**3GPP TSG-SA5 Meeting #148eS5-233397**

**online, 17th April 2023 – 25th April 2023**

**Source: Samsung**

**Title: pCR 28.903 EAS Mobility**

**Document for: Approval**

**Agenda Item: 6.9.6.2**

# 1 Decision/action requested

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

# 2 References

None

# 3 Rationale

This contribution provides updated solution for Key Issue# 9: EAS relocation policies Key Issue

# 4 Detailed proposal

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

## 6.9 Key Issue# 9: EAS relocation policies Key Issue

As described in clause 5.2.2.3 of GSMA OPG [2], because of the OP’s measurements or knowledge, or hints from the application about performance degradations, the OP may decide that a different edge compute resource can better host the Edge Application. The EAS relocation trigger from OP are related with lifecycle management of its edge compute resources (for example, the overload of an edge compute resource, a failure or planned maintenance, a new or expanded edge compute resource, an issue with the network for its edge compute resource). The OP should be cognisant of the policy indication from the Application Provider about its sensitivity to a change of the edge compute resource hosting the Edge Application.

As described in clause 5.1.1.2.2 GSMA OPG [2], the NBI allows an Application Provider to specify their support for a stateful or stateless Edge Application, i.e. whether the Edge Application can be moved from one edge compute resource to another and this with or without prior notification.

The Application Provider shall be able to indicate the following policies:

* Its Edge Application cannot be moved from one edge compute resource to another;
* Its Edge Application can be moved from one edge compute resource to another, without any notification;
* Its Edge Application can be moved from one edge compute resource to another with prior notification.

When the policy is that a change of edge compute resource can be done with prior notification, the OP decides that a change of edge compute resource is needed and selects the new edge compute resource. In this case, the application chooses the exact timing of the move and is responsible for transferring the application state from one edge compute resource to another. Further, it is stated that when required, notifying the Application Provider on a recommended change of edge compute resource, the Application Provider is responsible for determining the exact timing of the change. The application may indicate that it cannot currently handle mobility. Then, the OP shall be able to cancel the mobility procedure.

TS 28.538 does not support this yet. This requires an EAS to be moved from one (source) EDN to another (target) EDN. This will involve terminating EAS from the source EDN and then instantiating EAS on the target EDN. This involves the following issues to be addressed

* How the ASP will provide the policies
* How the existing application context is retained from source to target EAS.

6.9.1 Requirements

**REQ-FUN-MOB-1:** ECSP management system shall have a capability allowing EAS to declare its mobility policies indicating whether EAS can be moved from one EDN to another

**REQ-FUN-MOB-2:** ECSP management system shall have a capability allowing EAS to declare its mobility policies indicating whether EAS can be moved from one EDN to another, without any notification.

**REQ-FUN-MOB-a:** ECSP management system shall have a capability allowing EAS to declare its mobility policies indicating whether EAS can be moved from one EDN to another, with prior notification.

**REQ-FUN-MOB-x:** ECSP management system shall have a capability allowing ASP to reject the EAS relocation on receiving the relocation notification.

**REQ-FUN-MOB-y:** ECSP management system shall have a capability allowing scheduling of an EAS relocation.

6.9.2 Potential Solution

The ASP can provide its preferences or policies for EAS relocation as part of EASRequirement IOC. The policy can dictate whether the EAS can be relocated or not. If it can be relocated does it require prior notification to be sent to the authorized entities? The solution also requires relocation trigger information, decided by ECMS (ECSP Management System), to be included in EASFunction IOC. This information dictates whether EAS should be relocated immediately or at some future point of time. ECMS decides to relocate an EAS for any appropriate purpose e.g the overload of an edge compute resource, a failure or planned maintenance, a new or expanded edge compute resource, an issue with the network for its edge compute resource.

Once decided to relocate the EAS, ECMS considers the relocation policy and trigger information. If the EAS is to be relocated immediately and the relocation policy allows it, ECMS selects the appropriate EDN and instantiate the relocation procedure. That will include instantiating the EAS on the selected EDN as specified in 3GPP TS 28.538 and then terminate the existing EAS instance. If the relocation policy states that a prior notification is to be provided ECMS notifies all authorized receivers using notifyMOIAttributeValueChange notification, against updates on relocation trigger information in EASFunction IOC, as specified in 3GPP TS 28.532. The notification will be send before instantiating the relocation procedure. The consumer can reject the relocation by updating the value of attribute RelocationRejectByConsumer to TRUE.

It is proposed to add the following in EASRequirements IOC

* Attribute RelocationPolicy with allowed values as follows
  + Yes: This dictates that an EAS can be relocated as and when required
  + No: This dictates an EAS cannot be relocated at all
  + YesWNotify: This indicates that an EAS can be relocated with a prior notification

The solution also requires the following information to be included in the EASFunction IOC

1. RelocationTriggerInfo
   1. ImmediateTrigger: It is a Boolean attribute with default value as FALSE. A value TRUE would indicate to ECMS that an EAS should be relocated immediately.
   2. FuturisticTriggerInfo: It is a complex attribute with
      1. A Boolean attribute with default value as FALSE. A value TRUE would indicate to ECMS that an EAS should be relocated.
      2. A time stamp indicating a futuristic time at which the EAS should be relocated.

Editor’s Note: Whether ASP should be able to update RelocationTriggerInfo is FFS.

1. RelocationRejectByConsumer: A Boolean attribute which can be updated by the consumer, on receiving the notifyMOIAttributeValueChange notification, to indicate its disagreement with the relocation. The value TRUE indicate that the consumer do not agree with the relocation. The default value is FALSE.