3GPP TSG-RAN WG3 Meeting #127bis R3-252373

**Wuhan, China, 7-11 April 2025**

Agenda Item: 21.3

Source: ZTE Corporation, Huawei, Nokia, Nokia Shanghai Bell, CMCC, CATT

Title: (TP to BL CR for TS 38.473) Support of available data rate report

Document for: Other

# 1. Introduction

This TP is used to capture the agreements RAN3 made in RAN3#127bis:

**Introduce thresholds and direction to trigger NG-RAN monitor available data rate in NGAP/XnAP/F1AP/E1AP.**

**Introduce “available data rate” in TS 38.425 and TS 38.415.**

# TP to BLCR for TS38.473 on Available Data Rate report

*CHANGES START*

### 8.3.1 UE Context Setup

#### 8.3.1.1 General

The purpose of the UE Context Setup procedure is to establish the UE Context including, among others, SRB, DRB, BH RLC channel, Uu Relay RLC channel, PC5 Relay RLC channel, and SL DRB configuration. The procedure uses UE-associated signalling.

#### 8.3.1.2 Successful Operation



Figure 8.3.1.2-1: UE Context Setup Request procedure: Successful Operation

The gNB-CU initiates the procedure by sending UE CONTEXT SETUP REQUEST message to the gNB-DU. If the gNB-DU succeeds to establish the UE context, it replies to the gNB-CU with UE CONTEXT SETUP RESPONSE. If no UE-associated logical F1-connection exists, the UE-associated logical F1-connection shall be established as part of the procedure. Except for RACH based SDT and UE configured with BWP specific ServingCellMO, the gNB-CU shall perform RRC Reconfiguration or RRC connection resume to send UE to the RRC\_CONNECTED state as described in TS 38.331 [8], and in this case, the *CellGroupConfig* IE shall transparently be signaled to the UE as specified in TS 38.331 [8]. In the cases of RACH based SDT procedure and UE configured with BWP specific ServingCellMO, the *CellGroupConfig* IE shall be ignored by the gNB-CU.

----------------unchanged parts are skipped---------------

If the *Ranging and Sidelink Positioning Service Information* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, take it into account for the UE’s Ranging and Sidelink Positioning service.

For each GBR QoS flow whose DRB has been successfully established and the *Monitoring Request on Available Data Rate* IE was included in the *GBR QoS Flow Information* IE contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, store this information and perform available bitrate monitoring, as specified in TS 23.501 [21].

**Interaction with UE Inactivity Notification procedure**

If the *SDT Volume Threshold* IE is contained in the UE CONTEXT SETUP REQUEST message, the gNB-DU shall, if supported, use the information during an SDT transaction to inform the gNB-CU via the UE INACTIVITY NOTIFICATION message as specified in TS 38.401 [4].

*NEXT CHANGE*

### 8.3.4 UE Context Modification (gNB-CU initiated)

#### 8.3.4.1 General

The purpose of the UE Context Modification procedure is to modify the established UE Context, e.g., establishing, modifying and releasing radio resources or sidelink resources. This procedure is also used to command the gNB-DU to stop data transmission for the UE for mobility (see TS 38.401 [4]). The procedure uses UE-associated signalling.

#### 8.3.4.2 Successful Operation



Figure 8.3.4.2-1: UE Context Modification procedure. Successful operation

The UE CONTEXT MODIFICATION REQUEST message is initiated by the gNB-CU.

Upon reception of the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall perform the modifications, and if successful reports the update in the UE CONTEXT MODIFICATION RESPONSE message.

----------------unchanged parts are skipped---------------

If the *SDT Volume Threshold* IE is contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, use the information during an SDT transaction to inform the gNB-CU via the UE INACTIVITY NOTIFICATION message as specified in TS 38.401 [4].

For each GBR QoS flow whose DRB has been successfully established or modified and the *Monitoring Request on Available Data Rate* IE was included in the *GBR QoS Flow Information* IE contained in the UE CONTEXT MODIFICATION REQUEST message, the gNB-DU shall, if supported, store this information and, perform available bitrate monitoring, as specified in TS 23.501 [21].

**Interaction with UE Context Setup or UE Context Modification (gNB-CU initiated) procedures**

If the UE CONTEXT MODIFICATION REQUEST message is sent for a UE context set up for S-CPAC and contains the *Transmission Action Indicator* IE set to "stop", the gNB-DU shall, if supported, reset the UE context for the included *SpCell ID* IE, prepare for subsequent CPAC. The gNB-DU shall include the *SpCell ID* IE as the *Requested Target Cell ID* IE in the UE CONTEXT MODIFICATION RESPONSE message.

*NEXT CHANGE*

#### 9.3.1.46 GBR QoS Flow Information

This IE indicates QoS parameters for a GBR QoS flow or GBR bearer for downlink and uplink.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Maximum Flow Bit Rate Downlink | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate in DL. Details in TS 23.501 [21]. | - |  |
| Maximum Flow Bit Rate Uplink | M |  | Bit Rate  9.3.1.22 | Maximum Bit Rate in UL. Details in TS 23.501 [21]. | - |  |
| Guaranteed Flow Bit Rate Downlink | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate (provided there is data to deliver) in DL. Details in TS 23.501 [21]. | - |  |
| Guaranteed Flow Bit Rate Uplink | M |  | Bit Rate  9.3.1.22 | Guaranteed Bit Rate (provided there is data to deliver). Details in TS 23.501 [21]. | - |  |
| Maximum Packet Loss Rate Downlink | O |  | Maximum Packet Loss Rate 9.3.1.50 | Indicates the maximum rate for lost packets that can be tolerated in the downlink direction. Details in TS 23.501 [21]. | - |  |
| Maximum Packet Loss Rate Uplink | O |  | Maximum Packet Loss Rate 9.3.1.50 | Indicates the maximum rate for lost packets that can be tolerated in the uplink direction. Details in TS 23.501 [21]. | - |  |
| Alternative QoS Parameters Set List | O |  | 9.3.1.125 | Indicates alternative sets of QoS Parameters for the QoS flow. | YES | ignore |
| **Monitoring Request on Available Data Rate** |  | *0..1* |  |  | YES | ignore |
| >Monitoring Request | M |  | ENUMERATED (ul, dl, both, stop, …) | Indicates to monitor and report UL, DL, or both UL/DL available data rate for the associated QoS flow as specified in TS 23.501 [21], or stop the corresponding monitoring. | - |  |
| >DL Available Data Rate Report Thesholds | C-ifReportDL |  | Available Data Rate Reporting Threshold List  9.3.1.x | Indicates the DL report thresholds for available data rate exposure, as specified in TS 23.501 [21]. | - |  |
| >UL Available Data Rate Report Thesholds | C-ifReportUL |  | Available Data Rate Reporting Threshold List  9.3.1.x | Indicates the UL report thresholds for available data rate exposure, as specified in TS 23.501 [21]. | - |  |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifReportDL | This IE shall be present if the *Monitoring Request* IE is set to the value “dl” or “both”. |
| ifReportUL | This IE shall be present if the *Monitoring Request* IE is set to the value “ul” or “both”. |

*NEXT CHANGE*

#### 9.3.1.x Available Data Rate Reporting Thresholds

This IE contains a list of available data rate report thresholds. It is used for available data rate report for UL and/or DL as specified in TS 23.501 [21].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Available Data Rate Report Threshold Item** |  | *1..<maxnoofThresholds>* |  |  |
| >Reporting Threshold | M |  | INTEGER (0..FFS, …) | Unit: Mbps |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofThresholds | Maximum no. of reporting thresholds allowed for one QoS flow on one direction. Value is FFS. |

*Next change*

### 9.4.5 Information Element Definitions

-- ASN1START

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

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-- Information Element Definitions

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

F1AP-IEs {

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

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-gNB-CUSystemInformation,

id-HandoverPreparationInformation,

-------------------unchanged parts are skipped------------------

id-LocalOrigin,

id-SRSPosPeriodicConfigHyperSFNIndex,

id-MonitoringRequestonAvailableDataRate,

maxNRARFCN,

maxnoofErrors,

maxnoofBPLMNs,

-------------------unchanged parts are skipped------------------

maxnoHopsMinusOne,

maxnoAggCombinations,

maxnoAggregatedPosSRSCombinations,

maxnoofThresholds

*NEXT CHANGE*

-- A

AbortTransmission ::= CHOICE {

sRSResourceSetID SRSResourceSetID,

releaseALL NULL,

choice-extension ProtocolIE-SingleContainer { { AbortTransmission-ExtIEs } }

}

-------------------unchanged parts are skipped------------------

ARPLocationInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ARPLocationType ::= CHOICE {

aRPPositionRelativeGeodetic RelativeGeodeticLocation,

aRPPositionRelativeCartesian RelativeCartesianLocation,

choice-extension ProtocolIE-SingleContainer { { ARPLocationType-ExtIEs } }

}

ARPLocationType-ExtIEs F1AP-PROTOCOL-IES ::= {

...

}

AvailableDataRateReportThresholdList ::= SEQUENCE (SIZE(1..maxnoofThresholds)) OF AvailableDataRateReportThresholdItem

AvailableDataRateReportThresholdItem ::= SEQUENCE {

reportingThreshold ReportingThreshold,

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

...

}

AvailableDataRateReportThresholdItem-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

*NEXT CHANGE*

-- G

GBR-QosInformation ::= SEQUENCE {

e-RAB-MaximumBitrateDL BitRate,

e-RAB-MaximumBitrateUL BitRate,

e-RAB-GuaranteedBitrateDL BitRate,

e-RAB-GuaranteedBitrateUL BitRate,

iE-Extensions ProtocolExtensionContainer { { GBR-QosInformation-ExtIEs} } OPTIONAL,

...

}

GBR-QosInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

GBR-QoSFlowInformation::= SEQUENCE {

maxFlowBitRateDownlink BitRate,

maxFlowBitRateUplink BitRate,

guaranteedFlowBitRateDownlink BitRate,

guaranteedFlowBitRateUplink BitRate,

maxPacketLossRateDownlink MaxPacketLossRate OPTIONAL,

maxPacketLossRateUplink MaxPacketLossRate OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { GBR-QosFlowInformation-ExtIEs} } OPTIONAL,

...

}

GBR-QosFlowInformation-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

{ ID id-AlternativeQoSParaSetList CRITICALITY ignore EXTENSION AlternativeQoSParaSetList PRESENCE optional }|

{ ID id-MonitoringRequestonAvailableDataRate CRITICALITY ignore EXTENSION MonitoringRequestonAvailableDataRate PRESENCE optional },

...

}

*NEXT CHANGE*

-- M

MappingInformationIndex ::= BIT STRING (SIZE (26))

MappingInformationtoRemove ::= SEQUENCE (SIZE(1..maxnoofMappingEntries)) OF MappingInformationIndex

MaskedIMEISV ::= BIT STRING (SIZE (64))

-------------------unchanged parts are skipped------------------

MUSIM-GapConfig ::= OCTET STRING

MobileIAB-Barred ::= ENUMERATED {barred, not-barred, ...}

MeasBasedOnAggregatedResources ::= ENUMERATED { true, ... }

MonitoringRequestonAvailableDataRate ::= SEQUENCE{

monitoringRequest MonitoringRequest,

dlAvailableDataRateReportThresholds AvailableDataRateReportThresholdList OPTIONAL,

-- The above IE shall be present if the Monitoring Request IE is set to the value “dl” or “both”

ulAvailableDataRateReportThresholds AvailableDataRateReportThresholdList OPTIONAL,

-- The above IE shall be present if the Monitoring Request IE is set to the value “ul” or “both”

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

...

}

MonitoringRequestonAvailableDataRate-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

MonitoringRequest ::= ENUMERATED {ul, dl, both, stop,...}

*NEXT CHANGE*

-- R

RACH-Config-Common ::= OCTET STRING

RACH-Config-Common-IAB ::= OCTET STRING

-------------------unchanged parts are skipped------------------

ResourceTypeAperiodicPos ::= SEQUENCE {

slotOffset INTEGER (0..32),

iE-Extensions ProtocolExtensionContainer { { ResourceTypeAperiodicPos-ExtIEs} } OPTIONAL

}

ResourceTypeAperiodicPos-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

ReportingThreshold ::= INTEGER(0..FFS, ...)

RLCDuplicationInformation ::= SEQUENCE {

rLCDuplicationStateList RLCDuplicationStateList,

primaryPathIndication PrimaryPathIndication OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {RLCDuplicationInformation-ExtIEs} } OPTIONAL

}

*NEXT CHANGE*

### 9.4.7 Constant Definitions

-- ASN1START

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

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-- Constant definitions

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

-------------------unchanged parts are skipped------------------

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

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-- Lists

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

maxNRARFCN INTEGER ::= 3279165

maxnoofErrors INTEGER ::= 256

maxnoofIndividualF1ConnectionsToReset INTEGER ::= 65536

-------------------unchanged parts are skipped------------------

maxnoAggCombinations INTEGER ::= 2

maxnoAggregatedPosSRSCombinations INTEGER ::= 32

maxnoofThresholds INTEGER ::= FFS

-------------------unchanged parts are skipped------------------

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

--

-- IEs

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

id-Cause ProtocolIE-ID ::= 0

id-Cells-Failed-to-be-Activated-List ProtocolIE-ID ::= 1

id-Cells-Failed-to-be-Activated-List-Item ProtocolIE-ID ::= 2

-------------------unchanged parts are skipped------------------

id-SRSPosPeriodicConfigHyperSFNIndex ProtocolIE-ID ::= 856

id-PreconfiguredSRSInformation ProtocolIE-ID ::= 857

id-MonitoringRequestonAvailableDataRate ProtocolIE-ID ::= xxx

END

-- ASN1STOP

*CHANGES END*