**3GPP TSG-RAN WG3 Meeting #111-eR3-211272**

**Online, January 25th – February 4th 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.473** | **CR** | **0737s** | **rev** | **-** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | CP-based Congestion Indication for IAB Networks | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IAB\_enh | | | | |  | | ***Date:*** | | 2021-02-03 |
|  |  | | | |  | | |  | |  |
| ***Category:*** | **B** |  | | | | | | ***Release:*** | | Rel-17 |
|  | *Use one of the following categsories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13)s Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Enabling CP-based congestion detection in IAB Networks | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding a congestion indicator in GNB-DU STATUS INDICATION message. Definition of *IAB Congestion Indication* IE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | CP-based congestion detection in IAB Networks not supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.7.2, 9.2.1.15, 9.3.1.x (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | |  | | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | TS/TR ... CR ... | | | |
| ***affected:*** | |  | **x** | Test specifications | | | TS/TR ... CR ... | | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | TS/TR ... CR ... | | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |

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| ***This CR's revision history:*** |  |

-------------------------------------------Change 1-------------------------------------------

### 8.2.7 gNB-DU Status Indication

#### 8.2.7.1 General

The purpose of the gNB-DU Status Indication procedure is informing the gNB-CU that the gNB-DU is overloaded so that overload reduction actions can be applied. The procedure uses non-UE associated signalling.

#### 8.2.7.2 Successful Operation



Figure 8.2.7.2-1: gNB-DU Status Indication procedure

If the *gNB-DU* *Overload Information* IE in the GNB-DU STATUS INDICATION message indicates that the gNB-DU is overloaded, the gNB-CU shall apply overload reduction actions until informed, with a new GNB-DU STATUS INDICATION message, that the overload situation has ceased.

The detailed overload reduction policy is up to gNB-CU implementation.

If the *IAB Congestion Indication* IE is contained in the GNB-DU STATUS INDICATION message, the gNB-CU shall apply measures for congestion mitigation.

#### 8.2.7.3 Abnormal Conditions

Void.

-------------------------------------------Change 2-------------------------------------------

#### 9.2.1.15 GNB-DU STATUS INDICATION

This message is sent by the gNB-DU to indicate to the gNB-CU its status of overload.

Direction: gNB-DU → gNB-CU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| gNB-DU Overload Information | M |  | ENUMERATED (overloaded, not-overloaded) |  | YES | reject |
| *IAB Congestion Indication* | O |  | 9.3.1.x |  | YES | reject |

-------------------------------------------Change 3-------------------------------------------

#### 9.3.1.x IAB Congestion Indication

The *IAB Congestion Indication* IE indicates a downlink congestion in an IAB-node.

Editor’s NOTE: the content of this IE is FFS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Congestion Indication Type* | M |  |  |  |
| >*BAP Routing ID-based* |  |  |  | The content of this IE is FFS. |
| **>>Congested BAP Routing ID List** |  | *0..1* |  |  |
| >>>**Congested BAP Routing ID List Item** |  | *1 .. <maxnoofCongBAPRoutingIDs>* |  |  |
| >>>>BAP Routing ID | M |  | 9.3.1.110 |  |
| >Link of *BH-RLC Channel-based* |  |  |  |  |
| **>>Congested Link or BH RLC Channel List** |  | *0..1* |  |  |
| >>>**Congested Link or BH RLC Channel List Item** |  | *1 .. <maxnoofChildIABNodes>* |  |  |
| >>>>gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  |
| >>>>gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  |
| >>>>BH RLC CH ID | O |  | 9.3.1.113 | The content of this IE is FFS. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofChildIABNodes | Maximum number of child nodes for which the congestion can be indicated. Value is FFS. |
| maxnoofCongBAPRoutingIDs | Maximum number of BAP Routing IDs for which the congestion can be indicated. Value is FFS. |

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