3GPP TSG-RAN WG2 #117-e Tdoc R2-220XXXX

Electronic meeting, Feb 21st – Mar 3rd, 2022

Agenda Item: 8.12.2.2.1

Source: Apple Inc.

Title: Email discussion report for [AT117-e][114][RedCap] Inter-RAT HO (Apple)

Document for: Discussion, Decision

# 1 Introduction

Following the online meeting the below offline is triggered. This document intends to collect companies feedback and attempt at a (set of) proposal(s) related to the interRAT handover for RedCap UEs.

* [AT117-e][114][RedCap] inter-RAT HO (Apple)

 Scope: Discuss inter-RAT HO from LTE to NR aspects

 Intended outcome: Summary of the offline discussion with e.g.:

* + - List of proposals for agreement (if any)
		- List of proposals that require online discussions
		- List of proposals that should not be pursued (if any)

Deadline (for companies' feedback): Tuesday 2022-03-01 1200 UTC

Deadline (for rapporteur's summary in R2-2203564): Tuesday 2022-03-01 1800 UTC

Proposals marked "for agreement" in R2-2203564 not challenged until Wednesday 2022-03-02 1000 UTC will be declared as agreed via email by the session chair (for the rest the discussion might continue offline).

Contact information

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| --- | --- |
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# 2 Discussion

There are three contributions related to the below FFS from the last meeting.

Agreements online:

1. For the LTE to NR handover, in case the target NR cell is a legacy cell, the RedCap UE should trigger RRC re-establishment procedure. FFS any specification impact or purely leave to implementation

[1] [R2-2203712](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2203712%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc) Inter-RAT mobility from LTE to NR Huawei, HiSilicon, BT Plc, CATT, Sequans discussion Rel-17 NR\_redcap-Core

[2] [R2-2202530](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2202530_lte-handover-redcap.docx) On the EUTRA handover to NR for RedCap Ues Apple discussion Rel-17 NR\_redcap-Core

[3] [R2-2202654](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2202654%20On%20inter-RAT%20handover%20for%20RedCap%20UEs.docx) On inter-RAT handover for RedCap Ues ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core

[4] R2-2203355 Handover from E-UTRA from legacy eNB to legacy gNB Ericsson

### 2.1 Spec support or UE implementation

Two papers [2] [3] suggest for UE implementation based approach, while [3] also proposes a complete solution (instead of re-establishment) with an approach related to UE capability of RedCap. [1] proposes two options where both of these have impact to specification.

**Q 2.1.1** Do companies prefer an approach that is purely UE implementation based for this inter-RAT issue or do companies prefer a change to standards to address this?

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| --- | --- | --- | --- | --- |
| **Company** | **UE implementation is enough** | **Network implementation is enough (R2-2203355)** | **At least some specification impact is needed** | **Any additional comments?** |
| Qualcomm | Yes |  | No | Option 1 from R2-2203712 is not needed, because UE itself is capable of determining whether the target cell supports RedCap or not.We can consider adding the Note proposed in R2-2203712 (but replace “should” by “may”), if all companies support it.For issues described in R2-2202654, we believe they can be handled by network implementation.  |
| Huawei, HiSilicon | No |  | Yes | Agree with QC that option 2 in R2-2203712 with NOTE is needed.  |
| Samsung | Yes |  | No | Even the NOTE would not be needed as that would be the consequence. |
| OPPO | Yes |  | No | Same view as Samsung. |
| CATT | No |  | Yes | The option 2 in R2-2203712 with NOTE is needed. |
| Futurewei | No |  | Yes | Same view as CATT. |
| Intel | No | Yes | No | We prefer network implementation based approach mentioned by R2-2203355 (without specification impact).  |
| Apple | Yes |  | No |  |
| InterDigital | Yes |  | No | This is a special case. If a targe cell is not supported by the UE, then the UE won’t be able to move there naturally. We don’t specify any UE behaviour for every single case of unsupported cell. |

**Summary – Q 2.1.1**

TBD

Based on the observations above, the rapporteur proposes the following:

1. ???

**Q 2.1.2** If you answer to Q2.1.1 is that some specification impact is needed, pls provide your views on each of the below.

**Option 1 from** [**R2-2203712**](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2203712%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc)**:** **The target NR cell, supporting RedCap and allowing the access of this RedCap UE, adds a new indication in the HO command sent to the RedCap UE. The RedCap UE should trigger RRC re-establishment if the indication is absent.**

**Option 2 from** [**R2-2203712**](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2203712%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc)**: Add a NOTE in the spec that The UE should trigger RRC re-establishment if the target NR cell does not support RedCap, by considering the configuration (e.g. *intraFreqReselectionRedCap-r17*) in SIB1 of the target cell.**

**Proposal 2 from** [**R2-2202654**](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2202654%20On%20inter-RAT%20handover%20for%20RedCap%20UEs.docx)**: RAN2 should discuss and specify a complete solution solving the inter-RAT handover issue, only triggering RRC re-establishment is insufficient.**

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| **Company** | **Option [1] from** [R2-2203712](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2203712%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc) | **Option [2] from** [R2-2203712](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2203712%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc) | **Proposal 2 from** [R2-2202654](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2202654%20On%20inter-RAT%20handover%20for%20RedCap%20UEs.docx) | **Any additional comments?** |
| Huawei, HiSilicon | Fine, but it requires more spec impact. Sure, the benefit is clear on shorter interruption, compared with option 2. | Preferred.This is just to capture the agreement. | Intention is good. But it requires more discussion with approach 2. | The main case to be addressed is “legacy eNB without upgrade HO to legacy gNB” |
| CATT |  | PreferredConsidering the low probability of the target scenario, and the left time of Rel-17, we think this option can be an acceptable compromise of signaling overhead and specification work.  |  |  |
| Futurewei |  | Same view as CATT. |  |  |
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**Summary – Q 2.1.2**

TBD

Based on the observations above, the rapporteur proposes the following:

1. ???

# 3 Conclusion

Based on the discussion above the following proposals have been made:

[Proposal 1 ???](#_Toc96429434)

[Proposal 2 ???](#_Toc96429435)

[Proposal 3 ???](#_Toc96429436)

# References

[1] [R2-2203712](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2203712%20Inter-RAT%20mobility%20from%20LTE%20to%20NR_v1.doc) Inter-RAT mobility from LTE to NR Huawei, HiSilicon, BT Plc, CATT, Sequans discussion Rel-17 NR\_redcap-Core

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[3] [R2-2202654](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2202654%20On%20inter-RAT%20handover%20for%20RedCap%20UEs.docx) On inter-RAT handover for RedCap UEs ZTE Corporation, Sanechips discussion Rel-17 NR\_redcap-Core