Source: Samsung Electronics Co. Ltd

**Title: [FS\_MS\_NS\_Ph2] Key Issue #3: Moving media flows to other slices**

**Agenda Item: 8.9**

**Document for: Discussion and Agreement**

# **Introduction**

During the MBS SWG Post 121 meeting on Feb 09 2023, a contribution S4aI230042 was discussed on the topic of moving media flows to other network slices. Few comments were received for the proposal.

One of the main comments during the presentation of S4aI230042 was to separate out the key issue and candidate solution into separate contributions. Related work in SA2 was also going in parallel so it was prudent to agree on key issue before we looked into any candidate solution. Towards this, couple of contributions S4-230336 and S4-230338 were agreed during the SA4#122 meeting which included the details about related SA2 study on this topic (service continuity for media streaming sessions migrated between Network Slices), and the key issue (Key Issue #3: Moving media flows to other Network Slices). These agreements are included in clauses 4.2.3, 6.1, and 6.3 of TR 26941 v0.4.0.

Now that the above key issue is agreed, the current contribution attempts to bring back the discussion on solution for this agreed key issue.

# **Network Slice replacement procedure**

TR 26941 clause 4.2.2 describes the network slice replacement procedure when a network slice becomes unavailable. TS 23501 clause 5.15.19 describes this procedure further in detail. As part of the procedure, AMF is triggered, either by local configuration, or due to a notification from OAM, NSSF, or PCF, to replace the current S‑NSSAI with an Alternative S-NSSAI. The notifications from the OAM, NSSF, or PCF to the AMF may include the Alternative S-NSSAI information. It is not clear from the above clauses as to how the PCF or NSSF becomes aware of the Alternative S-NSSAI information.

In TS 26501 and TS 26512, defined are 5G Media Streaming procedures where in the 5GMS Application Provider performs service provisioning at the 5GMS AF using the M1 interface. TS 26512 clause 7.9 describes data model of policy template resource and the M1 Policy Template Provisioning API. The policy template data model includes slice information as part of the applicationSessionContext property. It is assumed that the 5GMS Application Provider gets this information from the OAM. It is therefore possible that the 5GMS Application Provider can also receive the Alternate S-NSSAI information for network slice replacement procedures from the OAM, and configures this information at the 5GMS AF using the M1 service provisioning API.

This proposal describes a call flow for configuring the Alternative S-NSSAI information by the 5GMS Application Provider at the 5GMS AF, which is then communicated to PCF using appropriate SBI interfaces.

# **Proposal**

We propose following change be adopted into TR 26.941 for key issue #3.

**===== 1. CHANGE =====**

## 6.3 Key Issue #3: Moving media flows to other Network Slices

### 6.3.1 Description

#### 6.3.1.1 Migration of media streaming application flows between Network Slices

As introduced in clause 4.2.3 of the present document, clause 5.1 of TR 23700-41 [26] studies a Key Issue on network slice service continuity. According to this, a Network Slice or Network Slice instance can become overloaded or the performance of the Network Slice may fall below the requirements of its SLA.

The recommendation in clause 8.1 of [26] is for the 5G System to identify an alternative slice to migrate application flows from the PDU Session of the current slice to the existing PDU Session or a new one in the chosen alternative slice. When 5G Media Streaming sessions are carried over a PDU Sessions that cannot be migrated transparently to the application layer with the support of the service continuity procedure, the impacts on ongoing 5G Media Streaming sessions needs to be studied.

Open issues:

- Whether the service continuity procedure is transparent to 5G Media Streaming or requires enhancement of existing procedures and data model definitions in TS 26.501 [20] and TS 26.512 [21].

### 6.3.2 Candidate solutions

#### 6.3.2.1 Candidate solution #1: Configuration of Alternative S-NSSAI by 5GMS Application Provider

Note: Whether the move to Alternative S-NSSAI is transparent to the UE application or not is to be specified in SA2. This candidate solution is to be updated after progress in SA2 on this topic

Figure 6.3.2.1-1 illustrates the procedure for configuration of Alternative S-NSSAI by the 5GMS Application Provider at the 5GMS AF in order to support the network slice replacement procedure.

Figure 6.3.2.1-1: Procedure for configuration of Alternate S-NSSAI information for network slice replacement procedure

The steps are as follows:

1. The 5GMS Application Provider performs service provisioning at the 5GMS AF as described in clause 7 of TS 26.512 [21]. The provisioning information from the 5GMS Application Provider includes a Policy Template with the Alternative S-NSSAI for network replacement procedure.

NOTE: The provisioning procedure in this step corresponds to either the initial M1 service provisioning request or an update of an existing provisioning service resource.

1. If the 5GMS AF is in the trusted Data Network, it interacts directly with the PCF using the Npcf\_PolicyAuthorization service as defined in clause 5.2.5.3 of TS 23.502 [15] to inform the PCF about Alternative S-NSSAI information.
2. Alternatively, if the 5GMS AF is in the external Data Network, it may use the Nnef\_AFsessionWithQoS service as defined in clause 5.2.6.9 of TS 23.502 [15] to configure the Alternative S-NSSAI, which is then configured in the PCF by the NEF invoking the Npcf\_PolicyAuthorization service on behalf of the 5GMS AF.

4. The network slice replacement procedure described in clause 5.15.19 of TS 23.501 [7] uses the configured Alternative S-NSSAI information at the PCF. The PCF may update the URSP rules with the Alternative S-NSSAI information. TS 23.503 [16] clause 6.6.2.2 describes the procedure about how the UE is provisioned with URSP rules by the PCF. TS 23.503 [16] clause 6.6.2.3 and clause 4.2.2 of present document describes UE procedure for associating applications with PDU Sessions based on URSP.

**===== END CHANGES =====**