**3GPP TSG-SA5 Meeting #145-e *S5-225127rev2***

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

**Source: MATRIXX Software**

**Title: pCR TR 32.847 Evaluation and conclusion for Key issue#1**

**Document for: Approval**

**Agenda Item: 7.5.1**

# 1 Decision/action requested

**This pCR is to** **introduce the evaluation and conclusion for Key issue#1**

# 2 References

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

# 3 Rationale

This pCR is to introduce the evaluation and conclusion for Key issue#1.

# 4 Detailed proposal

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

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| **First change** |

### 6.1.x Evaluation

This clause evaluates the solutions for Key issue#1, they are all based on the new Nchf\_NSConvergedCharging service.

Solution #1.1 partially solves Key issue#1:

Pro:

* Use of CCS capability of Network Slice quota management to dynamically grant additional NS\_quota of "Nb of Reg UEs", to go beyond the NSACF configured "max Nb of Reg UEs", based on charging criteria.

Cons:

* Not possible to apply specific rate and costs for different ranges of "Nb of Reg UEs" (before the NSACF configured "max Nb of Reg UEs" is reached).
* Allowing to go beyond "max Nb of Reg UEs", could lead to network performance issues due to unsufficient deployed capacity.

Solutions #1.2 and #1.4 partially solves Key issue#1:

Pro:

* Possible to apply specific rate and costs for different ranges of "Nb of Reg UEs" (before the NSACF configured "max Nb of Reg UEs" is reached) using pre-configured static thresholds.
* Event-based to CHF (No charging session): simple implementation and low resource usage in the CHF and CTF.

Cons:

* Not possible to go beyond the NSACF configured "max Nb of Reg UEs" for the Network Slice.
* Not possible to dynamically tune the ranges of "Nb of Reg UEs" for specific rate and costs.

Solutions #1.3 and #1.5 partially solve Key issue#1:

Pro:

* Possible to apply specific rate and costs for different ranges of "Nb of Reg UEs", under the NSACF configured "max Nb of Reg UEs".
* Possible to dynamically tune the ranges of "Nb of Reg UEs" for specific rate and costs.

Cons:

* Not possible to go beyond the NSACF configured "max Nb of Reg UEs" for the Network Slice.
* Charging session to CHF: in case of long NS lifetime, the corresponding charging session will be maintained for a long time if thresholds for termination are not crossed.

Solutions #1.5 (CEF) compared to solution #1.3 does not allow the CHF (see 6.1.3.6 Charging scenarios) to act before a UE is added or removed.

Solution #1.x, fully solves Key issue#1:

Pro:

* Use of CCS capability of Network Slice quota management to dynamically grant additional NS\_quota of "Nb of Reg UEs", based on charging criteria.
* Possible to apply specific rate and costs for different ranges of "Nb of Reg UEs", under the "max Nb of Reg UEs".
* Possible to dynamically tune the ranges of "Nb of Reg UEs" for specific rate and costs.
* Avoid performance issues by remaining under "max Nb of Reg UEs".

Cons:

* Charging session to CHF: in case of long NS lifetime, the corresponding charging session will be maintained for a long time if thresholds for termination are not crossed.

For all solutions, the particular REQ-NSCH-06 is covered under the NSACF behavior which counts UEs connected in EPS when EPS counting is required. In this case, the network description of the solution relates to interworking with EPC procedures instead of 5GC procedures involving the AMF.

For all solutions, the particular REQ-NSCH-04 cannot be fulfilled: based on clause 5.15.11.0 of TS 23.501 [11], counts in the NSACF also include emergency registered UEs undifferentiated from registered UEs.

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| **End of changes** |