**SA WG2 Meeting #143eS2-210xxxx**

**Feb 24th – March 9th, 2021 ; Elbonia (revision of S2-210xxxx)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **23.501** | **CR** | **xx** | **rev** | **-** | **Current version:** | **16.7.0** |  |
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| *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 | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Enabling restricted PDU Session for remote provisioning of UE via User Plane |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | S2 |
|  |  |
| ***Work item code:*** | eNPN |  | ***Date:*** | 2021-01-25 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 canbe 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | Implementing TR 23.700-07 conclusion on restricted PDU Session for remote provisioning of UE using User Plane in TS 23.501:- A restricted PDU session is supported to be dedicated for the remote provisioning. Upon successful establishment of restricted access PDU session, if the UE still does not have a PS address via any of the methods listed below, the device uses a well-known FQDN to perform PS discovery.- When Onboarding network is O-SNPN, the information required to restrict the usage is locally configured in the SMF, and the SMF restricts the usage for the UE registered for onboarding.- When Onboarding network is a PLMN, the functionality to restrict usage is activated for the UE by SMF based on received existing subscription profile from the UDM and on existing policies from PCF, or local configuration. |
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| ***Summary of change:*** | Updated subclauses 5.30.X.2.4.2 and 5.30.X.3.4.2 describing the functionality of restricted PDU Session for remote provisioning of UE via User Plane in SNPN and PNI-NPN cases. |
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| ***Consequences if not approved:*** | Rel-17 eNPN feature not fully implemented. |
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| ***Clauses affected:*** | Updated clauses 5.30.X.2.4.2 and 5.30.X.3.4.2. |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

START FIRST CHANGE

#### 5.30.X.2.4.2 User Plane Remote Provisioning of UEs in SNPNs

Onboarding SNPN provides Onboarding Services to support remote provisioning of UE via SNPN. Onboarding Services are provided to Onboarding Registered UEs, that are in limited service state, as specified in TS 23.122 [17]. Receiving Onboarding Services does not require a valid subscription. The network may allow or reject a registration request for Onboarding Services (i.e. Onboarding Registration) from the UE.

Any Mobility Restrictions or access restrictions for UE receiving Onboarding Services apply to all mobility procedures.

To provide Onboarding Services, the AMF is configured with Onboarding Configuration Data that are applied by the AMF to Onboarding Services based on request from the UE.

In case Onboarding Services are provided using restricted PDU Session for remote provisioning of UE via User Plane, the AMF Onboarding Configuration Data contain S-NSSAI and Onboarding DNN used to derive an SMF for Onboarding Services. The AMF Onboarding Configuration Data may contain a statically configured SMF for the Onboarding DNN. The SMF may also store Onboarding Configuration Data that contains statically configured UPF information for the Onboarding DNN. The PCF and UDR may store S-NSSAI and Onboarding DNN specific policy information.

When a SMF is selected for Onboarding Services, the SMF selection function described in clause 6.3.2 for normal services is applied or the AMF selects the SMF directly from the AMF Onboarding Configuration Data. When a UPF is selected for Onboarding Services, the UPF selection function described in clause 6.3.3 for normal services is applied to the Onboarding DNN or the SMF selects the UPF directly from the SMF Onboarding Configuration Data.

Onboarding Configuration Data available to PCF (for details see TS 23.503 [45]) and/or SMF may include Provisioning Server (PS) address(es).

In case a UE with a preconfigured Provisioning Server address receives Provisioning Server address(es) from the onboarding network, the Provisioning Server Address received from the onboarding network shall prevail.

In case the provisioning process using a network provided Provisioning Server address fails, the UE shall reinitiate the provisioning process using the preconfigured Provisioning Server address(es).

In case this attempt also fails or if the UE does not have a preconfigured Provisioning Server address the UE shall detach from the onboarding network and select another network for onboarding purposes.

Initial QoS parameters used for establishing Onboarding Services are configured in the SMF Onboarding Configuration Data.

Dynamic PCC may be used when establishing Onboarding Services with a SMF.

The QoS Flows of a PDU Session associated with the restricted DNN for remote provisioning shall be dedicated to Onboarding Services. The UPF may block any traffic that is not from or to Provisioning Server (PS) address(es) configured in SMF Onboarding Configuration Data for providing Onboarding Services.

For an Onboarding Registered UE:

- the UE shall not initiate the UE Requested PDU Session Establishment procedure for normal service; and

- the network shall reject any PDU Session Establishment request for normal service from the UE.

END FIRST CHANGE

START SECOND CHANGE

#### 5.30.X.3.4.2 User Plane Remote Provisioning of UEs in PNI-NPNs

When Onboarding network is a PLMN, the functionality to restrict usage is activated for the UE by SMF based on received existing subscription profile from the UDM (e.g. S-NSSAI, DNN, PS address(es)) and on policies from PCF, or local configuration in the SMF. The general description in clause 5.30.X.2.4.2 on UE, SMF, PCF and UPF behaviour apply also for the PNI-NPN case.

END SECOND CHANGE