**3GPP TSG RAN WG2 Meeting #118-e R2-220xxxx**

Electronic meeting, 9th – 20th May 2022

Agenda Item: 6.4.5

Source: Intel Corporation (Rapporteur)

Title: [AT118-e][069][eIAB] UE caps (Intel)

Document for: Discussion and Decision

# Introduction

This document captures the following discussion:

* [AT118-e][069][eIAB] UE caps (Intel)

Scope: Address the corrections / remaining issues from tdocs submitted under AI 6.4.5. 2. Progress UE caps draft CRs (38306, 38331). Identify new impact if any.

Intended outcome: Report (if needed), endorsed draft CRs (for merge with mega CRs

Deadline: CB W2 Wed (if needed), Endorsed Draft CRs ready at EOM

The discussion consists of two phases, Phase 1 and Phase 2, and the deadline of each phase is given below:

Phase 1: Deadline: Friday W1, 5:00pm UTC.

Address the corrections / remaining issues from tdocs submitted under AI 6.4.5.

Phase 2: Deadline: Wednesday W2, 10:00am UTC.

Review updated draft CRs for UE capabilities (38306, 38331).

**Contact**

To make it easier to find the correct contact delegate in each company for potential follow-up questions, the rapporteur encourages the delegates who provided input to provide their contacts information in this table:

|  |  |
| --- | --- |
| **Company** | **Contact: Name (Email)** |
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# Discussion

## Header rewriting based Re-routing IAB-MT capability

As discussed in [1], a single bit is agreed to be used as IAB-MT capability for BAP header rewriting based re-routing of all scenarios. [1] proposes with following changes by removing ‘/or’:

| Definitions for parameters | Per | M | FDD-TDD  DIFF | FR1-FR2  DIFF |
| --- | --- | --- | --- | --- |
| ***bapHeaderRewriting-Rerouting-r17***  Indicates whether the IAB-MT supports BAP header rewriting based re-routing, including inter-donor DU local re-routing and inter-donor CU re-routing, as specified in TS 38.340 [23]. | IAB-MT | No | No | No |

#### **Q1. Do you agree with above change?**

|  |  |  |
| --- | --- | --- |
| Company | Y/N | Comment |
| Apple | Yes |  |
| LGE | Y |  |
| Samsung | Y | As an aside, please note that ‘including…’ implies there may be other types of re-routing supported which are not mentioned. |
| Nokia | N | Less restrictive IAB implementation can be considered without the change. See also comment to Q2 (similar simplicifaction can be considered) |
| Ericsson | Y | The use of “and/or” is confusing. However, the word “based” sounds strange, better “for” maybe. |
| ZTE | Y |  |
| vivo | Y |  |
| Huawei, HiSilicon | Either way | “supports BAP header rewriting based re-routing” is more critical, while “including” seems just explanation. We anyway know the capability details based on the specified behaviour from BAP spec. |
| QCOM | N | Inter-donor-DU rerouting applies to both cases:   * The donor-DUs belong to same CU * The donor-DUs belong to different CUs   Inter-donor-CU re-routing has NEVER been defined in any spec. It is not included in 38340 either. The term suggests that another CU is involved in transport, e.g., such as for CP-UP separation, but that is not the case.  **We propose:**  Indicates whether the IAB-MT supports BAP header rewriting based re-routing, including inter-donor**-**DU local re-routing ~~and inter-donor CU re-routing~~, as specified in TS 38.340 [23]. |
| Intel | Y | Ericsson’s proposal to change “based” into “for” looks good to us. |

**Summary**:

(8/10) companies agree with the change proposed in [1]. One company proposed to change “based” into “for” to clarify the ambiguity. Rapporteur thinks the change is ok to accept, as this IAB-MT capability indicates BAP header rewriting is performed for re-routing scenarios. One company commented that inter-donor DU rerouting applies to both intra-donor CU and inter-donor CU cases, and there’s also no definition in any specification about inter-donor CU re-routing. Rapporteur agrees with the above comment and propose with following changes:

The corresponding changes are reflected in the draft CR as below:

| Definitions for parameters | Per | M | FDD-TDD  DIFF | FR1-FR2  DIFF |
| --- | --- | --- | --- | --- |
| ***bapHeaderRewriting-Rerouting-r17***  Indicates whether the IAB-MT supports BAP header rewriting for inter-donor-DU re-routing, as specified in TS 38.340 [23] and TS 38.401 [X]. IAB-donor-DUs can belong to the same or different IAB-donor CUs. | IAB-MT | No | No | No |

**Proposal 1:** Changes proposed by R2-2204791 is agreed with changes.

## Header rewriting based Routing IAB-MT capability

As discussed in [2], BH RLF recovery under inter-donor CU scenario is missed in the field description of *bapHeaderRewriting-Routing-r17*, which also requires to perform BAP header rewriting. [2] proposes with following changes by adding ‘inter-donor CU RLF recovery’:

| ***bapHeaderRewriting-Routing-r17***  Indicates whether the IAB-MT supports BAP header rewriting based inter-donor CU routing, including inter-donor CU partial migration, inter-donor CU RLF recovery, and inter-donor CU routing for topology redundancy, as specified in TS 38.340 [23]. | IAB-MT | No | No | No |
| --- | --- | --- | --- | --- |

#### **Q2. Do you agree with above changes?**

|  |  |  |
| --- | --- | --- |
| Company | Y/N | Comment |
| Apple | Yes | To add inter-donor CU RLF as a trigger scenario for header rewriting looks correct. However, the text in the capability description does not quite match what is there in TS 38.340. For example, the scenarios are described in TS 38.401. Secondly, “BAP header rewriting based inter-donor CU routing” is misleading, it should read “based on”. We propose to include these two changes as shown below.  ***bapHeaderRewriting-Routing-r17***  Indicates whether the IAB-MT supports BAP header rewriting based on inter-donor CU routing, including inter-donor CU partial migration, inter-donor CU RLF recovery, and inter-donor CU routing for topology redundancy, as specified in TS 38.340 [23] and 38.401 [x]. |
| LGE | Y |  |
| Samsung | Y | OK with original change (although keeping ‘including…’ implies there may be other scenarious which are not mentioned).  Also OK with second change from Apple. Not ok with first change from Apple – it changes the meaning. We believe we are in fact talking about inter-donor CU routing based on BAP header rewriting (= original meaning), and not on BAP header rewriting based on inter-donor CU routing (Apple’s interpretation). |
| Nokia | N | We propose the capablity to be simply described as:  Indicates whether the IAB-MT supports BAP header rewriting operation as defined in 38.340.  By reference to 38.340 none of the use cases becomes clear: “based inter-donor CU routing, including inter-donor CU partial migration, inter-donor CU RLF recovery, and inter-donor CU routing for topology redundancy”  While use cases and generic description would be covered by stage 2. |
| Ericsson | Y | Otherwise it will be ambiguous whether the scenario of inter-donor CU RLF- recover is already considered (e.g within the inter-CU partial migration) o not. OK, with the change proposed by Apple, or use “for” rather than “based”. |
| ZTE | Y |  |
| vivo | Y |  |
| Huawei, HiSilicon | Y |  |
| QCOM | N | Again, there is no inter-donor-CU routing. This has not been defined in any spec.  Please also correct hyphenation: donor**-**CU, donor**-**DU, etc  Propose rewording:  Indicates whether the IAB-MT supports BAP header rewriting based inter-donor CU routing, including **for, e.g.,** inter-donor**-**CU partial migration, inter-donor**-**CU RLF recovery, and inter-donor**-**CU routing for topology redundancy, as specified in TS 38.340 [23]. |
| Intel | Y | Ok to change “based” into “for”, as BAP header rewriting is performed for those scenarios. |

**Summary**:

(8/10) companies agree with the change proposed in [1]. To Nokia’s proposed change, considering BAP header rewriting operation in TS38.340 covers both re-routing and routing scenarios and we have agreed to use separate IAB-MT capability for re-routing and routing, i.e. “*bapHeaderRewriting-Rerouting-r17*” and “*bapHeaderRewriting-Routing-r17*”, the updated description is not clear. Qualcomm commented that there’s no definition about inter-donor-CU routing. Rapporteur agrees with QC’s comment. Additionally, similar as Q1, rapporteur thinks it is ok to change “based” into “for”.

The corresponding changes are reflected in the draft CR as below:

| ***bapHeaderRewriting-Routing-r17***  Indicates whether the IAB-MT supports BAP header rewriting for, e.g. inter-donor-CU partial migration, inter-donor-CU RLF recovery, and inter-donor-CU topology redundancy, as specified in TS 38.340 [23] and TS38.401 [X]. | IAB-MT | No | No | No |
| --- | --- | --- | --- | --- |

## LCG Extension IAB-MT capability

As discussed in [2], extended BSR is also supported when IAB-MT supports LCG extension. The field description should be updated accordingly with following changes:

| ***lcg-ExtensionIAB-r17***  Indicates whether the IAB-MT supports extended logical channel group and extended Buffer Status Report as specified in TS 38.321 [8]. | IAB-MT | No | No | No |
| --- | --- | --- | --- | --- |

#### **Q3. Do you agree with above changes?**

|  |  |  |
| --- | --- | --- |
| Company | Y/N | Comment |
| Apple | No | If companies prefer using extended BSR without logicalChannelGroup-IAB-Ext-r17, extended BSR would require a separate capability. However, this depends on other decisions to be taken in MAC/RRC based on contributions, it was already discussed earlier. |
| LGE | Y |  |
| Samsung | N | We never agreed to use extended BSR without configuring logicalChannelGroup-IAB-Ext-r17. It would need further discussion in MAC/CR offlines. |
| Nokia | Y | In our understanding, its is correct change, as extended logical channel group is needed for extended BSR reporting |
| Ericsson | Y | The support of the extended LCG goes together with the support of extended BSR. Supporting the extended LCGs without supporting extending BSR seems strange. So better to clarify it. |
| vivo | Y |  |
| Huawei, HiSilicon | Y |  |
| QCOM | Y | Agree with Nokia and Ericsson |
| Intel | Y | Based on our understanding, supporting lcg-extensionIAB-r17 represents supporting both LCG extension and extended BSR, i.e. extended BSR is a sub-feature of LCG extension. |

**Summary**:

(7/9) companies agree with the change proposed in [2]. Two companies concern about this change indicates that one IAB-MT can use extended BSR without configuring *lcg-ExtensionIAB-r17*, which should be further discussed in MAC offlines. Four companies think it is a correct change, as both extended logical channel group and extended Buffer Status Report are supported by IAB-MT indicating this capability. Rapporteur thinks supporting extended BSR is a sub-feature of supporting LCG extension. It does not mean extended BSR can be supported without supporting LCG extension. To clarify the ambiguity commented by Apple and Samsung, rapporteur proposes with following changes:

| ***lcg-ExtensionIAB-r17***  Indicates whether the IAB-MT supports extended logical channel group as specified in TS 38.321 [8]. A UE supporting this feature shall also support extended Buffer Status Report. | IAB-MT | No | No | No |
| --- | --- | --- | --- | --- |

**Proposal 2:** Changes proposed by R2-2205258 are agreed with changes.

# Conclusion

Based on the discussion above, the following is proposed:

**Proposal 1:** Changes proposed by R2-2204791 is agreed with changes.

**Proposal 2:** Changes proposed by R2-2205258 are agreed with changes.

# References

[1] R2-2204791, Correction on IAB-MT capability of header rewriting based re-routing (ZTE)

[2] R2-2205258, Corrections on the bapHeaderRewriting-Routing and lcg-ExtensionIAB for eIAB (Huawei)