3GPP TSG-RAN WG3 Meeting #129 R3-255830

Bengaluru, India, 25 – 29 August 2025

Agenda Item: 11.4

Source: ZTE Corporation, Nokia, Huawei

Title: (TP to BL CR to 37.483) Cleanup on Data Collection procedure

Document for: Discussions & Approval

# Introduction

This contribution is to reflect the agreements reached in CB#13\_AIRAN\_SplitArch.

# 5 Text Proposal to 37.483

8.2.AA Data Collection Reporting Initiation

8.2.AA.1 General

This procedure is used by a gNB-CU-CP to request from a gNB-CU-UP the reporting of information to support, e.g., AI/ML in NG-RAN.

The procedure uses non UE-associated signalling.

8.2.AA.2 Successful Operation

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**Figure 8.4.AA.2-1: Data Collection Reporting Initiation, successful operation**

The gNB-CU-CP initiates the procedure by sending the DATA COLLECTION REQUEST message to gNB-CU-UP to start information reporting and stop information reporting. Upon receipt, the gNB-CU-UP:

- shall initiate the requested information reporting according to the parameters given in the request in case the *Registration Request for Data Collection* IE is set to “start”; or

- shall stop all information reporting and terminate the reporting in case the *Registration Request for Data Collection* IE is set to “stop”.

If the gNB-CU-UP is capable to provide all of the requested information, it shall initiate the information reporting as requested by the gNB-CU-CP and respond with the DATA COLLECTION RESPONSE message.

If the *Reporting Periodicity for Data Collection* IE in the DATA COLLECTION REQUEST is present, this indicates the periodicity for the reporting of periodic information. The gNB-CU-UP shall report only once, unless otherwise requested within the *Reporting Periodicity for Data Collection* IE.

If the *Registration Request for Data Collection* IE is set to "start" in the DATA COLLECTION REQUEST message and one or more of the UE performance metrics are requested, the *UE Performance Collection Configuration* IE shall be included. The gNB-CU-UPshall take the *UE Performance Collection Configuration* IE into account for the configuration of UE performance collection and reporting. The gNB-CU-UP shall terminate the collection when at least one of the following conditions is fulfilled:

- the time since the bearer context was successfully established is equal to the value of the *Collection Time Duration for UE Performance* IE;

- the established bearer context is suspended or released.

**Interaction with other procedures**

When starting a measurement, the *Report Characteristics for Data Collection* IE in the DATA COLLECTION REQUEST indicates the type of objects gNB-CU-UP shall perform measurements on. The gNB-CU-UP shall include in the DATA COLLECTION UPDATE message:

- the *Average Packet Delay* IE, if the first bit, "Average Packet Delay" of the *Report Characteristics for Data Collection* IE included in the DATA COLLECTION REQUEST message is set to "1" and if the measurement object is admitted by gNB-CU-UP;

- the *Average Packet Loss DL* IE, if the second bit, "Average Packet Loss DL" of the *Report Characteristics for Data Collection* IE included in the DATA COLLECTION REQUEST message is set to "1" and if the measurement object is admitted by gNB-CU-UP;

- the *Average Packet Loss UL* IE, if the third bit, "Average Packet Loss UL" of the *Report Characteristics for Data Collection* IE included in the DATA COLLECTION REQUEST message is set to "1" and if the measurement object is admitted by gNB-CU-UP.<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 8.2.BB Data Collection Reporting

#### 8.2.BB.1 General

This procedure is initiated by an gNB-CU-UP to report information accepted by the gNB-CU-CP following a successful Data Collection Reporting Initiation procedure.

The procedure uses non UE-associated signalling.

#### 8.2.BB.2 Successful Operation



Figure 8.2.BB.2-1: Data Collection Reporting, successful operation

The gNB-CU-UP shall report the accepted information in DATA COLLECTION UPDATE message. The accepted information is the information that was successfully initiated during the preceding Data Collection Reporting Initiation procedure.

If some results of the accepted information in DATA COLLECTION UPDATE message are missing, the gNB-CU-CP shall consider that these results were not available at the gNB-CU-UP.

#### 8.2.BB.3 Unsuccessful Operation

Not applicable.

#### 8.2.BB.4 Abnormal Conditions

8.3 Bearer Context Management procedures

8.3.1 Bearer Context Setup

8.3.1.1 General

The purpose of the Bearer Context Setup procedure is to allow the gNB-CU-CP to establish a bearer context in the gNB-CU-UP. The procedure uses UE-associated signalling.

8.3.1.2 Successful Operation

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**Figure 8.3.1.2-1: Bearer Context Setup procedure: Successful Operation.**

The gNB-CU-CP initiates the procedure by sending the BEARER CONTEXT SETUP REQUEST message to the gNB-CU-UP. If the gNB-CU-UP succeeds to establish the requested resources, it replies to the gNB-CU-CP with the BEARER CONTEXT SETUP RESPONSE message.

*\*\*\* skip unmodified parts \*\*\**

If the *PDU Set QoS Parameters* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, store it and use the information as specified in TS 23.501 [20].

**Interactions with DL Data Notification procedure:**

If the *MT-SDT Information Request* IE is included in the BEARER CONTEXT SETUP REQUEST message and the value is set to 'true', the gNB-CU-UP shall, if supported, store it and report the *MT-SDT Information* IE in the DL DATA NOTIFICATION message as specified in TS 38.401 [2].

If the *SDT Data Size Threshold* IE is included in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, store it and act as specified in TS 38.401 [2].

**Interaction with the Data Collection Reporting and the Data Collection Reporting Initiation procedures:**

If the *Data Collection ID* IE is contained in the BEARER CONTEXT SETUP REQUEST message, the gNB-CU-UP shall, if supported, report to the gNB-CU-CP after successful bearer context setup via the Data Collection Reporting procedure the requested information configured via the previous Data Collection Reporting Initiation procedure corresponding to the *gNB-CU-CP Measurement ID* IE, allocated by the gNB-CU-CP, and the *gNB-CU-UP Measurement ID* IE, allocated by the gNB-CU-UP.

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#### 9.2.1.CC DATA COLLECTION REQUEST

This message is sent by gNB-CU-CP to gNB-CU-UP to initiate the requested information reporting according to the parameters given in the message.

Direction: gNB-CU-CP → gNB-CU-UP.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 9.3.1.53 |  | YES | reject |
| gNB-CU-CP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-CP | YES | reject |
| gNB-CU-UP Measurement ID | C-ifRegistrationRequestStop |  | INTEGER (1..4095,...) | Allocated by gNB-CU-UP | YES | ignore |
| Registration Request for Data Collection | M |  | ENUMERATED(start, stop, …)  | Type of request for which the AI/ML related information is required. | YES | reject |
| Report Characteristics for Data Collection | C-ifRegistrationRequestStart |  | BITSTRING(SIZE(32)) | Each position in the bitmap indicates the object the gNB-CU-UP is requested to report.First Bit = Average Packet Delay,Second Bit = Average Packet Loss DL, Third Bit = Average Packet Loss ULOther bits are ignored by the gNB-CU-UP. | YES | reject |
| Reporting Periodicity for Data Collection | O |  | ENUMERATED (500ms, 1000ms, 2000ms, 5000ms, 10000ms, …) | Periodicity that can be used for reporting of requested objects. Also used as the averaging window length for all objects if supported. | YES | ignore |

|  |  |
| --- | --- |
| Condition | Explanation |
| ifRegistrationRequestStop | This IE shall be present if the *Registration Request* IE is set to the value "stop".  |
| ifRegistrationRequestStart | This IE shall be present if the Registration Request IE is set to the value "start". |

#### 9.2.1.DD DATA COLLECTION RESPONSE

This message is sent by gNB-CU-UP to gNB-CU-CP to indicate that the requested information, for all or part of the measurement objects included in the reporting is successfully initiated.

Direction: gNB-CU-UP → gNB-CU-CP

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 9.3.1.53 |  | YES | reject |
| gNB-CU-CP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-CP | YES | reject |
| gNB-CU-UP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-UP | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.EE DATA COLLECTION FAILURE

This message is sent by the gNB CU-UP to gNB-CU-CP to indicate that for all of the requested objects the reporting cannot be initiated.

Direction: gNB-CU-UP → gNB-CU-CP.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 9.3.1.53 |  | YES | reject |
| gNB-CU-CP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-CP | YES | reject |
| gNB-CU-UP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-UP | YES | ignore |
| Cause | M |  | 9.3.1.2 |  | YES | ignore |
| Criticality Diagnostics | O |  | 9.3.1.3 |  | YES | ignore |

#### 9.2.1.FF DATA COLLECTION UPDATE

This message is sent by gNB-CU-UP to gNB-CU-CP to report the requested information.

Direction: gNB-CU-UP → gNB-CU-CP.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |  | 9.3.1.53 |  | YES | reject |
| gNB-CU-CP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-CP | YES | reject |
| gNB-CU-UP Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by gNB-CU-UP | YES | ignore |
| **UE Associated Info Result List**  |  | *0..1* |  |  |  |  |
| **>UE Associated Info Result Item** |  | *1..<maxnoofUEReports>* |  |  |  |  |
| >>UE Assistant Identifier | M |  | gNB-CU-CP UE E1AP ID9.3.1.4 | gNB-CU-CP UE E1AP ID allocated by gNB-CU-CP. |  |  |
| **>>DRB To Report List** |  | *0..1* |  |  |  |  |
| **>>>DRB To Report Item** |  | *1..<maxnoofDRBs>* |  |  |  |  |
| >>>>DRB ID | M |  | 9.3.1.16 |  |  |  |
| >>>>UE Performance | O |  | 9.3.1.aa |  |  |  |

| Range bound | Explanation |
| --- | --- |
| maxnoofUEReports | Maximum no. UE s for which information can be reported by a NG-RAN node. Value is 16. |
| maxnoofDRBs | Maximum no. of DRBs allowed towards one UE. Value is 32. |

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9.2.2.1 BEARER CONTEXT SETUP REQUEST

This message is sent by the gNB-CU-CP to request the gNB-CU-UP to setup a bearer context.

Direction: gNB-CU-CP → gNB-CU-UP

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| gNB-CU-CP UE E1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| *\*\*\* skip unmodified parts \*\*\** |
| SDT Data Size Threshold | O |  | INTEGER (1.. 192000, ...) | Unit: byte. | YES | Ignore |
| Data Collection ID | O |  | 9.3.1.dd |  | YES | ignore |

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9.3.1.aa UE Performance

This IE indicates the UE performance measurements metrics.

| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| --- | --- | --- | --- | --- |
| Average Packet Delay | O |  | 9.3.1.bb |  |
| Average Packet Loss DL | O |  | INTEGER(0..1000000, …) | Corresponds to DL PDCP SDU Drop Rate. |
| Average Packet Loss UL | O |  | INTEGER(0..1000000, …) | Corresponds to UL PDCP SDU Loss Rate. |

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9.3.1.bb Average Packet Delay

This IE indicates the RAN part of the average packet delay in the UL and DL directions.

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| --- | --- | --- | --- | --- |
| Average Packet Delay UL | M |  | INTEGER (0.. 10000) | Corresponds to Average Packet Delay per DRB per UE as specified in TS 28.558 [XX] clause 6.3.1.1.Unit: 0.1 millisecond |
| Average Packet Delay DL | M |  | INTEGER (0.. 10000) | Corresponds to Average Packet Delay per DRB per UE as specified in TS 28.558 [XX] clause 6.3.1.1.Unit: 0.1 millisecond |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |

9.3.1.dd Data Collection ID

This IE indicates the gNB-CU-CP Measurement ID and gNB-CU-UP Measurement ID which together identify a Data Collection Reporting context.

| **IE/Group Name** | **Presence** | **Range** | **IE Type and Reference** | **Semantics Description** |
| --- | --- | --- | --- | --- |
| gNB-CU-CP Measurement ID | M |  | INTEGER (1..4095,...) | Together with gNB-CU-UP Measurement ID, it identifies a Data Collection Reporting context. |
| gNB-CU-UP Measurement ID | M |  | INTEGER (1..4095,...) | Together with gNB-CU-CP Measurement ID, it identifies a Data Collection Reporting context. |

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

### 9.4.5 Information Element Definitions

-- A

AveragePacketDelay ::= SEQUENCE {

 uL-AveragePacketDelay AveragePacketDelayValue,

 dL-AveragePacketDelay AveragePacketDelayValue,

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

 ...

}

AveragePacketDelay-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

 ...

}

AveragePacketDelayValue ::= INTEGER (0..10000)

-- U

UEPerformance ::= SEQUENCE {

 uE-AveragePacketDelay AveragePacketDelay OPTIONAL,

 uE-AveragePacketLossDL INTEGER (0..1000000, ...) OPTIONAL,

 uE-AveragePacketLossUL INTEGER (0..1000000, ...) OPTIONAL,

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

 ...

}

UEPerformance-ExtIEs E1AP-PROTOCOL-EXTENSION ::= {

 ...

}

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