**3GPP TSG-CT3 Meeting #122e C3-223130**

**E-Meeting, 12th – 20th May 2022**

**Source: Huawei**

**Title: TSC Assistance Container construction**

**Spec: 29.565 1.3.0**

**Agenda item: 17.16**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

The TSCTSF constructs TSC Assistance Container (defined in Table 5.27.2-2) based on information provided (directly or via NEF) by the AF for IP or Ethernet type PDU Sessions.

The AF may provide Flow Direction, Burst Arrival Time (optional) at the UE/DS-TT (uplink) or UPF/NW-TT (downlink), Maximum Burst Size, Periodicity, Survival Time (optional), and a Time Domain (optional) to the TSCTSF. Based on these parameters, the TSCTSF constructs a TSC Assistance Container and provides it to PCF.

**3. Conclusions**

The TSCTSF constructs or update the TSC Assistance Container based on the information provided by the NF service consumer.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.565 1.3.0.

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

##### 5.3.2.2.2 Initial provisioning of TSC related service information

This procedure is used to set up a TSC AF application session context for the service as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.2.2-1 illustrates the initial provisioning of TSC related service information.



Figure 5.3.2.2.2-1: Initial provisioning of TSC related service information

When a new TSC AF application session context is being established and media information for this application session context is available at the NF service consumer and the related media requires PCC control, the NF service consumer shall invoke the Ntsctsf\_QoSandTSCAssistance\_Create service operation by sending the HTTP POST request to the resource URI representing the "TSC Application Sessions" collection resource of the TSCTSF, as shown in figure 5.3.2.2.2-1, step 1.

The NF service consumer shall include the "TscAppSessionContextData" data type in the payload body of the HTTP POST request in order to request the creation of the "Individual TSC Application Session Context" resource. The "Individual TSC Application Session Context" resource and the "Events Subscription" sub-resource are created as described below.

The NF service consumer shall include in the "TscAppSessionContextData" data structure:

- the AF identifier within the "afId" attribute;

- either the IP address (IPv4 or IPv6) of the PDU session within the "ueIpAddr" attribute for IP type PDU session or the MAC address of the DS-TT port within the "ueMac" attribute for Ethernet type PDU sessions.;

- either the flow information within the "flowInfo" or "ethFlowInfo" attribute or the Application Id within the "appId" attribute;

- the QoS reference within the "qosReference" attribute or the individual QoS parameter set within the "tscQosReq" attribute;

- the URI where the TSCTSF can request to the NF service consumer to delete the "Individual TSC Application Session Context" resource within the "notifUri" attribute;

and may include:

- the DNN within the "dnn" attribute;

- the S-NSSAI within the "snssai" attribute;

- the domain identity in the "ipDomain" attribute;

- an ordered list of alternative QoS references within the "altQosReferences" attribute if the QoS reference is provided or an ordered list of requested alternative QoS parameters set(s) within the "altQosReqs" attribute if the individual QoS parameter set is provided;

- the request of the notification of certain user plane events within the "evSubsc" attribute. Within the EventsSubscReqData data structure, the NF service consumer shall include:

- the URI where the TSCTSF sends the event notification to the NF service consumer within the "notifUri" attribute;

- a Notification Correlation Identifier for the requested notifications within the "notifCorreId" attribute;

- subscribed the events within the "events" attribute;

- the usage threshold within the "usgThres" attribute if the "USAGE\_REPORT" event is subscribed; and

- QoS monitoring information within the "qosMon" attribute if the "QOS\_MONITORING" event is subscribed.

Upon the reception of this HTTP POST request, the TSCTSF shall:

- interact with the PCF by triggering a Npcf\_PolicyAuthorization\_Create request to provision the related parameters to the PCF as defined in 3GPP TS 29.514 [20];

- construct the TSC Assistance Container based on information provided by the NF service consumer;

- if the Requested 5GS delay is received from NF service consumer, calculate a Requested PDB by subtracting the UE-DS-TT residence time either provided by the PCF or pre-configured at TSCTSF from the Requested 5GS delay;

- if the time domain information is not received with the Burst Arrival Time or Periodicity within the "tscQosReq" attribute from the NF service consumer, the TSCTSF may indicate Time Domain = "5GS" within the "tscaiTimeDom" attribute within the "tscQosReq" attribute to indicate that the NF service consumer does not provide the time domain information;

NOTE: The Time Domain value corresponding to "5GS" is locally configured in the SMF and in the TSCTSF, and indicates that the AF does not provide a Time Domain and the provided TSCAI input information will be used without adjustments.

- if receiving a successful response from the PCF, the TSCSTF shall create an "Individual TSC Application Session Context" resource and send to the NF service consumer a "201 Created" response to the HTTP POST request, as shown in figure 5.3.2.2.2-1, step 2. If the "evSubsc" attribute is received, the "Events Subscription" sub-resource shall be created within the "Individual TSC Application Session Context" resource. The TSCTSF shall include in the "201 Created" response:

- a Location header field; and

- a "TscAppSessionContextData" data type in the payload body.

The Location header field shall contain the URI of the created "Individual TSC Application Session Context" i.e. "{apiRoot}/ntsctsf-qos-tscai/v1/tsc-app-sessions/{appSessionId}".

When "Events Subscription" sub-resource is created in this procedure, the NF service consumer shall build the sub-resource URI by adding the path segment "/events-subscription" at the end of the URI path received in the Location header field.

If the TSCTSF cannot successfully fulfil the received HTTP POST request due to the internal TSCTSF error or due to the error in the HTTP POST request, the TSCTSF shall send the HTTP error response as specified in clause 6.2.7.

\* \* \* Next Change \* \* \* \*

##### 5.3.2.3.2 Modification of TSC related service information

This procedure is used to modify an existing TSC application session context as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.3.2-1 illustrates the modification of TSC related service information using HTTP PATCH method.



Figure 5.3.2.3.2-1: Modification of TSC related service information using HTTP PATCH

The NF service consumer may modify the TSC application session context information at any time and invoke the Ntsctsf\_QoSandTSCAssistance\_Update service operation by sending the HTTP PATCH request message to the resource URI representing the "Individual TSC Application Session Context" resource, as shown in figure 5.3.2.3.2-1, step 1, with the modifications to apply.

The JSON body within the PATCH request shall include the "TscAppSessionContextUpdateData" data type and shall be encoded according to "JSON Merge Patch", as defined in IETF RFC 7396 [22].

The NF service consumer may include in the "TscAppSessionContextUpdateData" data structure:

- the updated flow information within the "flowInfo" or "ethFlowInfo" attribute;

- the updated application Id within the "appId" attribute;

- the updated QoS reference within the "qosReference" attribute or the updated individual QoS parameter set within the "tscQosReq" attribute;

- the update URI where the TSCTSF can request to the NF service consumer to delete the "Individual TSC Application Session Context" resource within the "notifUri".

- the updated ordered list of alternative QoS references within the "altQosReferences" attribute or updated ordered list of requested alternative QoS parameters set(s) within the "altQosReqs" attribute; and

- the updated event subscription information within the "evSubsc" attribute. Within the EventsSubscReqDataRm data structure, the NF service consumer shall include:

- the new complete list of subscribed events within the "events" attribute;

- when the NF service consumer requests to update the additional information related to an event (e.g. the NF service consumer needs to provide new thresholds to the TSCTSF in the "usgThres" attribute related to the "USAGE\_REPORT" event), the additional information within the corresponding attribute(s).

NOTE 1: Note that when the NF service consumer requests to remove an event, this event is not included in the "events" attribute.

NOTE 2: When an event is included in the "events" attribute and its related additional information is set to null, the PCF considers the subscription to this event is active, but the related procedures stop applying.

NOTE 3: When an event is removed from the "events" attribute but its related information is not set to null, the PCF considers the subscription to this event is terminated, the related additional information is removed, and the related procedures stop applying.

The NF service consumer shall remove existing event subscription information by setting to null the "evSubsc" attribute included in "TscAppSessionContextUpdateData".

NOTE 4: The "notifUri" attribute within the EventsSubscReqData data structure can be modified to request that subsequent notifications are sent to a new NF service consumer.

Upon the reception of this HTTP PATCH request, the TSCTSF shall

- if the updated Requested 5GS delay is received from NF service consumer, re-calculate a Requested PDB by subtracting the UE-DS-TT residence time provided by the PCF from the Requested 5GS delay;

- update the TSC Assistance Container based on updated information provided by the NF service consumer;

- if the time domain information is not received with the Burst Arrival Time or Periodicity within the "tscQosReq" attribute from the NF service consumer, the TSCTSF may indicate Time Domain = "5GS" within the "tscaiTimeDom" attribute within the "tscQosReq" attribute to indicate that the NF service consumer does not provide the time domain information;

NOTE 5: The Time Domain value corresponding to "5GS" is locally configured in the SMF and in the TSCTSF, and indicates that the AF does not provide a Time Domain and the provided TSCAI input information will be used without adjustments.

- interact with the PCF by triggering a Npcf\_PolicyAuthorization\_Update request to provision the related parameters to the PCF as defined in 3GPP TS 29.514 [20];

- if receiving a successful response from the PCF, the TSCSTF shall update the "Individual TSC Application Session Context" resource and send a "200 OK" or "204 No Content" response to the HTTP POST request to the NF service consumer, as shown in figure 5.3.2.3.2-1, step 2.

If the TSCTSF cannot successfully fulfil the received HTTP PATCH request due to the internal TSCTSF error or due to the error in the HTTP PATCH request, the TSCTSF shall send the HTTP error response as specified in clause 6.2.7.

If the TSCTSF determines the received HTTP PATCH request needs to be redirected, the TSCTSF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

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