**3GPP TSG SA WG5 Meeting #139e S5-221289**

**Online, , 15 Nov 2021- 24 Nov 2021**

**Source: Samsung**

**Title: pCR 28.538 EESFunction definition**

**Document for: Approval**

**Agenda Item: 6.4.18**

# 1 Decision/action requested

***The group is asked to discuss and approve the proposals.***

# 2 References

None

# 3 Rationale

This contribution defined the EASFunction IOC.

# 4 Detailed proposal

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

# 6 Edge NRM

*Editors Note: This section will contain the edge related NRM or just the reference to it in 28.541.*

## 6.1 Information Model definitions for Edge NRM

### 6.1.1 Imported information entities and local labels

|  |  |
| --- | --- |
| Label reference | Local label |
| TS 28.622 [4], IOC, Top | Top |
| TS 28.622 [4], IOC, SubNetwork | SubNetwork |
| TS 28.622 [4], IOC, ManagedFunction | ManagedFunction |
| TS 28.541 [3], IOC, PCFFunction | PCFFunction |
| TS 28.541 [3], IOC, NEFFunction | NEFFunction |
| TS 28.541 [3], IOC, EP\_N5 | EP\_N5 |
| TS 28.541 [3], IOC, EP\_N33 | EP\_N33 |
| TS 28.541 [3], attribute, tAI | tAI |

## 6.2 Class diagram

### 6.2.1 Relationships

**Figure 6.2.1-2 Edge NRM containment/naming relationship**



**Figure 6.2.1-3 Transport view of EES NRM**



**Figure 6.2.1-4 Transport view of ECS NRM**



**Figure 6.2.1-5 Transport view of EAS NRM**

### 6.2.2 Inheritance

 

**Figure 6.2.2-1 Edge Inheritance Relationship**

Editor's NOTE 4: Whether EASProfile is dataType or IOC is FFS.

## 6.3 Class definition

6.3.x EESFunction

6.3.x.1 Definition

This IOC represent the properties of a EES in a 3GPP network. For more information about EES, see 3GPP TS 23.558.

6.3.x.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| eESIdentifier | M | T |  | F | T |
| eESServingLocation | M | T | T | F | T |
| eESAddress | M | T | T | F | T |
| softwareImageInfo | M | T | T | F | T |
| serviceContinuitySupport | M | T | T | F | T |
| **Attribute related to role** |  |  |  |  |  |
| eASFunctonRef | M | T | T | F | T |
|  |  |  |  |  |  |

####

Editors notes: The list of attributes is not complete.

#### 6.3.x.3 Attribute constraints

#### 6.3.x.4 Notifications

TBD.

### 6.3.y SoftwareImageInfo <<dataType>>

6.3.y.1 Definition

This datatype represents the software image information.

6.3.y.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| minimumDisk | M | T | T | F | T |
| minimumRAM | M | T | T | F | T |
| **Attribute related to role** |  |  |  |  |  |
| swImageRef | M | T | T | F | T |

#### 6.3.y.3 Attribute constraints

None.

#### 6.3.y.4 Notifications

TBD

## 6.4 Attribute definition

6.4.1 Attribute Properties

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| eESIdentifier | It identifies the EES, see 3GPP TS 23.558. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| eASFunctionRef | This is the DN of EASFunction. allowedValues: DN of the EASFunction MOI. | type: DNmultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| serviceContinuitySupport | This parameter defines whether the EES supports service continuity, see 3GPP TS 23.558 | type: Boolenmultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| eESservingLocation | It defines the serving location for an EES. | type: ServingLocationmultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| eESAddress | One or more URLs and/or IP Address(es) of EES(s) (See TS 23.558 [2]). allowedValues: N/A | type: Stringmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| softwareImageInfo | This refers to thesoftware image information (e.g., software image location, minimum RAM, disk requirements) (see clause 7.1.6.5 in in ETSI NFV IFA-011 [7]). It is defined as a datatype (see clause 6.3.y).allowedValues: N/A | type: SoftwareImageInfomultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| swImageRef | It indicates the reference to the actual software image that is represented by URL (see clause 7.1.6.5 in in ETSI NFV IFA-011 [7]). | type: Stringmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| minimumDisk | It indicates the minimum disk size requirement for the EAS software (see clause 7.1.6.5 in in ETSI NFV IFA-011 [7]).The unit is Megabyte. | type: Integermultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| minimumRAM | It indicates the minimum RAM size requirement for the EAS software (see clause 7.1.6.5 in in ETSI NFV IFA-011 [7]).The unit is Megabyte. | type: Integermultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |

# P.1 General

This annex contains the OpenAPI definition of the Edge NRM in YAML format.

The Information Service (IS) of the Edge NRM is defined in clause 6.

Mapping rules to produce the OpenAPI definition based on the IS are defined in TS 32.160 [10].

# P.2 Solution Set (SS) definitions

## P.2.1 OpenAPI document "edgeNrm.yml"

openapi: 3.0.1

info:

 title: 3GPP Edge NRM

 version: 17.1.0

 description: >-

 OAS 3.0.1 specification of the Edge NRM

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externalDocs:

 description: 3GPP TS 28.538; Edge NRM

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.538/

paths: {}

components:

 schemas:

#-------- Definition of types-----------------------------------------------------

 ServingLocation:

 type: object

 properties:

 geographicalLocation:

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

 tAi:

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

 GeoLoc:

 type: object

 properties:

 civicAddress:

 type: string

 lat:

 type: integer

 long:

 type: integer

 EDNConnectionInfo:

 type: object

 properties:

 dNN:

 type: string

 eDNServiceArea:

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

 SoftwareImageInfo:

 type: object

 properties:

 minimumDisk:

 type: integer

 minimumRAM:

 type: integer

 swImageRef:

 typr: string

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

 SubNetwork-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

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

 - type: object

 properties:

 Subnetwork:

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

 ECSFunction:

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

 EdgeDataNetwork:

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

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

 EdgeDataNetwork-Single:

 allOf:

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

 - type: object

 properties:

 EASFunction:

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

 EESFunction:

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

 EASFunction-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

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

 - type: object

 properties:

 eASIdentifier:

 type: string

 eASRequirementsRef:

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

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

 EESFunction-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

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

 - type: object

 properties:

 eESIdentifier:

 type: string

 eESServingLocation:

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

 eESAddress:

 type: string

 softwareImageInfo:

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

 eASFunctonRef:

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

 serviceContinuitySupport

 type: boolean

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

 ECSFunction-Single:

 allOf:

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

 - type: object

 properties:

 attributes:

 allOf:

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

 - type: object

 properties:

 eCSAddress:

 type: string

 providerIdentifier:

 type: string

 eDNConnectionInfo:

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

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

 EASRequirements:

 allOf:

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

 - type: object

 properties:

 requiredEASservingLocation:

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

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

 SubNetwork-Multiple:

 type: array

 items:

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

 EASFunction-Multiple:

 type: array

 items:

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

 ECSFunction-Multiple:

 type: array

 items:

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

 EESFunction-Multiple:

 type: array

 items:

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

 EdgeDataNetwork-Multiple:

 type: array

 items:

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

#--------------------------------- Definition ------------------------------------

 resources-edgeNrm:

 oneOf:

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

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

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

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

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