**3GPP TSG-SA3 Meeting #103-e *S3-212124-r10***

e-meeting, 17 - 28 May 2021

**Title: LS on Clarifications of Network slice selection during AMF Reallocation**

**Response to: N/A**

**Release: Rel. 17**

**Work Item: FS\_AMFREAL\_SEC**

**Source: Lenovo, Motorola Mobility to be SA3**

**To: SA2**

**Cc:**

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**Attachments:** TR 33.864

# 1 Overall description

SA3 is currently working on the "Study on the security of Access and Mobility Management Function (AMF) re-allocation" in TR 33.864. The study is focusing on addressing the registration failure issue related to AMF re-allocation and indirect reroute via RAN (option (B)) specified in TS 23.502 Clause 4.2.2.2.3. TR 33.864 Key Issue #1 describes the registration failure scenario in detail.

## 1.2 Questions

To solve the above repeated registration failure issue, SA3 is discussing solutions 6 and 7 from the TR 33.864.

In the procedure of registration with AMF reallocation via RAN define by SA2, the initial AMF may only be able to obtain Requested S-NSSAIs after NAS SMC procedure, i.e. from the complete Registration Request message in NAS Security Mode Complete message. Solution 6, 7 in TR 33.864 however proposes not to run NAS SMC, meaning the initial AMF may not have the Requested S-NSSAIs. Solution 6, and 7 have the following points as their core principle, which need to be evaluated by SA2:

1. The initial AMF uses the Requested NSSAI (if available to the AMF) and subscribed NSSAI along with existing information/inputs for Network slice selection using Nnssf\_NSSelection\_Get service operation defined in TS 23.502.

2. If the Requested NSSAI is not available to Initial-AMF, the initial AMF does not performs NAS SMC to fetch Requested NSSAI (contained in, e.g. Full Registration Request), and performs Nnssf\_NSSelection\_Get service operation defined in TS 23.502 with subscribed NSSAI along with existing information/inputs for Network slice selection.

3. If the initial AMF determines that a reroute via RAN is required, the initial AMF skips NAS SMC with UE:

The CT1 TS 24.501, clause 5.4.1.2 "EAP based primary authentication and key agreement procedure, states the following: *If the authentication of the UE completes successfully and the serving AMF does not intend to initiate a security mode control procedure bringing into use the partial native 5G NAS security context created by the EAP based primary authentication and key agreement procedure, then the EAP-success message, and the ngKSI are transported from the network to the UE using the AUTHENTICATION RESULT message of the EAP result message transport procedure.*

*NOTE 1: The serving AMF will not initiate a security mode control procedure after the EAP based primary authentication and key agreement procedure e.g. in case of AMF relocation during registration procedure.*

Based on the above information SA3 would like to know the views of SA2 for the following questions respectively.

* **Question 1 to SA2:** Initial AMF during registration procedure after successful ‘primary authentication’ does not initiate NAS SMC, and hence may not obtain the requested S-NSSAIs. After initial AMF successful obtains ‘slice selection subscription data’ retrieval from UDM, is it feasible for the initial AMF to perform network slice selection using Nnssf\_NSSelection\_Get service operation without Requested NSSAI, but using all other existing IE as inputs (e.g., subscribed NSSAI etc.) ? What slice will be used in this case? Please be aware that Requested NSSAI is conditional IE for Nnssf\_NSSelection\_Get service operation, and only when requested NSSAI is included in the request may NSSF return target AMF info, according to 29.531.

If yes to Question 1, in the case where the initial AMF does not have the requested S-NSSAIs, then

* **Question 2 to SA2:** Is it feasible to use TS 23.502 Clause 5.2.16.2.1 Nnssf\_NSSelection\_Get service operation for network slice selection during registration procedure?
* **Question 3 to SA2:** Can AMF skip NAS SMC for retrieving Full Registration Request containing Requested-NSSAI before performing Nnssf\_NSSelection\_Get service operation?
* **Question 4 to SA2:** Can the initial AMF determines NAS reroute is needed without requested NSSAI? If yes, how can the initial AMF obtain target AMF information without Requested NSSAI from NSSF? i.e. Does NSSF need Requested NSSAI to determine the target AMF info?
* **Question 5 to SA2**: How can target AMF obtains the requested NSSAI? After the target AMF receives Requested NSSAI, is it possible that AMF reallocation will occur?
* **Question 6 to SA2:** Does SA2 see any issue with solution 6 and 7 from protocol procedure point of view?

# 2 Actions

**To SA2:**

**ACTION:** 3GPP TSG SA WG3 kindly asks SA2 to answer the above SA2 related questions.

# 3 Dates of next TSG SA WG 3 meetings

SA3#103Bis-e 5 - 9 ~July 2021 Electronic meeting (TBC)

SA3#104-e 16 - 27 August 2021 Electronic meeting