3GPP TSG-RAN WG3 #114-e R3-215860

Online, Nov 1st - Nov 11th, 2021

Agenda Item: 11.2

Source: CMCC (moderator)

Title: SoD of Support for RedCap Capability Exchange

Document for: Discussion and Decision

# Introduction

**CB: # RedCap1\_UECapability**

**- Solutions on the table:**

**Sol1) Relying on OAM setting: CATT**

**Sol1bis) target’s rejection of an incoming HO of the RedCap UE: NEC (with new cause value)**

**Sol2) New Signalling solution: informati explicitly a type of RedCap UE indicator, such as the RedCap scheduled SIB content in Served Cell Information NR over the Xn Setup and Configuration messages: RadiSys, Reliance JIO, Samsung, CMCC, HW for Xn HO, ZTE, Qualcomm**

**- Introduce a new IE with the criticality set to “Reject” in the Source NG-RAN Node to Target NG-RAN Node Transparent Container to inform the target gNB about the handover of RedCap Ues for NG based HO? HW**

**- Add a list of non-supporting Redcap cells in: Xn HO Failure, Xn HO Request acknowledge, NG Target NG-RAN to Source NG-RAN Failure container, NG Target NG-RAN to Source NG-RAN transparent container? Add a new redcap IE with criticality reject in the Xn Handover message and NG Source NG-RAN to Target NG-RAN Transparent container? Nok**

**- In general do NOT introduce signaling mean to exchange the node capability, close this AI and wait for LS reply from RAN2? NEC**

**- Capture agreements and open issues**

(CMCC - moderator)

Summary of offline disc [R3-215860](file:///C%3A%5Czhmq%5C%E4%BC%9A%E8%AE%AE%5C3GPP%E4%BC%9A%E8%AE%AE%5CR3-114e%5Cagenda%5CInbox%5CR3-215860.zip)

We plan to divide the email discussion into two phases:

Phase1: Hope to reach the agreements on solutions for handling Redcap UE mobility before Friday, 5th November at 11:00am UTC.

Phase2: Depend on phase1 progress.

# For the Chairman’s Notes

TBD

# Discussion

## RedCap UE mobility Scenarios

Firstly, we need to confirm the possible mobility handling scenarios for RedCap UEs. Based on the capability of target cell, potential scenarios are summarized as follows.

1. Legacy gNB;
2. New gNB does not support RedCap UE;
3. New gNB where RedCap UEs are temporarily barred, e.g., for 1Rx or 2Rx RedCap UE;
4. New gNB supports RedCap UE

**Question 1: Do you agree above scenarios are valid and should be taken into account for RedCap UE mobility handling?**

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| Company | Comment |
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## Solutions

In last RAN3 meeting, solutions for handling Redcap UE mobility are discussed. Based on progress of last meeting and the input reference papers, two main potential options and pros and cons of the respective solution are summarized as follows.

*Sol1) Relying on OAM setting*

*Sol1bis) target’s rejection of an incoming HO of the RedCap UE*

*Pros: Do not introduce new signalling over Xn. Noted that a RedCap indicator IE in the Xn HANDOVER REQUEST message with criticality of “reject” may be needed in some scenario, e.g., scenario A.*

*Cons: A single solution is not applicable to all scenarios.*

*Sol2) New Signalling solution: signalling explicitly a type of RedCap UE indicator, such as the RedCap scheduled SIB content in Served Cell Information NR over the Xn Setup and Configuration messages*

*Pros: Support all scenarios.*

*Cons: gNBs need to perform configuration updates every time the cell changes its access restriction info.*

**Question 2: Which solution do you prefer to handle RedCap UE mobility? Do you agree the pros and cons of two solutions mentioned above?**

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If solution1 is chosen, some improvements are required to fulfill all scenarios, e.g., defining new cause values or using OAM to configure.

**Question 3: If solution1 is chosen, companies are invited to provide their views on if any signalling is needed to have a whole solution for all scenarios.**

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If solution2 is chosen, the procedures and some stage3 details exchanged between gNBs, e.g., capabilities broadcast in SIB1 for barring RedCap UEs, need to be specified.

**Question 4: If solution2 is chosen, companies are invited to provide theirs views on the impacted procedures and stage3 details.**

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## Mobility handling of legacy target cell

According to the contribution [1][2], a new RedCap IE with the criticality set as ‘Reject’ is introduced in the source-to-target container to prevent handover from the RedCap UE to a legacy NG-RAN node.

**Question 5: Companies are invited to provide their views on whether criticality set as ‘Reject’ is needed and on which interface is needed.**

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# Conclusion, Recommendations [if needed]

If needed

# References

1. R3-214895, (TP for XnAP BL CR on RedCap) Xn mobility handling for RedCap UEs, Qualcomm
2. R3-215094, Coordination between gNBs on the supporting of RedCap UEs, HW
3. R3-214780, Coordination of Redcap Capability across gNBs, Nokia
4. R3-214940, RedCap Capability Exchange between nodes, NEC
5. R3-215018, Discussion on RedCap capability exchange, CATT
6. R3-215497, Discussion on Redcap UE Handover aspects and Capability exchange, Radisys, Reliance JIO
7. R3-215554, RedCap Capability Exchange, Samsung
8. R3-215679, Discussion on RedCap Capability Exchange, CMCC