**3GPP TSG-SA WG2 Meeting #145ES2-2104331**

**Elbonia, May 17 - May 28 2021**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **23.501** | **CR** | **2918** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | KI#2 T1: Informative guideline for QoS Notification between overlay network and underlay network |
|  |  |
| ***Source to WG:*** | Ericsson, Futurewei, ETRI |
| ***Source to TSG:*** | S2 |
|  |  |
| ***Work item code:*** | eNPN |  | ***Date:*** | 2021-05-10 |
|  |  |  |  |  |
| ***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)* |
|  |  |
| ***Reason for change:*** | TR 23.700-07 has concluded when using N3IWF based solution, overlay network and underlay network can use existing NEF notification procedures for QoS related information:When N3IWF based solution is used, the overlay network and its service AF can use existing NEF notification procedures, such as of subscribing the "QoS monitoring" or "QoS sustainability" via the interface between NEF and AF, to subscribe and receive the notification from underlay network regarding the connectivity QoS status or QoS mapping changes that are associated with the IPsec of the overlay network. With the QoS update information from the underlay network, the overlay network can adjust its connectivity QoS accordingly. The opposite way is also applicable that the underlay network and its service AF can use existing NEF notification procedures, such as of subscribing the "QoS monitoring" or "QoS sustainability" via the interface between NEF and AF, to subscribe and receive the notification from overlay network regarding the connectivity QoS status or QoS mapping changes that are associated with the IPsec of the overlay network. With the QoS update information from the underlay network, the underlay network can adjust its connectivity QoS accordingly. No need of new information for QoS notification between PLMN and SNPN has been identified in this study. Informative guideline on how to use existing QoS notification mechanism between SNPN and PLMN can be provided during the normative phase as informative annex. |
|  |  |
| ***Summary of change:*** | Informative guideline on how to use existing NEF notification procedures to support QoS notification between overlay network and underlay network. An Editor´s note is added to define the procedures to be used for notification. |
|  |  |
| ***Consequences if not approved:*** | Lacking information regarding how to support QoS notification between overlay network and underlay network. |
|  |  |
| ***Clauses affected:*** | Annex D.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:*** |  |

*FIRST CHANGE*

# D.3 Support for access to PLMN services via Stand-alone Non-Public Network and access to Stand-alone Non Public Network services via PLMN



Figure D.3-1: Access to PLMN services via Stand-alone Non-Public Network

NOTE 1: The reference architecture in Figure D.3-1 and Figure D.3-2 only shows the network functions directly connected to the UPF or N3IWF and other parts of the architecture are same as defined in clause 4.2.

In order to obtain access to PLMN services when the UE is camping in NG-RAN of Stand-alone Non-Public Network, the UE obtains IP connectivity, discovers and establishes connectivity to an N3IWF in the PLMN.

In the Figure D.3-1, the N1 (for NPN) represents the reference point between UE and the AMF in Stand-alone Non-Public Network. The NWu (for PLMN) represents the reference point between the UE and the N3IWF in the PLMN for establishing secure tunnel between UE and the N3IWF over the Stand-alone Non-Public Network. N1 (for PLMN) represents the reference point between UE and the AMF in PLMN.



Figure D.3-2: Access to Stand-alone Non-Public Network services via PLMN

In order to obtain access to Non-Public Network services when the UE is camping in NG-RAN of a PLMN, the UE obtains IP connectivity, discovers and establishes connectivity to an N3IWF in the Stand-alone Non-Public Network.

In Figure D.3-2, the N1 (for NPN) represents the reference point between UE and the AMF in the Stand-alone Non-Public Network. The NWu (for NPN) represents the reference point between the UE and the N3IWF in the stand-alone Non-Public Network for establishing a secure tunnel between UE and the N3IWF over the PLMN. The N1 (for PLMN) represents the reference point between UE and the AMF in PLMN.

When using the mechanism described above to access overlay network via underlay network, the overlay network can act as authorized 3rd party with AF to interact with NEF in the underlay network, to use the existing network exposure capabilities provide by the underlay network defined in 4.15 in TS 23.502[3]. This interaction is subject of agreements between the overlay and the underlay network.

Editor’s note: How to useexposure capabilities (e.g. QoS notification, other capabilities) that might be beneficial o leverage between underlay network and overlay network is FFS.*END CHANGE*