**3GPP TSG-RAN WG3 Meeting #114b-e *R3-221196***

**E-meeting, 17-26 Jan 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **38.413** | **CR** | **0691** | **rev** | **2** | **Current version:** | 16.8.0 |  |
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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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:***  | Direct data forwarding for 4G to 5G handover |
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| ***Source to WG:*** | Huawei, Samsung, China Telecom |
| ***Source to TSG:*** | R3 |
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| ***Work item code:*** | Direct\_data\_fw\_NR-Core |  | ***Date:*** | 2022-01-17 |
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| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *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:*** | The following scenario for EPS to 5GS was agreeed for direct data forwarding. * Agree to consider solutions on direct data forwarding from EPS to 5GS in case one DRB in target gNB contains QoS flows mapped to different E-RABs in the source eNB

With this scenario, last RAN3-112-e meeting discussed two main solutions, wherein solution 1 is provided as follows. * *Solution 1: CU-CP requests one data forwarding address from the CU-UP using the existing signalling. CU-CP feedback the tunnel address to the two E-RABs in Handover Request Ack message to 5GC. With this, the data from the two E-RABs in the source node will be sent to one DRB buffer in the target (ref R3-211957/R3-212545/R3-212356)*

This was further discussed at RAN3#114-e meeting with following summary. * Issue 2: Inter-system HO from 4G to 5G in CP-UP separation scenario (multiple E-RABs are mapped to a single DRB case):
	+ Down selection of the solution 1 and solution 3
	+ Check with CT4 specification and potential product implementation whether there is any issue for solution 1.

For solution 1, the target CU-CP needs to respond the same forwarding addresses for multiple E-RAB IDs in the Handover Request ack messages. In TS 29.281, it already specifies that:*The GTP-U protocol supports the possibility for one GTP-U tunnel endpoint to receive packets from multiple remote GTP-U endpoints. This may be used in the following scenarios:**- Tracking Area Update procedure with Serving GW change and data forwarding as specified in clause 5.3.3.1A of 3GPP TS 23.401 [5], if the above capability is supported by the receiving eNB;**- Dual connectivity in 5GC as specified in clause 5.11.1 of 3GPP TS 23.501 [28], where the master and secondary NG-RAN may be assigned the same uplink F-TEID of the UPF by the SMF for uplink traffic of the same PDU session; and**- IPv6 multihoming scenario as specified in clause 5.6.4.3 of 3GPP TS 23.501 [28], where the downlink traffic from multiple PDU Session Anchors of the same PDU session may be assigned the same N9 F-TEID of the branching point UPF by the SMF.*Also as indicated in the C4-216388 that: * *A receiving GTP-U entity should be prepared to receive GTP-U packets from different source IP addresses. Clause 4.3.0 in 3GPP TS 29.281 documents a few example scenarios where a GTP-U endpoint may receive GTP-U packets from multiple remote GTP-U endpoints; this list is not meant to be exhaustive.*

Since this new scenario is not explicitly mentioned as above, it seems that there is need to specify that one GTP-U tunnel endpoint corresponding to multiple remote GTP-U endpoints for the EPC to 5GC direct data forwarding case in RAN specification.  |
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| ***Summary of change:*** | * Add a note that in case of EPC to 5GC direct data forwarding for dis-aggregated node case, one multiple DL Forwarding UP TNL Information may correspond to multiple E-RAB IDs.

 Impact Analysis:Impact assessment towards the previous version of the specification (same release): This CR has isolated impact with the previous version of the specification (same release) because it only impacts the EPC to SA handover with direct data forwarding for dis-aggregated node case.  |
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| ***Consequences if not approved:*** | It remains unclear whether/how the scenario (QoS flows forwarded over multiple E-RAB tunnels will be mapped to a single DRB) is supported in case of EPC to 5GC when the target NG-RAN node is disaggregated case.  |
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| ***Clauses affected:*** | 9.3.1.121 |
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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:*** |  |
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| ***This CR's revision history:*** | Rev0: R3-215362Rev1: R3-220673 Update the cover page. Rev2: R3-221196 Minor update the semantic descriptions.  |

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| **Change Begins** |

#### 9.3.1.121 Data Forwarding Response E-RAB List

This IE is used at inter-system HO to provide DL data forwarding address information, if direct data forwarding is applied.

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| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **Data Forwarding Response E-RAB List** |  | *1..<maxnoofERABs>* |  | NOTE: The list may include the same DL Forwarding UP TNL Information for multiple E-RAB IDs in case of inter-system handover from E-UTRAN.  |
| >E-RAB ID | M |  | 9.3.2.3 |  |
| >DL Forwarding UP TNL Information | M |  | UP Transport Layer Information9.3.2.2 |  |

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| Range bound | Explanation |
| maxnoofE-RABs | Maximum no. of E-RABs. Value is 256. |

**<Unchanged Text Omitted>**

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| **Change Ends** |