**3GPP TSG-SA5 Meeting #142eS5-222234**

**4 - 12 April 2022, E-meeting**

**Source: Huawei**

**Title: pCR 32.257 Clarification on the EAS Deployment charging**

**Document for: Approval**

**Agenda Item: 7.4.1**

# 1 Decision/action requested

***The group is asked to discuss and agree on the proposal.***

# 2 References

[1] 3GPP TS 32.257-100 “Edge Computing domain charging; stage 2”

# 3 Rationale

## 3.1 The EAS ID

According to the TS 28.538 V1.0.0 and TS 23.558, whether the EAS ID is used to identify the applications services or the server.

* Clause 7.2.4 Edge Application Server ID (EASID)

*The EASID identifies a particular application for e.g. SA6Video, SA6Game etc. For example, all Edge SA6Video Servers will share the same EASID.*

*NOTE: The definition of the EASID is out of scope of this specification.*

* Clause 8.2.8 EEC Context in TS 23.558.

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| *EAS ID* | *M* | *Identifier of the EAS providing the application services* |

* Clause 6.4.1 Attribute Properties

*Editor's Note: The definition of attributes are not complete, and are subject to changes.*

| *Attribute Name* | *Documentation and Allowed Values* | *Properties* |
| --- | --- | --- |
| *eASIdentifier* | *It refers to EASID that identifies a particular application (e.g. SA6Video, SA6Game, … etc.) (see clause 7.2.4 in TS 23.558 [2]).* | *type: String*  *multiplicity: 1*  *isOrdered: N/A*  *isUnique: True*  *defaultValue: None*  *isNullable: False* |
| *easAddress* | *One or more URLs and/or IP Address(es) of EAS(s) (See TS 23.558 [2]).*  *allowedValues: N/A* | *type: String*  *multiplicity: 1..\**  *isOrdered: N/A*  *isUnique: N/A*  *defaultValue: None*  *allowedValues: N/A*  *isNullable: False* |

The Edge Application server id is used for identifying an application which has the same category, the same category application can be distributed into multiple servers. One servers may implements different applications.

For the ESA deployment charging, the charging is specified for deployment of virtualized EAS in the EDN by an ECSP for an ASP.

Summary:

Charged Party: ASP

Charging Party: ECSP

The chargable content: The particular application (e.g all Edge SA6Video) which can uniqued identified by ESA ID provided by the ASP.

In that way, the precondition is one application can only be provided by one ASP.

## 3.2 The EAS deployment

According to the TS 28.538 V1.0.0, the EAS deployment requirements is inconsistent in different clauses.

* Clause 5.1.2 EAS deployment

*The goal of this use case is to enable ASP to deploy the EAS in the EDN, by requesting the provisioning MnS producer with the deployment requirements (e.g. the topological or geographical service areas, software image information, QoS, affinity/anti-affinity with other EAS, etc.)*

* Clause 7.1.2.1 EAS VNF instantiation

*ASP consumes the provisioning MnS with createMOI operation (see clause 11.1.1.1. in TS 28.532 [w]) for EASRequirements IOC to request ECSP provisioning MnS producer to start the EAS VNF instantiation, where the EASRequirements IOC contains the deployment requirements, including (but not limited to) the following attributes:*

* + *the service areas (i.e., geographical, or topological) where the UEs can access the edge computing service (see clause 7.3.3 in TS 28.558 [2]).*
  + *Software image information (e.g. software image location, minimum RAM, disk requirements) (see clause 7.1.6.5 in ETSI NFV IFA-011 [7]).*
  + *QoS requirements (e.g. bandwidth, end-to-end latency).*
  + *Affinity/Anti-affinity: The affinity and ant-affinity requirements for the EAS with other existing EAS on the target EDN.*
* Clause 6.3.2.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Attribute name* | *Support Qualifier* | *isReadable* | *isWritable* | *isInvariant* | *isNotifyable* |
| *requiredEASservingLocation* | *M* | *T* | *F* | *F* | *T* |
| *softwareImageInfo* | *M* | *T* | *F* | *F* | *T* |
| *affinityAntiAffinity* | *M* | *T* | *F* | *F* | *T* |
| *serviceContinuity* | *M* | *T* | *F* | *F* | *T* |
| *virtualResource* | *M* | *T* | *F* | *F* | *T* |

This pCR is to Clarification on the EAS Deployment charging for EC in the TS 32.257.

# 4 Detailed proposal

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| **First change** |

##### 5.2.3.1.1 General

Converged charging for EAS deployment may be performed by the CEF interacting with CHF using Nchf specified in TS 32.290 [6] and TS 32.291 [7]. In order to provide the data required for the management activities outlined in TS 32.240 [1] (Credit-Control, accounting, billing, statistics etc.), the CEF shall be able to perform converged charging for each of the following:

- EAS deployment (see clause 5.1.2 TS 28.538 [12]);

- EAS modification (see clause 5.1.5 TS 28.538 [12]);

- EAS termination (see clause 5.1.3 TS 28.538 [12]).

The CEF shall subscribe to the notifications from the provisioning MnS producer for EAS LCM.

Once the notification about EAS LCM is received, the CEF shall be able to report the corresponding charging events to CHF for CDR generation.

A detailed formal description of the converged charging parameters defined in the present document is to be found in TS 32.291 [7].

A detailed formal description of the CDR parameters defined in the present document is to be found in TS 32.298 [3].

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| **Next change** |

##### 5.2.3.2.2 EAS deployment charging enabled by CEF

The following figure 5.2.3.2.2-1 describes an EAS deployment charging message flows in PEC, based on the converged charging architecture with MnS producer enabled by CEF (see clause 4.2.2).



**Figure 5.2.3.2.2-1: EAS deployment charging - PEC**

**1) CEF subscribes to the notifications about EAS LCM from the MnS:** The CEF consumes the provisioning MnS (see TS 28.532 [15]) to subscribe the notifications about EAS LCM, including notifyMOICreation, notifyMOIAttributeValueChanges, and notifyMOIDeletion.

**2) EAS LCM request:** The MnS consumer sends the EAS LCM request to the MnS producer, the EAS LCM request is done via createMOI, modifyMOIAttributes or deleteMOI operation (see TS 28.532 [15]) for the EASFunction IOC (see TS 28.538 [12]).

**3) EAS LCM process:** the MnS producer processes and executes the EAS LCM according to the request (e.g., instantiation, upgrade, deletion).

**4) EAS LCM response:** The MnS producer sends the EAS LCM result to the MnS consumer.

**5) EAS LCM notification:** The MnS producer sends the EAS LCM notification (i.e., notifyMOICreation, notifyMOIAttributeValueChanges, or notifyMOIDeletion) to the CEF.

**5ch-a) Charging Data Request [Event]:** The CEF generates charging data related to the EAS LCM notification and sends the charging data request.

**5ch-b) Create CDR:** the CHF stores received information and create a CDR related to the event.

**5ch-c) Charging Data Response [Event]:** The CHF informs the CEF on the result of the request.

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| **Next change** |

##### 6.2.2.1.2 Definition of EAS deployment specific charging information

Specific charging information used for EAS deployment charging is provided within the EAS Deployment Charging Information.

The detailed structure of the EAS Deployment Charging Information can be found in table 6.2.2.1.2-1.

Table 6.2.2.1.2-1: Structure of EAS Deployment Charging Information

|  |  |  |
| --- | --- | --- |
| Information Element | Category | Description |
| EAS Deployment Requirements | OC | This field holds the EAS Deployment Requirements, see TS 23.558 [9], including the Required EAS Serving Location, Software Image Info, Affinity Anti Affinity and Service Continuity |
| LCM Start Time | M | This field holds the start time of the EAS LCM process, see Start Time in clause 8.3.6.5 Type measJobInfo-ResourceType in TS 28.550 [14]. |
| LCM End Time | M | This field holds the end time of the EAS LCM process, see Stop Time in clause 8.3.6.5 Type measJobInfo-ResourceType in TS 28.550 [14]. |

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| **End of change** |