**3GPP TSG-RAN WG3 Meeting #117-eR3-225030**

**Online, August 15th – 24th 2022**

Agenda Item: 13.2

Source: Ericsson (moderator)

Title: CB # IAB2\_Mobility - Summary of email discussion

Document for: Approval

# Introduction

The deadline for providing replies to Phase 1 is **Thursday, August 18th at 23.59 UTC.**

**Relevant papers:**

**[Hua4353]** Discussion on the full migration for mobile IAB (Huawei)

**[Hua4354]** Discussion on the inter-donor transport for full migration of mobile IAB (Huawei)

**[Nok4376]** IAB mobility (Nokia, Nokia Shanghai Bell)

**[Nok4377]** Discussion on mobile IAB aspects based on dual-DU (Nokia, Nokia Shanghai Bell)

**[Len4429]** Inter-donor full migration procedure of mobile IAB (Lenovo)

**[Eri4496]** The Migration Procedure for Mobile IAB-Nodes (Ericsson)

**[QC4504]** Topology adaptation for mobile IAB (Qualcomm Inc.)

**[Fuj4704]** Support of intra-m-CU mobility (Fujitsu)

**[Fuj4705]** Discussion on IAB full migration (Fujitsu)

**[ZTE4710]** Discussion on inter-donor full migration in mobile IAB scenario (ZTE)

**[ZTE4711]** Discussion on migration sequence of full migration procedure (ZTE)

**[Xmi4767]** Discussion on IAB full migration (Xiaomi)

**[Int4777]** Discussion on Full Migration of mobile IAB-node (Intel Corporation)

**[Sam4826]** Discussion on full migration procedure (Samsung)

# For the Chairman notes

**TBW**

# Discussion

At this meeting we will discuss the general principles of mIAB mobility procedure and the aspects of mIAB-DU HO that do not directly depend on these general principles.

## Mobility procedure for mIAB-nodes – general principles

### The high-level approach

Papers [Eri4496], [QC4504], [Nok4376], [Fuj4704] and [ZTE4711] consider the approach to mIAB mobility where the mIAB-MT can undergo multiple consecutive inter-CU handovers, without executing the inter-CU HO of the co-located mIAB-DU. Meanwhile, paper [Len4429] proposes to mandate the joint execution of mIAB-MT and mIAB-DU inter-CU HO.

**Q1-1: Should it be possible to execute the mIAB-MT and mIAB-DU inter-CU HOs independently, i.e., executing one without the other?**

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| **Company** | **Answer** | **Motivation** |
| **Ericsson** | **Yes** | Mandating the joint execution of the two HOs will cause frequent reconfigurations of both the mIAB-node and the UEs. It will also long service interruptions and mutual dependence of HO failures.  |
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**Summary:**

### The reuse of partial migration

Papers [Eri4496], [QC4504], [Nok4376], [Fuj4704], [Sam4826] and [ZTE4711] propose to use the Rel-17 partial migration as the baseline procedure for mIAB node migration.

**Proposal 1-1: The Rel-17 partial migration is the baseline for supporting the F1 transport migration and inter-donor routing when an mIAB-DU and its co-located mIAB-MT are connected to different donor CUs.**

**Q1-2: Do you agree to the above proposal?**

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| **Company** | **Answer** | **Motivation** |
| **Ericsson** | **Yes** | Partial migration already enables an IAB-node to maintain the F1 and RRC to different donors, so let’s reuse it as much as possible. |
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**Summary:**

###  Migration in the absence of XnAP connectivity

Paper [QC4504] proposes that RAN3 discusses how inter-donor topology adaptation can be supported for mobile IAB in absence of Xn and/or inter-donor IP routability. It is further proposed to consider F1-C transport over NGAP in case there is no inter-donor IP routability. Meanwhile, paper [Int4777] proposes that HOs of mIAB-MT and its co-located mIAB-DU are executed jointly in case IP connectivity between the target IAB-donor DU and the source IAB-donor CU is not available.

**Proposal 1-2: RAN3 to discuss how inter-donor topology adaptation can be supported for mobile IAB in absence of Xn and/or inter-donor IP routability.**

**Proposal 1-3: For inter-donor topology adaptation in the absence of inter-donor IP routability, RAN3 to consider F1-C transport over NGAP.**

**Q1-3: Do you agree to the above proposals?**

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| **Company** | **Answer** | **Motivation** |
| **Ericsson** | **Yes, to both.** | XnAP connectivity may not always be available. Meanwhile, we should find ways to reduce the number of DU HOs. |
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**Summary:**

###  The scope of mobility support

Paper [Hua4353] proposes to preclude the support for mobility of dual-connected mIAB nodes. Paper [Len4429] proposes to preclude full migration for stationary IAB-nodes. Paper [Int4777] proposes to support both intra-donor CU migration and inter-donor CU migration of mIAB nodes. Meanwhile, paper [QC4504] proposes that any discussion related to the use of DAPS by mIAB nodes should be initiated by RAN2.

**Q1-4: Do you agree that:**

1. **Mobility of dual-connected mIAB nodes is outside the Rel-18 scope?**
2. **Full migration of stationary IAB-nodes is outside Rel-18 scope?**
3. **Intra-donor CU migration of mIAB nodes is within Rel-18 scope?**

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| **Company** | **Answer** | **Motivation** |
| **Ericsson** | **a), b) and d): yes****c): only if it “comes for free”.** | c): Only inter-donor mobility was mentioned in the WID, and we should not address any enhancements specific to supporting intra-donor mobility. |
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**Summary:**

## Handover of mIAB-DU

### mIAB-DU HO procedure

All the papers addressing the mIAB-DU HO assume that the HO is accomplished by establishing the second virtual mIAB-DU. Papers [Sam4826] and [Nok4377] are neutral with respect to whether Alt1 or Alt2 discussed in Rel-17 should be supported, while most of the remaining papers assume Alt1. Paper [Xmi4767] explicitly proposes to assume Alt1. Below is a set of basic proposals:

**Proposal 2-1: To execute the handover of the F1 connection and the served UEs, the mobile IAB-node concurrently supports two logical mIAB-DUs, which have F1AP associations with the source CU and the target CU, respectively.**

**Proposal 2-2: The UEs connected to the mIAB-node are handed over from the cell of the logical mIAB-DU that has an F1AP association with the source CU (i.e., the source logical mIAB-DU) to the cell of the logical mIAB-DU that has an F1AP association with the target CU (i.e., the target logical mIAB-DU).**

**Proposal 2-3: Use the Alt 1 (i.e., source and target logical mIAB-DUs use separate physical cell resources) as baseline for the handover of the F1AP connection of an mIAB-node and its served UEs.**

**Q2-1: Do you agree to the above proposals?**

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| **Company** | **Answer** | **Comment** |
| **Ericsson** | **P2-1: yes****P2-2: yes****P2-3: yes** |  |
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**Summary:**

### Resource sharing between two logical mIAB-DUs

Papers [Hua4353] and [Int4777] propose that, for mIAB-DU HO, two logical mIAB-DUs use different PCIs with separate physical resources. Meanwhile, papers [QC4504] and [Hua4353] propose to send an LS asking RAN1 to discuss and clarify how the resource sharing between the layer-1 of the cells of two logical mIAB-DUs on the mIAB-node should be implemented.

**Proposal 2-4: Send an LS asking RAN1 to discuss and clarify how the resource sharing between the layer-1 of the cells of two logical mIAB-DUs on the mIAB-node should be implemented.**

**Q2-2: Do you agree to the above proposal?**

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| **Company** | **Answer** | **Comment** |
| **Ericsson** | **Yes.** |  |
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**Summary:**

### Multiple candidate configurations for the mIAB node

Papers [QC4504], [Nok4377] and [Sam4826] discuss, configuring the mIAB node with multiple (candidate) configurations that would be activated based on the movement of the mIAB node. The proposal in [QC4504] concerns the mIAB-MT, while the proposal in [Nok4377] concerns the mIAB-DU.

**Proposal 2-5: An mIAB node may be configured with multiple configurations, each corresponding to a different target donor, that can be activated upon fulfillment of certain condition(s).**

**Q2-3: Do you agree to the above proposal?**

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| **Company** | **Answer** | **Comment** |
| **Ericsson** | **Yes** | We see benefits in pre-configuration, such as reduction of service interruption and less “time pressure” when handing over the UEs.  |
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**Summary:**