**3GPP TSG-SA5 Meeting #145-e *S5-225104***

e-meeting, 15 - 24 Aug 2022

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0008** | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Rel-17 CR 28.104 Rectifying attribute properties for Network Slice Traffic Prediction Usecase | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17 | | | | |  | ***Date:*** | | | 2022-08-04 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Incorrect attribute properties specified for attributes with multiplicity of 1 and more than 1 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Incorrect attributes properties are corrected for attributes with multiplicity of 1 and more than 1 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incorrect attribute properties for attributes with multiplicity of 1 and more than 1 leading to ambiguity | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.4.2.3, 8.5.11, 8.5.12, 8.4.1.2, 8.5.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

***Start of first change***

#### 8.4.2.3 Network slice traffic prediction

##### 8.4.2.3.1 MDA type

The MDA type for capability Network slice traffic prediction is: SLSAnalysis.NetworkSliceTrafficAnalysis.

##### 8.4.2.3.2 Enabling data

The enabling data for SLSAnalysis.NetworkSliceTrafficAnalysis MDA type are provided in table 8.4.2.3.2-1.

Table 8.4.2.3.2-1: Enabling data for network slice traffic prediction analysis

|  |  |  |
| --- | --- | --- |
| Data category | Description | References |
| Performance measurements | UL/DL throughput for network slice. | Upstream throughput for network and Network Slice Instance (clause 6.3.3 in TS 28.554 [5]); Downstream throughput for Single Network Slice Instance (clause 6.3.4 in TS 28.554 [5]). |
| Number of incoming and outgoing octets of GTP packet on N3 | See clauses 5.4.1.4 and 5.4.1.3 in TS 28.541 [5]). |
| UL/DL UE throughput for network slice | RAN UE Throughput (clause 6.3.6 in TS 28.554 [5]). |
| Number of PDU sessions of network slice | Mean number of PDU sessions of network and network Slice Instance (clause 6.4.1 in TS 28.554 [5]). |
| Number of registered subscribers of a network slice instance | Mean registered subscribers of network and network slice through AMF (see clause 6.2.1 in TS 28.554 [5]). |
| Maximum packet size for a network slice | Maximum packet size for a network slice subnet (see clause 6.3.11 of TS 28.541 [5]). |

##### 8.4.2.3.3 Analytics output

The specific information elements of the analytics output for network slice traffic prediction analysis, in addition to the common information elements of the analytics outputs (see clause 8.3), are provided in table 8.4.2.3.3-1.

Table 8.4.2.3.3-1: Analytics output for network slice traffic prediction analysis

|  |  |  |  |
| --- | --- | --- | --- |
| Information element | Definition | Support qualifier | Properties |
| trafficProjections | This specifies the traffic projections for a slice. | M | type: TrafficProjections  multiplicity: \*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |

***Start of next changes***

### 8.5.11 UPFProj <<dataType>>

#### 8.5.11.1 Definition

This data type specifies the traffic projection for a UPF.

#### 8.5.11.2 Information elements

Table 8.5.11.2-1

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Definition | Support qualifier | Properties |
| uLThroughput | The projected average UL throughput for a single UPF in the slice, over the time duration indicated by projectionTime attribute. The unit is kbit/s.  This is the projection of the Upstream Throughput at N3 interface KPI defined in TS 28.554 [5] | M | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| dLThroughput | The projected average DL throughput for a single UPF in the slice, over the time duration indicated by projectionTime attribute. The unit is kbit/s.  This is the projection of the Downstream Throughput at N3 interface KPI defined in TS 28.554 [5]. | M | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| maxPktSize | The projected average maximum packet size for a single UPF in the slice, over the time duration indicated by projectionTime attribute. | O | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |

### 8.5.12 gNBProj <<dataType>>

#### 8.5.12.1 Definition

This data type specifies the traffic projection for a gNB.

#### 8.5.12.2 Information elements

Table 8.5.12.2-1

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Definition | Support qualifier | Properties |
| uLUEThroughput | The projected average UL UE throughput in the slice, over the time duration indicated by projectionTime attribute. The unit is kbit/s.  This is the projection of the UL RAN UE throughput KPI defined in TS 28.554 [5]. | M | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| dLUEThroughput | The projected average DL throughput in the slice, over the time duration indicated by projectionTime attribute. The unit is kbit/s.  This is the projection of the DL RAN UE throughput KPI defined in TS 28.554 [5]. | M | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |

***Start of next changes***

#### 8.4.1.2 Paging Optimization

##### 8.4.1.2.1 MDA type

The MDA type for Capability-Paging Optimization: SLSAnalysis.PagingOptimization.

##### 8.4.1.2.2 Enabling data

The enabling data for paging optimization are provided in table 8.4.1.2.2-1.

Table 8.4.1.2.2-1: Enabling data for Paging Optimization Analysis

|  |  |  |
| --- | --- | --- |
| Data category | Description | References |
| MDT Data | MDT reports indicating UE location information | MDT measurements defined in TS 32.423 [7]. |
| Performance measurements | Measurement for 5G Paging from AMF | See clause 5.2.5.2 in TS 28.552 [4]. |

##### 8.4.1.2.3 Analytics output

The specific information elements of the analytics output for paging optimization, in addition to the common information elements of the analytics outputs (see clause 8.3), are provided in table 8.4.1.2.3-1.

**Table 8.4.1.2.3-1: Analytics output for paging optimization analysis**

|  |  |  |  |
| --- | --- | --- | --- |
| Information element | Definition | Support qualifier | Properties |
| oOCDuration | This specify the time window during which UE is out-of-coverage. | M | type: ProjectionDuration  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| oOCLocation | This specifies the last known location of the UEs before it goes out-of-coverage. This would be within the area indicated by the "areaScope" of the MDA request. | CM | type: GeoCoordinate  multiplicity: 1..\*  isOrdered: False  isUnique: True  defaultValue: None  isNullable: False |
| oOCMap | This specifies the geographical region within which the paging issues are experienced by a group of UEs. This would be within the area indicated by the "areaScope" of the MDA request. | CM | type: GeoCoordinate  multiplicity: 1..\*  isOrdered: True  isUnique: True  defaultValue: None  isNullable: False |

***Start of next changes***

### 8.5.3 TrafficLoadTrend <<dataType>>

#### 8.5.3.1 Definition

This data type specifies the type of TrafficLoadTrend.

#### 8.5.3.2 Information elements

Table 8.5.3.2-1

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Definition | Support qualifier | Properties |
| cellId | It indicates the cell for which the traffic load prediction is performed. | M | type: DN  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| startTime | It indicates the start time that are used for traffic load prediction. | M | type: DateTime  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| endTime | It indicates the end time that are used for traffic load prediction. | M | type: DateTime  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| trafficLoadList | It provides a list of PRB usage based on a specific granularity. | M | type: Integer  multiplicity: 1..\*  isOrdered: False  isUnique: False  defaultValue: None  isNullable: False |

***End of changes***