3GPP TSG-RAN WG3 #114-e draft R3-215942

Nov. 1~11, 2021

**Online**

**Agenda item: 9.3.6.1 (Other corrections)**

**Source: Samsung (moderator)**

**Title: Summary of offline discussion on CB: # 109\_CHO\_EarlyDataForward**

**Document for: Approval**

# Introduction

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| **CB: # 109\_CHO\_EarlyDataForward**  **- Check the solutions proposed**  **- Check details**  (Samsung - moderator)  Summary of offline disc [R3-215942](file:///E:\RAN3%23114\Inbox\Drafts\CB%20%23%20109_CHO_EarlyDataForward\Inbox\R3-215942.zip) |

Phase-I Deadline: Monday, Nov. 8th, 2021, 12:00 UTC.

Phase-II Deadline: Tuesday, Nov. 9th, 2021, 12:00 UTC

# For the Chairman’s Notes

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# Discussions

During the online discussion, the issue mentioned in R3-215500 (i.e., **For the case of all the preparations of CHO cancelled, E1 interface seems not work to support to stop initiated early data forwarding for the source node with split CU-CP and CU-UP architecture.**) has been acknowledged, and the remaining issue is how to realize it in the specification. There are three options:

* Option 1: add a new IE (i.e., *CHO Early Data Forwarding Indicator* IE) under “**DRB To Modify Item**”, as proposed in R3-215501, and an example for the normative text is given as below:

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| If the *CHO Early Data Forwarding Indicator* IE set to “stop” is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, stop the early data forwarding associated with the DRB (if already started). |

* Option 2: add a new IE (i.e., *CHO Early Data Forwarding Indicator* IE) inside “DRB Data forwarding information” IE, and an example for the normative text is given as below:

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| If the *CHO Early Data Forwarding Indicator* IE set to “stop” is contained in the *DRB Data forwarding information* IEin the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, stop the early data forwarding associated with the DRB (if already started). |

* Option 3: add a new codepoint (e.g., stop forwarding) in *Early Forwarding COUNT Request* IE, and an example for the normative text is given as below:

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| If the *Early Forwarding COUNT Request* IE set to “stop early data forwarding” is contained in the *DRB To Modify List* IEin the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall, if supported, stop the early data forwarding associated with the DRB (if already started). |

Among those options, Option 3 changes the original intention of *Early Forwarding COUNT Request* IE, which aims at deriving the COUNT information, with the following normative text, i.e.,

“If the *Early Forwarding COUNT Request* IE is contained in the *DRB To Modify List* IE in the BEARER CONTEXT MODIFICATION REQUEST message, the gNB-CU-UP shall act as specified in TS 38.401 [2] and include the requested *FIRST DL COUNT Value* IE or *DISCARD DL COUNT Value* IE in the BEARER CONTEXT MODIFICATION RESPONSE message.”

Thus, Option 3 may not be a suitable place to realize stopping early data forwarding. For Option 1&2, both achieves the same effect, it seems that Option 2 would be more suitable for this new IE.

**Q: Do companies agree with option 2? If so, please also provide the comments to the normative text shown below option 2. If not, please indicate your preferred option and the corresponding normative text.**

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| Company | Yes/No | Comments |
| Samsung | Yes | Fine with the normative text under option 2 |
| Intel Corporatoin | Option 1 | We agree with the moderator that Option 3, though its intention was good, is not suitable unfortunately.  Option 2 is fine, but considering we will have CP-UP separation for eNB (eNB-CP and eNB-UP) that re-uses E1 interface by the Enhanced eNB Architecture Evolution WI to be locked on from Rel-17 spec, we think Option 1 is better than Option 2, because the Option 2 text cannot be re-used for E-UTRAN. The Option 2 uses the IE name of "DRB Data Forwarding Information". But in E-UTRAN side, the IE name of "Data Forwarding Information" is used in the *DRB To Modify List* of the BRR CTXT MOD REQ message.  Anyway, the following IEs related to early data forwarding have to be copied onto E-UTRAN side for DAPS/CHO to work on eNB with CP-UP separation:  - *DAPS Request Information* IE (in the *DRB To Setup List* of 9.3.3.2 *PDU Session Resource To Setup List*) should be copied to 9.3.3.1 *DRB To Setup List E-UTRAN*  - *DAPS Request Information* IE (in the *DRB To Modify List* of 9.3.3.11 *PDU Session Resource To Modify List*) should be copied to 9.3.3.8 *DRB To Modify List E-UTRAN*  - *Early Forwarding COUNT Request* IE (in the *DRB To Modify List* of 9.3.3.11 *PDU Session Resource To Modify List*) should be copied to 9.3.3.8 *DRB To Modify List E-UTRAN*  - *Early Forwarding COUNT Information* IE (in the *DRB To Modify List* of 9.3.3.11 *PDU Session Resource To Modify List*) should be copied to 9.3.3.8 *DRB To Modify List E-UTRAN*  *- Early Forwarding COUNT Information* IE (in the *DRB To Modify List* of 9.3.3.19 *PDU Session Resource Modified List*) should be copied to 9.3.3.15 *DRB Modified List E-UTRAN*  If we go with Option 1, we can simply copy the following together with the above, while re-using the text:  - *CHO Early Data Forwarding Indicator* IE (in the *DRB To Modify List* of 9.3.3.11 *PDU Session Resource To Modify List*) toward 9.3.3.8 *DRB To Modify List E-UTRAN* |
| Nokia | 3? | In general, we do not have a strong opinion on the selection of the options. However, one point: if I understand all right, the problem concerns a scenario where CHO is cancelled completely. Therefore, having the ‘stop’ per DRB is not good – it should rather be a general stop indicator. From this perspective, option 3 is nice, though we agree that it alters the original purpose of the IE (but historically, RAN3 made such changes and it was all right). |
| CATT |  | I prefer the option 2. It is more logical and looks more readable. Also Intel mentioned that we consider the effort on W1 specification , the option 1 also has some benefits. |
| Ericsson | Option 2 or IE at PDU Session level or Bearer Context Modification level | Option 2 is similar to option 1, but keep things related to data forwarding at the same place. Intel’s concerns are valid, and should be taken into AI 30.4 for correcting CP/UP split before the release of the rel-17 specs.  Option 3 is reusing the COUNT IE, which in our view should be restricted to procedures linked to the COUNT aspect of data forwarding. However, Nokia’s comment is also valid (i.e. stop will be applied to all DRBs) and it might be more efficient to have this new IE upper in the signaling structure. |
| Huawei | No strong view | We are ok to each option, even option 3.  However, although the IE should be at bearer context modification level, but it does not has to be. Better to keep the same level with the DRB level information like we did for the per DRB/per UE level DAPS response. |
| Intel Corporation 2 |  | Bearer Context Modification level seems also fine. If my recollection is right, we added Early Forwarding COUNT related IEs per DRB level because they are applicable for both CHO and DAPS, and DAPS is by per DRB. Here is only about CHO and to cancel early data forwarding completely. For CHO, we added "CHO Initiation" at Bearer Context Setup level. We could add this cancellation at Bearer Context Modification level. |

# Conclusion, Recommendations [if needed]

If needed

# References

[1] R3-215500 Discussion for CHO early data forwarding (Samsung, Intel, CATT)

[2] R3-215501 E1 impact to support to stop CHO early data forwarding (Samsung, Intel, CATT)