**3GPP TSG-SA3 Meeting #105-e *draft\_S3-213970-r1***

**e-meeting, 8 - 19 November 2021**

**Source: LG Electronics, Interdigital**

**Title: Conclusion for secondary authentication**

**Document for: Approval**

**Agenda Item: 5.7**

# 1 Decision/action requested

***This contribution proposes conclusion text for secondary authentication in TR 33.847***

# 2 References

[1] TR 33.847 v0.8.0

# 3 Rationale

This document presents conclusions for the support for secondary authentication of Remote UE via L3 U2N relay. There are three potential solutions for the support of secondary authentication in [1]: Solution #13, Solution #25 and Solution #34.

**Sol#13:**

* The existing secondary authentication mechanism cannot be reused as it is
	+ SMF in the Relay UE's network has to trigger the Remote UE secondary A&A based on the Remote UE's subscription and the local policy
	+ The existing EAP authentication messages for the secondary authentication are expected to be reused as many as possible
* The Remote UE and the Relay UE have to support EAP authentication procedure over PC5 interface
* This solution can work with both CP based and UP based Remote UE authorization. However how the SMF obtains Remote UE's SUPI when UP based solution is considered is unclear

**Sol#25:**

* The existing secondary authentication mechanism cannot be reused as it is
	+ SMF in the Relay UE's network has to trigger the Remote UE secondary A&A based on the Remote UE's subscription
	+ The existing EAP authentication messages for the secondary authentication are expected to be reused as many as possible
* The Remote UE and the Relay UE have to support EAP authentication procedure over PC5 interface
* CP based Remote UE authorization is mandated

**Sol#34:**

* The existing secondary authentication mechanism can be reused as it is
* N3IWF is always required to support the secondary A&A even when the E2E security is not needed
* If VPLMN(Relay UE's network) doesn't implement the N3IWF, the remote UE has to connect to HPLMN's N3IWF to perform the secondary A&A, which may cause traffic delay.

**Proposal:**

1. It is proposed to support the secondary authentication of the Remote UE via L3 UE-to-Network Relay as it may be required by the DN
2. It is proposed to select solution #13/#25 and solution #34 for the support of secondary authentication, respectively without and with N3IWF support.

# 4 Detailed proposal

It is proposed to approve the following changes for inclusion in TR 33.847 [1].

 \*\*\* BEGIN OF CHANGES \*\*\*

## 7.4 Key issue #4: Authorization in the UE-to-Network relay scenario

The solutions for U2N Relay authorization and security can be classified as user-plane (UP) or controlled-plane (CP) based solutions. The UP based solutions use a UP connection to a PKMF while CP based solutions use the primary authentication for PC5 keys establishment.

The following text is taken as conclusions for the UE-to-Network Relay solution:

- For the control plane solution:

- Baseline solution for Authorization for Remote UE/Relay is based on primary authentication (CP based approach, e.g., sol#1, #10, #15, #30) and using PCF based service authorization and provisioning as defined in [16] TS 23.304 clause 5.1.4.

- Performing primary authentication during PC5 link establishment is supported (e.g. Sol#1, Sol#10, Sol#30).

NOTE: The detailed procedure to enable authorization for Remote UE/Relay will be determined accordingly during normative phase. Additional support for Remote UE using its 5G-GUTI in DCR will be determined during normative phase.

- For the user-plane solution, based on the conclusions in KI #3, it is concluded that the user-plane solutions including Solution #18, Solution #21 and Solution #29 are selected as the basis of normative work.

- For the support of secondary authentication it is concluded that both solutions without and with N3IWF are supported for L3 U2N relay. Solution #13 / Solution #25 (without N3IWF) and Solution #34 (with N3IWF) are selected as the basis of normative work.

NOTE: The detailed procedure to enable Secondary Authentication for Remote UE without N3IWF will be determined during normative phase with coordination with SA2.

Editor's note: Final conclusion for NSSAA is FFS.

\*\*\* END OF CHANGES \*\*\*