3GPP TSG-RAN WG3 Meeting #122 R3-237979

**Chicago, US, 13-17 Nov, 2023**

Agenda Item: 13.2

Source: ZTE

Title: (TP for mIAB BL CR to TS 38.413) Introduction of mobile IAB supported indication in NG SETUP RESPONSE message

Document for: Agreement

# 1 Introduction

This is to capture the agreements regarding the following CB.

**CB: # IAB-node\_mobility**

* **Discuss remaining proposals, if any**
* **Agree TPs**

Summary of offline disc R3-237857

(Moderator – Qualcomm)

# Annex: TP for Mobile IAB BL CR to TS 38.413

<<<<<<<<<<<<<<<<<<<< First Change >>>>>>>>>>>>>>>>>>>>

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**ACL functionality:** as defined in TS 36.413 [16].

**CAG cell:** as defined in TS 38.300 [8].

**DAPS Handover**: as defined in TS 38.300 [8].

**Elementary Procedure:** NGAP consists of Elementary Procedures (EPs). An Elementary Procedure is a unit of interaction between the NG-RAN node and the AMF. These Elementary Procedures are defined separately and are intended to be used to build up complete sequences in a flexible manner. If the independence between some EPs is restricted, it is described under the relevant EP description. Unless otherwise stated by the restrictions, the EPs may be invoked independently of each other as standalone procedures, which can be active in parallel. The usage of several NGAP EPs together or together with EPs from other interfaces is specified in stage 2 specifications (e.g., TS 38.401 [2], TS 38.410 [3] and TS 38.300 [8]).

An EP consists of an initiating message and possibly a response message. Two kinds of EPs are used:

- **Class 1:** Elementary Procedures with response (success and/or failure).

- **Class 2:** Elementary Procedures without response.

For Class 1 EPs, the types of responses can be as follows:

Successful:

- A signalling message explicitly indicates that the elementary procedure successfully completed with the receipt of the response.

Unsuccessful:

- A signalling message explicitly indicates that the EP failed.

- On time supervision expiry (i.e., absence of expected response).

Successful and Unsuccessful:

- One signalling message reports both successful and unsuccessful outcome for the different included requests. The response message used is the one defined for successful outcome.

Class 2 EPs are considered always successful.

**en-gNB**: as defined in TS 37.340 [32].

**gNB:** as defined in TS 38.300 [8].

**MBS session resource**: as defined in TS 38.401 [2].

**NB-IoT:** as defined in TS 36.300 [17].

**ng-eNB:** as defined in TS 38.300 [8].

**NG-RAN node:** as defined in TS 38.300 [8].

**Non-CAG cell:** as defined in TS 38.300 [8].

**PDU session resource:** as defined in TS 38.401 [2].

**Public Network Integrated NPN:** as defined in TS 23.501 [9].

**Stand-alone Non-Public Network:** as defined in TS 23.501 [9].

**Mobile IAB-node**: as defined in TS 38.300 [8].

**Mobile IAB-MT**: as defined in TS 38.300 [8].

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#### 8.7.1.2 Successful Operation



Figure 8.7.1.2-1: NG setup: successful operation

The NG-RAN node initiates the procedure by sending an NG SETUP REQUEST message including the appropriate data to the AMF. The AMF responds with an NG SETUP RESPONSE message including the appropriate data.

If the *Configured TAC Indication* IE set to "true” is included for a Tracking Area contained in the *Supported TA List* IE in the NG SETUP REQUEST message, the AMF may take it into account to optimise NG-C signalling towards this NG-RAN node.

If the *UE Retention Information* IE set to “ues-retained“ is included in the NG SETUP REQUEST message, the AMF may accept the proposal to retain the existing UE related contexts and signalling connections by including the *UE Retention Information* IE set to “ues-retained“ in the NG SETUP RESPONSE message.

If the AMF supports IAB, the AMF shall include the *IAB Supported* IE in the NG SETUP RESPONSE message. If the *IAB Supported* IE is included in the NG SETUP RESPONSE message, the NG-RAN node shall, if supported, store this information and use it for further AMF selection for the IAB-MT.

The AMF shall include the *Backup AMF Name* IE, if available, in the *Served GUAMI List* IE in the NG SETUP RESPONSE message. The NG-RAN node shall, if supported, consider the AMF as indicated by the *Backup AMF Name* IE when performing AMF reselection, as specified in TS 23.501 [9].

If the *GUAMI Type* IE is included in the NG SETUP RESPONSE message, the NG-RAN node shall store the received value and use it for further AMF selection as defined in TS 23.501 [9].

If the *RAN Node Name* IE is included in the NG SETUP REQUEST message, the AMF may use this IE as a human readable name of the NG-RAN node. If the *Extended RAN Node Name* IE is included in the NG SETUP REQUEST message, the AMF may use this IE as a human readable name of the NG-RAN node and shall ignore the *RAN Node Name* IE if also included.

If the *AMF Name* IE is included in the NG SETUP RESPONSE message, the NG-RAN node may use this IE as a human readable name of the AMF. If the *Extended AMF Name* IE is included in the NG SETUP RESPONSE message, the NG-RAN node may use this IE as a human readable name of the AMF and shall ignore the *AMF Name* IE if also included.

If the *NB-IoT Default Paging DRX* IE is included in the NG SETUP REQUEST message, the AMF shall take it into account for paging.

If the *RAT Information* IE is included in the NG SETUP REQUEST message, the AMF shall handle this information as specified in TS 23.502 [10].

If the *NID* IE within the *NPN Support* IE is included within a *Broadcast PLMN Item* IE in the NG SETUP REQUEST message, the AMF shall consider that the NG-RAN node supports the indicated S-NSSAI(s) for the corresponding tracking area code for the SNPN identified by the *PLMN Identity* IE and the *NID* IE.

If the *NID* IE within the *NPN Support* IE is included within a *PLMN Support Item* IE in the NG SETUP RESPONSE message, the NG-RAN node shall consider that the AMF supports the SNPN identified by the *PLMN Identity* IE and the *NID* IE.

If the *Onboarding Support* IE is also included within the same *PLMN Support Item* IE, the NG-RAN node shall, if supported, consider that the AMF supports UE onboarding for the identified SNPN, as specified in TS 23.501 [9].

If the *TAI NSAG Support List* IE is included in the *Broadcast PLMN Item* IE in the NG SETUP REQUEST message, the AMF shall, if supported, use this information as specified in TS 23.501 [9].

If the AMF supports mobile IAB, the AMF shall include the *Mobile IAB Supported* IE in the NG SETUP RESPONSE message. If the *Mobile IAB Supported* IE is included in the NG SETUP RESPONSE message, the NG-RAN node shall, if supported, store this information and use it for further AMF selection for the mobile IAB-MT.

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#### 9.2.6.2 NG SETUP RESPONSE

This message is sent by the AMF to transfer application layer information for an NG-C interface instance.

Direction: AMF → NG-RAN node

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| AMF Name | M |  | 9.3.3.21 |  | YES | reject |
| **Served GUAMI List** |  | *1* |  |  | YES | reject |
| >**Served GUAMI Item** |  | *1..<maxnoofServedGUAMIs>* |  |  | - |  |
| >>GUAMI | M |  | 9.3.3.3 |  | - |  |
| >>Backup AMF Name | O |  | AMF Name  9.3.3.21 |  | - |  |
| >>GUAMI Type | O |  | ENUMERATED (native, mapped, …) |  | YES | ignore |
| Relative AMF Capacity | M |  | 9.3.1.32 |  | YES | ignore |
| **PLMN Support List** |  | *1* |  |  | YES | reject |
| **>PLMN Support Item** |  | *1..<maxnoofPLMNs>* |  |  | - |  |
| >>PLMN Identity | M |  | 9.3.3.5 |  | - |  |
| >>Slice Support List | M |  | 9.3.1.17 | Supported S-NSSAIs per PLMN or per SNPN. | - |  |
| >>NPN Support | O |  | 9.3.3.44 | If *NID* IE is included, it identifies a SNPN together with the *PLMN Identity* IE. | YES | reject |
| >>Extended Slice Support List | O |  | 9.3.1.191 | Additional Supported S-NSSAIs per PLMN or per SNPN. | YES | reject |
| >>Onboarding Support | O |  | ENUMERATED (true, ...) | Indication of onboarding support. | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |
| UE Retention Information | O |  | 9.3.1.117 |  | YES | ignore |
| IAB Supported | O |  | ENUMERATED (true, ...) | Indication of support for IAB. | YES | ignore |
| Extended AMF Name | O |  | 9.3.3.51 |  | YES | ignore |
| Mobile IAB Supported | O |  | ENUMERATED (true, ...) | Indication of support for mobile IAB. | YES | ignore |

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### 9.4.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for NGAP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

AllowedNSSAI,

AMFName,

AMFSetID,

AMF-TNLAssociationSetupList,

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

WarningType,

WUS-Assistance-Information,

RIMInformationTransfer,

MobileIAB-Authorized,

MobileIABNodeIndication,

MobileIAB-Supported,

FROM NGAP-IEs

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

id-WarningSecurityInfo,

id-WarningType,

id-WUS-Assistance-Information,

id-RIMInformationTransfer,

id-MobileIAB-Authorized,

id-MobileIABNodeIndication,

id-MobileIAB-Supported

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- NG SETUP RESPONSE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGSetupResponse ::= SEQUENCE {

protocolIEs ProtocolIE-Container { {NGSetupResponseIEs} },

...

}

NGSetupResponseIEs NGAP-PROTOCOL-IES ::= {

{ ID id-AMFName CRITICALITY reject TYPE AMFName PRESENCE mandatory }|

{ ID id-ServedGUAMIList CRITICALITY reject TYPE ServedGUAMIList PRESENCE mandatory }|

{ ID id-RelativeAMFCapacity CRITICALITY ignore TYPE RelativeAMFCapacity PRESENCE mandatory }|

{ ID id-PLMNSupportList CRITICALITY reject TYPE PLMNSupportList PRESENCE mandatory }|

{ ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-UERetentionInformation CRITICALITY ignore TYPE UERetentionInformation PRESENCE optional }|

{ ID id-IAB-Supported CRITICALITY ignore TYPE IAB-Supported PRESENCE optional }|

{ ID id-Extended-AMFName CRITICALITY ignore TYPE Extended-AMFName PRESENCE optional }|

{ ID id-MobileIAB-Supported CRITICALITY ignore TYPE MobileIAB-Supported PRESENCE optional },

...

}

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

-- M

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

MulticastGroupPagingArea ::= SEQUENCE {

mBS-AreaTAIList MBS-AreaTAIList,

iE-Extensions ProtocolExtensionContainer { { MulticastGroupPagingArea-ExtIEs} } OPTIONAL,

...

}

MulticastGroupPagingArea-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

...

}

MobileIAB-Supported ::= ENUMERATED {

true,

...

}

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<<<<<<<<<<<<<<<<<< Unaffected part is skipped >>>>>>>>>>>>>>>>>>>>

id-BeamMeasurementsReportConfiguration ProtocolIE-ID ::= 361

id-HFCNode-ID-new ProtocolIE-ID ::= 362

id-GlobalCable-ID-new ProtocolIE-ID ::= 363

id-TargetHomeENB-ID ProtocolIE-ID ::= 364

id-HashedUEIdentityIndexValue ProtocolIE-ID ::= 365

id-MobileIAB-Authorized ProtocolIE-ID ::= xxx

id-IAB-MTUserLocationInformation ProtocolIE-ID ::= xx1

id-MobileIABNodeIndication ProtocolIE-ID ::= xx2

id-MobileIAB-Supported ProtocolIE-ID ::= xx3

END

-- ASN1STOP

<<<<<<<<<<<<<<<<<<<< End of Changes >>>>>>>>>>>>>>>>>>>