3GPP TSG-RAN WG3 #119bis-e R3-23xxxx

Online, April 17 - 27, 2022

Agenda Item: 13.3

Source: Qualcomm (Moderator)

Title: Summary of CB: #IAB3\_MobEnh

Document for: Discussion

# Introduction

This paper captures the following CB discussion:

|  |
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| **CB: # IAB3\_MobEnh****- Discuss and converge on TAC/RANAC handling between mIAB-MT, its co-located mIAB-DU and its serving donor CU****- Any impact over RRC? Need to LS RAN2?****- Discuss and converge on OAM involvement and configuration of mobile IAB-DU during mIAB-DU migration and partial migration****- Discuss and converge on which information, if any, can be shared between two logical DUs in case of IAB-DU migration****- Converge on how Source donor CU of mobile IAB-MT informs the target donor CU of mobile IAB-MT that the migrating node is a mobile IAB-node, based on the agreement that this is carried out via explicit indication in XnAP HO Request message**(moderator - QC)Summary of offline disc [R3-231902](file:///C%3A%5Ctemporary%5CRAN3%5CRAN3%20April%2023%5CCB%20discussions%5CCB%20IAB3%20MobEnh%5CInbox%5CR3-231902.zip) |

The CB has the following phases:

**Phase I：Converge on open issues. Deadline is Tuesday, April 19, 2023, 18.00 CET.**

**Phase II：Convergence on agreements from PH1. Deadline is Monday, April 24, 18:00 UTC.**

The following contributions are included in this CB:

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| [R3-231276](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231276.zip) | Other aspects for mobile IAB (CATT) | discussion |
| [R3-231310](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231310.zip) | Enhancements for mobility of IAB-node and its served UEs (Qualcomm Inc.) | discussion |
| [R3-231358](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231358.zip) | Discussion on enhancements to IAB node migration in mobile IAB scenario (ZTE) | discussion |
| [R3-231442](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231442.zip) | Mobility enhancements for mobile IAB-node and its served UE (Lenovo) | discussion |
| [R3-231472](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231472.zip) | Discussion on mobility enhancements (Nokia, Nokia Shanghai Bell) | discussion |
| [R3-231484](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231484.zip) | (TP for NR\_mobile\_IAB BL CR for TS 38.423): Mobility enhancement for mobile IAB (Huawei) | other |
| [R3-231525](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231525.zip) | Discussion on mobility enhancement (Xiaomi) | discussion |
| [R3-231536](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231536.zip) | IAB-Node Mobility Enhancements (Ericsson) | discussion |
| [R3-231719](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231719.zip) | Discussion on mobility enhancements (Samsung) | discussion |

# For the Chairman’s Notes

**The following is proposed:**

**Proposal 0: At DU-migration, the target mIAB-DU-cell’s NCGI can be (re-)configured by the target mIAB-DU’s CU.**

**Proposal 1: RAN3 to decide between the following two options:**

**Option A: The IAB-DU’s TAC to refer to any TA configured by the operator.**

**Option B: The IAB-DU’s TAC to be the same as the TAC seen by the mIAB-MT.**

**Proposal 2d: RAN3 to send an LS to SA5 with the question: “How can the mobile IAB-node retain OAM connectivity while moving across the network”.**

**Proposal 3a: The BH RLC configuration, BAP address and default BAP configuration configured on the mIAB-MT can be used by both logical mIAB DUs.**

**Proposal 3b: RAN3 to discuss, whether any signaling optimizations in RAN3 scope are possible if the target logical DU uses the same CellGroupConfig as the source logical DU.**

**Proposal 3e: RAN3 to discuss if F1AP UE Context Release at the source logical DU can be spared since the source logical DU could derive from the target logical DU that all UEs have been successfully migrated.**

**Proposal 5: RAN3 to discuss if explicit mobile IAB-node indication to be included in the HO request for the mIAB-MT so that the target CU can perform admission control.**

# Discussion - Phase I

## TAC/RANAC

RAN3 agreed that to support dynamic TAC

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| --- |
| *RAN3 to further discuss the following options for TAC/RANAC issue:**- Option 1: The TAC/RANAC for the mobile IAB cell can be changed in order to* ***reflect the physical location*** *when the mobile IAB-node moves.* *- Option 2: Using static TAC/RANAC for mobile IAB when it moves. Involvement of SA2 may be needed**Dynamic TACs:**Static TAC solution is not pursued.* *RAN3 assumes that dynamic TAC solution should be supported.* *Capture on stage 2 that the TAC/RANAC broadcast by the mobile IAB-DU can be changed in order to* ***reflect the mIAB-node’s physical location****. It needs to be further discussed how the mobile IAB-DU’s TAC/RANAC is changed and what Stage 3 impacts are (if any).*  |

**There is a wide spread of views on the reconfigurability of TAC (RANAC):**

[R3-231276] CATT, [R3-231358] ZTE, and [R3-231484] Huawei propose that the mIAB-DU cell’s TAC may need to be reconfigurable by the mIAB-DU’s CU.

[R3-231358] ZTE proposed that the mIAB-DU cell’s TAC may need to be reconfigurable by the mIAB-MT’s CU or the mIAB-DU’s CU.

[R3-231536] Ericsson proposes that the mIAB-DU cell’s TAC can be copied over from the mIAB-MT.

[R3-231525] Xiaomi proposes that no ST3 change is needed for TAC reconfiguration.

The Moderator believes that it is easier to decide on the configurability of TAC (RANAC) after some principal issues have been resolved.

Firstly, the Moderator would like to ensure that RAN3 has a common understanding of the “IAB-node’s physical location”. In the context of the TA/RNA discussion, a reasonable approach is to consider the mIAB-node’s physical location as to be represented by the mIAB-MT’s cell ID.

**Question 1a: Do you agree that in the context of the TAC/RANAC discussion, the “IAB-node’s physical location” is represented by the mIAB-MT’s cell ID? If not, which parameter should represent the mIAB-node’s physical location?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes | This is a convenient interpretation, and it also aligns with the AMF’s understanding of UE location. |
| Huawei | No | Somehow confused on the intention of this question 1a, why discuss this again. It has been clarified during RAN3-119 online discussion that the physical location can be interpreted as location served by the DU’s F1 terminating donor CU, or the location served by the MT’s donor CU, based on operator’s preference.  |
| CATT | Yes |  |
| **Ericsson** | **Yes** | What is the point of this question? Is the intention to ask which donor is a reference point for physical location: the mIAB-DU’s donor or the mIAB-MT’s donor. In our view, the “physical” implies the latter. |
| Lenovo | Yes |  |
| Nokia | No | I think the meaning of the physical location is clear, e.g. a mobile IAB installed on a vehicle on the highway, operator may want to assign a specific TAC to the IABs on the highway. In this case, the IAB-MT’s cell ID is not appropriate to represent the IAB’s physical location, e.g. the cell is a macro cell covers a large area.  |
| Xiaomi | See comments | In our understanding, the physical location discussed here is not in cell level, it should be the TAC/RANAC level.For highway scenario, the macro cell can also be configured with a specific TAC to support high mobility. |
| ZTE | See comments | This is indeed a key question before discussing TAC configuration. And we agree with the intention of the moderator’s view. The ”IAB-node’s physical location” is definitely the geographic location of the mobile IAB node. In NR, UE’s location information obtained by the AMF mainly includes NCGI and TAI, which is also applicable for mobile IAB-MT. So maybe we could say the “IAB-node’s physical location” can be reflected by the NCGI/TAI of the cell serving the mIAB-MT.  |
| Samsung | See comment | Share the similar view with Huawei. |

Summary Q1a:

* Cell-level: 5
* TAC/RANAC level: 4

We can conclude that the mIAB-DU’s physical location should be provided at least with TAC/RANAC granularity. A proposal will follow after Q1c.

The next question is whether the TA (or RNA) associated with by the mIAB-DU’s TAC (RANAC) broadcast needs to align with a TA (or RNA) associated with the TAC (RANAC) broadcast by the surrounding stationary network. The Moderator believes that this is not absolutely necessary. The operator could define a dedicated set of TAs (or RNAs), which are only used by mIAB-nodes and have different sizes and shapes than the TAs (or RNAs) of the outside network.

**Question 1b: Does the TA (or RNA) used by the mIAB-DU have to align in size and shape with the TA (or RNA) used by the surrounding stationary network?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | No preference | It may be convenient to align the TA or (RNA) seen inside the vehicle with that of the outside network, but it is not necessary. |
| Huawei | Not mandatory | The TA planning should be up to operator. Either mobile IAB specific TA/RNA or reuse the current TA/RNA is possible. |
| CATT | No | The TA or RNA is not necessary being the same as the outside network and it can be dedicated for mIAB cells. The dedicated TAC or RANAC is broadcasted by the mIAB cell to reflect the physical location of the mIAB-node. |
| **Ericsson** | **Yes** | The mIAB-DU should inherit the TAC of mIAB-MT’s parent cell. |
| Lenovo | No | It’s up to the operator's implementation. Mobile IAB-DU can use same size and shape of the TA (or RNA) with surrounding stationary network, or use a dedicated TA (or RNA). |
| Nokia | No | This is not necessary, and up to operator. For example, operator may want to use a specific TAC to cover the IAB/vehicles on a highway.  |
| Xiaomi | See comments |  “size or shape with the TA or RNA” here may be a little confusing, no matter how, we share view as E///, the TAC used by the mIAB-DU should be the TAC that the IAB-MT received from its serving cell, which seems simpler in our understanding.In highway scenario, the serving cell of the IAB-MT can also be configured with specific TAC, that’s what operator already done in real network. |
| ZTE | Prefer the same design | Although technically the same or different design from current TA/RNA could be used for mobile IAB cell. But it’s preferred that the current design is reused since it can work well. And we don’t see clear motivation to have a different design for mobile IAB cell.  |
| Samsung | No | It is up to operator's implementation. |

Summary Q1b:

* MT’s TAC and DU’s TAC need to be same: 2
* MT’s TAC and DU’s TAC need not but is preferably the: 1
* MT’s TAC and DU’s TAC need not to be same: 6

Most companies don’t consider it necessary that the TA seen by the MT and the TA broadcast by the DU have to be the same. Proposal follows after Q1c.

Even if the TA (or RNA) used by the IAB-DU is aligned with that used by the outside network, the question arises whether they should have to carry the same TAC (or RANAC) or if it is permitted that they use separate TACs (or RANACs).

**Question 1c: Can the TAC (or RANAC) broadcasted inside the vehicle be different than the TAC (or RANAC) outside the vehicle even if the inside and outside TAs (or RNAs) align?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes | It may be beneficial to allocate a separate set of TACs (RANACs) for mobile IAB-nodes than for the outside network.  |
| Huawei |  | If the inside TA/RNA align with the outside TA/RNA, the TAC/RANAC will be same. |
| CATT | No | Not sure about the meaning of this question. We think in case the TAC or RANAC broadcasted inside and outside the vehicle is aligned, to reflect the real location of the mIAB cell, the TAC or RANAC broadcasted inside the vehicle should indeed be the same as that out side the vehicle. |
| **Ericsson** | **???** | Aligned (size and shape?) == identical TAC. Why would the TACs of aligned TAs be different? What is the benefit? |
| Lenovo |  | Agree with Huawei and CATT that if TAs (or RNAs) are aligned inside and outside the vehicle, the TAC (or RANAC) broadcasted inside and outside the vehicle is also aligned. |
| Nokia | Yes | As commented in Q1b, this is up to operator’s configuration, e.g. using same TAC inside/outside of the vehicle, or a different TAC inside the vehicle.  |
| Xiaomi  | No? | May not quite understand the question, but allocate a separate TAC for mobile IAB-node seems a static TAC case to us. |
| ZTE | Yes  | Even if the TAC/RANAC of mobile IAB cell has the same design with normal NR cell (e.g. has the same size/shape), a separate set of TACs (RANACs) can be configured for mobile IAB cell.  |
| Samsung |  | Agree with Huawei. |

Summary Q1c: There seems to be confusion about the question.

From Q1a, b, c, the majority support has the following views:

1. For dynamic TAC, the IAB-node’s physical location should have at least TA/RNA granularity.
2. The TAC broadcast by the mIAB-DU need not be the same as the TAC seen by the mIAB-MT.

Together with RAN3’s prior agreements, we have reached a circular argument: “*The IAB-DU’s TAC should reflect the IAB-node’s physical location, where the IAB-node’s physical location has the granularity of a TAC that does not have to be the same as the TAC seen by the mIAB-MT.*”

We have two options:

**Proposal 1: RAN3 to decide between the following two options:**

**Option A: The IAB-DU’s TAC to refer to a TA configured by the operator.**

**Option B: The IAB-DU’s TAC to be the same as the TAC seen by the mIAB-MT.**

## OAM configuration of mIAB-DU

This topic refers to all configurations that are performed via OAM for a gNB-DU or Rel-16/17 IAB-DU. **This includes all information that a gNB-DU or Rel-16/17 IAB-DU reports to the CU in F1 Setup Request, which primarily is the served-cell info, and (optionally) SIB1.**

**It further includes configurations that a gNB-DU or Rel-16/17 IAB-DU does not report to the CU (e.g., physical beam pattern or the IP address of the mIAB-DU’s CU).**

For gNB-DUs and Rel-16/17 IAB-DUs, the assumption is that these parameters do not change frequently since the nodes do not move. The operator can therefore perform OAM-based match-up in the configuration of these nodes and the surrounding RAN. These assumptions do not hold for mIAB-DUs, and the question arises if the existing assumptions to what extend the OAM-based configuration framework can still be applied, of if, e.g., CU-based (re)configurability is necessary.

[R3-231276] CATT, [R3-231310] Qualcomm, [R3-231472] Nokia, [R3-231484] Huawei, [R3-231536] Ericsson, and [R3-231719] Samsung believe that OAM- and pre-configuration can generally be used for mIAB-DUs. [R3-231276] CATT further proposes that at DU-migration, some of the OAM- or pre-configured parameters can be copied over. [R3-231310] Qualcomm propose that dynamic parameters can be derived from a lookup table based on the mIAB-DU’s current location for those parameters that do not change frequently and apply over an extended area.

[R3-231472] Nokia and [R3-231536] Ericsson propose that everything can be done via OAM-/pre-configuration and no CU-configurability needs to be considered for these parameters.

[R3-231310] Qualcomm, [R3-231358] ZTE, [R3-231442] Lenovo, [R3-231484] Huawei, [R3-231525] Xiaomi propose that the mIAB-DU cell’s NCGI may need to be reconfigurable by the mIAB-DU’s CU.

**The moderator believes that the OAM-/pre-configuration of parameters is always up to implementation. The discussion therefore focuses on those parameters that cannot always follow legacy OAM- or pre-configuration and might require CU-based reconfiguration.**

There seems to be strong support that the NCGI is one of such parameters.

**Question 2a: Do you agree that at DU-migration, the target mIAB-DU-cell’s NCGI can be (re-)configured by the target mIAB-DU’s CU? If yes, why? If not, why not?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes | NCGI = PLMN ID + gNB-ID + Cell ID. The Cell ID has only between 4 to 14 bits.This Cell ID space needs to be shared among all stationary cells and mIAB-cells at gNB level. With only 4 to 14bits, this ID space becomes a critical resource, which requires dynamic Cell ID allocation when mIAB-DUs migrate in and out. Only the gNB-CU is in the position to perform this Cell ID allocation.OAM cannot perform this dynamic Cell ID allocation since the gNB may connect to a different OAM than the mIAB-node. |
| Huawei | Yes | The NCGI is related to the F1 terminating donor CU because it contains the gNB ID part, allowing the F1 terminating CU reconfigure NCGI to the mobile IAB-DU will provides flexibility and be efficient when IAB moves. |
| CATT | See comment | Still not clear why NCGI should be reconfigured by the target mIAB-DU’s CU. One question is, should the NCGI reflect the physical location of mIAB cell? If the answer is Yes, we think it can be reconfigured by the mIAB-DU’s CU. While if the answer is “not necessary”, that means the NCGI can be retained from the F1 setup until the next DU migration. As usual, the NCGI can be obtained from OAM or pre-configured to the mIAB-node for each candidate target CU of mIAB-DU, when the mIAB-DU initiates F1 setup procedure to the target CU it will inform the NCGI to the target CU. |
| **Ericsson** | **No** | We can specify that any node can do anything but is it necessary? We are reluctant to add new functionalities to the CU unless absolutely necessary. Regarding QC’s statement that “*OAM cannot perform this dynamic Cell ID allocation since the gNB may connect to a different OAM than the mIAB-node*.” – in our work, we assume, by default, that a CU and a DU may belong to different vendors and different OAM systems. Why is that a problem here and not in other cases?  |
| Lenovo | Yes | As legacy, the NCGI is obtained from OAM. However, for the mobile IAB, especially in case random mobility of mobile IAB-node, CU-based NCGI configuration is more flexible and can shorten the latency. |
| Nokia | No | Agree with Ericsson. Companies need to clarify why current OAM does not work, before introducing any enhancement, e.g. using CU to configure DU.IAB-DU need to connect with the new OAM, not just for configuration. As described in our contribution 1472, IAB-DU need to connect with OAM for multiple purposes. Even with the proposal to use CU configure IAB-DU, IAB-DU still need to connect with OAM. So there is no benefit to use CU to configure IAB-DU.  |
| Xiaomi | Yes but  | We think both OAM-based NCGI assignment and CU-based NCGI assignment can be considered, similar to PCI reconfiguration.  |
| ZTE | Yes  | For NCGI configuration, we believe that CU-based configuration is a much efficient way. It can be configured by DU’s donor since the NCGI of the mobile IAB-DU cell shall contain the gNB ID of its connected IAB donor-CU. |
| Samsung | See comment | Both the target mIAB-DU’s CU and OAM can reconfigure the NCGI. |

Summary Q2a:

* mIAB-DU’s NCGI can only be configured via OAM: 3
* mIAB-DU’s NCGI can be (re-)configured via CU: 6

The opponents of supporting CU-based configuration are asking for a reason why this would be necessary:

**If NCGI can only be OAM-configured, and two mIAB-DUs with separate OAMs are migrating to the same CU at (roughly) the same time, the two OAMs may select the same NCGI for their respective DU’s cell leading to NCGI collision.**

**Proposal 2a: At DU-migration, the target mIAB-DU-cell’s NCGI can be (re-)configured by the target mIAB-DU’s CU.**

There were different views on the configuration of TAC/RANAC.

In case we agree that the TAC (or RANAC) broadcast inside the vehicle must always be the same as that broadcast by the surrounding network, the mIAB-DU could certainly copy over the TAC (RANAC) from the one seen by the mIAB-MT.

If we allow for scenarios, where inside and outside TACs (RANACs) are different, the mIAB-DU’s TAC (RANAC) would have to be configured and could not just be copied from that seen by the mIAB-MT. The question arises if the change of the in-vehicle TAC (RANAC) should be CU-reconfigurable, and in this case, whether it is the MT’s CU or the DU’s CU that reconfigures the mIAB-DU-cell’s TAC.

**Question 2b: Please provide feedback on 1) and 2):**

1. **In case RAN3 agrees that the in-vehicle TAC is always the same as the TAC of the outside network, the mIAB-DU can copy the TAC from the mIAB-MT.**
2. **In case RAN3 allows in-vehicle TAC to be different than outside TAC, the TAC broadcasted by the mIAB-DU:**
	1. **Is (re-)configurable by the mIAB-DU’s CU,**
	2. **Is (re-)configurable by the mIAB-MT’s CU.**

|  |  |
| --- | --- |
| **Company** | **Feedback** |
| Qualcomm | 1: Agree,2a: Agree,2b: Do not agree. In this case, the mIAB-MT’s CU may not know what TAC the mIAB-DU should have. |
| Huawei | 1: disagree. The parameter used by IAB-DU’s cell should controlled by the network, rather than decided by itself.2a: agree, and this also apply to the case that the in-vehicle TAC is same as the out side TAC.2b: disagree. The DU’s parameter is configured by the OAM or the F1 terminating CU, not the MT’s CU. |
| CATT | 1: Not Agree, the mIAB-DU does not know whether the TAC/RANAC broadcasted should be the same as that used by the serving cell of the co-located mIAB-MT or not. In our view, the TAC/RANAC broadcasted should always be controlled by the mIAB-DU’s CU.2a: Agree,2b: Not agree.  |
| **Ericsson** | **#1: agree****#2a: agree (hopefully not)****#2b: disagree** |
| Lenovo | 1: Disagree. Although the TAC used by the IAB-DU can be the same as the TAC of IAB-MT, but it can be only configured by donor-CU.2a: Agree2b: Disagree.  |
| Nokia | Not ok for allBoth same or different TAC are allowed, but it is up to operator/OAM configuration.  |
| Xiaomi  | #1: agree#2a: agree (hopefully not)#2b: disagree |
| ZTE | 1. **Disagree.**

What does “the in-vehicle TAC is always the same as the TAC of the outside network” mean? Does it mean the same design (i.e. size/shape) or the same set of TACs? In fact, we observed some problem if the mobile IAB-DU copies the TAC broadcast by its parent cell. Based on TS 23.501, for the UE that does not support CAG functionality, NG-RAN and 5GC are allowed to use not only CAG mechanism but also the other existing mechanism e.g. forbidden Tracking Area, to manage its access to MBSR. For a UE that does not support CAG and is not allowed to access the mobile IAB node, the TAC of the mobile IAB cell needs to be configured in the UE’s forbidden TA list. If the mobile IAB cell’s TAC is the same as its parent cell, the UE will not be able to access the mobile IAB node’s parent cell as well, which is incorrect and unreasonable. **2a: disagree.** **2b: agree.** As discussed in Q1a, RAN3 agreed that the TAC/RANAC broadcast by the mobile IAB-DU can be changed in order to reflect the mIAB-node’s physical location”. And the“IAB-node’s physical location” can be reflected by the NCGI/TAI of the cell serving the mIAB-MT. Then it’s more reasonable that the mIAB-DU’s TAC/RANAC is configured by MT’s donor rather than DU’s donor. DU’s donor may be far away from the physical location of the mIAB-node and has no idea how to configure the TAC/RANAC for mIAB-DU to reflect the physical location of the mIAB-node.On the other hand, If the TAC broadcast by the mobile IAB cell is configured by DU’s donor via F1, DU’s donor needs to coordinate with the MT’s donor in order to determine the TAC for mobile IAB cell, especially when there is no Xn connection between DU’s donor and MT’s donor. That means all F1AP, XnAP and NGAP needs to be enhanced to support the TAC configuration for mobile IAB cell by the DU’s donor. As we can see, more standardization effort and spec impact (i.e. including F1/Xn/NG impact) is needed if the TAC of mobile IAB cell is configured by DU’s donor via F1 in the scenario where MT and co-located DU are connected to the different donors. So we prefer that mobile IAB cell’s TAC/RANAC is (re)configured by the mIAB-MT’s donor CU.  |
| Samsung | #1: disagree. The TAC broadcast by IAB-DU should be configured by IAB-DU’s donor.#2a: agree.#2b: disagree |

Summary Q2b:

1: In case RAN3 agrees that the in-vehicle TAC is always the same as the TAC of the outside network, the mIAB-DU can copy the TAC from the mIAB-MT.

* No: 6
* Yes: 3

2a: In case RAN3 allows in-vehicle TAC to be different than outside TAC, the TAC broadcasted by the mIAB-DU is (re-)configurable by the mIAB-DU’s CU.

* No: 2
* Yes: 7

2b: In case RAN3 allows in-vehicle TAC to be different than outside TAC, the TAC broadcasted by the mIAB-DU is (re-)configurable by the mIAB-MT’s CU.

* No: 8
* Yes: 1

We may reconsider after we have made progress on Proposal 1.

Are there any other parameters that need to be CU-configurable.

**Question 2c: Which other parameters, that are usually OAM-/pre-configured, may need CU-based (re-)configuration? Why and when would such CU-based (re-)configurability necessary?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | See comment | Presently, we don’t see the need for CU-based reconfigurability of any other OAM-configured parameter. However, we should keep this issue open until the end of the WI. |
| **Ericsson** | **Let’s see** |  |
| Huawei |  | Agree with QC |
| CATT |  | Agree with QC. |
| Lenovo |  | Agree with QC |
| Nokia | No | How is it different to R16/17 that OAM need to configure IAB-DU based on IAB’s location? For example, an R16 IAB is deployed in an area that have multiple donors. Depends on IAB’s location, IAB-DU is configured with the NCGI and other parameters related to a specific donor.  |
| Xiaomi |  | Agree with QC |
| ZTE |  | As we have already agreed that PCI of mobile IAB-DU cell can be reconfigured by IAB donor CU.  |
| Samsung |  | Agree with QC |

Summary Q2c:

8 out of 9 companies believe that RAN3 does not have to make any decision right now if there are further DU-configured parameters that will have to be CU-configurable for mIAB. This implies that we don’t have to agree on anything.

Further, on OAM-based configuration:

[R3-231472] Nokia proposes that RAN3 sends an LS to SA5 to inquire how the mIAB-node can change the OAM system while moving across the network.

[R3-231536] Ericsson proposes that the (target) mIAB-DU selects an OAM based on the mIAB-node’s location or the (target) mIAB-DU’s CU.

**Question 2d: Do you agree that:**

**1) For OAM-based (re-)configuration, the IAB-node selects the OAM based on the IAB-node’s location?**

**2) An LS to be sent to SA5? If yes, what would be the questions for SA5?**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Qualcomm | 1. Yes
2. Yes. Question for SA5

How the IAB-node determines the OAM to be used? E.g., FQDN based on mIAB-MT’s gNB-ID? |
| Huawei | 1. Not sure how the IAB-node can “select” the OAM, we can ask SA5 in the LS out.
2. Yes.

The question can be “How can the mobile IAB node know the address of OAM it should connect to, during its moving? ” |
| CATT | Agree with HW. |
| **Ericsson** | **#1: Yes, with rewording:**For OAM-based (re-)configuration, the IAB-node determines to which OAM system to connect, or is provided with the address of the OAM system for the target logical mIAB-DU based on the NRCGI or TAC of mIAB-MT’s serving cell**#2: Yes.** We can start drafting the LS on the basis of QC’s and Huawei’s questions. |
| Lenovo | Agree with comments above. |
| Nokia | Yes for both. For QC update, what is “mIAB-MT’s gNB-ID”? For E/// update, it is ok for “based on the IAB-node’s location”, since an IAB-node can report its location (e.g. GNSS coordinate) to OAM, if IAB has a GNSS or know its location. NRCGI/TAC is just one example of the IAB’s location. |
| Xiaomi | Yes to both |
| ZTE | 1. Yes
2. Yes, the question could be “How can the mobile IAB node maintain it’s connection to the OAM during its movement”
 |
| Samsung | Agree with HW |

Summary to Q2d:

1 - For OAM-based (re-)configuration, the IAB-node selects the OAM based on the IAB-node’s location:

* Yes: 6
* Do not understand question, want to ask SA5: 3

The Moderator believes that we should at least converge on what we want to ask SA5.

2 - An LS to be sent to SA5? If yes, what would be the questions for SA5:

* Yes: 9
* No: 0

2 – What question should be asked: The following concrete proposals are on the table:

QC: How the IAB-node determines the OAM to be used? E.g., FQDN based on mIAB-MT’s gNB-ID?

HW: How can the mobile IAB node know the address of OAM it should connect to, during its moving?

ZTE: How can the mobile IAB node maintain it’s connection to the OAM during its movement?

There is agreement that the LS should be sent. On the LS content, the Moderator prefers to no unnecessarily preempt SA5’s answer, e.g., by explicitly referring to an “OAM address”.

The Moderator proposes:

**Proposal 2d: RAN3 to send an LS to SA5 with the question: “How can the mobile IAB-node retain its OAM connectivity while moving across the network”.**

More details can be discussed in PH2 of the discussion.

## Sharing of dynamic configuration between logical mIAB-DUs

This topic refers to the dynamic information configured by the mIAB-DU’s CU or the mIAB-MT’s CU.

[R3-231276] CATT proposes that parameters configured by the mIAB-MT’s CU, such as BH RLC configuration, BAP address and default BAP configuration, can be shared by both mIAB-DUs.

[R3-231276] CATT further proposes that UE-associated information can be shared between both mIAB-DUs such as UE F1AP ID, C-RNTI, DL UP TNL info and CellGroupConfig. The authors emphasize that such inter-DU sharing would imply that the equivalent information is shared between the DUs’ CUs.

[R3-231358] ZTE proposes that the DUs can share UE context such as SRB/DRB configurations, QoS info, UL BAP mapping. They also emphasize that this context needs to be shared between the DUs’ CUs.

[R3-231442] Lenovo proposed to have PHY/MAC/RLC info shared between both DUs.

[R3-231484] Huawei proposes that the default BH configuration can be pre-configured on the mIAB-node. Also, some cell configurations can be shared so enable inter-DU handover without UE measurement report.

[R3-231536] Ericsson prefers to postpone any further discussion on these topics until after more progress has been made.

The Moderator believes that there are several misperceptions related to dynamic sharing and for this reason, it might be good to have at least a brief discussion.

**Question 3a: Sharing on mIAB-MT’s configuration: Should BH RLC configuration, BAP address and default BAP configuration be shared between both mIAB DUs?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | See comment | Baseline: BAP address and default BAP configuration is shared by both DUs.Baseline: BH RLC channels configured via F1AP are DU-specific.We may want to agree on these baselines. |
| Huawei | See comment | We generally agree with QC on the baseline for the MT’s configuration.  |
| CATT | Yes | The **BH RLC configuration, BAP address and default BAP configuration** are all configured by the mIAB-MT’s CU, thus they are naturally shared between two logical DUs. |
| **Ericsson** | **See comment** | The BH RLC channel configuration, BAP address and default BAP configuration pertain to the mIAB-MT, so what is the issue here?**To Qualcomm:** an mIAB-node has no children, so the mIAB-DU does not serve any BH RLC channels, so how can the BH RLC channels be mIAB-DU-specific? |
| Lenovo |  | Agree with the baselines from QC. |
| Nokia |  | Agree with QC |
| Xiaomi  |  | Agree with the baselines from QC. |
| ZTE | See comment | Based on the following RAN2 agreement, BAP address and default BAP configuration can be shared by two logical DUs.* For the upstream data handling at the BAP of mobile IAB MT, one common default BAP configuration to be used by both logical DUs is the baseline.
* For the downstream data handling arriving at the mobile IAB node, RAN2 assume upper layers (e.g. IP layer) can differentiate the data to different logical DUs based on e.g. the IP address, i.e. no need to introduce logical-DU-specific BAP address. (To be confirmed by RAN3).

For BH RLC configuration, mIAB-DU is configured with BH RLC CH to be setup list by donor CU via F1 while mIAB-MT is configured with BH RLC channels by donor CU via RRC. In our view, the MT’s BH RLC channels configured via RRC can be shared by the two logical DUs since there is only one MT in the mobile IAB node. For DU’s BH RLC CH to be setup list configured via F1, it is used to configure the BH RLC CH between the DU and its child MT. However, based on the WID, the mobile IAB-node should have no descendent IAB-nodes and serves only UEs. So there is no need to configure BH RLC CH to be setup list to mobile IAB-DU via F1.  |
| Samsung | See comment | Agree that BAP address and default BAP configuration can be shared between two logical DUs. |

Summary on Q3a:

There seems to be unanimous support that BH RLC configuration, BAP address and default BAP configuration are shared between both mIAB DUs. This also confirms RAN2’s assumptions.

**Proposal 3a: The BH RLC configuration, BAP address and default BAP configuration configured on the mIAB-MT can be used by both mIAB DUs.**

**Question 3b: Sharing on mIAB-DU’s configuration: Should UE access link’s cell configuration be shared? What are the benefits? How do CUs know about the sharing?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Nothing new needed | During DU migration, the UE is handed over between both CUs. In this process, the target DU can update the UE’s cell configuration. It is up to the target DU’s implementation if it wishes to change the UE’s cell configuration. Nothing new needs to be defined.  |
| Huawei | Yes | For mobile IAB, the relative positions between the UE and the two logical DUs do not change. If the two logical DUs have some configurations in common (e.g., the same beam directions, the same slot configurations, and different carriers), the UE’s target cell can be directly assigned without the measurement, if there is a mapping relationship between the cells served by two different DUs. The CU can know the sharing if the IAB-DU sends 1-to-1 mapping relationship of cells to the CU. |
| CATT | Yes.See comment | The access link configuration for UE can be shared because the access link is not changed during DU migration. The benefit for sharing the access link configuration generated by DU (i.e., including *CRNTI*, *CellGroupConfig*) is that the signalling of UE CONTEXT SETUP RESPONSE message over F1 interface can be saved.How CUs knows the sharing can be further studied. The possible solution can be that the information sharing between logical DUs is indicated by explicit indication from the source logical DU’s CU to the target logical DU’s CU, or this indication can be implicit, e.g., when the source logical DU’s CU delivers the access link configuration generated by the source logical DU, the target logical Du’s CU considers that information is shared between logical DUs. |
| **Ericsson** | **No** | In Rel-16 we made a precedent and allowed the donor CU to configure the IAB-DU’s PHY resources. Now we want to remove the target donor CU from the loop? This does not sound good.Also, how will the source CU or the mIAB-DU know whether and which cell configurations can be reused? |
| Lenovo | Yes | Because the relative physical location between mobile IAB-DU and served UEs doesn’t change before and after DU migration, the configuration on the air interface can be reused as much as possible to avoid reconfiguration in the new path. And the target CU can know the sharing by indication from source CU or from target logical DU. |
| Nokia | Yes | Same view as CATT. An ID (e.g. DU UE F1AP ID allocated by DUa) can be sent from source CU to target CU then to DUb. |
| Xiaomi  | Yes | As mentioned above, the HO is between two logical DUs within a same physical node, which means the two logical DUs can communicated internally to share the cell configuration that determined by DU. |
| ZTE | Maybe yes  | Since the two logical DUs serves the same group of UEs, some cell configurations can be shared by the two logical DUs. And the benefit is that there is no need for DU configuration via OAM. The DU’s source donor can inform the DU configuration to be shared to DU’s target donor, so that the target donor knows about the sharing.  |
| Samsung | Yes | If some mIAB-DU’s configuration, such as cell group configurations of source logical DU, can be shared with target logical DU, it is unnecessary to add this information in UE CONTEXT HANDOVER REQUEST message which is sent from the source IAB-donor CU to the target IAB-donor CU. In this way, some signaling overhead over Xn interface can be decreased. |

Summary on Q3b:

There seems to be quite some interest to have both DUs share the same CellGroupConfig, but a lot of confusion on how this can be achieved. Again, it is up to the target DU to come up with its CellGroupConfig. Based on implementation, the target DU can decide to copy this config from the source DU. It needs to send this config to the target CU. The target CU than includes it into the HO command.

The present replies have not provided any proper description on where optimizations are possible.

**Proposal 3b: RAN3 to identify, whether and where optimizations are possible if the target logical DU uses the same CellGroupConfig as the source logical DU.**

**Question 3c: Sharing on mIAB-DU’s configuration: Should UE-associated F1 configuration be shared (F1-U GTP-U tunnel configuration)? What are the benefits? How do CUs know about the sharing?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | No | F1-U tunnels are established between target DU and its CU. There is no benefit to share any F1-U information between source-DU/CU and target-DU/CU. In fact, this should be avoided since it might create collisions in the TEID space. |
| Huawei | No | If shared, there may be TEID collision issue, at least from the CU side. So, the F1-U tunnel can not be shared directly.  |
| CATT | Yes | Not all the F1 configuration can be shared, e.g., the F1-U tunnel endpoint on the mIAB-DU’s CU side. But we think following F1 configuration generated by DU/CU can be shared:* F1AP configured BAP configuration (generated by CU), because the BH link is not actually changed during DU migration. The benefit is that the signalling of UE CONTEXT SETUP REQUEST message over F1 interface can be saved.
* F1-U tunnel endpoint and UE F1AP UE ID on the mIAB-DU side because the physical DU is the same one during the DU migration. The benefit is that the signalling of UE CONTEXT SETUP RESPONSE message over F1 interface can be saved. There is no collision on TEID, because the DL traffic to different logical DUs can be differentiated by different IP addresses.

In that case the handover preparation request message over Xn needs to be enhanced.Note that the F1 configuration sharing is still aligned with the agreement that F1AP configured BAP configuration for each logical DU is controlled by respective donor-CU of the logical DU, because the target logical DU’s CU can change the BAP configuration by the UE CONTEXT MODIFICATION REQUEST message as needed.The target logical DU’s CU can be aware of sharing on that F1 configuration based on whether there is corresponding information informed to the target logical DU’s CU from the source logical DU’s CU. |
| **Ericsson** | **No** | The target CU needs to be in the loop. |
| Lenovo | No | The F1-U GTP-U tunnel configuration is unique among CUs, no need to share the configuration, and it may cause potential TEID collision. |
| Nokia |  | The IAB-DU F1-U endpoint information may be unchanged. But this needs further study. |
| Xiaomi | No | The configuration involved with CU should not be shared |

|  |  |  |
| --- | --- | --- |
| ZTE | See comments  | The F1-U tunnel configuration (i.e. TNL address and TEID) at the mobile IAB-DU side can be shared. But the F1-U tunnel configuration (i.e. TNL address and TEID) at the donor CU side cannot be shared and should be allocated by logical DU’s connected donor CU.  |

|  |  |  |
| --- | --- | --- |
| Samsung | No | Share the same view with Ericsson and Xiaomi. |

Summary on Q3c:

Sharing of UA F1-U configurations

No: 6

Potentially: 3

There is not a lot of support. Some companies claim that the F1-U TEID at the IAB-node could be shared. Since this information must still be communicated to the target CU, the question whether this can really reduce any signaling. We can leave this to further discussion in next meeting.

**Question 3d: Sharing of UE context info: Should UE SRB/DRB be shared? What are the benefits? How do CUs know about the sharing?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | No | This information is already passed in the HO preparation.The CU needs to perform the UE Context Setup with the target DU. It is not clear what can be saved by “sharing the SRB/DRB” context.  |
| Huawei |  | After HO among two CUs, the Key should be updated anyway, so it seems that the UE’s SRB/DRB configuration cannot be shared directly. |
| CATT | Yes | **QoS for UE DRBs and AS configurations for UE SRB/DRBs which are configured by mIAB-DU’s CU** can be shared, because the traffic profile is not expected to change during DU migration. The benefit is that the signalling of UE CONTEXT SETUP REQUEST message over F1 interface can be saved. The target logical DU’s CU can change that by the UE CONTEXT MODIFICATION REQUEST message to the target logical DU.Note that there is nothing new needed over Xn interface, because there is already **QoS for UE DRBs and AS configurations for UE SRB/DRBs** in the handover request message. But maybe the explicit indicator to the target logical DU’s CU is needed to indicate the target logical DU’s CU that information is shared. |
| **Ericsson** | **No** | The target CU needs to be in the loop. |
| Lenovo | Yes | Sharing UE SRB/DRB between two DUs also have the benefic to reduce the overhead during the UE context setup in the target path. And the target CU can know the sharing by indication from source CU or from target logical DU.  |
| Nokia |  | It is unclear on the SRB/DRB to be shared. If it is about lower layer configuration, then it is covered by Q3b. Or does it mean the QoS information of the DRB? But that is part of the HO signaling. |
| Xiaomi  | Yes or No | There may be some benefits to share some lower layer configuration of SRB/DRB, which determined by DU, but it may also bring complexity to achieve this lower layer sharing, as SRB/DRB configuration should be treated as a whole. |
| ZTE | Yes  | Although the PDCP security key needs to be configured by target donor after UE HO, some RB configuration can be shared between two logical DUs, e.g., Qos info, AS configuraiton. In this way, these configurations don’t need to be sent from the DU’s target donor to the target logical DU, i.e. overhead of F1 signaling can be reduced. The target donor can know about the sharing implicitly, e.g., via the UE ID allocated by the source logical DU added in the Xn handover request message.  |
| Samsung | Yes | When the target logical DU has no enough resource to accept all of UEs’ DRBs served by the cells of source logical DU, the target logical DU can inform source donor CU accepted DRBs via source logical DU. In this way, the signaling size of UE CONTEXT HANDOVER REQUEST message can be reduced. |

Summary on Q3d:

Sharing of UE SRB/DRB info.

No: 4.5

Yes: 4.5

The Moderator does not understand how the target CU would know which SRBs/DRBs are configured for the UE unless this information is conveyed in the HO Request. The proponents of sharing do not provide any single example on how the target CU would obtain this info in case it was copied over between the DUs. They do not provide any concrete example how signaling could be saved anywhere else. As for 3c, we leave the further discussion up to contributions to next meeting.

**Question 3e: Anything else to be shared?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | No |   |
| CATT | No |  |
| **Ericsson** | **No** |  |
| Xiaomi  | Yes  | We think the knowledge of UE’s successful handover (i.e. UE access to the cell of the target DU successfully) can be shared between logical DUs, it saves F1 UE context release signalling and the overall handover latency |
|  |  |  |
|  |  |  |

Xiaomi proposes that F1 release of UE context can be spared since the DUs know that all context has been migrated over. The Moderator believes that this is actually possible. Since nobody else has commented, RAN3 should at least discuss the matter.

**Proposal 3e: RAN3 to discuss if F1AP UE Context Release at the source logical DU can be spared since the source logical DU could derive from the target logical DU that all UEs have been successfully migrated.**

## Handover related issues

Two issues need to be discussed:

**Issue 1: For mIAB-MT handover, the target CU should know that the mIAB-MT refers to an mIAB-node.**

[R3-132484] Huawei proposes that a mIAB-indicator is included int the HO request for the mIAB-MT.

[R3-131536] Ericsson emphasizes that the target CU of mIAB-MT handover knows that the mIAB-MT refers to an mIAB-node since the mIAB-node indicator is included in the UE capabilities included in the HO request.

The Moderator believes that nothing else needs to be done here. Further, if anything would have to be done, it would be part of the AI 13.2

**Issue 2: For UE handover decision, the source target CU should know that the target cells resides on an mIAB-node.**

This was proposed by [R3-231442] Lenovo, [R3-131719] Samsung and [R3-231310] Qualcomm. Further, [R3-231358] ZTE proposes to include mobile cell-type information into the neighbor detection function.

**Question 4a: Do you agree that for IAB-MT handover, the source CU should know whether the target cell belongs to an mIAB-node?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |   |
| Huawei | No | First, it is not necessary. If the HO is for UE, it does not need to know the target cell is a fixed cell or mobile cell. If the HO is for an IAB-node, the target donor can reject the HO request if the HO request if the target cell is served by a mobile IAB. The logic is same as Rel-17, where the source CU does not need to know whether the target cell support IAB or not also.Second, if the source CU want to know some information on the iab-support, this can achieve by OAM implementation. No spec impact is expected. |
| CATT | Yes |  |
| **Ericsson** | **No** | Same view as Huawei. Besides, the WID precludes the optimizations target the surrounding UEs, and this is one such optimization (preventing the UEs outside the vehicle to connect to an mIAB node). |
| Lenovo | Yes | It’s beneficial to avoid handover a fixed IAB-node to a target cell belonging to a mobile IAB-node. |
| Nokia | Yes | For HW comments, it is true that target donor can reject the HO, but source donor cannot know the reject is due to the HO to an IAB cell. A new cause value will not help, since RAN3 cannot mandate the target use a specific cause value. Also, updated Q4 since this is for HO of an IAB-MT. It is not needed for a normal UE HO.  |
| Xiaomi  | Not sure | Not sure the question is about IAB-MT handover or UE handover.**If it’s UE handover, the comments are:**We’re wondering how the source can decide whether to move the UE to a mobile cell or not by only knowing the target cell is mobile or not, without knowing the UE’s onboard status.If the UE is onboard, the willing for the UE is to handover a mobile cell, if the UE is not onboard, the willing of UE is to handover a fixed cell.That’s the reason we want to discuss how the donor-CU identify the UE is onboard or not, but seems companies don’t want to touch this topic, so we don’t see the need of this proposal without knowing the UE’s moving status.**If it’s IAB-MT handover, the comments are:**It makes sense to us, as the IAB-MT is not allowed to handover to another mobile IAB-node, but we think this may need further discussion, has RAN2 already agreed to introduce a broadcast indication over Uu to avoid this scenario happen?  |
| ZTE | See comments  | We think similar issue exists in R17. The source donor could know whether the target cell belongs to a mobile IAB-Node via OAM instead of Xn signaling.  |
| Samsung | Yes |  |

This could be facilitated by including the mIAB-indicator in the “Served Cells To Update NR” IE in the Xn NG-RAN NODE CONFIGURATION UPDATE message.

**Question 4b: Do you agree that the mIAB-cell indicator is included in the “Served Cells To Update NR” IE in the Xn NG-RAN NODE CONFIGURATION UPDATE message?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |   |
| Huawei | No | Please see our response for Q4a. |
| CATT | Yes |  |
| **Ericsson** | **No** |  |
| Lenovo | Yes |  |
| Nokia | Yes | Refer to our comments on Q4a. |
| Xiaomi  | Unless the Q4a is agreed |  |
| ZTE | No  | Please refer to comments for Q4a. |
| Samsung | Yes |  |

Summary:

The Moderator tried to differentiate between MT handover and UE handover, but apparently this point got lost. There is further no support for any of the ideas proposed in contributions. Therefore, no proposal.

## Others

**Question 5: Anything issues not addressed?**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Huawei |  Not sure why the Issue 1 in 3.4 should be discussed in 13.2. in previous meeting, we discussed the issue and reached agreements in 13.3. And we have two papers submitted to AI 13.3 in this meeting to discuss this issue. So, we suggest to add question for this issue 1 in 3.4 in this CB.Our view is that **explicit signaling is needed**, because we have concerns about the indication through UE capability. The UE capability is not used for admission control during the HO process. Thus, it is not mandatory that the target CU should reject a UE’s HO request just because it cannot support some enhanced UE features (e.g., new features introduced in rel-17, or later) which is unknown to the target CU. Instead, it may accept the UE and just provides basic services to UE (e.g., only support Rel-15 NR UE features). But for mobile IAB node, the target CU should reject the HO request if it not support the mobile IAB, because it may not able to provide services (e.g. support consecutive partial migration, DU migration, etc.) which are required for the IAB node mobility. |
| **Ericsson** | **Agree with Huawei** in the sense that the issue belongs here. |
| Lenovo | Agree with Huawei to discuss this issue here, and agree with the explicit signaling. |
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Summary:

We can capture this as a proposal for further discussion.

**Proposal 5: RAN3 to discuss if explicit mobile IAB-node indication to be included in the HO request for the mIAB-MT so that the target CU can perform admission control.**

# Discussion - Phase II

**Proposal 0**

There have been controversial views on this proposal:

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| --- |
| ***Proposal 0: At DU-migration, the target mIAB-DU-cell’s NCGI can be (re-)configured by the target mIAB-DU’s CU.*** |

Two companies emphasized that NCGI should be configured via OAM as for a stationary gNB-DU. The Moderator does not disagree with OAM-configurability, but there should be a mechanism to resolve collisions among NCGIs configured by separate OAMs, e.g., belonging to target donor and IAB-node, or to two IAB-nodes migrating the DU to the same donor. Opponents to CU reconfigurability are therefore asked to clarify how these issues are addressed.

Based on how things were handled in the Thursday session, the moderator proposes the following modified proposal:

**Proposal 10: At DU-migration, the target mIAB-DU-cell’s NCGI can be configured via OAM and optionally (re-)configured by the target mIAB-DU’s CU.**

**Q10: Do you support proposal 10? If not please propose solutions on how NCGI collisions can be avoided**

1. **between target mIAB-DU’s cells and target donor’s stationary cells if mIAB-node and target donor use separate OAMs.**
2. **between cells of two or more mIAB-DUs with separate OAMs that migrate to the same target donor CU.**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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**Proposal 1**

There have been controversial views on this proposal:

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| --- |
| *Proposal 1: RAN3 to decide between the following two options:**Option A: The IAB-DU’s TAC to refer to any TA configured by the operator.**Option B: The IAB-DU’s TAC to be the same as the TAC seen by the mIAB-MT.* |

The companies were split between both options. The Moderator observes that if the mIAB-node determines the mIAB-DU’s TAC based on implementation, both options can be supported. In case the mIAB-DU’s TAC is configured by the mIAB-DU’s CU, also both options can be supported.

We therefore should be able to agree on the union of Option A and Option B:

**Proposal 11-1: The IAB-DU’s TAC can be the same TAC as seen by the co-located mIAB-MT, or it can refer to a separate TA configured by the operator.**

We can the get a little more into detail on the configuration of this TAC:

**Proposal 11-2: The mIAB-DU’s TAC can be determined by the IAB-node based on implementation or it can be configured by the mIAB-DU’s CU.**

**Q11: Do you support proposals 11-1 and/or 11-2?**

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| --- | --- | --- |
| **Company** | **11-1?****11-2?** | **Comments** |
| Qualcomm | **11-1: Yes****11-2: Yes** |  |
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**Proposal 2d**

Baseline proposal from PH1:

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| *Proposal 2d: RAN3 to send an LS to SA5 with the question: “How can the mobile IAB-node retain OAM connectivity while moving across the network”.*  |

There was strong support for an LS to SA5, but controversial views on the question to be asked. Nokia emphasizes that the main issue is not the establishment of OAM connectivity but the selection of a locally relevant OAM. The Moderator believes that this could be configured on the IAB-node (e.g., lookup table of OAM FQDN based on mIAB-MT’s location). The Moderator is not sure if other companies share the same view.

Also, SA2 discussed OAM connectivity in the VMR SI/WI and only identified issues related to MBSR roaming, which is not in RAN3 scope. The Moderator would therefore like to know what OAM-related issue SA5 would have to resolve.

**Q12-d: For LS to SA5: According to RAN3, what OAM-related issue would SA5 have to resolve, and/or what concrete question should RAN3 ask?**

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| **Company** | **Comments** |
| Qualcomm | Presently, RAN3 does not see any issue to be resolved by SA5.  |
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**Proposal 3a**

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| *Proposal 3a: The BH RLC configuration, BAP address and default BAP configuration configured on the mIAB-MT can be used by both logical mIAB DUs.* |

There were some comments that the mIAB-node does not have child nodes and therefore there wouldn’t be any BH RLC configuration. The Moderator believes that it is sufficiently clear from the wording of P3a that the BH RLC configuration refers to the IAB-MT’s link to the network.

**Proposal 30a: The BH RLC configuration, BAP address and default BAP configuration configured on the mIAB-MT can be used by both logical mIAB DUs.**

**Q30-a: To you agree with P30a?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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**Proposal 3b**

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| *Proposal 3b: RAN3 to discuss, whether any signaling optimizations in RAN3 scope are possible if the target logical DU uses the same CellGroupConfig as the source logical DU.* |

This was a last-minute rewording by the Moderator. Some companies believe that CellGroupConfig-related issues are in RAN2 scope. The Moderator believes that the relevant question for RAN3 is whether there are any potential signaling optimization in RAN3 scope if the CellGroupConfigs are shared (i.e, are the same). This can be a “To be continued”:

**Proposal 30b: To be continued: RAN3 to discuss, whether any signaling optimizations in RAN3 scope are possible if the target logical DU uses the same CellGroupConfig as the source logical DU.**

**Q30-b: To you agree with P30b?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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**Proposal 3e**

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| *Proposal 3e: RAN3 to discuss if F1AP UE Context Release at the source logical DU can be spared since the source logical DU could derive from the target logical DU that all UEs have been successfully migrated.* |

This is also an open issue. Some companies had doubts that saving the F1AP UE Context Release would be a good idea. Since this is an optimization, we can give it one more round and discuss in next meeting based on contributions.

**Proposal 30e: To be continued: RAN3 to discuss if F1AP UE Context Release at the source logical DU can be spared since the source logical DU could derive from the target logical DU that all UEs have been successfully migrated.**

**Q30-e: To you agree with P30e?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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**Proposal 5**

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| *Proposal 5: RAN3 to discuss if explicit mobile IAB-node indication to be included in the HO request for the mIAB-MT so that the target CU can perform admission control.* |

The promoters of P5 believe that we can go for agreement instead of discussion. Let’s give it a try.

**Proposal 50: Explicit mobile IAB-node indication to be included in the HO request for the mIAB-MT so that the target CU can perform admission control.**

**Q50: To you agree with P50?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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# References

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| [R3-231276](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231276.zip) | Other aspects for mobile IAB (CATT) | discussion |
| [R3-231310](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231310.zip) | Enhancements for mobility of IAB-node and its served UEs (Qualcomm Inc.) | discussion |
| [R3-231358](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231358.zip) | Discussion on enhancements to IAB node migration in mobile IAB scenario (ZTE) | discussion |
| [R3-231442](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231442.zip) | Mobility enhancements for mobile IAB-node and its served UE (Lenovo) | discussion |
| [R3-231472](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231472.zip) | Discussion on mobility enhancements (Nokia, Nokia Shanghai Bell) | discussion |
| [R3-231484](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231484.zip) | (TP for NR\_mobile\_IAB BL CR for TS 38.423): Mobility enhancement for mobile IAB (Huawei) | other |
| [R3-231525](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231525.zip) | Discussion on mobility enhancement (Xiaomi) | discussion |
| [R3-231536](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231536.zip) | IAB-Node Mobility Enhancements (Ericsson) | discussion |
| [R3-231719](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_119bis-e%5CDocs%5CR3-231719.zip) | Discussion on mobility enhancements (Samsung) | discussion |