**3GPP TSG-SA3 Meeting #109Adhoc-e *S3-230232***

**Electronic meeting, 16 - 20 January 2023**

**Source: Ericsson**

**Title: Solution to KI#1 – NSWO in SNPN with CH AUSF/UDM**

**Document for: Approval**

**Agenda Item: 5.16**

# 1 Decision/action requested

***It is proposed to add this solution to the TR 33.858 [1].***

# 2 References

[1] 3GPP TR 33.858 Study on security aspects of enhanced support of Non-Public Networks phase 2

[2] 3GPP TR 23.700-08 Study on enhanced support of Non-Public Networks phase 2

# 3 Rationale

SA2 has concluded in clause 8.2 of TR 23.800-08 [2] that NSWO shall be supported for SNPN:   
  
“The NSWO procedure is to be extended to support UE authentication using SNPN credentials (applies both to SIM-based and non-SIM based credentials). It is expected that the impact is limited to the use of a SUCI format whose "realm" part enables routing of SWa requests from the WLAN AN to the NSWO in the SNPN's 5GC, which is already supported.”

Current NSWO procedures are only defined for EAP-AKA’ while the SA2 conclusion extends the credentials to non-SIM credentials as well.

The TR [1] currently has one solution for NSWO in SNPN. This document provides a solution for NSWO in SNPN that is using Credential Holder with AUSF/UDM.

# 4 Detailed proposal

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

## 6.A Solution #A: NSWO support in SNPN using any key-generating EAP-method for SNPN using CH AUSF/UDM

### 6.A.1 Introduction

This solution solves Key issue #1 in the case of NSWO using any key-generating EAP-method in SNPN with CH AUSF/UDM.

The proposed procedure is based on the current procedures for roaming in Annex S.4 of TS 33.501[4].

### 6.A.2 Solution details

The description of NSWO for roaming defined in Annex S.4 of TS 33.501 [4] can be applied with the following adjustments:

- The procedures of Annex S.4 point to the roaming architecture options described in clause 4.2.15 in TS 23.501 [6].

- This roaming architecture is applicable by letting the Credential Holder taking the part of HPLMN. Figure 6.A.2.1 shows a modified version of Figure 4.2.15-3 of TS 23.501 [6], where HPLMN is replaced with CH and VPLMN is replaced by SNPN.

- The only impact on the SNPN is that it needs to deploy a AAA Proxy.

- The CH needs to deploy a NSWOF

Editor's Note: Whether NSWOF should be placed in CH or in SNPN is FFS and should be aligned with decisions in other working groups.

- To be able to support all key-generating EAP-mechanisms, the procedures of Solution #9 of this document can be applied on the proposed architecture.



Figure 6.A.2.1 Proposed roaming reference architectures to support authentication for Non-seamless WLAN offload in SNPN with CH AUSF/UDM

### 6.A.3 System impact

The solution has impact on UE (needs to support NSWO).SNPN needs to deploy AAA proxy and CH needs to deploy NSWOF.

Editor's Note: Whether NSWOF should be placed in CH or in SNPN is FFS and should be aligned with decisions in other working groups.

### 6.A.4 Evaluation

This solution solves Key issue #1 in aspect of supporting NSWO in SNPN that deploys CH AUSF/UDM. It reuses the procedures of Annex S of TS 33.501 [4] as much as possible adding the possibility of using any key-generating EAP-method.

Editor's Note: Further evaluation related to the location of the NSWOF is FFS.

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