**3GPP TSG-SA5 Meeting #145-e *S5-225124rev2***

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

**Source: MATRIXX Software**

**Title: pCR TR 32.847 Solve Editor's Note on solution#1.1**

**Document for: Approval**

**Agenda Item: 7.5.1**

# 1 Decision/action requested

**This pCR is to** **Solve Editor's Note on solution#1.1**

# 2 References

[1] 3GPP TR 32.847 "Study on Charging Aspects for Network Slicing Phase 2"

# 3 Rationale

This pCR is to Solve Editor's Note on solution#1.1:

Editor’s note: The Update of NS\_quota once the count of Reg UEs is reached the max. Nb of Reg UEs at NSACF and possible NSI update is ffs

by considering new following principles:

* The maximum NS\_quota of UEs allowed by CCS for a S-NSSAI is referred to as “NS Reg UEs Quota limit”
* The "max Nb of Reg UEs" is the parameter of the service profile associated to the S-NSSAI.

It is no more proposed to have subsequent NSI update from CCS upon reaching maximum, the Editor's note is therefore no more valid.

# 4 Detailed proposal

The following changes are proposed to be incorporated into TR 32.847 [1]

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| **First change** |

### 6.1.1 Solution#1.1 New NetworkSliceConvergedCharging service to NSACF – beyond "max Nb of Reg UEs"

#### 6.1.1.1 Procedure Description

This solution addresses the Key Issue #1 by considering the new 5GC NF which has been defined as Network Slice Admission Control Function (NSACF). While NSACF counts all UE registrations in S-NSSAI as received from the AMF(s), the CHF/5G Converged Charging System functionalities provide the charging service and quota management capabilities to this NSACF.

At NSI creation via the ‘service profile’ as specified in 3GPP TS 28.202 [3] (clause 5.1.3 "Network Slice Management charging information), the CHF, under the ConvergedCharging service, receives and stores the "max. Nb of Reg UEs" as described in TS 23.501 [7] clause 5.15.11.0, , the NSACF is configured with "max Nb of Reg UEs".

A new NetworkSliceConvergedCharging service is introduced for this Network Slice quota management between the CHF and the NSACF and its use is described in following clause. In this context, the Network Slice quota (NS\_quota) handled by the CHF relates to quota of "Nb of Reg UEs", with a CCS defined maximum referred to as "NS Reg UEs Quota limit".

In this solution, the "NS Reg UEs Quota limit" is above the "max Nb of Reg UEs".

During the UEs registration, the NSACF provides the network slice admission control for all AMF(s) by counting the number of registered UEs against the "max Nb of Reg UEs", and once this maximum is reached will trigger by the CHF for requesting more quota under NetworkSliceConvergedCharging service .

The following figure 6.1.1.1-1 represents the high-level entities involved in the solution.



**Figure 6.1.1.1-1 High level functional solution overview**

Private comments to change the figure:

the first box does not include the NSACF

there is only one box "NSConvergedCharging (NS\_quota) the one below

inside the NSACF box "NSACF counts "Nb. Reg UEs" and will check against the "max Nb of Reg UEs" and granted NS\_Quota

#### 6.1.1.2 Flow description

The figure 6.1.1.2-1 describes the high-level charging procedure for Network slice converged charging based on NS\_quota handling by CHF.



**Figure 6.1.1.2-1: NetworkSlice quota management - registration**

Private comments to change the figure:

inside the 0 box: "Per S-NSSAI counts the "Nb. Reg UEs" and checks against the "max Nb of Reg UEs"

inside Xch-a: "Nb. Reg UEs" reached the "max Nb of Reg UEs" for at least one S-NSSAI"

The steps are with the following additions:

0ch. CHF gets per S-NSSAI the "max Nb of Reg UEs" obtained during NSI creation and determines the initial value for NS\_quota of Nb of Reg UEs.

0. The NSACF counts the Nb of Reg UEs and check against the configured "max Nb of Reg UEs" value.

1. NS admission control for UEs registrations per 3GPP TS 23.502 [11].

Xch-a: At least one S-NSSAI has reached the configured "max Nb of Reg UEs" value.

Xch-b: the NSACF invokes the Nchf\_NSConvergedCharging service for requesting more NS\_quota of Nb of Reg UEs for the S-NSSAI.

Xch-c. Account and rating control for the S-NSSAI. The S-NSSAI for which the configured value of max Nb of Reg UEs is reached will be either granted with more NS\_quota or the request for more NS\_quota is indicated as rejected by the CCS.

Xch-d. CHF provides response to NSACF with “NS\_Quota” for S-NSSAI(s) based on the status of step Xch-c.

2. NS admission control for UEs registrations per 3GPP TS 23.502 [11].

Steps Xch-a to Xch-d can be repeated until the "NS Reg UEs Quota limit" is reached.

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| **End of changes** |