**3GPP TSG- Meeting #**

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **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:***  |  |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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 canbe 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:*** | The YANG mapping of some earlier agreed Stage 2 elements is not complete. It is fixed here. |
|  |  |
| ***Summary of change:*** | Only YANG is updated to match stage 2. |
|  |  |
| ***Consequences if not approved:*** | Faulty/Missing parts in the YANG solution set. |
|  |  |
| ***Clauses affected:*** | N.2.5, N.2.6 |
|  |  |
|  | **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:*** | Forge link: https://forge.3gpp.org/rep/sa5/MnS/tree/28.541\_Rel17\_CR\_0566\_Correction\_of\_YANG\_Solution\_set |
|  |  |
| ***This CR's revision history:*** |  |

***First change***

N.2.5 module \_3gpp-ns-nrm-sliceprofile.yang

<CODE BEGINS>

submodule \_3gpp-ns-nrm-sliceprofile {

 yang-version 1.1;

 belongs-to \_3gpp-ns-nrm-networkslicesubnet { prefix nss3gpp; }

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-5g-common-yang-types { prefix types5g3gpp; }

 // import \_3gpp-ns-nrm-networkslice { prefix ns3gpp; }

 import \_3gpp-ns-nrm-common { prefix ns3cmn3gpp; }

 import \_3gpp-ns-nrm-serviceprofile {prefix serv3gpp}

 organization "3GPP SA5";

 contact

 "https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464";

 description "Represents the properties of network slice subnet related

 requirement that should be supported by the network slice subnet

 instance in a 5G network.";

 reference "3GPP TS 28.541

 Management and orchestration;

 5G Network Resource Model (NRM);

 Information model definitions for network slice NRM (chapter 6)

 ";

 revision 2021-07-16 { reference CR-0566 ; }

 revision 2020-02-19 {

 description "Introduction of YANG definitions for network slice NRM";

 reference "CR-0458";

 }

 revision 2019-05-27 {

 description "initial revision.";

 reference "Based on

 3GPP TS 28.541 V15.X.XX";

 }

 grouping PositioningGrp {

 description "Represents positioning support.";

 reference "Clause 3.4.20 of GSMA NG.116 ";

 uses ns3cmn3gpp:ServAttrComGrp ;

 leaf-list availability {

 type enumeration {

 enum CIDE\_CID ;

 enum OTDOA;

 enum RF\_FINGERPRINTING;

 enum AECID;

 enum HYBRID\_POSITIONING;

 enum NET\_RTK;

 }

 min-elements 1;

 config false;

 description "Specifies if this attribute is provided by the RAN domain

 of the network slice and contains a list of positioning methods

 provided by the RAN domain. If the list is empty this attribute is

 not available in the RAN domain and the other parameters might be

 ignored, see NG.116. Values allowed: are

 CIDE-CID (LTE and NR), OTDOA (LTE and NR), RF fingerprinting, AECID,

 Hybrid positioning, NET-RTK.";

 }

 leaf predictionfrequency {

 type enumeration {

 enum PERSEC;

 enum PERMIN;

 enum PERHOUR;

 }

 mandatory true;

 description "Specifies how often location information is provided.

 This parameter simply defines how often the customer is allowed to

 request location information. This is not related to the time it

 takes to determine the location, which is a characteristic of the

 positioning method.

 If leaf-list availability is empty, the value has no meaning.";

 reference "NG.116";

 }

 leaf accuracy {

 type decimal64 {

 fraction-digits 2;

 }

 units meter;

 mandatory true;

 description "Specifies the accuracy of the location information.

 Accuracy depends on the respective positioning solution applied in the

 RAN domain of the network slice.";

 reference "NG.116";

 }

 }

 grouping TopSliceSubnetProfileGrp {

 leaf-list coverageArea {

 min-elements 1;

 description "A list of TrackingAreas where the NSI can be selected.";

 type types3gpp:Tac;

 }

 leaf latency {

 description "The packet transmission latency (milliseconds) through

 the RAN, CN, and TN part of 5G network, used to evaluate

 utilization performance of the end-to-end network slice instance.";

 reference "3GPP TS 28.554 clause 6.3.1";

 //optional support

 mandatory true;

 type uint16;

 units milliseconds;

 }

 leaf maxNumberofUEs {

 description "Specifies the maximum number of UEs may simultaneously

 access the network slice instance.";

 //optional support

 mandatory true;

 type uint64;

 }

 list dLThptPerSliceSubnet {

 description "This attribute defines achievable data rate of the

 network slice subnet in downlink that is available ubiquitously

 across the coverage area of the slice";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list dLThptPerUE {

 description "This attribute defines data rate supported by the

 network slice per UE, refer NG.116.";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list uLThptPerSliceSubnet {

 description "This attribute defines achievable data rate of the

 network slice subnet in uplink that is available ubiquitously

 across the coverage area of the slice";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list uLThptPerUE {

 description "This attribute defines data rate supported by the

 network slice per UE, refer NG.116";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list maxPktSize {

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 description "This parameter specifies the maximum packet size

 supported by the network slice";

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf maxSize {

 //Stage2 issue: Not defined in 28.541, guessing integer bytes

 type uint32;

 units bytes;

 }

 }

 list maxNumberofPDUSessions {

 description "Represents the maximum number of

 concurrent PDU sessions supported by the network slice";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf nOofPDUSessions {

 //Stage2 issue: Not defined in 28.541, guessing integer

 type uint32;

 }

 }

 list delayTolerance {

 description "An attribute specifies the properties of service delivery

 flexibility, especially for the vertical services that are not

 chasing a high system performance.";

 reference "TS 22.104 clause 4.3";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf support {

 description "An attribute specifies whether or not the network

 slice supports service delivery flexibility, especially for the

 vertical services that are not chasing a high system performance.";

 type ns3cmn3gpp:Support-enum;

 }

 }

 list termDensity {

 description "An attribute specifies the overall user density over

 the coverage area of the network slice";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf density {

 type uint32;

 units users/km2;

 }

 }

 leaf activityFactor {

 //Stage2 issue: This is modeled as writable/config true in 28.542,

 // but that does not appear to match the description

 description "An attribute specifies the percentage value of the

 amount of simultaneous active UEs to the total number of UEs where

 active means the UEs are exchanging data with the network";

 reference "TS 22.261 Table 7.1-1";

 type decimal64 {

 fraction-digits 1;

 }

 }

 leaf-list coverageAreaTAList {

 description "A list of TrackingAreas where the NSI can be selected.";

 //optional support

 min-elements 1;

 type types3gpp:Tac;

 }

 leaf uEMobilityLevel {

 description "The mobility level of UE accessing the network slice

 instance.";

 //optional support

 type types3gpp:UeMobilityLevel;

 }

 leaf resourceSharingLevel {

 description "Specifies whether the resources to be allocated to the

 network slice subnet instance may be shared with another network

 slice subnet instance(s).";

 //optional support

 type types3gpp:ResourceSharingLevel;

 }

 leaf uESpeed {

 //Stage2 issue: This is modeled as writable/config true in 28.542,

 // but that does not appear to match the description

 description "An attribute specifies the maximum speed (in km/hour)

 supported by the network slice at which a defined QoS can be

 achieved";

 type uint32;

 units km/h;

 }

 leaf reliability {

 description "An attribute specifies in the context of network layer

 packet transmissions, percentage value of the amount of sent

 network layer packets successfully delivered to a given system

 entity within the time constraint required by the targeted service,

 divided by the total number of sent network layer packets.";

 reference "TS 22.261, TS 22.104";

 type string;

 }

 list deterministicComm {

 //Stage2 issue: deterministicComm is not defined in 28.541 chapter 6,

 // but I guess determinComm is meant

 description "This list represents the properties of the deterministic

 communication for periodic user traffic. Periodic traffic refers to the

 type of traffic with periodic transmissions.";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf availability {

 //Stage2 issue: Defined differently in 28.541 chapter 6, but XML

 // uses DeterminCommAvailability

 config false;

 type ns3cmn3gpp:DeterminCommAvailability;

 }

 leaf periodicityList {

 //Stage2 issue: Not defined in 28.541 chapter 6. XML and YAML

 // says "string".

 type string;

 }

 }

 leaf survivalTime {

 description "An attribute specifies the time that an application

 consuming a communication service may continue without an

 anticipated message.";

 reference "TS 22.104 clause 5";

 type string;

 }

 list positioning {

 key predictionfrequency;

 min-elements 1;

 max-elements 1;

 description "Specifies whether the network slice provides

 geo-localization methods or supporting methods";

 reference "Clause 3.4.20 of NG.116";

 uses PositioningGrp;

 }

 }

grouping CNSliceSubnetProfileGrp {

 leaf latency {

 description "The packet transmission latency (milliseconds) through

 the RAN, CN, and TN part of 5G network, used to evaluate

 utilization performance of the end-to-end network slice instance.";

 reference "3GPP TS 28.554 clause 6.3.1";

 //optional support

 mandatory true;

 type uint16;

 units milliseconds;

 }

 leaf maxNumberofUEs {

 description "Specifies the maximum number of UEs may simultaneously

 access the network slice instance.";

 //optional support

 mandatory true;

 type uint64;

 }

 list dLThptPerSliceSubnet {

 description "This attribute defines achievable data rate of the

 network slice subnet in downlink that is available ubiquitously

 across the coverage area of the slice";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list dLThptPerUE {

 description "This attribute defines data rate supported by the

 network slice per UE, refer NG.116.";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list uLThptPerSliceSubnet {

 description "This attribute defines achievable data rate of the

 network slice subnet in uplink that is available ubiquitously

 across the coverage area of the slice";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list uLThptPerUE {

 description "This attribute defines data rate supported by the

 network slice per UE, refer NG.116";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list maxPktSize {

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 description "This parameter specifies the maximum packet size

 supported by the network slice";

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf maxSize {

 //Stage2 issue: Not defined in 28.541, guessing integer bytes

 type uint32;

 units bytes;

 }

 }

 list maxNumberofPDUSessions {

 description "Represents the maximum number of

 concurrent PDU sessions supported by the network slice";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf nOofPDUSessions {

 //Stage2 issue: Not defined in 28.541, guessing integer

 type uint32;

 }

 }

 list delayTolerance {

 description "An attribute specifies the properties of service delivery

 flexibility, especially for the vertical services that are not

 chasing a high system performance.";

 reference "TS 22.104 clause 4.3";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf support {

 description "An attribute specifies whether or not the network

 slice supports service delivery flexibility, especially for the

 vertical services that are not chasing a high system performance.";

 type ns3cmn3gpp:Support-enum;

 }

 }

 leaf-list coverageAreaTAList {

 description "A list of TrackingAreas where the NSI can be selected.";

 //optional support

 min-elements 1;

 type types3gpp:Tac;

 }

 leaf resourceSharingLevel {

 description "Specifies whether the resources to be allocated to the

 network slice subnet instance may be shared with another network

 slice subnet instance(s).";

 //optional support

 type types3gpp:ResourceSharingLevel;

 }

 list deterministicComm {

 //Stage2 issue: deterministicComm is not defined in 28.541 chapter 6,

 // but I guess determinComm is meant

 description "This list represents the properties of the deterministic

 communication for periodic user traffic. Periodic traffic refers to the

 type of traffic with periodic transmissions.";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf availability {

 //Stage2 issue: Defined differently in 28.541 chapter 6, but XML

 // uses DeterminCommAvailability

 config false;

 type ns3cmn3gpp:DeterminCommAvailability;

 }

 leaf periodicityList {

 //Stage2 issue: Not defined in 28.541 chapter 6. XML and YAML

 // says "string".

 type string;

 }

 }

 }

 grouping PositioningRANSubnetGrp {

 description "Represents positioning support in RAN domain";

 leaf-list availability {

 type enumeration {

 enum CIDE\_CID ;

 enum OTDOA;

 enum RF\_FINGERPRINTING;

 enum AECID;

 enum HYBRID\_POSITIONING;

 enum NET\_RTK;

 }

 config false;

 description "Specifies if this attribute is provided by the RAN domain

 of the network slice and contains a list of positioning methods

 provided by the RAN domain. If the list is empty this attribute is

 not available in the RAN domain and the other parameters might be

 ignored, see NG.116. Values allowed: are

 CIDE-CID (LTE and NR), OTDOA (LTE and NR), RF fingerprinting, AECID,

 Hybrid positioning, NET-RTK.";

 }

 leaf predictionfrequency {

 type enumeration {

 enum PERSEC;

 enum PERMIN;

 enum PERHOUR;

 }

 mandatory true;

 description "Specifies how often location information is provided.

 This parameter simply defines how often the customer is allowed to

 request location information. This is not related to the time it

 takes to determine the location, which is a characteristic of the

 positioning method.

 If leaf-list availability is empty, the value has no meaning.";

 reference "NG.116";

 }

 leaf accuracy {

 type decimal64 {

 fraction-digits 2;

 }

 units meter;

 mandatory true;

 description "Specifies the accuracy of the location information.

 Accuracy depends on the respective positioning solution applied in the

 RAN domain of the network slice.";

 reference "NG.116";

 }

 }

 grouping RANSliceSubnetProfileGrp {

 description "Represents the RANSliceSubnetProfile datatype";

 leaf latency {

 description "The packet transmission latency (milliseconds) through

 the RAN, CN, and TN part of 5G network, used to evaluate

 utilization performance of the end-to-end network slice instance.";

 reference "3GPP TS 28.554 clause 6.3.1";

 //optional support

 mandatory true;

 type uint16;

 units milliseconds;

 }

 leaf maxNumberofUEs {

 description "Specifies the maximum number of UEs may simultaneously

 access the network slice instance.";

 //optional support

 mandatory true;

 type uint64;

 }

 list dLThptPerUE {

 description "This attribute defines data rate supported by the

 network slice per UE, refer NG.116.";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list uLThptPerUE {

 description "This attribute defines data rate supported by the

 network slice per UE, refer NG.116";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:XLThptGrp;

 }

 list maxPktSize {

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 description "This parameter specifies the maximum packet size

 supported by the network slice";

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf maxSize {

 //Stage2 issue: Not defined in 28.541, guessing integer bytes

 type uint32;

 units bytes;

 }

 }

 list delayTolerance {

 description "An attribute specifies the properties of service delivery

 flexibility, especially for the vertical services that are not

 chasing a high system performance.";

 reference "TS 22.104 clause 4.3";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf support {

 description "An attribute specifies whether or not the network

 slice supports service delivery flexibility, especially for the

 vertical services that are not chasing a high system performance.";

 type ns3cmn3gpp:Support-enum;

 }

 }

 list termDensity {

 description "An attribute specifies the overall user density over

 the coverage area of the network slice";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf density {

 type uint32;

 units users/km2;

 }

 }

 leaf activityFactor {

 //Stage2 issue: This is modeled as writable/config true in 28.542,

 // but that does not appear to match the description

 description "An attribute specifies the percentage value of the

 amount of simultaneous active UEs to the total number of UEs where

 active means the UEs are exchanging data with the network";

 reference "TS 22.261 Table 7.1-1";

 type decimal64 {

 fraction-digits 1;

 }

 }

 leaf-list coverageAreaTAList {

 description "A list of TrackingAreas where the NSI can be selected.";

 //optional support

 min-elements 1;

 type types3gpp:Tac;

 }

 leaf uEMobilityLevel {

 description "The mobility level of UE accessing the network slice

 instance.";

 //optional support

 type types3gpp:UeMobilityLevel;

 }

 leaf resourceSharingLevel {

 description "Specifies whether the resources to be allocated to the

 network slice subnet instance may be shared with another network

 slice subnet instance(s).";

 //optional support

 type types3gpp:ResourceSharingLevel;

 }

 leaf uESpeed {

 //Stage2 issue: This is modeled as writable/config true in 28.542,

 // but that does not appear to match the description

 description "An attribute specifies the maximum speed (in km/hour)

 supported by the network slice at which a defined QoS can be

 achieved";

 type uint32;

 units km/h;

 }

 leaf reliability {

 description "An attribute specifies in the context of network layer

 packet transmissions, percentage value of the amount of sent

 network layer packets successfully delivered to a given system

 entity within the time constraint required by the targeted service,

 divided by the total number of sent network layer packets.";

 reference "TS 22.261, TS 22.104";

 type string;

 }

 list deterministicComm {

 //Stage2 issue: deterministicComm is not defined in 28.541 chapter 6,

 // but I guess determinComm is meant

 description "This list represents the properties of the deterministic

 communication for periodic user traffic. Periodic traffic refers to the

 type of traffic with periodic transmissions.";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf availability {

 //Stage2 issue: Defined differently in 28.541 chapter 6, but XML

 // uses DeterminCommAvailability

 config false;

 type ns3cmn3gpp:DeterminCommAvailability;

 }

 leaf periodicityList {

 //Stage2 issue: Not defined in 28.541 chapter 6. XML and YAML

 // says "string".

 type string;

 }

 }

 leaf survivalTime {

 description "An attribute specifies the time that an application

 consuming a communication service may continue without an

 anticipated message.";

 reference "TS 22.104 clause 5";

 type string;

 }

 list positioning {

 min-elements 1;

 max-elements 1;

 description "Specifies whether the RAN domain of the network slice

 provides geo-localization methods or supporting methods.";

 reference "Clause 3.4.20 of NG.116 [50].";

 uses PositioningRANSubnetGrp;

 }

 }

 grouping SliceProfileGrp {

 leaf sliceProfileId {

 description "A unique identifier of the property of network slice

 subnet related requirement should be supported by the network

 slice subnet instance.";

 type types3gpp:DistinguishedName;

 }

 list sNSSAIList {

 description "List of S-NSSAIs the managed object is capable of

 supporting. (Single Network Slice Selection Assistance Information)

 An S-NSSAI has an SST (Slice/Service type) and an optional SD

 (Slice Differentiator) field.";

 key idx;

 unique "sst sd";

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses types5g3gpp:SNssai;

 }

 list pLMNIdList {

 description "List of at most six entries of PLMN Identifiers, but at

 least one (the primary PLMN Id). The PLMN Identifier is composed

 of a Mobile Country Code (MCC) and a Mobile Network Code (MNC).";

 min-elements 1;

 max-elements 6;

 key "mcc mnc";

 ordered-by user;

 uses types3gpp:PLMNId;

 }

 list CNSliceSubnetProfile {

 description " This represents the requirements for the CN slice associated with the

 network slice. ";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses CNSliceSubnetProfileGrp;

 }

 list RANSliceSubnetProfile {

 description " This represents the requirements for the RAN slice associated with the

 network slice. ";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses RANSliceSubnetProfileGrp;

 }

 list TopSliceSubnetProfile {

 description " This represents the requirements for the top slice associated with the

 network slice. ";

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses TopSliceSubnetProfileGrp;

 }

 }

}

<CODE ENDS>

N.2.6 module \_3gpp-ns-common.yang

<CODE BEGINS>

module \_3gpp-ns-nrm-common {

 yang-version 1.1;

 namespace urn:3gpp:sa5:\_3gpp-ns-nrm-common;

 prefix ns3cmn3gpp;

 // import \_3gpp-common-subnetwork { prefix subnet3gpp; }

 // import \_3gpp-common-yang-types { prefix types3gpp; }

 // import \_3gpp-common-top { prefix top3gpp; }

 organization "3GPP SA5";

 contact

 "https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464";

 description "Common network slice definitions";

 reference "3GPP TS 28.541

 Management and orchestration;

 5G Network Resource Model (NRM);

 Information model definitions for network slice NRM (chapter 6)

 ";

 revision 2021-07-16 { reference CR-0566 ; }

 revision 2021-05-17 {

 description "Introduction of Common Data types";

 reference "CR-0485";

 }

 grouping XLThptGrp {

 list servAttrCom {

 description "This list represents the common properties of service

 requirement related attributes.";

 reference "GSMA NG.116 corresponding to Attribute categories,

 tagging and exposure";

 config false;

 key idx;

 max-elements 1;

 leaf idx {

 description "Synthetic index for the element.";

 type uint32;

 }

 uses ns3cmn3gpp:ServAttrComGrp;

 }

 leaf guaThpt {

 description "This attribute describes the guaranteed data rate.";

 type uint64;

 units kbits/s;

 }

 leaf maxThpt {

 description "This attribute describes the maximum data rate.";

 type uint64;

 units kbits/s;

 }

 }

 typedef Tagging-enum {

 type enumeration {

 enum performance;

 enum function;

 enum operation;

 }

 }

 typedef Exposure-enum {

 type enumeration {

 enum API;

 enum KPI;

 }

 }

 typedef Category-enum {

 type enumeration {

 enum character;

 enum scalability;

 }

 }

 typedef Support-enum {

 type enumeration {

 enum NOT\_SUPPORTED;

 enum SUPPORTED;

 }

 }

 grouping ServAttrComGrp {

 leaf category {

 description "This attribute specifies the category of a service

 requirement/attribute of GST";

 type Category-enum;

 config false;

 }

 leaf-list tagging {

 description "This attribute specifies the tagging of a service

 requirement/attribute of GST in character category";

 when "../category = 'character'";

 type Tagging-enum;

 config false;

 }

 leaf exposure {

 description "This attribute specifies exposure mode of a service

 requirement/attribute of GST";

 type Exposure-enum;

 config false;

 }

 }

 typedef DeterminCommAvailability {

 type Support-enum;

 }

}

<CODE ENDS>

***End of changes***