**3GPP TSG-CT3 Meeting #119bis-e *C3-220156***

**E-Meeting, 17th – 21st January 2022 (Revision of C3-22xxxx)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.514** | **CR** | 0378 | **rev** | **-** | **Current version:** | **17.3.0** |  |
|  |
| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  |  QoS determination for TSC |
|  |  |
| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | IIoT |  | ***Date:*** | 2022-01-21 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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:*** | As defined in clause 4.15.6.6 of TS 23.502, the AF may provide individual QoS parameters to the TSCTSF.As defined in clause 4.15.6.6a of TS 23.502, the PCF sets the GBR and MBR according to the requested individual QoS parameters provided by the TSCTSF |
|  |  |
| ***Summary of change:*** | Individual QoS parameters can be provided by the TSCTSF |
|  |  |
| ***Consequences if not approved:*** | Open issue is not resolved. |
|  |  |
| ***Clauses affected:*** | 4.2.2.24 |
|  |  |
|  | **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 does not impact the OpenAPI file |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.2.2.24 Provisioning of TSCAI input Information and QoS related data

If the "TimeSensitiveNetworking" or "TimeSensitiveCommunication" feature is supported the NF service consumer (i.e. TSN AF or TSCTSF) may provide TSCAI input information within the TSC assistance container and QoS related data to the PCF by the Npcf\_PolicyAuthorization\_Create service operation to describe the TSC traffic pattern and QoS characteristics for use in the 5G System.

The NF service consumer (i.e. TSN AF or TSCTSF) shall derive the TSCAI input information and the QoS related data for a given TSC stream or flow of aggregated TSC streams. The TSCTSF may determine the TSCAI input information and the related QoS data based on information provided by an AF/NEF, and may provide it for IP type and Ethernet type of PDU sessions as specified in subclauses 4.15.6.6 and 4.15.6.6a of TS 23.502 [3]. In case of integration with IEEE TSN network, the TSN AF determines the TSCAI input information as defined in subclause 5.27.2.2 of 3GPP TS 23.501 [2] and the QoS related data as defined in subclause 5.28.4 of 3GPP TS 23.501 [2].

To indicate the TSCAI input information of a TSC stream or aggregated set of TSC streams, the NF service consumer (i.e. TSN AF or TSCTSF) may include for the uplink flow direction (ingress interface of the DS-TT/UE) in the "tscaiInputUl" attribute and/or for the downlink flow direction (ingress interface of the NW-TT) the "tscaiInputDl" attribute included in a media component entry of the "medComponents" attribute:

- the time period between the start of two bursts of a TSC stream or aggregated TSC streams in reference to the external GM encoded in the "periodicity" attribute;

- the arrival time of the first data burst of a TSC stream or aggregated TSC streams in reference to the external GM encoded in the "burstArrivalTime" attribute; and

- if the "TimeSensitiveCommunication" feature is supported, the time period an application can survive without any burst, i.e., the survival time, in terms of maximum number of messages encoded in the "surTimeInNumMsg" attribute or in time units encoded in the "surTimeInTime" attribute.

NOTE: A single burst (message is equivalent to burst) is expected within a single periodicity. The survival time in terms of maximum number of messages represents the time period result of multiplying the periodicy by the indicated number of messages.

The uplink and/or downlink flow of the TSC stream or aggregated set of TSC streams shall be encoded within the corresponding "MediaSubComponent" entries of the "medSubComps" attribute, for PDU sessions of Ethernet type in the "ethfDescs" attribute and for PDU sessions of IP type in the "fDescs" attribute.

When the feature "TimeSensitiveCommunication" is supported, to indicate the time domain the NF service consumer is located in (i.e. the (g)PTP domain), the NF service consumer may include the "tscaiTimeDom" attribute in the corresponding media component entry of the "medComponents" attribute.

To indicate the TSC QoS related data of a TSC stream or aggregated set of TSC streams, the NF service consumer (i.e. TSN AF or TSCTSF) may include in the "tsnQos" attribute included in a media component entry of the "medComponents" attribute;

- the maximum burst size encoded in the "maxTscBurstSize" attribute;

- the maximum time a packet may be delayed encoded in the "tscPackDelay" attribute;

- the TSC traffic priority in scheduling resources among other TSC streams encoded in the "tscPrioLevel" attribute.

The NF service consumer (i.e. TSN AF or TSCTSF) may also include the max bitrates in uplink and downlink within the "marBwUl" attribute and the "marBwDl" attribute of the "medComponents" attribute respectively. In case of integration with IEEE TSN network, the TSN AF determines the maximum flow bit rate as defined in Annex I of 3GPP TS 23.501 [2]. In case of integration with a TSC network other than IEEE TSN network, the TSCTSF may additionally include the "mirBwUl" attribute and the "mirBwDl" attribute of the "medComponents" attribute to indicate the requested guaranteed bit rates in uplink and downlink respectively.

When the feature "TimeSensitiveCommunication" is supported, and the feature "AuthorizationWithRequiredQoS" is supported as specified in subclause 4.2.2.32, the NF service consumer (i.e. TSCTSF) may provide within an entry of the "medComponents" attribute a reference to pre-defined QoS information within the "qosReference" attribute. Additionally, if the NF service consumer supports adjustments to different QoS parameter combinations, the NF service consumer may provide a prioritized list of one or more QoS references within the “altSerReqs” attribute as specified in subclause 4.2.2.32.

Editor's Note: It is FFS to revise the above paragraph for the case when individual QoS parameters are provided in addition to the QoS reference. It is also FFS whether a QoS reference can also reference pre-defined TSCAI input information.

The PCF shall reply to the NF service consumer (i.e. TSN AF or TSCTSF) as described in subclause 4.2.2.2.

The PCF shall check whether the received TSCAI input container and TSC QoS related data require to create PCC rules to provide the SMF with derived QoS characteristics and the received TSCAI input container. Provisioning of PCC rule(s) to the SMF shall be carried out as specified in 3GPP TS 29.512 [8].

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