**3GPP TSG-SA5 Meeting #133e *S5-205233rev1***

**e-meeting 12th - 21st October 2020**

**Source: Telefónica S.A.**

**Title: Add use case on SNPN provisioning**

**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 v0.0.0

[2] TR 28.807 Study on management aspects of non-public networks v16.0.0

[x] TR 28.531 Management and orchestration; Provisioning v16.6.0

# 3 Rationale

It is proposed to add use case on the provisioning of stand-alone non-public networks in draft TS 28.557 [1], leveraging the use case originally proposed in TR 28.807 [2].

# 4 Detailed proposal

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

Rev1:

* For UC description, replace “table” with “plain text” for UC description
* Simplify description, making it less solution-oriented
* Ommit the presence of non-3GPP sub-networks, e.g. TSN. To decide if touchpoints between 3GPP and non-3GPP subnetworks is within SA5 scope is FFS.

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| **1st Change** |

## 5.1.x Use cases related to SNPN management

### 5.1.x.y Create a SNPN

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This use case describes a scenario where a mobile network operator (playing the role of NPN-SP) decides to provision a NPN for use by an enterprise (playing the role of NPN-SC) in the form of SNPN. This SNPN may consist of telecom resources decoupled from PLMN resources, including:

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

In this scenario, the NPN-SC provides the NPN SLA requirements to the NPN-SP. These requirements specify the NPN related SLS (i.e. NPN desired performance and required functionality) together with other business-related information (i.e. NPN lifetime, NPN charging / accounting, etc.). 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 resources and the topology of the 3GPP 5G network to be created for the SNPN, as follows:

* For the RAN related part, the NPN operator decides to inject necessary configuration on deployed RAN NE(s).
* For the CN related part, the NPN operator decides to create a 3GPP sub-network (see TS 28.531 [x], clause 5.1.19 “creation of a 3GPP sub-network” use case), with necessary 5GC network function / network function services.
* For the TN related part, the NPN operator set up the required connectivity along the entire 3GPP 5G network, configuring the underlying transport network accordingly. To that end, the NPN operator makes use of transport network related requirements (e.g. external connection points of RAN NEs, external connection points of 5GC network functions / network function services, latency, bandwidth).

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 allows the NPN operator to configure the transport network connecting the SNPN and the PLMN accordingly.

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, the NPN operator role is 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.
* nd, if required, connectivity towards PLMN.
* 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 two parties. SNPN-PLMN connectivity, if required, is always managed by the mobile network operator.