3GPP TSG-RAN WG3 Meeting #125 R3-244731

Maastricht, NL, 19 - 23 August 2024

Agenda Item: 10.4

Source: Lenovo (moderator)

Title: Summary of SON/MDT for leftovers

Document for: Approval

# Introduction

This CB would mainly discuss the leftovers in Rel-18 SON/MDT:

* MRO for MR-DC SCG failure
* RACH optimization for SDT
* MHI Enhancement for SCG Deactivation/Activation

# For the Chairman’s Notes

Propose to capture the following:

MRO for MR-DC SCG failure

**Proposal 1: Take Stage 2 descriptions of PSCell change failure in TS37.340 as baseline for EN-DC SCG failure, and necessary updates can be added on top of it if needed.**

**Proposal 2: Introduce stage 2 descriptions of PSCell change failure in EN-DC in TS36.300. Check/agree TP in R3-244461.**

**Proposal 3: Introduce SCG FAILURE INFORMATION REPORT and SCG FAILURE TRANSFER over X2 interface.**

**Proposal 4: Include IEs in SCGFailureInformationNR message in SCG Failure Information Report message. Check/agree TP in R3-244225.**

# Discussion

Note: Check RAN2’s progress on Wednesday morning before discussion in RAN3.

## MRO for MR-DC SCG failure

In RAN3#123bis meetig, we agreed to keep R18 agreement in R19 to support MRO for SCG failure in EN-DC, NGEN-DC and NE-DC scenarios, and an LS was sent to RAN2 on the feasibility to support MRO for SCG failure in R19.

RAN2#126 meeting discussed the LS from RAN3, and agreed that [1]

* Reply to RAN3 that we will only do EN-DC. RAN2 understands that whether also supporting (NG)EN-DC has no additional RAN2 impact hence RAN3 can decide. If later we get time we can consider other options.

### MRO for SCG failure in EN-DC

Based on RAN2 and RAN3’s agreements until now, we can confirm that R19 would specify MRO for SCG failure in EN-DC.

#### Stage 2 impacts

In RAN3#117-e meeting in R18, we agreed that:

Take Stage 2 descriptions of PSCell change failure in TS37.340 as baseline for EN-DC SCG failure, and necessary updates can be added on top of it if needed.

[2] provides the TP for TS37.340 (the updates are related with the issue on how to forward SCG failure information from MN to SN as summarized in Section 3.1.1.3).

**Can RAN3 confirm that “Take Stage 2 descriptions of PSCell change failure in TS37.340 as baseline for EN-DC SCG failure, and necessary updates can be added on top of it if needed”? further check the TP?**

**Moderator summary:**

**Take Stage 2 descriptions of PSCell change failure in TS37.340 as baseline for EN-DC SCG failure, and necessary updates can be added on top of it if needed.**

[3][4][5] propose to introduce stage 2 descriptions of PSCell change failure in EN-DC scenario in TS36.300, and provide the TP for TS36.300.

**Can RAN3 agree to introduce stage 2 descriptions of PSCell change failure in EN-DC in TS36.300? further check the TP?**

**Moderator summary:**

Discuss it online.

**Introduce stage 2 descriptions of PSCell change failure in EN-DC in TS36.300. Check ZTE’s TP.**

#### Stage 3 impacts in Uu

Similar as enhancements for SCGFailureInformation message for NR-DC SCG failure in R17, [3][4][5] propose to enhance SCGFailureInformationNR message in TS36.331, e.g. to include previousPSCellId, failedPSCellId, timeSCGFailure and RA info.

If RAN3 agree these parameters, send an LS to RAN2?

**Moderator summary:**

**RAN2#127 meeting agreed:**

* To support MRO for SCG failure in EN-DC, enhance SCGFailureInformationNR message to include previousPSCellId, failedPSCellId, timeSCGFailure.

**Based on RAN2’s agreement, maybe we can skip this question?**

#### Stage 3 impacts in X2 interface

To transfer SCG failure related information between MN and SN for root cause analysis for EN-DC SCG failure, [2-6] propose to introduce SCG FAILURE INFORMATION REPORT and SCG FAILURE TRANSFER over X2 interface.

**Can RAN3 agree to introduce SCG FAILURE INFORMATION REPORT and SCG FAILURE TRANSFER over X2 interface?**

**Moderator summary:**

**Introduce SCG FAILURE INFORMATION REPORT and SCG FAILURE TRANSFER over X2 interface.**

For EN-DC scenario, since the SCG failure information reported by the UE is encoded in the format of the MN RAT, but the SN is in the different RAT from the MN, if the MN directly forwards the SCG failure information from the UE to the SN, it is impossible for the SN to decode it.

To solve the issue on how to forward SCG failure information from MN to SN over X2, potential solutions are summarized as below:

* **Option 1**: MN decodes SCGFailureInformationNR, and uses an inter-node message (e.g. introduce a new inter-node message or reuse CG-ConfigInfo inter-node message) to forward the SCG failure information.
* **Option 2**: MN decodes SCGFailureInformationNR, and puts the explicit information in X2 message.

**Which Option is preferred?**

**Moderator summary:**

**Include IEs in SCGFailureInformationNR message in SCG Failure Information Report message.**

**Check SS’s TP.**

[6] propose to discuss which node performs final root cause analysis in case of MN initiated PSCell Change?

* If MN performs final root cause analysis, last serving SN selects the next suitable PSCell based on the measResultSCG in SCGFailureInformationNR message, and sends it to MN if last serving SN think there is other RAN nodes needs optimization;
* If SN performs final root cause analysis, MN should provide previous PSCell ID, failed PSCell ID, and timeSCGFailure explicitly to SN for failure type detection.

**Discuss it if offline time allows?**

**Moderator summary:**

Not discussed

### MRO for SCG failure in NGEN-DC

[2] [3] [4] [6] propose to support MRO for NG-ENDC, considering that RAN2 agreed to leave the decision to RAN3 and RAN3 already agreed to support NGEN-DC in RAN3#123bis meeting.

We can first discuss whether to support MRO for NG-ENDC.

**Can RAN3 confirm to support MRO for SCG failure in NGEN-DC scenario?**

**Moderator summary:**

RAN3 already agreed to support MRO for SCG failure in NGEN-DC scenario.

(Note: If we agree to support MRO for SCG failure in NGEN-DC scenario, below issues similar as listed for EN-DC can be further discussed during offline discussion if time allows or online or in next meetings)

#### Stage 2 impacts

In RAN3#117-e meeting in R18, we agreed that:

Take Stage 2 descriptions of PSCell change failure in TS37.340 as baseline for NGEN-DC SCG failure, and necessary updates can be added on top of it if needed.

[2] provides the TP for TS37.340 (the updates are related with the issue on how to forward SCG failure information from MN to SN).

**Can RAN3 confirm that “Take Stage 2 descriptions of PSCell change failure in TS37.340 as baseline for NGEN-DC SCG failure, and necessary updates can be added on top of it if needed”? further check the TP?**

**Moderator summary:**

Not discussed

[4] propose to introduce stage 2 descriptions of PSCell change failure in NGEN-DC scenario in TS36.300, and provide the TP for TS36.300.

**Can RAN3 agree to introduce stage 2 descriptions of PSCell change failure in NGEN-DC in TS36.300? further check the TP?**

**Moderator summary:**

Not discussed

#### Stage 3 impacts in Uu

Similar as EN-DC scenario, [3][4] propose to enhance SCGFailureInformationNR message in TS36.331, e.g. to include previousPSCellId, failedPSCellId, timeSCGFailure and RA info.

If RAN3 agrees these parameters, an LS to RAN2 is needed.

**Can RAN3 agree to enhance SCGFailureInformationNR message for NGEN-DC SCG failure, e.g. to include previousPSCellId, failedPSCellId, timeSCGFailure and RA info?**

**Moderator summary:**

Not discussed

#### Stage 3 impacts in Xn interface

Similar as EN-DC scenario, to solve the issue on how to forward SCG failure information from MN to SN over Xn, potential solutions are summarized as below:

* **Option 1**: MN decodes SCGFailureInformationNR, and uses an inter-node message (e.g. introduce a new inter-node message or reuse CG-ConfigInfo inter-node message) to forward the SCG failure information.
* **Option 2**: MN decodes SCGFailureInformationNR, and puts the explicit information in Xn message.

**Which Option is preferred?**

**Moderator summary:**

Not discussed

### MRO for SCG failure in NE-DC

[3] propose that no RAN3 impact is foreseen for NE-DC.

During offline discussion, we can first discuss whether to support MRO for NE-DC. From moderator point of view, RAN3 should postpone and wait for RAN2 progress since RAN2 agreed to consider NE-DC if later having time.

**Can RAN3 postpone MRO for SCG failure in NE-DC scenario and wait for RAN2 progress?**

**Moderator summary:**

Not discussed

## RACH optimization for SDT

RAN3#124 meeting agreed that:

**There is no need for UE to report SDT configurations, e.g., RSRP threshold, data volume threshold, T319a, and other configurations.**

RAN2#126 meeting agreed that:

* For the purpose of SON enhancements for SDT, include RSRP/data volume related information
* Downlink RSRP value and buffered uplink data volume at the time when the UE evaluates if it should perform SDT.
* When SDT failure happens, the UE can indicate the failure cause of SDT to the network, e.g. T319a expiration. Details are TBD, e.g. if RSRP and data volume can also be included in such report.

Based on agreements achieved so far, companies further discuss which information is beneficial for RACH optimization for SDT. The proposed information that stored and reported in the RA report for SDT are summarized as below:

* a. RSRP when SDT fails [2]
* b. Remaining data volume after SDT transmission [2]
* c. the time from the start of SDT to the reporting of RA report [2]
* d. the time between the RA event and the RA report [3]
* e. CG-SDT related information if the UE is configured with CG-SDT but fails to initiate the CG-SDT [4]
* f. indication regarding that the UE failed to initiate RA-SDT or CG-SDT [7]

**Which information of a)- f) is needed for RACH optimization for SDT?**

**RAN2#127 meeting agreed:**

* Do not add logging of sdt-RSRP-Threshold, since already agreed by RAN3 to not support it.
* UE logs and reports the failure cause for SDT to the network. FFS the details, e.g. if we down select some of the failure causes.

**Moderator summary:**

To discuss it online

## MHI Enhancement for SCG Deactivation/Activation

RAN2#126 meeting discussed MHI Enhancement for SCG Deactivation/Activation, but RAN2 decided to postpone it due to no consensus was achieved.

Since RAN2 is strongly related to MHI Enhancement for SCG Deactivation/Activation, from RAN3 point of view, we can also postpone this topic and wait for RAN2 progress.

**RAN2#127 meeting agreed:**

* It is beneficial for the network to have information about time spent in the PSCell in activated state vs. deactivated state.
* Send an LS to RAN3 to ask if a NW solution is good enough to achieve the agreement above, or if a UE based solution is needed.

**Can RAN3** **postpone MHI Enhancement for SCG Deactivation/Activation and wait for RAN2 progress?**

**Moderator summary:**

Postpone

# Conclusion, Recommendations [if needed]

If needed.

# References

1. R3-244011, Reply LS on support of MRO for MR-DC SCG failure, ZTE
2. R3-244225, Discussion on the support of the leftovers in Rel-18 SON/MDT, Samsung
3. R3-244280, (TP for SON BLCR for 36.300, 36.423) Rel-18 SON and MDT leftovers, Huawei
4. R3-244461, (TP to BL CR for TS 36.300) Rel-18 leftovers, ZTE
5. R3-244309, (TP for SON BLCR for 36.300) Discussion on MRO for MR-DC SCG failure, Lenovo
6. R3-244267, Discussion on SON enhancement for MR-DC SCG failure, CATT
7. R3-244437, Further discussion on RACH optimization for SDT, Ericsson