3GPP TSG SA WG5 Meeting 137-e TDoc S5-213135rev1

electronic meeting, online, 10 - 19 May 2021

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |  |
| **CHANGE REQUEST** | | | | | | | | |  |
|  | | | | | | | | |  |
|  | **28.541** | **CR** | **0486** | **rev** | **1** | **Current version:** | **17.2.1** |  |  |
|  | | | | | | | | |  |
| *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 |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Add reliability to CN SliceProfile | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | S5 | | | | | | | | | |
| ***Source to TSG:*** | Huawei | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EMA5SLA | | | | |  | ***Date:*** | | | 2021-04-28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | ‘reliability’ as a parameter in sliceprofile and RAN slice subnetwork profile are included in the attribute list. The ‘reliability’ is an e2e requirement to transmittion packet for a network slice, therefore the ‘reliability’ is proposed to be part of CN slice subnetwork profile. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add ‘reliability’ in CN slice subnetwork profile. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The ‘reliability’ is not included in CN slice subnetwork profile. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.22.2, J.4.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | https://forge.3gpp.org/rep/sa5/MnS/commits/S5-213135rev1\_Rel-17\_CR0486\_TS28.541\_Add\_reliability\_to\_CN-slice\_profile | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

|  |
| --- |
| **First modification** |

### 6.3.22 CNSliceSubnetProfile<<dataType>>

#### 6.3.22.1 Definition

This data type represents the requirements for CN slice profile.

Editor's NOTE: Whether CNSliceSubnetProfile is an IOC or dataType is FFS.

#### 6.3.22.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| maxNumberofUEs | O | T | T | F | T |
| latency | O | T | T | F | T |
| dLThptPerSliceSubnet | O | T | T | F | T |
| dLThptPerUEPerSubnet | O | T | T | F | T |
| uLThptPerSliceSubnet | O | T | T | F | T |
| uLThptPerUEPerSubnet | O | T | T | F | T |
| maxNumberOfPDUSessions | O | T | T | F | T |
| coverageAreaTAList | O | T | T | F | T |
| reliability | O | T | T | F | T |
| resourceSharingLevel | O | T | T | F | T |
| maxPktSize | O | T | T | F | T |
| sliceSimultaneousUse | O | T | T | F | T |
| delayTolerance | O | T | T | F | T |

#### 6.3.22.3 Attribute constraints

None.

#### 6.3.22.4 Notifications

The subclause 6.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

|  |
| --- |
| **Next chagne** |

|  |
| --- |
| **Next chagne** |

## J.4.3 OpenAPI document "sliceNrm.yaml"

openapi: 3.0.1

info:

title: Slice NRM

version: 17.2.0

description: >-

OAS 3.0.1 specification of the Slice NRM

@ 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

All rights reserved.

externalDocs:

description: 3GPP TS 28.541 V17.2.0; 5G NRM, Slice NRM

url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.541/

paths: {}

components:

schemas:

#------------ Type definitions ---------------------------------------------------

Float:

type: number

format: float

MobilityLevel:

type: string

enum:

- STATIONARY

- NOMADIC

- RESTRICTED MOBILITY

- FULLY MOBILITY

SynAvailability:

type: string

enum:

- NOT SUPPORTED

- BETWEEN BS AND UE

- BETWEEN BS AND UE & UE AND UE

PositioningAvailability:

type: array

items:

type: string

enum:

- CIDE-CID

- OTDOA

- RF FINGERPRINTING

- AECID

- HYBRID POSITIONING

- NET-RTK

Predictionfrequency:

type: string

enum:

- PERSEC

- PERMIN

- PERHOUR

SharingLevel:

type: string

enum:

- SHARED

- NON-SHARED

NetworkSliceSharingIndicator:

type: string

enum:

- SHARED

- NON-SHARED

ServiceType:

type: string

enum:

- eMBB

- RLLC

- MIoT

- V2X

SliceSimultaneousUse:

type: string

enum:

- ZERO

- ONE

- TWO

- THREE

- FOUR

PerfReqEmbb:

type: object

properties:

expDataRateDL:

type: number

expDataRateUL:

type: number

areaTrafficCapDL:

type: number

areaTrafficCapUL:

type: number

userDensity:

type: number

activityFactor:

type: number

PerfReqEmbbList:

type: array

items:

$ref: '#/components/schemas/PerfReqEmbb'

PerfReqUrllc:

type: object

properties:

cSAvailabilityTarget:

type: number

cSReliabilityMeanTime:

type: string

expDataRate:

type: number

msgSizeByte:

type: string

transferIntervalTarget:

type: string

survivalTime:

type: string

PerfReqUrllcList:

type: array

items:

$ref: '#/components/schemas/PerfReqUrllc'

PerfReq:

oneOf:

- $ref: '#/components/schemas/PerfReqEmbbList'

- $ref: '#/components/schemas/PerfReqUrllcList'

Category:

type: string

enum:

- CHARACTER

- SCALABILITY

Tagging:

type: array

items:

type: string

enum:

- PERFORMANCE

- FUNCTION

- OPERATION

Exposure:

type: string

enum:

- API

- KPI

ServAttrCom:

type: object

properties:

category:

$ref: '#/components/schemas/Category'

tagging:

$ref: '#/components/schemas/Tagging'

exposure:

$ref: '#/components/schemas/Exposure'

Support:

type: string

enum:

- NOT SUPPORTED

- SUPPORTED

DelayTolerance:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

support:

$ref: '#/components/schemas/Support'

DeterministicComm:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

availability:

$ref: '#/components/schemas/Support'

periodicityList:

type: string

DLThptPerSlice:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

DLThptPerUE:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

ULThptPerSlice:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

ULThptPerUE:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

DLThptPerSliceSubnet:

type: object

properties:

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

DLThptPerUEPerSubnet:

type: object

properties:

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

ULThptPerSliceSubnet:

type: object

properties:

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

ULThptPerUEPerSubnet:

type: object

properties:

guaThpt:

$ref: '#/components/schemas/Float'

maxThpt:

$ref: '#/components/schemas/Float'

MaxPktSize:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

maxsize:

type: integer

MaxNumberofPDUSessions:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

nOofPDUSessions:

type: integer

KPIMonitoring:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

kPIList:

type: string

NBIoT:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

support:

$ref: '#/components/schemas/Support'

Synchronicity:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

availability:

$ref: '#/components/schemas/SynAvailability'

accuracy:

$ref: '#/components/schemas/Float'

Positioning:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

availability:

$ref: '#/components/schemas/PositioningAvailability'

predictionfrequency:

$ref: '#/components/schemas/Predictionfrequency'

accuracy:

$ref: '#/components/schemas/Float'

UserMgmtOpen:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

support:

$ref: '#/components/schemas/Support'

V2XCommModels:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

v2XMode:

$ref: '#/components/schemas/Support'

TermDensity:

type: object

properties:

servAttrCom:

$ref: '#/components/schemas/ServAttrCom'

density:

type: integer

NsInfo:

type: object

properties:

nsInstanceId:

type: string

nsName:

type: string

CNSliceSubnetProfile:

type: object

properties:

maxNumberofUEs:

type: integer

latency:

type: integer

dLThptPerSliceSubnet:

$ref: '#/components/schemas/DLThptPerSliceSubnet'

dLThptPerUEPerSubnet:

$ref: '#/components/schemas/DLThptPerUEPerSubnet'

uLThptPerSliceSubnet:

$ref: '#/components/schemas/ULThptPerSliceSubnet'

uLThptPerUEPerSubnet:

$ref: '#/components/schemas/ULThptPerUEPerSubnet'

maxNumberOfPDUSessions:

type: integer

maxPktSize:

type: integer

delayTolerance:

$ref: '#/components/schemas/DelayTolerance'

sliceSimultaneousUse:

$ref: '#/components/schemas/SliceSimultaneousUse'

reliability:

type: string

RANSliceSubnetProfile:

type: object

properties:

coverageAreaTAList:

type: integer

MobilityLevel:

$ref: '#/components/schemas/MobilityLevel'

resourceSharingLevel:

$ref: '#/components/schemas/SharingLevel'

maxNumberofUEs:

type: integer

activityFactor:

type: integer

dLThptPerUEPerSubnet:

$ref: '#/components/schemas/ULThptPerUEPerSubnet'

uLThptPerUEPerSubnet:

$ref: '#/components/schemas/ULThptPerUEPerSubnet'

uESpeed:

type: integer

reliability:

type: string

serviceType:

$ref: '#/components/schemas/ServiceType'

maxPktSize:

type: integer

delayTolerance:

$ref: '#/components/schemas/DelayTolerance'

sliceSimultaneousUse:

$ref: '#/components/schemas/SliceSimultaneousUse'

TopSliceSubnetProfile:

type: object

properties:

coverageArea:

type: string

latency:

type: integer

maxNumberofUEs:

type: integer

dLThptPerSliceSubnet:

$ref: '#/components/schemas/DLThptPerSliceSubnet'

dLThptPerUEPerSubnet:

$ref: '#/components/schemas/DLThptPerUEPerSubnet'

uLThptPerSliceSubnet:

$ref: '#/components/schemas/ULThptPerSliceSubnet'

uLThptPerUEPerSubnet:

$ref: '#/components/schemas/ULThptPerUEPerSubnet'

maxPktSize:

type: integer

delayTolerance:

$ref: '#/components/schemas/DelayTolerance'

sliceSimultaneousUse:

$ref: '#/components/schemas/SliceSimultaneousUse'

ServiceProfile:

type: object

properties:

serviceProfileId:

type: string

plmnInfoList:

$ref: 'nrNrm.yaml#/components/schemas/PlmnInfoList'

maxNumberofUEs:

type: number

latency:

type: number

uEMobilityLevel:

$ref: '#/components/schemas/MobilityLevel'

sst:

$ref: 'nrNrm.yaml#/components/schemas/Sst'

networkSliceSharingIndicator:

$ref: '#/components/schemas/NetworkSliceSharingIndicator'

availability:

type: number

delayTolerance:

$ref: '#/components/schemas/DelayTolerance'

deterministicComm:

$ref: '#/components/schemas/DeterministicComm'

dLThptPerSlice:

$ref: '#/components/schemas/DLThptPerSlice'

dLThptPerUE:

$ref: '#/components/schemas/DLThptPerUE'

uLThptPerSlice:

$ref: '#/components/schemas/ULThptPerSlice'

uLThptPerUE:

$ref: '#/components/schemas/ULThptPerUE'

maxPktSize:

$ref: '#/components/schemas/MaxPktSize'

maxNumberofPDUSessions:

$ref: '#/components/schemas/MaxNumberofPDUSessions'

kPIMonitoring:

$ref: '#/components/schemas/KPIMonitoring'

nBIoT:

$ref: '#/components/schemas/NBIoT'

synchronicity:

$ref: '#/components/schemas/Synchronicity'

positioning:

$ref: '#/components/schemas/Positioning'

userMgmtOpen:

$ref: '#/components/schemas/UserMgmtOpen'

v2XModels:

$ref: '#/components/schemas/V2XCommModels'

coverageArea:

type: string

termDensity:

$ref: '#/components/schemas/TermDensity'

activityFactor:

$ref: '#/components/schemas/Float'

uESpeed:

type: integer

jitter:

type: integer

survivalTime:

type: string

reliability:

type: string

maxDLDataVolume:

type: string

maxULDataVolume:

type: string

sliceSimultaneousUse:

$ref: '#/components/schemas/SliceSimultaneousUse'

SliceProfile:

type: object

properties:

serviceProfileId:

type: string

plmnInfoList:

$ref: 'nrNrm.yaml#/components/schemas/PlmnInfoList'

perfReq:

$ref: '#/components/schemas/PerfReq'

cNSliceSubnetProfile:

$ref: '#/components/schemas/CNSliceSubnetProfile'

rANSliceSubnetProfile:

$ref: '#/components/schemas/RANSliceSubnetProfile'

topSliceSubnetProfile:

$ref: '#/components/schemas/TopSliceSubnetProfile'

IpAddress:

oneOf:

- $ref: 'genericNrm.yaml#/components/schemas/Ipv4Addr'

- $ref: 'genericNrm.yaml#/components/schemas/Ipv6Addr'

ServiceProfileList:

type: array

items:

$ref: '#/components/schemas/ServiceProfile'

SliceProfileList:

type: array

items:

$ref: '#/components/schemas/SliceProfile'

#------------ Definition of concrete IOCs ----------------------------------------

SubNetwork-Single:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

- type: object

properties:

attributes:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-Attr'

- $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-ncO'

- type: object

properties:

SubNetwork:

$ref: '#/components/schemas/SubNetwork-Multiple'

NetworkSlice:

$ref: '#/components/schemas/NetworkSlice-Multiple'

NetworkSliceSubnet:

$ref: '#/components/schemas/NetworkSliceSubnet-Multiple'

EP\_Transport:

$ref: '#/components/schemas/EP\_Transport-Multiple'

NetworkSlice-Single:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

- type: object

properties:

attributes:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-Attr'

- type: object

properties:

networkSliceSubnetRef:

$ref: 'genericNrm.yaml#/components/schemas/Dn'

operationalState:

$ref: 'genericNrm.yaml#/components/schemas/OperationalState'

administrativeState:

$ref: 'genericNrm.yaml#/components/schemas/AdministrativeState'

serviceProfileList:

$ref: '#/components/schemas/ServiceProfileList'

NetworkSliceSubnet-Single:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

- type: object

properties:

attributes:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-Attr'

- type: object

properties:

managedFunctionRefList:

$ref: 'genericNrm.yaml#/components/schemas/DnList'

networkSliceSubnetRefList:

$ref: 'genericNrm.yaml#/components/schemas/DnList'

operationalState:

$ref: 'genericNrm.yaml#/components/schemas/OperationalState'

administrativeState:

$ref: 'genericNrm.yaml#/components/schemas/AdministrativeState'

nsInfo:

$ref: '#/components/schemas/NsInfo'

sliceProfileList:

$ref: '#/components/schemas/SliceProfileList'

epTransportRefList:

$ref: 'genericNrm.yaml#/components/schemas/DnList'

EP\_Transport-Single:

allOf:

- $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

- type: object

properties:

attributes:

type: object

properties:

ipAddress:

$ref: '#/components/schemas/IpAddress'

logicInterfaceId:

type: string

nextHopInfo:

type: string

qosProfile:

type: string

epApplicationRefs:

$ref: 'genericNrm.yaml#/components/schemas/DnList'

#-------- Definition of JSON arrays for name-contained IOCs ----------------------

SubNetwork-Multiple:

type: array

items:

$ref: '#/components/schemas/SubNetwork-Single'

NetworkSlice-Multiple:

type: array

items:

$ref: '#/components/schemas/NetworkSlice-Single'

NetworkSliceSubnet-Multiple:

type: array

items:

$ref: '#/components/schemas/NetworkSliceSubnet-Single'

EP\_Transport-Multiple:

type: array

items:

$ref: '#/components/schemas/EP\_Transport-Single'

#------------ Definitions in TS 28.541 for TS 28.532 -----------------------------

resources-sliceNrm:

oneOf:

- $ref: '#/components/schemas/SubNetwork-Single'

- $ref: '#/components/schemas/NetworkSlice-Single'

- $ref: '#/components/schemas/NetworkSliceSubnet-Single'

- $ref: '#/components/schemas/EP\_Transport-Single'

|  |
| --- |
| **End of modification** |