**3GPP TSG-CT WG1 Meeting #128-eC1-21xyz**

**Electronic meeting, 25 February – 5 March 2021 (rev of C1-210691)**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.501** | **CR** | **2973** | **rev** | **1** | **Current version:** | **17.1.0** |  |
|  |
| *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:***  | NB-N1 mode and max number of user planes resources established for MT case |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5GProtoc17, 5G\_CIoT |  | ***Date:*** | 2021-02-17 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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:*** | For a UE in NB-N1 mode maximum number of PDU sessions with active user plane resources can be one or at most two and depends of UE capability. In case there is downlink data pending for a PDU session associated with the non-3GPP access, the UE is in 5GMM-IDLE mode over non-3GPP access and is in 5GMM-CONNECTED mode over 3GPP access, then the network should not send a Notification message over 3GPP access indicating non-3GPP access if the UE already has allowed maximum number of PDU sessions with active user plane resources. This needs to be captured. |
|  |  |
| ***Summary of change:*** | In case there is downlink data pending for a PDU session associated with the non-3GPP access for a UE in NB-N1 mode, the UE is in 5GMM-IDLE mode over non-3GPP access and is in 5GMM-CONNECTED mode over 3GPP access, then the network should not send a Notification message over 3GPP access indicating non-3GPP access if the UE already has allowed maximum number of PDU sessions with active user plane resources and notify the SMF. |
|  |  |
| ***Consequences if not approved:*** | Unnecessary signaling over the air interface. |
|  |  |
| ***Clauses affected:*** | 5.6.3.2 |
|  |  |
|  | **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:*** |  |

\*\*\* Next change \*\*\*

#### 5.6.3.2 Notification procedure initiation

The network shall initiate the notification procedure by sending the NOTIFICATION message to the UE and start timer T3565 (see example in figure 5.6.3.2.1).

For case a) in subclause 5.6.3.1, the NOTIFICATION message is sent from the network to the UE via 3GPP access with access type indicating non-3GPP access.

For case b) in subclause 5.6.3.1, the NOTIFICATION message is sent from the network to the UE via non-3GPP access with access type indicating 3GPP access when the UE is not in MICO mode.



Figure 5.6.3.2.1: Notification procedure

Upon reception of a NOTIFICATION message, the UE shall stop the timer T3346, if running.

For case a) in subclause 5.6.3.1, upon reception of NOTIFICATION message, the UE shall initiate a service request procedure over 3GPP access as specified in subclauses 5.6.1.

Note: For a UE in NB-NI mode, if there is DL user data pending for a PDU session associated with non-3GPP access then the AMF notifies the SMF that reactivation of user plane resources cannot be performed if there already are maximum number of PDU sessions with user-plane resources established over 3GPP access that the UE supports.

For case b) in subclause 5.6.3.1, upon reception of NOTIFICATION message:

a) if control plane CIoT 5GS optimization is not used by the UE, the UE shall:

1) initiate a service request procedure over 3GPP access as specified in subclause 5.6.1.2.1, if the UE is in 5GMM-REGISTERED.NORMAL-SERVICE state over 3GPP access or 5GMM-REGISTERED.NON-ALLOWED-SERVICE state (see subclause 5.3.5.2), and the UE is in the 5GMM-IDLE mode without suspend indication;

2) initiate a registration procedure for mobility and periodic registration update over 3GPP access as specified in subclause 5.5.1.3.2, if the UE is in 5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE state over 3GPP access; or

3) proceed as specified in subclause 5.3.1.5 if the UE is in the 5GMM-IDLE mode with suspend indication;

b) if control plane CIoT 5GS optimization is used by the UE, the UE shall:

1) initiate a service request procedure over 3GPP access as specified in subclause 5.6.1.2.2, if the UE is in 5GMM-REGISTERED.NORMAL-SERVICE state and the UE is in the 5GMM-IDLE mode without suspend indication;

2) initiate a registration procedure for mobility and periodic registration update over 3GPP access as specified in subclause 5.5.1.3.2, if the UE is in 5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE state; or

3) proceed as specified in subclause 5.3.1.5 if the UE is in the 5GMM-IDLE mode with suspend indication; or

c) if the UE is in 5GMM-REGISTERED.NO-CELL-AVAILABLE state, 5GMM-REGISTERED.PLMN-SEARCH state, 5GMM-REGISTERED.LIMITED-SERVICE state or 5GMM-REGISTERED.UPDATE-NEEDED state over 3GPP access, the UE shall respond with NOTIFICATION RESPONSE message indicating failure to re-establish the user-plane resources of PDU sessions and may include the PDU session status information element to indicate:

1) the single access PDU session(s) not in 5GSM state PDU SESSION INACTIVEin the UE associated with the 3GPP access type; and

2) the MA PDU session(s) not in 5GSM state PDU SESSION INACTIVE in the UE and having user plane resources established associated with the 3GPP access type.

Upon reception of NOTIFICATION message:

 For case b) in subclause 5.6.3.1, if the UE is in 5GMM-REGISTERED.NO-CELL-AVAILABLE state or 5GMM-REGISTERED.PLMN-SEARCH state and a local release was performed in the UE for the single access PDU sessions associated with the 3GPP access or for user plane resources on the 3GPP access of MA PDU sessions;

then the UE shall respond with NOTIFICATION RESPONSE message indicating with the PDU session status information element that:

- the local release of its single access PDU sessions associated with the 3GPP access was performed; and

- the local release of its 3GPP access user plane resources of MA PDU sessions was performed.

\*\*\* End of changes \*\*\*