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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| --- | --- |
| Company | Contact person - email@address.com |
| Apple | Naveen Palle – naveen.palle@apple.com |
| Huawei, HiSilicon | Yulong (shiyulong5@huawei.com) |
| Samsung | Jaehyuk Jang (jack.jang@samsung.com) |
| OPPO | Haitao Li (lihaitao@oppo.com) |
| CATT | Xiangdong Zhang (zhangxiangdong@catt.cn) |
| Futurewei | Yunsong Yang (yyang1@futurewei.com) |
| Intel | Yi.guo@intel.com |
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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 |  |

**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