**3GPP SA WG2 Meeting #154 S2-221xxxx**

**14 - 18 November, 2022, Toulouse, France (revision of S2-221xxxx)**

**Source: Intel**

**Title: KI#4: Update to conclusion in clause 8.4.5**

**Document for: Approval**

**Agenda Item: 9.4.1**

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*Abstract of the contribution: This paper proposes an update to KI#4 conclusions in clause 8.4.5.*

# 1 Discussion

## 1.1 UE onboarding option for provisioning of Hosting network credentials

Clause 8.4.5 includes an option for provisioning hosting network credentials to the UE based on the Rel-17 UE onboarding mechanism:

*2. If new credentials for accessing hosting network are needed, the UE may use the existing credential onboarding mechanism as per Rel-17.*

*Editor's note 5-1: It is FFS whether an extension of the Rel-17 onboarding mechanism is needed to support provisioning of credentials to use for localized services. Onboarding configuration information (which Includes PVS address(es) stored in UPF/AMF/PCF may need to be stored corresponding to different Localized services.*

As indicated in the Editor’s note (cyan text) the network credentials provisioned to the UE may depend on the Localized service that the UE wants to access. There are two possibilities:

1. either the hosting network provides the UE with PVS information, or

2. the UE uses pre-configured PVS information.

The former case obviously implies some N1 signalling extensions between the UE and the AMF allowing the UE to indicate the Localized services that it wishes to access, which means that the existing UE onboarding procedure cannot be used as is.

In the latter case, subsequent to authentication with the DCS using Default UE credentials, the UE can use the pre-configured PVS information. However, the existing text in 23.501 clause 5.30.2.10.4.2 (Onboarding configuration for the UE) states the following:

*5.30.2.10.4.2 Onboarding configuration for the UE*

*In order to enable UP Remote Provisioning of SNPN credentials for a UE, UE Configuration Data for User Plane Remote Provisioning are either pre-configured on the UE or provided by the ONN. UE Configuration Data for User Plane Remote Provisioning provided by the ONN take precedence over corresponding configuration data stored in the UE.*

*UE Configuration Data for User Plane Remote Provisioning consist of PVS IP address(es) and/or PVS FQDN(s).*

*If the UE does not have any PVS IP address or PVS FQDN after the establishment of the PDU Session used for User Plane Remote Provisioning, the UE may construct an FQDN for PVS discovery as defined in TS 23.003 [19].*

*The UE Configuration Data for User Plane Remote Provisioning may be stored in the ME.*

*The UE Configuration Data for User Plane Remote Provisioning (i.e. PVS IP address(es) or PVS FQDN(s), or both) may be either:*

*- locally configured in the SMF of ONN; or*

*- provided by the DCS to the AMF of ON-SNPN as part of the authentication procedure as specified in TS 33.501 [29] and sent by the AMF in the Nsmf\_PDUSession\_CreateSMContext Request message to the SMF*

*The PVS IP address(es) and/or PVS FQDN(s) provided by the DCS take precedence over the locally configured PVS IP address(es) and/or PVS FQDN(s) in the ON-SNPN.*

In other words, the remote provisioning information provided by the ONN takes precedence over any such information stored in the UE, whereas the PVS information provided by the DCS takes precedence over the PVS information stored in the ONN.

Given that the UE is being authenticated by the DCS (which has no notion of “Localized services”), the DCS can provide some “ordinary” PVS information for UE onboarding (i.e. that is not related to localized services), and if such information is provided by the DCS, then the UE shall use that PVS information according to the current specification text.

From the discussion it follows that the existing UE onboarding procedure cannot be used as is for the purpose of provisioning credentials for access to localized services.

Either the existing UE onboarding procedure needs to be enhanced or the UE onboarding option should be removed from clause 8.4.5. This contribution proposes the latter.

**Proposal 1: It is proposed to remove the UE onboarding option from clause 8.4.5.**

## 1.2 On other options for provisioning of Hosting network credentials

Clause 8.4.3 states the following:

*The information for localized service and hosting network discovery, selection and access can also be obtained by UE at the application layer from the home network or the localized service provider via means that are outside of 3GPP scope.*

In our understanding the wording “*The information for… access*” also includes provisioning of credentials for access to the Hosting network. This option is currently missing from clause 8.4.5 and we propose to add it there for completeness.

It is noted that the provisioning of UE credentials “at the application layer” is not necessarily out of 3GPP scope. For instance, SA3 could work on AKMA-based solutions whereby the UE’s home credentials are used to bootstrap the generation of temporary Hosting network credentials, with the Localized Service Provider (LSP) in the role of the AKMA server. The SA2 conclusions should therefore not preclude any application layer solutions that are designed by other 3GPP WGs.

**Proposal 2: It is proposed to add the application layer option in clause 8.4.5, clarifying that the means for providing the Hosting network credentials are outside of SA2 (not 3GPP) scope.**

# 2 Proposal

It is proposed to agree the proposed text for inclusion in TR 23.700-08.

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

# 8 Conclusions

### 8.4.5 Conclusion for what credentials are used to access hosting network and how to obtain them

The following principles based on the evaluation in clause 7.4.5 are recommended for the normative work in the case of SNPN as hosting network:

1. The UE checks whether it is possible to re-use home network credentials to access the hosting network:

a. If the hosting network related information indicates support of CH credentials, the UE determines that home network credential can be used if the SNPN ID of the hosting network is included in the SNPN priority lists associated with home network subscription.

b. If the UE obtains hosting network selection information from the home network, the UE uses the credentials provided by the home network to access the hosting network.

2. Void.

3. The UE obtains the Hosting network credentials at the application layer from the home network or the localized service provider via means that are outside of SA2 scope.

NOTE 1: Obtaining Hosting network credentials at the “application layer” does not preclude re-use of 3GPP-defined solutions (e.g. AKMA) in other working groups.

NOTE 2: The method of delivering credentials needs to be evaluated by SA WG3.

The following principles based on the evaluation in clause 7.4.5 are recommended for the normative work in the case of PNI-NPN as hosting network:

4. Only UEs equipped with a USIM configured with PLMN credentials can access a hosting network which is a PNI-NPN. When the UE requests to access the hosting network, the home PLMN credential(s) are used during authentication procedure.

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