**3GPP TSG-SA WG2 Meeting #147E e-meetingS2-210xxxx**

**Elbonia, 18-22 Oct, 2021** (was S2-210xxxx)

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.501** | **CR** |  | **rev** |  | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | | | UICC apps | | | |  | ME |  | Radio Access Network | | | | |  | Core Network | **X** |
|  | | | | | | | | | | | | | | | | | |
| ***Title:*** | Editorial Changes on eNS\_Ph2 | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | |
| ***Work item code:*** | eNS\_Ph2 | | | | | | | | |  | ***Date:*** | | | 2021-10-09 | | | |
|  |  | | | | |  | | | | |  | | |  | | | |
| ***Category:*** | **D** |  | | | | | | | | | ***Release:*** | | | Rel-17 | | | |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | | | | |
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| ***Reason for change:*** | | The use of NSAC is not consistent. | | | | | | | | | | | | | | | |
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| ***Summary of change:*** | | Editorial change on NSAC | | | | | | | | | | | | | | | |
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| ***Consequences if not approved:*** | | The specification is not consistent | | | | | | | | | | | | | | | |
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| ***Clauses affected:*** | | 5.15.11.1, 5.15.11.2, 5.15.11.3 | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | |
|  | | **Y** | | **N** |  | | | | | | |  | | | | | |
| ***Other specs*** | |  | | **x** | Other core specifications | | | | | | | TS/TR ... CR ... | | | | | |
| ***affected:*** | |  | | **X** | Test specifications | | | | | | | TS/TR ... CR ... | | | | | |
| ***(show related CRs)*** | |  | | **X** | O&M Specifications | | | | | | | TS/TR ... CR ... | | | | | |
|  | |  | | | | | | | | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | | | | | | | | |

**\* \* \* \* start of 1st change \* \* \* \***

#### 5.15.11.1 Maximum number of UEs per Network Slice Admission Contro

The NSACF controls (i.e. increase or decrease) the current number of UEs registered for a network slice so that it does not exceed the maximum number of UEs allowed to register with that network slice. The NSACF also maintains a list of UE IDs registered with a network slice that is subject to NSAC. When the current number of UEs registered with a network slice is to be increased, the NSACF first checks whether the UE Identity is already in the list of UEs registered with that network slice and if not, it checks whether the maximum number of UEs per network slice for that network slice has already been reached.

The AMF triggers a request to NSACF for maximum number of UEs per Network Slice Admission Contro when the UE's registration status for a network slice subject to NSAC may change, i.e. during the UE Registration procedure in clause 4.2.2.2.2 of TS 23.502 [3], UE Deregistration procedure in clause 4.2.2.3 of TS 23.502 [3], Network Slice-Specific Authentication and Authorisation procedure in clause 4.2.9.2 of TS 23.502 [3], AAA Server triggered Network Slice-Specific Re-authentication and Re-authorization procedure in clause 4.2.9.3 of TS 23.502 [3], and AAA Server triggered Slice-Specific Authorization Revocation in clause 4.2.9.4 of TS 23.502 [3].

The UE may register or deregister for an S-NSSAI via 3GPP access and/or non-3GPP access as described in clause 5.15.5.2.1. The AMF provides the Access Type to the NSACF when triggering a request to increase or decrease the number of UEs. The NSACF takes Access Type into account for increasing and decreasing the number of UEs per network slice. The NSACF stores UE ID with the associated one or more Access Type(s), i.e. the NSACF is able to add or remove a registration for the UE ID for each Access Type.

NOTE 1: For example, if the NSACF is configured to apply NSAC for 3GPP Access Type only, the NSACF counts registration via 3GPP access type only. If the NSACF is configured to apply NSAC for both Access Types, and the UE newly registers via 3GPP access while the UE is already registered via non-3GPP access (or vice versa), the NSACF updates the UE ID entry with both 3GPP Access Type and non-3GPP Access Type and the NSACF counts the UE twice.

#### 5.15.11.2 Maximum number of PDU sessions per Network Slice Admission Contro

The NSACF controls (i.e. increase or decrease) the current number of PDU Sessions per network slice so that it does not exceed the maximum number of PDU session allowed to be served by that network slice. When the current number of PDU sessions with the network slice is to be increased, the NSACF first checks whether the maximum number of PDU sessions per network slice for that network slice has already been reached.

The anchor SMF triggers a request to NSACF for maximum number of PDU sessions per network slice control during PDU session establishment/release procedures in clauses 4.3.2 and 4.3.4 of TS 23.502 [3].

The SMF provides the Access Type to the NSACF when triggering a request to increase or decrease the number of PDU Sessions. The NSACF takes Access Type into account for increasing and decreasing the current number of PDU Sessions depending on the applicability of the Access Type for the NSAC for maximum number of PDU Sessions for the S-NSSAI.

NOTE: I-SMF does not interact with NSCAF.

#### 5.15.11.3 Network Slice Admission Control for Roaming

In the case of roaming, depending on operator's policy, a roaming agreement or an SLA between the VPLMN and the HPLMN, NSAC for roaming UEs can be performed by the VPLMN. The following principles apply:

For Network Slice Admission Contro of roaming UEs for maximum number of UEs per network slice and/or maximum number of PDU Sessions per network slice managed by the VPLMN, the following principles shall be used:

- Each S-NSSAI in the HPLMN that is subject to NSAC is mapped to the corresponding S-NSSAI in VPLMN subject to NSAC, depending on VPLMN operator's policy and the configuration.

- A NSACF in the VPLMN is configured with the maximum number of allowed roaming UEs per mapped S-NSSAI in the HPLMN for each S-NSSAI in the HPLMN that is subject to NSAC.

- A NSACF in the VPLMN is configured with the maximum number of allowed PDU Sessions in LBO mode per mapped S-NSSAI in the HPLMN for each S-NSSAI in the HPLMN that is subject to NSAC.

- For the maximum number of UEs per Network Slice Admission Control, the AMF triggers a request to a NSACF in the VPLMN to perform Network Slice Admission Control based on the S-NSSAI in the VPLMN subject to NSAC. The NSACF in the HPLMN is not involved.

- For the maximum number of PDU Sessions per Network Slice Admission Control in the LBO roaming case, the SMF triggers a request to a NSACF in the VPLMN to perform Network Slice Admission Control based on the S-NSSAI in the VPLMN subject to NSAC. The NSACF in the HPLMN is not involved.

‐ The AMF or SMF (in LBO roaming case) in the VPLMN provides both the S-NSSAI in the VPLMN and the corresponding mapped S-NSSAI in the HPLMN to the NSACF in the VPLMN. The NSACF in the VPLMN performs NSAC for both S-NSSAI in the VPLMN and the corresponding mapped S-NSSAI in the HPLMN based on the SLA between the VPLMN and the HPLMN.

For Network Slice Admission Control of roaming UEs for maximum number of PDU Sessions per network slice managed by the HPLMN, the following principles shall be used:

- For PDU sessions in the home-routed roaming case, the SMF in the HPLMN performs Network Slice Admission Control for the S-NSSAI(s) subject to NSAC.

Editor's note: Whether it is required to interact V-NSACF and H-NSACF for the NSAC of roaming UEs managed by the HPLMN for 'maximum number of UEs per network slice', and based on what information the AMF can determine to trigger NSAC is FFS.

**\* \* \* \* end of 1st change \* \* \* \***