**SA WG2 Meeting #142e S2-2008935r07-18**

**Electronic Meeting, November 16 – 20, 2020**

**Source: Nokia, Nokia Shanghai Bell**

**Title: KI#1 and KI#2 EPS Interworking Aspects**

**Document for: Approval**

**Agenda Item: 8.4**

**Work Item / Release: FS\_eNS\_ph2 / Rel-17**

*Abstract of the contribution:* *This p-CR proposes the principles for counting of UEs and PDU Sessions in the EPS interworking case.*

# 1 Discussion

This paper provides the conclusion for handling the counting of UEs and PDU Sessions, when the UE has EPS PDN Connections, which map to a PDU Session within the S-NSSAI.

# 2 Proposal

This contribution proposes to implement the following updates to TR 23.700-40 v1.1.0.

\* \* \* Start of Change \* \* \*

# 8 Conclusions

Editor's note: This clause will capture conclusions from the study.

## 8.1 Conclusion for Key Issue #1

To enable a 5GS to support network slice related quota on the maximum number of UEs, no change is required in the RAN. The following new functionalities in the 5GS are needed:

- Storing of network slice related quota information: If a network slice is subject to a network slice quota checking on a maximum number of UEs, it is assumed that the O&M should have for this network slice a) the information of the quota of maximum number of UEs. To enable the network slice related quota enforcement, this information is configured and stored to one or more network functions in 5GC.

Editor's note: It is FFS which network function(s) in 5GC needs to be configured to store the network slice related quota information and how it gets the network slice related quota information.

- Managing and updating the network slice related quota on maximum number of UEs registered for the network slice: This functionality is part of the 5GC and it manages the NW Slice quota of maximum number of UEs in a S-NSSAI, monitors the current number of UEs being registered for the network slice subject to a network slice quota checking.

Editor's note: It is FFS which network function(s) in 5GC should manages the NW Slice quota of the maximum number of UEs in a network slice.

* For the support of different access types: Based on operator policy when a UE registers over multiple access types to the AMF, the access type is taken into account for counting.

NOTE: The detailed operation for the network slice related quota management with the consideration of different access types and 5GS/EPS interworking will be specified during the normative phase.

- Enforcing the network slice related quota on the maximum number of UEs: This functionality is part of the 5GC and it controls the registration request on the S-NSSAI subject to the quota management by accepting or rejecting the request on the S-NSSAI. In case of rejection, the function may provide a rejection cause and optionally with a back-off timer.

Editor's note: It is FFS which network function(s) in 5GC (new NF or existing NF) should enforce the network slice related quota on the maximum number of UEs, and how this network function in 5GC is aware that the quota on the maximum number of UEs is reached.

Editor's note: It is FFS whether the NW Slice quota enforcement functionality is distributed or centralized.

NOTE: Whether to use an existing rejection cause and a back-off timer or a new rejection cause and a back-off timer, this is to be determined in Stage-3.

## 8.2 Conclusion for Key Issue#2

To enable a 5GS to support network slice related quota on the maximum number of PDU Sessions, the following new functionalities in the 5GS are needed:

- Storing of network slice related quota information: If a network slice is subject to a network slice quota management on a maximum number of PDU Sessions, it is assumed that the O&M should have for this network slice a) the information of the quota of maximum number of PDU Sessions. To enable the network slice related quota enforcement, this information is configured and stored to one or more network functions in 5GC.

Editor's note: It is FFS which network function(s) in 5GC needs to be configured to store the network slice related quota information and how it gets the network slice related quota information.

- Managing and updating the network slice related quota on maximum number of PDU Sessions established in a S-NSSAI: This functionality is part of the 5GC and it manages the NW Slice quota of maximum number of PDU Sessions in a S-NSSAI, and updates the current number of PDU Sessions successfully established in the network slice subject to a network slice quota checking on a maximum number of PDU Sessions.

Editor's note: It is FFS which network function(s) in 5GC should manage and updates a number of PDU Sessions successfully established in the network slice.

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- Enforcing the network slice related quota on the maximum number of PDU Sessions: This functionality is part of the 5GC and it controls the establishment of PDU session of a S-NSSAI subject to the quota management by accepting or rejecting the request. In case of rejection, the function may provide a rejection cause and optionally with a back-off timer.

Editor's note: It is FFS which network function(s) in 5GC (new NF or existing NF) should enforce the network slice related quota on the maximum number of UEs, and how this network function in 5GC is aware that the quota on the maximum number of UEs is reached.

Editor's note: It is FFS whether the NW Slice quota enforcement functionality is distributed or centralized.

NOTE: Whether to use an existing rejection cause and back-off timer or a new rejection cause and back-off timer, this is to be determined in Stage-3.

NOTE: The detailed operation for the network slice related quota management with the consideration of different access types and 5GS/EPS interworking will be specified during the normative phase.

\* \* \* End of Change \* \* \*