3GPP TSG SA WG5 Meeting 135-e TDoc S5-211140rev1

electronic meeting, online, 25 January - 3 February 2021

**Source: Huawei**

**Title: Update on use case of SNPN**

**Document for: Approval**

**Agenda Item: 6.4.1**

# 1 Decision/action requested

***Discuss and approve on the proposal.***

# 2 References

[1] TS 28.557 Management of non-public networks; Stage 1 and stage 2 v0.2.0

# 3 Rationale

It is proposed to update the use case of clause 5.1.1.1 in draft TS 28.557 [1] to reflect more possible situations.

# 4 Detailed proposal

This document proposes the following changes in TS 28.557 [1].

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| **1st Change** |

### 5.1.1 Use cases related to SNPN management

#### 5.1.1.1 Create a SNPN

This use case describes a scenario where an NPN-SP decides to provision an NPN for use by an NPN-SC in the form of SNPN. It is either an MNO or an enterprise can be playing a role of NPN-SP, and it is an enterprise (the different or same if the enterprise is also NPN-SP) be playing a role of NPN-SC. This SNPN consists of network resources decoupled from PLMN resources, including:

* RAN NE(s)
* 5GC network functions
* Transport network.

Editor's NOTE: "To decide if touchpoints between 3GPP subnetworks and non-3GPP (e.g. IEEE TSN, IEEE 802.11 WiFi) sub-networks is within SA5 scope for NPNs is FFS".

In this scenario, the NPN-SC sends to the NPN-SP a request for the provision of an NPN. This request contains the NPN related SLS requirements. To fulfil the SLS of requested NPN, the NPN-SP decides to create a new SNPN.

The NPN-SP maps SLS of requested NPN into 3GPP 5G system related requirements. These requirements allow the NPN operator to decide on the constituent network resources and the topology of the 3GPP 5G network to be created for the SNPN, as follows:

* For the AN and CN related parts, the NPN operator takes all the actions needed to set up and configure required network resources, including RAN NE(s) and 5GC network functions. For more details, refer to TS 28.531 [8], clauses 5.1.17 "Creation of 3GPP NF" and 5.1.18 "Configuration of a 3GPP NF instance". Some of these actions can require setting up a new 3GPP sub-network. For more details, refer to TS 28.531 [8], clause 5.1.19 "Creation of a 3GPP sub-network".
* For the TN related part, the NPN operator takes all the actions needed to set up the required connectivity along the RAN and CN, configuring the underlying transport network. When taking these actions, information on SNPN topology (e.g. external connection points of AN and CN) and performance (e.g. latency, bandwidth) should be considered.

If the requested NPN requires connectivity to external PLMN resources (e.g. to allow UEs registered into the SNPN to access public network services), the NPN-SP derives the requirements for such a connectivity. These requirements allow the NPN operator to configure the transport network connecting the SNPN and the PLMN accordingly.

NOTE: To allow UEs to access public network services from the SNPN, the UEs also have to be registered in the PLMN UDM.

NOTE: For the derivation of connectivity requirements between SNPN and the PLMN, the NPN-SP makes use of two sources of information: 1) the SLS of requested NPN, received from the NPN-SC; and 2) connectivity information of the created 3GPP 5G network, received from the NPN operator.

In this use case, depending on different situations, the NPN operator role can be played by:

* The mobile network operator only. In such a case, the mobile network operator takes the entire responsibility of operating the SNPN and managing SNPN-PLMN connectivity, if required. Or,
* The mobile network operator and the enterprise. For SNPN management, the mobile network operator can expose some management capabilities to the enterprise, according to business agreement between the two parties. SNPN-PLMN connectivity, if required, is always managed by the mobile network operator. Or,
* The enterprise only. In such a case, the enterprise takes the entire responsibility of operating the SNPN. The SNPN-PLMN connectivity, if required, is always managed by the mobile network operator who takes the entire responsibility of operating the PLMN.

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| **End of change** |