Source: Samsung Electronics Co. Ltd

**Title: [FS\_MS\_NS\_Ph2] Way forward on network slice replacement**

**Agenda Item: 8.9**

**Document for: Discussion and Agreement**

# **Introduction**

During SA4#124 meeting, we sent a LS to 3GPP SA2 (S4-231048) on the topic of network slice replacement. The SA2 group replied to the above LS in S4-231602, which will be discussed during the SA4#126 Chicago meeting. This contribution briefly discusses few options on the way forward to handle a key issue in clause 6.3 of TR 26941 on the topic of moving media flows to other Network Slices

# **Discussion on network slice replacement in SA4#124**

A document S4-230928 was submitted and discussed during the SA4#124 meeting. Below is extract of meeting minutes for this document.

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| |  |  |  |  | | --- | --- | --- | --- | | [S4-230928](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_124_Berlin/Docs/S4-230928.zip) | [FS\_MS\_NS\_Ph2] Key Issue #3: Moving media flows to other slices | Samsung Research America | Prakash Kolan |   **Presenter**: Prakash Kolan  **Online Discussion**:   * \_BBC\_Ericsson\_Samsung version presented. * Thorsten: It would be good to explain what the assumption is and why. I am hoping that kind of migration can be done without awareness. * Frederic: I imagine how it can be catastrophic for any services if it is not transparent. It is already possible. If slices make it worse, don’t use slices. * Frederic: Would it be OK to add it to the TR? * Richard: Probably OK. * Qi: We have to check with SA2 first. But I am OK to use it as a basis for further work. * Thorsten: Let’s put it in the TR with square bracket pending SA2 input. * Daniel: I prefer to note it and reconsider it after SA2 feedback.   **Decision**: Noted, more inputs from SA2 is required.  S4-230928 is **noted**. |

Based on meeting minutes for discussion of S4-230928, SA4 MBS group was okay to incorporate the call flows and procedures described in S4-230928 into clause 6.3.2.1 of TR 26941 with the requirement that we check with SA2 on this topic first.

# **Reply from SA2 on network slice replacement**

The original LS from SA4 to SA2 (S4-231048) included four questions on the issue of network slice replacement:

1. Can SA2 confirm that the Alternative network slice provides similar performance as that of the original network slice that it replaces?

2. Is the network slice replacement procedure transparent to the UE application?

3. Are the Application Function and the Application Provider notified when the network slice replacement procedure is invoked by the 5G System?

4. Is the Application Provider made aware of the Alternative network slice information prior to the network slice replacement procedure being invoked by the 5G System (e.g., through OAM)?

The Reply LS from SA2 to SA4 (S4-231602) provided answers to the above questions. Following are the important takeaways from the Reply LS:

- SA2 believes that the alternate network slice should be able to support minimum requirements for the services that the original network slice supports, however, there is no guarantee that the Alternative S-NSSAI provides similar performance to the replaced S-NSSAI

- UE is aware of, and involved during, network slice replacement procedure. UE receives the Mapping of Alternative NSSAI which includes the mapping of the S-NSSAI and the corresponding alternative S-NSSAI during UE registration procedure or UE configuration update procedure.

- The Application Function and Application Provider are not notified during slice replacement, and SA2 believes that the slice replacement procedure should be transparent to the Application Function and Application Provider.

Note: Also note that SA2 has agreed on more specification on network slice replacement after the LS from SA4 (S4-231048) was sent to them.

# **Way forward to tackle Key Issue #3 in TR 26941 based on LS reply from SA2**

From SA2 reply (clause 3 of this contribution), it is clear that the alternate network slice does not guarantee similar performance as the primary network slice. In our view, there are three options to tackle the candidate solution for Key Issue #3 in clause 6.3 of TR 26941 – migration of media streaming application flows between Network Slices:

- [Option 1]: No change to the specification. M5 dynamic procedures may fail because the 5GMS AF may not be able to provide requested QoS in alternate network slice if the alternate network slice does not provide similar guarantees.

- [Option 2]: UE informs the 5GMS AF using M5 procedure about network slice replacement as it is aware of such a procedure. With this option, the 5GMS AF may be able to at least give a meaningful response to MSH when MSH asks for dynamic policy

- [Option 3]: UE informs the 5GMS AF using M5 procedure about network slice replacement, and the 5GMS AF in turn informs the 5G Application Service Provider. The 5G Application Service Provider may then be able to update policy templates for the alternate network slice.

S4-230928 discussed procedures for Option 2 and Option 3 above. However, going strictly by SA2 LS reply, the network slice replacement is transparent to Application Function and Application Service Provider and they are not involved during slice replacement procedure. So, adopting Option 2 or Option 3 is deviating from SA2 guidelines. However, there may be a merit to choose Option 2 or Option 3 to avoid unnecessary dynamic policy request rejections.

# **Proposal**

We request discussion on this topic during SA4#126 meeting, and pick up a way forward option for completing the candidate solution for Key Issue #3 in TR 26941.