**3GPP TSG-RAN WG3 Meeting #115-eR3-222758**

**Online, February 21st – March 3rd 2022**

Agenda Item: 13.3.1

Source: Ericsson, Huawei, Samsung

Title: (TP for IAB BL CR for TS 38.473): Congestion Mitigation in IAB Networks

Document for: Agreement

# TP for IAB BL CR for TS 38.473

-------------------------------------------Start of changes-------------------------------------------

8.10 IAB Procedures

8.10.1 BAP Mapping Configuration

8.10.1.1 General

The BAP Mapping Configuration Procedure is initiated by the gNB-CU in order to configure the DL/UL routing information and/or traffic mapping information needed for the gNB-DU. The procedure uses non-UE associated signalling.

NOTE: Implementation shall ensure the avoidance of potential race conditions, i.e. it shall ensure that conflicting traffic mapping configurations are not concurrently performed using the non-UE-associated BAP Mapping Configuration procedure and the UE-associated UE Context Management procedures.

8.10.1.2 Successful Operation

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**Figure 8.10.1.2-1: BAP Mapping Configuration procedure: Successful Operation**

The gNB-CU initiates the procedure by sending BAP MAPPING CONFIGURATION message to the gNB-DU. The gNB-DU replies to the gNB-CU with BAP MAPPING CONFIGURATION ACKNOWLEDGE.

If *BH Routing Information Added List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, store the BH routing information from this IE and use it for DL/UL traffic forwarding. If *BH Routing Information Added List* IE contains information for an existing BAP Routing ID, the gNB-DU shall, if supported, replace the previously stored routing information for this BAP Routing ID with the corresponding information in the *BH Routing Information Added List* IE.

If *BH Routing Information Removed List* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, remove the BH routing information according to such IE.

If the *Traffic Mapping Information* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, process the *Traffic Mapping Information* IE as follows:

- if the *IP to layer2 Traffic Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *IP to layer2 Mapping Info To Add* IE, if present, and remove the previously stored mapping information as indicated by the *IP to layer2 Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored for the mapping of IP traffic to layer 2, as specified in TS 38.340 [30].

- if the *BAP layer BH RLC channel Mapping Info* IE is included, the gNB-DU shall store the mapping information contained in the *BAP layer BH RLC channel Mapping Info To Add* IE, if present, and remove the previously stored mapping information as indicated by the *BAP layer BH RLC channel Mapping Info To Remove* IE, if present. The gNB-DU shall use the mapping information stored when forwarding traffic on BAP-layer, as specified in TS 38.340 [30].

If the *Buffer Size Threshold* IE is included in the BAP MAPPING CONFIGURATION message, the gNB-DU shall, if supported, use it to trigger local re-routing based on the flow control feedback from child IAB-nodes.

-------------------------------------------Next change-------------------------------------------

9.2.9 IAB messages

9.2.9.1 BAP MAPPING CONFIGURATION

This message is sent by the gNB-CU to provide the backhaul routing information and/or traffic mapping information to the gNB-DU.

Direction: gNB-CU → gNB-DU

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **BH Routing Information Added List** |  | *0...1* |  |  | YES | ignore |
| **>BH Routing Information Added List Item** |  | *1.. <maxnoofRoutingEntries>* |  |  | EACH | ignore |
| >>BAP Routing ID | M |  | 9.3.1.110 |  | - |  |
| >>Next-Hop BAP Address | M |  | 9.3.1.111 | Indicates the BAP address of the next hop IAB-node or IAB-donor-DU. | - |  |
| **BH Routing Information Removed List** |  | *0...1* |  |  | YES | ignore |
| **>BH Routing Information Removed List Item** |  | *1.. <maxnoofRoutingEntries>* |  |  | EACH | ignore |
| >>BAP Routing ID | M |  | 9.3.1.110 |  | - |  |
| Traffic Mapping Information | O |  | 9.3.1.95 |  | YES | ignore |
| Buffer Size Threshold | O |  | INTEGER (0 .. 224 -1) | The buffer size threshold for hop-by-hop flow control feedback, in bytes.  | YES | ignore |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofRoutingEntries | Maximum no. of routing entries, the maximum value is 1024. |

-------------------------------------------Next change-------------------------------------------

#### 9.3.1.x IAB Congestion Indication

This IE contains the IAB downlink congestion indication.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **IAB Congestion Indication List** |  | *1* |  |  |
| **>IAB Congestion Indication List Item** |  | *1..**<maxnoofIABCongInd>* |  |  |
| >>Child Node Identifier | M |  | 9.3.1.111 | This IE identifies the child node, the link to which is congested. |
| **>>BH RLC CH List** |  | *0..1* |  |  |
| **>>>BH RLC CH List Item** |  | *1..**<maxnoofBHRLCChannels>* |  |  |
| >>>>BH RLC CH ID | M |  | 9.3.1.113 | This IE identifies the congested BH RLC channel over the link towards the node identified by the *Child Node Identifier* IE. |

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| --- | --- |
| Range bound | Explanation |
| maxnoofIABCongInd | Maximum no. of congestion indications, the maximum value is 1024. |
| maxnoofBHRLCChannels | Maximum no. of BH RLC channels allowed towards one IAB-node, the maximum value is 65536. |

-------------------------------------------End of changes-------------------------------------------