**3GPP TSG-SA5 Meeting #145-e *S5-225186***

**e-meeting, 15 - 24 August 2022**

**Source: China Mobile**

**Title: Rel-18 pCR 28.828 Introduction of use case and solution on number of UEs**

**Document for: Approval**

**Agenda Item: 7.5.4**

# 1 Decision/action requested

***The group is asked to discuss and agree on the proposal.***

# 2 References

[1] 3GPP TR 28.828: "Charging management; Study on charging aspects for enhanced support of non-public networks".

# 3 Rationale

This pCR proposes to introduce a use case and solution on number of UEs to TR 28.828 [1].

# 4 Detailed proposal

The following changes are proposed to be incorporated into TR 28.828.

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| **1st Modified Section** |

#### 5.2.1.x Use case #2x: Converged charging for number of UEs

The maximum number of UEs, corresponding to the maximum number of UEs associated with Network Identifier, represents the maximum number of UEs using the SNPN network simultaneously.

For the SNPN, it is important for NPN-OP to collect number of UEs per Network Identifier of vertical industry customers for the purpose of charging or statistics. In addition, NPN-OP can perform tiered charging for different number of UEs threshold.

The potential charging requirements for this UC are: REQ-eNPN\_CH\_SNPN\_AC-03, REQ-eNPN\_CH\_SNPN\_AC-04.

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| **Next Modified Section** |

#### 5.2.4.2 Solution #2: Converged charging for number of UEs

##### 5.2.4.2.1 General

This solution #2 , charges vertical industry customer when "Number of UEs" threshold for the Network Identifier is reached or "maximum number of UEs" for the Network Identifier is reached, which addresses the Key Issue #2a, Key Issue #2b and Key Issue #2c.

##### 5.2.4.2.2 Architecture description

A new NF NPNACF (Non-Public Network Admission Control Function) is introduced to the solution. The converged charging architecture for NPNACF (CTF) based solution as depicted in figure 5.2.4.2.2-1 is proposed for converged charging for number of UEs per Network Identifier.

Editor’s Note: The addition of the concept of NPNACF is FFS.

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**Figure 5.2.4.2.2-1: NPNACF (CTF) converged charging architecture**

##### 5.2.4.2.3 Procedures description

The figure 5.2.4.2.3-1 describes the high-level charging procedure for NPNACF (CTF) based converged charging.



Figure 5.2.4.2.3-1: NPNACF (CTF) based converged charging-IEC

0ch. CHF obtains the "maximum number of UEs" per Network Identifier.

1. The NPNACF is configured per Network Identifier, with "maximum number of UEs" and a set of "Number of UEs" intermediate thresholds (downwards and upwards triggers) under the "maximum number of UEs".
2. Registration procedure per TS 32.256 [11] clause 5.2.2.2.3 step 1~16.

3. The AMF sends NumOfUEsUpdate\_Request to NPNACF. The NPNACF checks availability and updates Number of UEs per Network Identifier.

3ch-a: For a Network Identifier one "Number of UEs" threshold is reached or "maximum number of UEs" is reached.

3ch-b: The NPNACF sends Charging Data Request to CHF for reporting number of UEs for the Network Identifier.

3ch-c. Account and rating control based on number of UEs for the Network Identifier.

3ch-d. CHF provides response to NPNACF by sending Charging Data Response.

4. The NPNACF sends NumOfUEsUpdate\_Response to AMF.

Editor's note: The procedures of Number of UEs per Network Identifier availability check and update in step 3 and step 4 are FFS.

5. Registration procedure per TS 32.256 [11] clause 5.2.2.2.3 step 17~24.

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| **End of Modified Sections** |