**SA WG2 Meeting #S2-137E S2-2002027**

**24 - 27 February, 2020, Electronic meeting (revision of S2-200xxxx)**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.501** | **CR** | **2167** | **rev** | **-** | **Current version:** | **16.3.0** |  |
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| *For* ***HE******LP*** *on using this form: comprehensive instructions can be found at  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:*** | Correction to transfer of port management information to include NEF | | | | | | | | | |
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| ***Source to WG:*** | Intel | | | | | | | | | |
| ***Source to TSG:*** | SA WG2 | | | | | | | | | |
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| ***Work item code:*** | Vertical\_LAN | | | | |  | ***Date:*** | | | 2020-02-18 |
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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 can be found in 3GPP TR 21.900. | | | | | | | | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The current normative text in clause 5.28.3.2 assumes that NW-TT port information is sent from SMF to AF via the PCF, by basically “hijacking” a randomly chosen PDU Session:  *SMF in turn forwards the container and the port number of the related NW-TT Ethernet port to TSN AF as described in TS 23.502 [3] clause 4.16.5.1* [**a PCF service**]*. If NW-TT provides a Port Management Information Container* ***for an Ethernet port shared by multiple PDU sessions****, then UPF forwards the Port Management Information Container only for one of those PDU sessions.*  Moreover, the cyan-highlighted text is incorrect in that a PDU Session is not associated with any Ethernet port, because the traffic flowing on a PDU Session can be routed to any of the NW-TT ports based on the Destination MAC address in the Ethernet frames.  Similar observation applies in the opposite direction (AF to SMF):  *SMF determines whether the port number relates to a DS-TT or NW-TT Ethernet port and based on this forwards the Port Management Information Container to DS-TT or NW-TT using the network requested PDU Session Modification procedure as described in TS 23.502 [3] clause 4.3.3.2.* ***If the port number identifies an NW-TT Ethernet port shared by multiple PDU sessions****, PCF and SMF forward the Port Management Information Container only for one of those PDU sessions.*  Again the NW-TT information is sent via the PCF by “hijacking” a PDU Session. Again the cyan-highlighted text is incorrect for the same reasons as previous.  This PDU Session “hijacking” approach for the purpose of configuring network nodes with information that is not UE- or PDU Session- specific goes clearly against agreed principles. Namely, according to clause 23.501 5.6.7 the AF requests targeting a speciic PDU Session are sent via N5 (i.e. via PCF), whereas requests targeting “existing or future PDU Sessions or multiple UEs” are sent via the NEF:  The AF requests are sent to the PCF via N5 (in the case of requests targeting specific on-going PDU Sessions of individual UE(s), for an AF allowed to interact directly with the 5GC NFs) or via the NEF. The AF requests that target existing or future PDU Sessions of multiple UE(s) or of any UE are sent via the NEF and may target multiple PCF(s), as described in clause 6.3.7.2. The PCF(s) transform(s) the AF requests into policies that apply to PDU Sessions.  While the TSN AF requests referring to a DS-TT port are linked to a PDU Session, the TSN AF requests referring to NW-TT ports are not. As a consequence, the former should be sent via PCF, while the latter should be sent via NEF.  It should be possible to use a single AF request via the NEF to configure multiple NW-TT ports, as well as provide some NW-TT configuration information that is not NW-TT port specific (e.g. General Neighbor discovery configuration, Traffic forwarding information, configuration of neighbor discovery by the NW-TT on behalf on DS-TT, etc.). | | | | | | | | |
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| ***Summary of change:*** | | Clause 5.28.3.2 is modified to clarify that TSN bridge reporting and configuration follows either the PCF path (for information related to DS-TT) or the NEF path (for information related to NW-TT).  The whole clause has been restructured in four distinct parts, as follows:  - DS-TT to TSN AF  - NW-TT to TSN AF  - TSN AF to DS-TT, and  - TSN AF to NW-TT. | | | | | | | | |
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| ***Consequences if not approved:*** | | Misuse of PCF procedures for invoking system configuration that is not UE-or PDU Session- specific.  Incorrect text (implying linkage between a PDU Session and a NW-TT port) remains in the specification. | | | | | | | | |
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| ***Clauses affected:*** | | 5.28.3.2 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS23.502 CR2111 | | |
| ***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 is the 23.501 counterpart of TS23.502 CR2111. | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

**\*\*\*BEGIN CHANGES\*\*\***

#### 5.28.3.2 Transfer of port and bridge management information

Port management information is transferred transparently via 5GS between TSN AF and DS-TT or NW-TT, respectively, inside a Port Management Information Container as follows:

- To convey port management information from DS-TT to TSN AF:

- DS-TT provides a Port Management Information Container to the UE, which includes the Port Management Information container as an optional Information Element of an N1 SM container and triggers the UE requested PDU Session Modification procedure to forward the Port Management Information container to the SMF. SMF forwards the Port Management Information container and the port number of the related DS-TT Ethernet port to TSN AF as described in TS 23.502 [3] clause 4.3.3.2;

- To convey port management information from NW-TT to TSN AF:

- NW-TT provides a Port Management Information Container to the UPF, which triggers the N4 Session Level Reporting Procedure to forward the Port Management Information Container to SMF. SMF in turn forwards the container and the port number(s) of the related NW-TT Ethernet port(s) to TSN AF via the NEF.

- To convey port management information from TSN AF to DS-TT:

- TSN AF provides a Port Management Information Container, MAC address reported for a PDU Session and the port number of the Ethernet port to manage to the PCF, which forwards the information to SMF based on the MAC address using the PCF initiated SM Policy Association Modification procedure as described in TS 23.502 [3] clause 4.16.5.2. SMF forwards the Port Management Information Container to DS-TT using the network requested PDU Session Modification procedure as described in TS 23.502 [3] clause 4.3.3.2.

- To convey port or bridge management information from TSN AF to NW-TT:

- TSN AF provides a Bridge ID, TSN AF parameters, Port Management Information Container and the related NW-TT port number(s) to the SMF via the NEF. SMF forwards the Port Management Information Container and other TSN-related information to NW-TT using the N4 Session Modification procedure described in TS 23.502 [3] clause 4.4.1.3.

- TSN AF provides a Bridge ID, Bridge Management Information Container to the SMF via the NEF. SMF forwards the Bridge Management Information Container and other TSN-related information to NW-TT using the N4 Session Modification procedure described in TS 23.502 [3] clause 4.4.1.3.

**\*\*\*END OF CHANGES\*\*\***