**3GPP TSG-RAN WG3 Meeting #127bis R3-252409**

**Wuhan, China, 7th – 11th April 2025**

**Agenda item: 14.3**

**Source: Nokia, Nokia Shanghai Bell, Qualcomm, Xiaomi, China Telecom, CATT, Samsung, ZTE**

**Title: (TP to BL CR for TS 38.413) Enhancement to support hard FLSO**

**Document for: Discussion and Decision**

# 1 Introduction

This TP propose TS 38.413 TP to suspend/resume the downlink NG transmission before/after hard FLSO.

***-----------------Start of the Changes-------------------***

### 8.7.2 RAN Configuration Update

#### 8.7.2.1 General

The purpose of the RAN Configuration Update procedure is to update application level configuration data needed for the NG-RAN node and the AMF to interoperate correctly on the NG-C interface. This procedure does not affect existing UE-related contexts, if any. The procedure uses non UE-associated signalling.

#### 8.7.2.2 Successful Operation

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

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

If the *Downlink NG Transmission Control* IE is included in the RAN CONFIGURATION UPDATE message, the AMF shall, if supported, suspend or resume the downlink NG transmission accordingly.

***-----------------Next Changes-------------------***

#### 9.2.6.4 RAN CONFIGURATION UPDATE

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

Direction: NG-RAN node → AMF

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| RAN Node Name | O |  | PrintableString(SIZE(1..150, …)) |  | YES | ignore |
| **Supported TA List** |  | *0..1* |  | Supported TAs in the NG-RAN node. | YES | reject |
| **>Supported TA Item** |  | *1..<maxnoofTACs>* |  |  | - |  |
| >>TAC | M |  | 9.3.3.10 | Broadcast TAC | - |  |
| **>>Broadcast PLMN List** |  | *1* |  |  | - |  |
| **>>>Broadcast PLMN Item** |  | *1..<maxnoofBPLMNs>* |  |  | - |  |
| >>>>PLMN Identity | M |  | 9.3.3.5 | Broadcast PLMN | - |  |
| >>>>TAI Slice Support List | M |  | Slice Support List9.3.1.17 | Supported S-NSSAIs per TAC, per PLMN or per SNPN. | - |  |
| >>>>NPN Support | O |  | 9.3.3.44 | If the *NID* IE is included, it identifies a SNPN together with the *PLMN Identity* IE. | YES | reject |
| >>>>Extended TAI Slice Support List | O |  | Extended Slice Support List9.3.1.191 | Additional Supported S-NSSAIs per TAC, per PLMN or per SNPN. | YES | reject |
| >>>>TAI NSAG Support List | O |  | 9.3.1.238 | NSAG information associated with the slices per TAC, per PLMN or per SNPN. | YES | ignore |
| >>Configured TAC Indication | O |  | 9.3.3.50 |  | YES | ignore |
| >>RAT Information | O |  | 9.3.1.125 | RAT information associated with the TAC of the indicated PLMN(s). | YES | reject |
| Default Paging DRX | O |  | Paging DRX9.3.1.90 |  | YES | ignore |
| Global RAN Node ID | O |  | 9.3.1.5 |  | YES | ignore |
| **NG-RAN TNL Association to Remove List**  |  | *0..1* |  |  | YES | reject |
| **>NG-RAN TNL Association to Remove Item** |  | *1..<maxnoofTNLAssociations>* |  |  | - |  |
| >>TNL Association Transport Layer Address  | M |  | CP Transport Layer Information9.3.2.6 | Transport layer address of the NG-RAN node. | - |  |
| >>TNL Association Transport Layer Address at AMF | O |  | CP Transport Layer Information9.3.2.6 | Transport layer address of the AMF. | - |  |
| NB-IoT Default Paging DRX | O |  | 9.3.1.137 |  | YES | ignore |
| Extended RAN Node Name | O |  | 9.3.1.193 |  | YES | ignore |
| Downlink NG Transmission Control | O |  | ENUMERATED(suspend, resume,…) | Indicates the CN to suspend or resume the downlink NG Transmission | YES | ignore |

Editor’s Note: FFS whether this IE is needed.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofTACs | Maximum no. of TACs. Value is 256. |
| maxnoofBPLMNs | Maximum no. of Broadcast PLMNs. Value is 12. |
| maxnoofTNLAssociations | Maximum no. of TNL Associations between the NG-RAN node and the AMF. Value is 32. |

***-----------------Next Changes-------------------***

### 9.4.4 PDU Definitions

-- ASN1START

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

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-- PDU definitions for NGAP.

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

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 ::=

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

 WUS-Assistance-Information,

 XrDeviceWith2Rx,

 DownlinkNGTransmissionControl

FROM NGAP-IEs

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

 id-XrDeviceWith2Rx,

 id-SLPositioningRangingServiceInfo,

 id-DownlinkNGTransmissionControl

FROM NGAP-Constants;

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

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

--

-- RAN CONFIGURATION UPDATE

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

RANConfigurationUpdate ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { {RANConfigurationUpdateIEs} },

 ...

}

RANConfigurationUpdateIEs NGAP-PROTOCOL-IES ::= {

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

 { ID id-SupportedTAList CRITICALITY reject TYPE SupportedTAList PRESENCE optional }|

 { ID id-DefaultPagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE optional }|

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

 { ID id-NGRAN-TNLAssociationToRemoveList CRITICALITY reject TYPE NGRAN-TNLAssociationToRemoveList PRESENCE optional }|

 { ID id-NB-IoT-DefaultPagingDRX CRITICALITY ignore TYPE NB-IoT-DefaultPagingDRX PRESENCE optional }|

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

 { ID id-DownlinkNGTransmissionControl CRITICALITY ignore TYPE DownlinkNGTransmissionControl PRESENCE optional },

 ...

}

***-----------------Next Changes-------------------***

### 9.4.5 Information Element Definitions

-- ASN1START

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

--

-- Information Element Definitions

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

NGAP-IEs {

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

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

DL-NGU-TNLInformationReused ::= ENUMERATED {

 true,

 ...

}

DirectForwardingPathAvailability ::= ENUMERATED {

 direct-path-available,

 ...

}

DownlinkNGTransmissionControl ::= ENUMERATED {

 suspend,

 resume,

 ...

}

DRB-ID ::= INTEGER (1..32, ...)

DRBsSubjectToStatusTransferList ::= SEQUENCE (SIZE(1..maxnoofDRBs)) OF DRBsSubjectToStatusTransferItem

***-----------------Next Changes-------------------***

### 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-QoERVQoEReportingPaths ProtocolIE-ID ::= 438

 id-UserLocationInformationN3IWF-without-PortNumber ProtocolIE-ID ::= 439

 id-AUN3DeviceAccessInfo ProtocolIE-ID ::= 440

 id-DownlinkNGTransmissionControl ProtocolIE-ID ::= a

END

-- ASN1STOP

***-----------------End of the Changes-------------------***