gNB as SN in NR-DC case and companies think that confirmation from SA5 is needed.

Therefore, it is proposed to send a LS to SA5 for confirmation on the issue and the need of the indication.

The contents of the draft LS are cited here for collecting comments.

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| --- |
| 1 Overall description In MR-DC case, and in signalling based MDT, the NG-RAN node may receive two MDT configurations from AMF via NGAP which are coming from OAM originally, one for MN and onefor SN. They are named as *MDT-Configuration NR* IE and *MDT-Configuration E-UTRA* IE in TS 38.413. And the MN will forward the second MDT configuration to the SN if received in MR-DC case.  However, in NR-DC case, only one *MDT configuration-NR* is configured to MN. There is ambiguity in NGAP spec that whether the gNB is allowed to initiate the MDT task towards SN for the UE.  RAN3 thinks that an indication from OAM is necessary to direct the gNB to forward the MDT configuration to SN for signalling based MDT in case of NR-DC.  RAN3 would like SA5 to confirm that support of signalling based MDT in NR-DC is need and whether an explicit indication from OAM to direct the gNB to forward the MDT configuration-NR to SN is needed or not. 2 Actions **To** SA5  **ACTION:** RAN3 kindly asks SA5 to feedback on above issue. |

Please provide your comments on the draft LS above below or in the draft in the draft folder directly.

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| --- | --- |
| **Company** | **Comments** |
| **CATT** | From the perspective of OAM, it only has the demands of measuring LTE cell or NR cell. If LTE network is not good and need to measure, it will use MDT configuration E-UTRA. If LTE network is not good and need to measure, it will use MDT configuration NR. If both RAT need to measure, OAM will send both.  The procedural text about DC is only use for clarification one possible case if NG-RAN node receives a invalid RAT configuration, not to say gNB must identify the configuration is for MN or SN.  **Several concerns:**  1. OAM not know whether UE is in DC, so why the OAM will have the demand of identifying “MN only”  2． In FR1 with FR2 NR-DC case, which measurement threshold will be different in MDT configuration NR? And whether OAM can know the FR1 is MN or SN? |
| Qualcomm | We support to enhance MDT Configuration to include indicators such as “MN only”, “SN only”, “Both MN and SN” to identify which node should perform MDT configurations in case of NR-DC. We can try to make this decision in RAN3. If not, we can even LS SA5 asking whether such requirement makes sense and its feasibility. |
| Samsung | Agree with CATT. We think it is not RAN3 business to decide OAM configuration. At least, need to contact SA5 about whether it is needed, instead of notifying the “decision”. |
| Ericsson | We are in line with Qualcomm and we support an MN-only, SN-only or both indications for MDT.  The justification is that an operator may want to use MDT to monitor the PCell coverage layer only, or the PSCell coverage layer, or both. It is useful to be able to distinguish between these layers to trigger collection of data that are really needed. In absence of this, collection from MN and SN will be triggered, which implies a higher data ingestion. This is more complex for no reasons. |
| Huawei | Reply to CATT’s concerns:   1. The OAM does NOT need to know whether the UE is in DC or not. But the OAM needs to tell the NG-RAN what should do in case of DC. We have clarified this question too many times. 2. With this indication, the OAM can restrict the MDT data only be collected in MN. Because if DC happens in FR1 and FR2, the MDT measurement threshold configured for FR1 will be used in FR2 which may lead to quit a lot of useless data, but the OAM cannot realize that issue and lead to bad diagnosing and optimization outputs.   We also support the proposal from QC. |
| Nokia | OK for “MN only”, which would be sufficient. However the proposed stage 3 is strange – the indicator should not be conditional but optional. LS to SA5 is not needed. |
| Lenovo | Similar view as QC. |
| ZTE | We are fine with ‘MN only’. |
| Deutsche Telekom | We support to introduce “MN only”, but if a majority of companies think that an extension to 3 values in the enumeration makes sense we are also fine with it. |

Moderator’s summary:

Option 1: 1 value indication: “MN only”

Option 2: 3 values indication: “MN only”, “SN only”, “Both MN and SN”

The moderator thinks that there are much more concerns for option 2 in the past discussion. And option 1 is the simplified solution as a compromise which seems can be accepted by more companies. And even for option 1, few companies still think that SA5 confirmation is needed.

Based on above, the moderator proposes:

**Proposal 3: Agree the draft LS in R3-23xxxx.**

# 4 Conclusion

# 5 Reference

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| [R3-231711](file:///D:\RAN3\119be\Docs\R3-231711.zip) | (TPs for MDT BLCRs for TS 38.413)MDT Enhancements (ZTE) | other |
| [R3-231744](file:///D:\RAN3\119be\Docs\R3-231744.zip) | (TP for MDT BL CR for TS 38.413): Signalling based immediate MDT in NR-DC (Huawei, Deutsche Telekom, Orange, China Telecom, CMCC) | other |