**3GPP TSG- Meeting #**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | 1 | **Current version:** |  |  |
|  |
| *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** |

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| ***Title:***  |  |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | TEI16,  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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-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:*** | Clauses 6.2.2.2 mentioned that the CP function or the UP function may send a Heartbeat Request on a path to the peer node to find out if it is alive. But in case multiple IP address exposed, whether the Heartbeat Request will be send via all the PFCP entities to the peer node or not have not been clarified. And whether the Heartbeat Request will be send to all the PFCP entities pertaining to the peer node have not been clarified.When UP function supports SSET and MPAS, the heartbeat procedure is not clearly clarified. |
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| ***Summary of change:*** | Clauses 6.2.2.2. Clarified that in case multiple IP addresses exposed, the Heartbeat Request messages may be sent from all the PFCP entityes to all the PFCP entities pertaining to each peer with which a PFCP control association is established.Clauses 6.2.2.2. Clarified the heartbeat procedure in case UPF support SSET & MPAS and connected to SMF set. |
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| ***Consequences if not approved:*** | The heartbeat procedure for CP/UP function alive detection is not clear. |
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| ***Clauses affected:*** | 6.2.2.2 |
|  |  |
|  | **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:*** |  |

\* \* \* First Change \* \* \* \*

### 6.2.2 Heartbeat Procedure

#### 6.2.2.1 General

Two messages are specified for PFCP heartbeat procedure: Heartbeat Request and Heartbeat Response. The use of these messages is further specified in clause 19A of 3GPP TS 23.007 [24] for EPC, and in clause 4 of 3GPP TS 23.527 [40] for 5GC.

#### 6.2.2.2 Heartbeat Request

An PFCP entity of a CP or UP function may send a Heartbeat Request to a PFCP entity of a peer node to find out if the peer PFCP entity is alive. In the case of multiple PFCP entities pertaining to the same CP or UP function node, each PFCP entity may send Heartbeat Request messages towards each PFCP entity pertaining to the peer node with which a PFCP control association is established.

NOTE: If UP function supports MPAS and connected to an SMF set, each PFCP entity of the UP function may send heartbeat Requests towards each PFCP entity of every SMF with which a PFCP control association is established.

NOTE: If UP function supports SSET and connected to an SMF set, each PFCP entity of the UP function may send heartbeat Requests towards each PFCP entity pertaining to the same SMF or the SMFs in the SMF set with which a PFCP control association is established.

A CP function or UP function shall be prepared to receive a Heartbeat Request at any time (even from unknown peers) and it shall reply with a Heartbeat Response.

#### 6.2.2.3 Heartbeat Response

The message shall be sent as a response to a received Heartbeat Request.

\* \* \* End of Changes \* \* \* \*