3GPP TSG-RAN WG3 #120 [R3-2](https://ericsson-my.sharepoint.com/personal/filip_barac_ericsson_com/Documents/WORK/3GPP.exe/Meetings/RAN3%23113-e.exe/Meetings/RAN3%23113/chairnotes/Inbox/R3-214141.zip)323335

May 22 – 26, 2023

Agenda Item: 10.2.1.

Source: Samsung (moderator)

Title: Summary of Offline Discussion on CB: # SONMDT1\_SHRSPR

Document for: Approval

# Introduction

**CB: # SONMDT1\_SHRSPR**

**- Try to make the decision on the solutions as above**

**- Capture agreements and open issues**

**- Other issues if any, e.g., correlation of inter-RAT SHR and RLF**

(moderator – SS)

Summary of offline disc [R3-233335](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\drafts\CB%20%23%20SONMDT1_SHRSPR\Inbox\R3-233335.zip)

# For the Chair’s Notes

# Summary after the first round of offline discussion:

## Issues for agreement

**Stage 2 TP on forwarding mechanism for Intra-RAT SHR and Inter-RAT SHR:**

Take [R3-233188](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-233188.zip) as basis by considering:

* Impact on intra-NR forwarding
* Check whether to have trigger description

Distribute the updated TP for review.

**UE Context retrieval:**

Contents in LS to RAN2:

* RAN3 aims at a common solution for scenarios where configuration used for the UE needs to be retrieved from Rel-18.
* Mobility Information is sent to the UE together with the SHR configuration, the UE includes the Mobility Information back in the inter-RAT SHR
  + The source node decide the Mobility Information (32bit Mobility Information is defined in XnAP).
    - RAN3 see the benefits to use Mobility Information in order to not mandate the source node to save the UE context 48hr after successful HO.
    - Whether there is any issue to include this in the RRC reconfiguration with sync containing Handover Command
    - Is the size problematic?

If the network doesn’t provide the Mobility Information, RAN3 see the benefits to report the source C-RNTI and timer from Handover Command to SHR retrieval.

The LS will be drafted based on above and distribute it for review.

**TP to stage 2 on forwarding mechanism for SPR:**

[R3-232817](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-232817.zip) for TS37.340 for DC related.

[R3-232753](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-232752.zip) for TS38.300: for UE related and non-DC related

**The triggers for SPR should be represented in terms of percentage values (similar to SHR):**

WA: The triggers for SPR should be represented in terms of percentage values (similar to SHR)

Turn the WA to agreement.

**Information to be reported from the UE for SPR:**

Include the following in the LS to RAN2:

* It is RAN3 understanding that the UE can know whether the PSCell change was MN-initiated or SN-initiated based on the current RRC signaling design
* Network needs to know from the SPR whether the PSCell change is MN-initiated or SN-initiated. Explicit and implicit can be decided by RAN2.

At last RAN3#119bis-e meeting, we have the following agreements:

*To assist in the forwarding of SPR, UE may include the following in SPR*

* *CGI of the PCell which sent the SPR configuration (presence of this IE is to be discussed)*
* *WA: Indication whether the PSCell change was MN-initiated or SN-initiated (RAN3 should discuss how the UE knows whether the PSCell change as MN-initiated or SN-initiated and will check with RAN2 on the mechanism)*

Considering we have agreed that “Network needs to know from the SPR whether the PSCell change is MN-initiated or SN-initiated. Explicit and implicit can be decided by RAN2”, the working assumption on *Indication whether the PSCell change was MN-initiated or SN-initiated* can be changed to agreement. Is this the common understanding?

## Open issues to be continued

**Correlation of inter-RAT SHR with RLF Report**

**Option 1:** Support the correlation so that the network can discard SHR if it knows that there was RLF shortly after successful HO.

**Option 1-1:** the source gNB performs the correlation based on target C-RNTI (no additional reporting from the UE is needed).

* UE may/may not reports a correlation indication to indicate whether there is a RLF shortly after a successful inter-RAT HO from NR to LTE

**Option 1-2:** the source gNB performs the correlation based on the source C-RNTI and time information between HO command and SHR retrieval

**Option 1-3:** UE assistance-based option to support the correlation indication for SHR and RLF based on new flag reported within the SHR

**Option 2:** **Postpone correlation of inter-RAT SHR and RLF to Rel-19.**

**Option 3: Do not support SHR and RLF Report correlation**

**Which node decides SPR triggers in MN initiated PSCell change?**

**Option 2: Source SN node decides the T310/T312 triggers and performs root cause analysis 6**

**Option 3: MN decides the T310/T312 triggers and performs root cause analysis, and whether and what information from SN as input needs to be further discussed 6**

**Objective of T304 related SHR/SPR trigger**

# Discussion

For SHR, the following issues will be discussed:

1. Stage 2 TP on forwarding mechanism for Intra-RAT SHR and Inter-RAT SHR
2. UE Context retrieval
3. Correlation of inter-RAT SHR with RLF Report

For SPR, the following issues will be discussed:

1. TP to stage 2 on Forwarding mechanism for SPR
2. The triggers for SPR should be represented in terms of percentage values (similar to SHR)
3. Which Node decides the triggers of T310 and T312 for MN-initiated classic PScell change /CPC
4. Information reporting from the UE
5. Objective of T304 related SHR/SPR trigger

Common:

Potential LS to RAN2 on SHR and SPR

If there is agreement, decide potential TPs (details can be reviewed later).

## SHR

### Stage 2 TP on forwarding mechanism for Intra-RAT SHR and Inter-RAT SHR

The forwarding mechanism has been agreed in previous meetings. TP for capturing the agreement are proposed in [R3-232817](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-232817.zip), [R3-233188](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-233188.zip), [R3-232752](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-232752.zip)

**A question is whether to have subsections for intra-NR SHR and for intra-system inter-RAT SHR?**

Take [R3-233188](file:///D:\3GPP%20Standardization\RAN3\RAN3%23120\Docs\R3-233188.zip) as basis by considering:

* Impact on intra-NR forwarding
* Check whether to have trigger description

### UE Context retrieval for inter-RAT SHR, intra-NR SHR

1. Common solution: Option 1 vs. 2 for retrieval of UE context for intra-RAT SHR/inter-RAT SHR/SPR?

Option 1: UE includes the “Source C-RNTI” and “Time between HO command and SHR retrieval”. The source gNB can figure out the UE context (up to implementation) with the above information.

Option 2: Mobility Information is sent to the UE together with the SHR configuration, the UE includes the Mobility Information back in the inter-RAT SHR and draft LS to RAN2?

Whether the solution can be applied to other cases, e.g., RACH, NR-U?

RAN3 has sent LS to RAN2 in R3-212944, it was said:

*RAN3 has discussed the UE context handling and retention at the source node after HO, and concluded that it is not mandated that the source node stores the UE context.*

That’s why RAN2 decided to include e.g. Candidate cell list and CHO execution conditions in UE RLF Report in Rel-17.

So the moderator propose to stick this agreement in RAN3:

**It is not mandated that the source node stores the UE context after successful HO in order to support a SON feature.**

Contents in LS to RAN2:

* RAN3 aims at a common solution for scenarios where configuration used for the UE needs to be retrieved from Rel-18.
* Mobility Information is sent to the UE together with the SHR configuration, the UE includes the Mobility Information back in the inter-RAT SHR
  + The source node decide the Mobility Information (32bit Mobility Information is defined in XnAP).
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    - Whether there is any issue to include this in the RRC reconfiguration with sync containing Handover Command
    - Is the size problematic?
* If the network doesn’t provide the Mobility Information, RAN3 see the benefits to report the source C-RNTI and timer from Handover Command to SHR retrieval.

### Correlation of inter-RAT SHR with RLF Report

**Option 1:** Support the correlation so that the network can discard SHR if it knows that there was RLF shortly after successful HO.

**Option 1-1:** the source gNB performs the correlation based on target C-RNTI (no additional reporting from the UE is needed).

* UE may/may not reports a correlation indication to indicate whether there is a RLF shortly after a successful inter-RAT HO from NR to LTE

**Option 1-2:** the source gNB performs the correlation based on the source C-RNTI and time information between HO command and SHR retrieval

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**Option 2:** **Postpone correlation of inter-RAT SHR and RLF to Rel-19.**

**Option 3: Do not support SHR and RLF Report correlation**

Pls note that target C-RNTI is used for correlation for intra-NR SHR no matter the trigger of the SHR is T310/T312 or T304.

## SPR

**If SPR available indication via SN RRCReconfigComplete is received by SN, SN should inform MN that an SPR is available at the UE e.g.., a new IE can be added in S-NODE MODIFICATION REQUIRED message.**

### TP to stage 2 on Forwarding mechanism for SPR

The forwarding mechanism has been agreed in previous meetings. TP for capturing the agreement are proposed in

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WA: The triggers for SPR should be represented in terms of percentage values (similar to SHR)

### Which Node decides the triggers of T310 and T312 for MN-initiated classic PScell change /CPC

Which node decides SPR triggers in MN initiated PSCell change?

**Option 2: Source SN node decides the T310/T312 triggers and performs root cause analysis 6**

**Option 3: MN decides the T310/T312 triggers and performs root cause analysis, and whether and what information from SN as input needs to be further discussed 6**

### Information to be reported from the UE

At last RAN3#119bis-e meeting, there was the following agreement:

*To assist in the forwarding of SPR, UE may include the following in SPR*

* *CGI of the PCell which sent the SPR configuration (presence of this IE is to be discussed)*
* *WA: Indication whether the PSCell change was MN-initiated or SN-initiated (RAN3 should discuss how the UE knows whether the PSCell change as MN-initiated or SN-initiated and will check with RAN2 on the mechanism)*

Regarding how the UE knows whether the PSCell change as MN-initiated or SN-initiated, the understanding is that the UE can know it from the RRC message.

**LS to RAN2**

**Check with RAN2: The UE can know whether the PSCell change was MN-initiated or SN-initiated based on the current RRC signaling design**

Network needs to know from the SPR whether the PSCell change is MN-initiated or SN-initiated. Explicit and implicit can be decided by RAN2.

### Objective of T304 related SHR/SPR trigger

If the SPR is triggered due to T304, the objective of SPR is to optimize RACH access issues in the Target SN.

For SHR, it was agreed that the objective of SHR is to optimize RACH access issues in the Target gNB in case the SHR trigger is T304.

# Conclusion, Recommendations

If needed