**SA WG2 Meeting #S2-150E e-meeting S2-2202643**

**06 - 12 April, 2022, Elbonia**

**Source: Ericsson, InterDigital, Futurewei, Vivo**

**Title: KI#4: adding key issue description**

**Document for: Discussion/Approval**

**Agenda Item: 9.4**

**Work Item / Release: FS\_eNPN\_Ph2 / Rel-18**

*Abstract of the contribution: This contribution proposes to add content to KI#4 "* *Key Issue #4: Enabling UE to discover, select and access NPN as hosting network and receive localized services".*

# 1. Discussion

The content of KI#4 was removed at the end of SA2#149e due to disagreements regarding network selection description and especially for automatic network selection.

The main aspects seems to be authorization of the home network for allowing the UE to perform automatic network selection of a hosting network. Some argued that the trigger or authorization of automatic selection is not always done by home network while others stated that has to be the case.

TS 22.261 requirements states:

*The 5G system shall support secure means for a UE to select and access localized services which may be provided by a 3rd party service provider via a hosting network, independent of prior subscription to the hosting network or 3rd party service provider.*

*The 5G system shall enable the home network to allow a UE to automatically select a hosting network for accessing localized services when specified conditions (e.g., predefined time, location) are fulfilled.*

*The 5G system shall be able to prevent a UE to re-access the hosting network after the localized services were terminated if the authorization for the localized services is no longer valid (e.g., can be based on certain conditions such as time or location of the user).*

*The 5G system may support means for a UE which may or may not have prior subscription to the hosting network to display human readable information on how to gain access to the hosting network and available 3rd party services.*

*The 5G system shall support a mechanism to allow a user to manually select a specific local hosting network.*

*NOTE: Additional information can be presented to the user to facilitate the manual network selection.*

*The 5G system shall be able to limit access of specific UEs to a configurable area of a hosting network's coverage area.*

*The 5G system shall be able to maintain privacy of a user against the hosting network while the UE does not make use of the hosting network, for example, to prevent tracking of UEs by hosting networks.*

*The 5G system shall enable the home network to instruct a UE to select a hosting network with certain conditions (e.g., predefined time, location) based on the request from a service provider.*

*The 5G system shall enable the home network to allow a UE to select a hosting network or change to another hosting network, without any additional user intervention as long as the delivered services, both localized services and home routed services, are unchanged.*

The above SA1 requirements includes requirements for both manual and automatic network selection. The scope of the home network control was debated and it is reasonable for SA2 to assume that, when the UE uses credentials of the home subscription then the home network is involved in the automatic network selection. SA1 states "home network to allow a UE to automatically select a hosting network".

2. Proposal

It is proposed to agree the following changes to 23.700-08:

NOTE: The content with user id S2-2200491r22 is taken as is from r22 of S2-2200491.

\*\*\*\*\* Beginning of CHANGES \*\*\*\*\*

## 5.4 Key Issue #4: Enabling UE to discover, select and access NPN as hosting network and receive localized services

### 5.4.1 Description

For providing localized services to UE, the UE needs to be able to discover, select and access the hosting network for the localized services. The discovery mechanism can be based on provisioning the UE with appropriate information. TS 22.261 has defined various requirements regarding discovery, selection and access of a hosting network in 6.41.2.3, 6.41.2.4 and 6.41.2.5.

NOTE: For the hosting network, only NPN (SNPN or PNI-NPN) is considered in this study.

The corresponding solutions need to consider following assumptions:

- The UE can, but not necessarily, have prior subscription with the hosting network and/or the localized services provider.

- The information for discovery of hosting network offering the localized services can be provided to the UE via either hosting network or UE's home network, or UE’s serving network or localized services provider. This information allows the UE to discover, select and access the hosting network offering the localized services.

- Reception and usage of configuration provided by a localized services provider to discover and access a hosting network and localized services is subject to operator’s policy and agreement between a localized services provider and hosting network operator, including the considerations of prior service agreement with a localized services provider and no prior subscription to hosting network.

- If the UE is able to obtain services from two networks simultaneously, it may additionally select the hosting network.

- The selection of a hosting network can be done on request by the user, i.e., using manual selection, unless the UE can, maintain the PDU Sessions established with the home network and retain the services provided by the home network on these PDU Sessions, while selecting the hosting network (see KI#5).

- Automatic selection of a hosting network needs to be allowed by the home network of the subscription/credentials used by the UE. With the home network being either HPLMN or NPN.

- A localized service agreement is established (see KI#3)

This key issue aims at addressing the following aspects:

- Investigate which type of information needs to be exchanged between hosting network and a localized services provider so that a UE can perform discovery, selection and connection of the hosting network and access the localized services provided via the hosting network.

NOTE: The hosting network can also act as a service provider for localized services.

- What is the provisioning mechanism and the information needed for the UE to discover, select and access suitable hosting network for localized services with possible validity conditions for accessing the hosting network offering the localized services, because of the nature of the localized service and hosting network (e.g., time and location constrains). This includes information enabling the UE to be aware of services that can be accessed via hosting NPN.

- Discovery and selection procedures of hosting network and localized services provided via the hosting network for UE to obtain localized services. Both automatic and end user manual selection apply.

- How a UE already registered in a network (PLMN or NPN) can discover a suitable hosting network and the localized services provided via the hosting network when the hosting network and/or localized services become available.

- How to ensure the localized services are accessed by UE according to the conditions when and where the localized services are allowed to be accessed by the UE.

- How the UE is provisioned with credentials (if required) to access the selected localised services provided via the hosting network.

- Mechanisms to authorize UE to access the hosting network.NOTE: Security aspects (such as authentication of the UEand security aspects of provisioning) are in scope of SA WG3.

\*\*\*\*\* End of CHANGES \*\*\*\*\*