3GPP TSG-RAN WG3 Meeting #127 R3-250786

Athens, Greece, 17 – 21 February, 2025

**Agenda item: 11.2**

**Source: ZTE Corporation (Moderator)**

**Title: SoD for CB: # AIRAN1\_Slicing**

**Document for: Approval**

# 1 Introduction

**CB: # AIRAN1\_Slicing**

**- Check the stage3 details above**

**- Capture agreements and provide TPs**

(moderator - ZTE)

# 2 Discussion

Left issues during online session:

**Whether to introduce a new IE or extending existing bitmap to request slice UE performance in the Data Collection Request message? Taking the R18 signalling design as the starting point? How to include the failed report characteristic in the Data Collection Response message?**

**Introduce Slice Measurement Initiation Result IE to indicate the predicted radio resource status per slice or predicted slice available capacity cannot be initiated.**

**Whether predicted composite available capacity should be introduced and configured to be reported together with the predicted slice available capacity? To be checked in next meeting…**

**Whether to introduce a new IE or extending existing bitmap to request slice UE performance in the Data Collection Request message? Taking the R18 signalling design as the starting point? How to include the failed report characteristic in the Data Collection Response message?**

It seems there is two option to reflect the request of slice UE performance in the DATA COLLECTION REQUEST message.

Option 1: To introduce a new IE to request slice UE performance in the DATA COLLECTION REQUEST message.

Details of implementation about Option1 :

#### 9.2.3.186 UE Performance Collection Configuration

This IE indicates the configuration for UE performance measurement collection. If the *Slice Level UE Performance Reporting* IE is set to “true” then the UE Performance measurements are collected on a per slice granularity.

| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Collection Time Duration for UE Performance | M |  | INTEGER(1..5000, ...) | Time duration starting at successful handover within which the UE performance measurements are collected.Unit: millisecond | - |  |
| Slice Level UE Performance Reporting | O |  | ENUMERATED (true, …) | Indicates that UE Performance measurements are collected on a per slice granularity.  | YES | ignore |

Option 2a: Extending existing bitmap to request slice UE performance in the DATA COLLECTION REQUEST message:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Report Characteristics for Data Collection | C-ifRegistrationRequestForDataCollectionStart |  | BITSTRING(SIZE(32)) | Each position in the bitmap indicates the object the NG-RAN node2 is requested to report.First Bit = Predicted Radio Resource Status,Second Bit = Predicted Number of Active UEs,Third Bit = Predicted RRC ConnectionsFourth Bit = Average UE Throughput DL,Fifth Bit = Average UE Throughput UL,Sixth Bit = Average Packet Delay,Seventh Bit = Average Packet Loss DLEighth Bit = Energy CostNinth Bit = Measured UE TrajectoryTenth Bit = Predicted Slice Available CapacityEleventh Bit = Slice Average UE Throughput DLTwelfth Bit = Slice Average UE Throughput ULThirteenth Bit = Slice Average Packet Delay,Fourteenth Bit = Slice Average Packet Loss DLOther bits are ignored by the NG-RAN node2. | YES | reject |

**Comments from companies:**

Ericsson: we prefer option 2, for the following reasons:

* It enables to request per slice UE performance independently of other node level metrics
* It enables to report failed per slice UE performance metrics in the *Node Measurement Failed Report Characteristics* IE included in the Data Collection Response message

The TP revised in [R3-250140](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_127%5CDocs%5CR3-250140.zip) will reflect the following agreement:

**Introduce Slice Measurement Initiation Result IE to indicate the predicted radio resource status per slice or predicted slice available capacity cannot be initiated.**

Details of implementation:

#### 9.1.3.27 DATA COLLECTION RESPONSE

This message is sent by NG-RAN node2 to NG-RAN node1 to indicate that the requested information, for all or part of the measurement objects included in the reporting, is successfully initiated.

Direction: NG-RAN node2 → NG-RAN node1.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| NG-RAN node1 Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by NG-RAN node1 | YES | reject |
| NG-RAN node2 Measurement ID | M |  | INTEGER (1..4095,...) | Allocated by NG-RAN node2 | YES | reject |
| **Node Measurement Initiation Result List** |  | *0..1* |  | List of measurement objects that failed to be initiated in the node. | YES | reject |
| **>Node Measurement Initiation Result Item** |  | *1 .. <maxFailedMeasPerNode>* |  |  | – |  |
| >>Node Measurement Failed Report Characteristics | M |  | BITSTRING(SIZE(32)) | Each position in the bitmap indicates measurement objects that failed to be initiated in the NG-RAN node2.First Bit = Energy Cost, Second Bit = Average UE Throughput DL,Third Bit = Average UE Throughput UL,Fourth Bit = Average Packet Delay,Fifth Bit = Average Packet Loss DL,Sixth Bit = Measured UE Trajectory.Other bits are ignored by the NG-RAN node1. | – |  |
| >>Cause | M |  | 9.2.3.2 | Failure cause for measurement objects for which the measurement cannot be initiated. | – |  |
| **Cell Measurement Initiation Result List** |  | *0..1* |  | List of measurement objects that failed to be initiated per cell. | YES | reject |
| **>Cell Measurement Initiation Result Item** |  | *1 .. <maxnoofCellsinNG-RANnode>* |  |  | – |  |
| >>Cell ID | M |  | Global NG-RAN Cell Identity9.2.2.27 | Indicates an NR Cell Identity. | – |  |
| **>>Cell Measurement Failure Cause List** |  | *0..1* |  | Indicates that NG-RAN node2 could not initiate the measurement for at least one of the requested measurement objects in the cell. | – |  |
| **>>>Cell Measurement Failure Cause Item** |  | *1 .. <maxFailedCellMeasObjects>* |  |  | – |  |
| >>>>Cell Measurement Failed Report Characteristics | M |  | BITSTRING(SIZE(32)) | Each position in the bitmap indicates measurement objects that failed to be initiated in the NG-RAN node2.First Bit = Predicted Radio Resource Status,Second Bit = Predicted Number of Active UEs,Third Bit = Predicted RRC Connections.Other bits are ignored by the NG-RAN node1. | – |  |
| >>>>Cause | M |  | 9.2.3.2 | Failure cause for measurement objects for which the measurement cannot be initiated. | – |  |
| >> **Slice Measurement Initiation Result List** | O |  | 9.2.3.x2 | List of measurement objects that failed to be initiated per slice. |  |  |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |

| Range bound | Explanation |
| --- | --- |
| maxnoofCellsinNG-RANnode | Maximum no. cells that can be served by a NG-RAN node. Value is 16384. |
| maxFailedCellMeasObjects | Maximum number of measurement objects that can fail per cell. Value is 124. |
| maxFailedMeasPerNode | Maximum number of measurement objects that can fail per node. Value is 124. |

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

#### 9.2.3.x1 Slice Measurement Initiation Result List

This IE indicates the list of measurement objects that failed to be initiated per slice.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| --- | --- | --- | --- | --- |
| **Slice Measurement Initiation Result** |  | *1..<* *maxnoofBPLMNs >* |  |  |
| >PLMN Identity | M |  | 9.2.2.4 | Broadcast PLMN |
| **>S-NSSAI Measurement Initiation Result List** |  | *1* |  |  |
| **>> S-NSSAI Measurement Initiation Result Item** |  | *1 .. < maxnoofSliceItems>* |  |  |
| >>>S-NSSAI | M |  | 9.2.3.21 |  |
| **>>> S-NSSAI Measurement Failure Cause List** |  | *0..1* |  | Indicates that NG-RAN node2 could not initiate the measurement for at least one of the requested measurement objects in the slice. |
| **>>>> S-NSSAI Measurement Failure Cause Item** |  | *1 .. <maxFailedSliceMeasObjects>* |  |  |
| >>>>S-NSSAI Measurement Failed Report Characteristics | M |  | BITSTRING(SIZE(32)) | Each position in the bitmap indicates measurement objects that failed to be initiated in the NG-RAN node2.First Bit = Predicted Radio Resource Status,Second Bit = Predicted Slice Available CapacityOther bits are ignored by the NG-RAN node1. |
| >>>>Cause | M |  | 9.2.3.2 | Failure cause for measurement objects for which the measurement cannot be initiated. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofSliceItems | Maximum no. of signalled slice support items. Value is 1024. |
| maxnoofBPLMNs | Maximum no. of PLMN Ids.broadcast in a cell. Value is 12. |
| maxFailedSliceMeasObjects | Maximum number of measurement objects that can fail per slice. Value is 124. |