**3GPP TSG-CT3 Meeting #117e C3-214186\_r1**

**E-Meeting, 18th – 27th August 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.512** | **CR** | **0821** | **rev** | **1** | **Current version:** | **17.3.0** |  |
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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 |  | Core Network | **X** |

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| ***Title:***  | handling of SMF for TSCAI Survival Time |
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| ***Source to WG:*** | ZTE |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | IIoT |  | ***Date:*** | 2021-8-10 |
|  |  |  |  |  |
| ***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)* |
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| ***Reason for change:*** | CR 0761 is incorrectly implemented that the handling of SMF for TSCAI Survival Time is misplaced as part of PCF behaviour in 4.2.3.24.In addition, the 2nd bullet of 4.2.3.24 indicates the time domain is included in the TSCAI Container received from the TSN AF, but the "tscaiTimeDom" attribute is defined out of the TscaiContainer data type. |
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| ***Summary of change:*** | Clause 4.2.3.24 is updated to:* remove “container” from 2nd bullet to make the description generic.
* move the handling of SMF for TSCAI Survival Time to the SMF behaviour description part.
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| ***Consequences if not approved:*** | Incorrect and incomplete specification. |
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| ***Clauses affected:*** | 4.2.3.24 |
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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:*** | This CR does not impact the OpenAPI specification file. |
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| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**…**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

#### 4.2.3.24 Provisioning of TSCAI input information and TSC QoS related data

The PCF may receive the TSCAI input information and TSC traffic QoS related information from the TSN AF or NEF.

If the feature "TimeSensitiveNetworking" or "TimeSensitiveCommunication" is supported by both the SMF and PCF as described in subclause 5.8, the PCF shall provide for the derived PCC rule(s):

- the 5G QoS parameters and the optional 5G QoS characteristics corresponding to a 5QI for a delay-critical GBR derived from the TSC traffic QoS information received from the TSN AF or NEF encoded within a QosData type referred in the "refQosData" of the PCC rule; and

- the TSCAI input information as received from the TSN AF or NEF, with the periodicity, burst arrival time and survival time encoded in the "tscaiInputUl" attribute and/or "tscaiInputDl" attribute of the PCC rule and, when the feature "TimeSensitiveCommunication" is supported, the (TSN)AF (g)PTP domain encoded in the "tscaiTimeDom" attribute.

The values of MDBV and PDB applied to the derived 5QI shall follow principles defined in subclause 5.27.3 of 3GPP TS 23.501 [2].

The value of the MBR, if applicable, and the GBR are derived using the Maximum Bit Rate provided by the TSN AF or NEF, and the ARP is assigned a value preconfigured for TSC services.

The SMF shall convert the received TSCAI input information from the external GM into the 5G GM based on the time offset and cumulative rateRatio between external time and 5GS time as measured and reported by the UPF and, forward the derived TSCAI parameters per QoS Flow basis to the AN-RAN as follows:

- for the traffic in downlink direction, correct the value of the "burstArrivalTime" attribute of the "tscaiInputDl" attribute based on the latest received time offset measurement from the UPF and set the downlink TSCAI Burst Arrival Time as the sum of the correct value and the CN PDB as described in subclause 5.7.3.4 of 3GPP TS 23.501 [2].

- for the traffic in uplink direction, correct the value of "burstArrivalTime" attribute of the "tscaiInputUl" attribute based on the latest received time offset measurement from the UPF and set the uplink TSCAI Burst Arrival Time as the sum of correct value and the UE-DS-TT Residence Time.

- correct the value of "periodicity" attribute of the "tscaiInputUl" and/or "tscaiInputDl" based on the latest received cumulative rateRatio measurement from the UPF and set the TSCAI Periodicity as the corrected value.

- If the "TimeSensitiveCommunication" feature is supported and the TSCAI Survival Time Information is received:

- when the "surTimeInNumMsg" attribute is received, convert the value of "surTimeInNumMsg" attribute of the "tscaiInputUl" and/or "tscaiInputDl" attributes into time units by multiplying its value by the corrected uplink TSCAI Periodicity and/or downlink TSCAI Periodicity respectively, and set the TSCAI Survival Time to the calculated value; or

- when the "surTimeInTime" is received, correct the value of "surTimeInTime" attribute of the "tscaiInputUl" and/or "tscaiInputDl" attributes based on the latest received cumulative rateRatio measurement from the UPF and set the TSCAI Survival Time to the corrected value.

If the "TimeSensitiveCommunication" feature is supported and if the Time Domain information is included in the "tscaiTimeDom" attribute of the PCC rule, then the SMF may determine the time offset and cumulative rateRatio based on received Time Domain and adjust the TSCAI information as described above. If Time Domain information is not provided or the SMF does not have synchronization information available, then the SMF will not adjust the TSCAI information.

The provisioning of TSCAI input information and TSC traffic QoS configuration per PCC Rule shall be performed using the PCC rule provisioning procedure as defined in subclause 4.2.6.2.1.

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