**3GPP TSG-CT WG3 Meeting #118eC3-215082**

**E-Meeting, 11th – 15th October 2021**

**Source: Huawei**

**Title: Ntsctsf\_QoSandTSCAssistance\_Create service operation**

**Spec: 3GPP TS 29.565**

**Agenda item: 17.16**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

Ntsctsf\_QoSandTSCAssistance\_Create service operation needs to be specified.

**3. Conclusions**

**4. Proposal**

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

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

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[6] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[11] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[13] IETF RFC 7807: "Problem Details for HTTP APIs".

[14] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Control Data, Application Data and Structured Data for Exposure; Stage 3".

[15] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3".

[16] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[17] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[18] IEEE 802.1Q: "Virtual Bridged Local Area Networks".

[x] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[y] 3GPP TS 29.122: "T8 reference point for northbound Application Programming Interfaces (APIs)".

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

#### 5.3.2.2 Ntsctsf\_QoSandTSCAssistance\_Create

##### 5.3.2.2.1 General

This service operation is used by an NF service consumer to request the network to provide a specific QoS for an AF session.

The following procedures using the Ntsctsf\_QoSandTSCAssistance\_Create service operation are supported:

- Initial provisioning of TSC related service information.

Editor's Note: The detail procedures, e.g. provisioning of QoS monitoring information, are FFS.

##### 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 [4].

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 "ueIpv4" or "ueIpv6" attribute for IP type PDU session or the MAC address of the DS-TT port within the "ueMac" attribute for Ethernet type PDU sessions.;

Editor's Note: How to get the address of DS-TT by the NF service consumer is FFS.

- 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;

- 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 QoS references within the "altQosReferences" attribute;

- TSC QoS requirement within the "tscQosReq" attribute; and

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

- 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.

Editor's Note: Error and redirection responses are FFS.

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

### 6.2.6 Data Model

#### 6.2.6.1 General

This clause specifies the application data model supported by the API.

Table 6.2.6.1-1 specifies the data types defined for the Ntsctsf\_QoSandTSCAssistance service based interface protocol.

Table 6.2.6.1-1: Ntsctsf\_QoSandTSCAssistance specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| EventsSubscReqData | 6.2.6.2.3 | Identifies the events the application subscribes to within an Individual TSC Application Session Context resource |  |
| TscAppSessionContextData | 6.2.6.2.2 | Represents the Individual TSC Application Session Context resource data. |  |
| TscEvent | 6.2.6.3.3 | Indicates the subscribed event(s). |  |
|  |  |  |  |
|  |  |  |  |

Table 6.2.6.1-2 specifies data types re-used by the Ntsctsf\_QoSandTSCAssistance service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Ntsctsf\_QoSandTSCAssistance service based interface.

Table 6.2.6.1-2: Ntsctsf\_QoSandTSCAssistance re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Dnn | 3GPP TS 29.571 [15] | The DNN the user is connected to. |  |
| EthFlowDescription | 3GPP TS 29.514 [x] | Defines a packet filter for an Ethernet flow. |  |
| FlowInfo | 3GPP TS 29.122 [y] | Contains the IP data flow information. |  |
| Ipv4Addr | 3GPP TS 29.571 [15] | Identifies a period of time in units of seconds. |  |
| Ipv6Addr | 3GPP TS 29.571 [15] | Identifies an IPv6 address. |  |
| MacAddr48 | 3GPP TS 29.571 [15] | MAC Address. |  |
| QosMonitoringInformation | 3GPP TS 29.122 [y] | Contains Qos Monitoring information. |  |
| Snssai | 3GPP TS 29.571 [15] | Identifies the S-NSSAI. |  |
| SubscribedEvent | 3GPP TS 29.522 [17] | Indicates the subscribed event. |  |
| SupportedFeatures | 3GPP TS 29.571 [15] | Used to negotiate the applicability of the optional features defined in table 5.8-1. |  |
| TscQosRequirement | 3GPP TS 29.122 [y] | Contains the QoS requirements for time sensitive communication. |  |
| UsageThreshold | 3GPP TS 29.122 [y] | Time period and/or traffic volume in which the QoS is to be applied. |  |
| Uri | 3GPP TS 29.571 [15] | Identifies a referenced resource. |  |

#### 6.2.6.2 Structured data types

##### 6.2.6.2.1 Introduction

This clause defines the structures to be used in resource representations.

##### 6.2.6.2.2 Type TscAppSessionContextData

Table 6.2.6.2.2-1: Definition of type TscAppSessionContextData

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| ueIpv4 | Ipv4Addr | C | 0..1 | The Ipv4 address of the UE.(NOTE) |  |
| ipDomain | string | C | 0..1 | The IPv4 address domain identifier.The attribute may only be provided if the ueIpv4 attribute is present. |  |
| ueIpv6 | Ipv6Addr | C | 0..1 | The Ipv6 address of the UE. (NOTE) |  |
| ueMac | MacAddr48 | C | 0..1 | Identifies the MAC address.(NOTE) |  |
| dnn | Dnn | O | 0..1 | Data Network Name, a full DNN with both the Network Identifier and Operator Identifier, or a DNN with the Network Identifier only. |  |
| snssai | Snssai | O | 0..1 | Identifies the S-NSSAI. |  |
| notifUri | Uri | M | 1 | Notification URI for Individual TSC Application Session Context termination requests. |  |
| appId | string | C | 0..1 | Identifies the Application Identifier. (NOTE) |  |
| flowInfo | array(FlowInfo) | C | 0..1 | Describe the IP data flow which requires QoS.(NOTE) |  |
| ethFlowInfo | array(EthFlowDescription) | C | 0..1 | Identifies Ethernet packet flows.(NOTE) |  |
| afId | string | M | 1 | Identifies the AF identifier. |  |
| tscQosReq | TscQosRequirement | O | 0..1 | Contains the QoS requirements for time sensitive communication. |  |
| qosReference | string | M | 1 | Identifies a pre-defined QoS information |  |
| altQosReferences | array(string) | O | 0..1 | Identifies an ordered list of pre-defined QoS information. The lower the index of the array for a given entry, the higher the priority. |  |
| evSubsc | EventsSubscReqData | O | 0..1 | Identifies the events the application subscribes to at creation of an Individual TSC Application Session Context resource. |  |
| suppFeat | SupportedFeatures | C | 1 | This IE represents a list of Supported features used as described in clause 6.2.8.It shall be supplied by the NF service consumer in the POST request and response of requests a creation of an Individual TSC Application Session Context resource. |  |
| NOTE: One of "ueIpv4", "ueIpv6" or "ueMac" shall be included. If ipv4 or ipv6 address is provided, IP flow information shall be provided. If ipv4, the domain identifier may be provided. If mac address is provided, Ethernet flow information shall be provided. One of IP flow information, Ethernet flow information or Application Identifier shall be provided. |

##### 6.2.6.2.3 Type EventsSubscReqData

Table 6.2.6.2.3-1: Definition of type EventsSubscReqData

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| events | array(TscEvent) | M | 1..N | Subscribed Events. |  |
| notifUri | Uri | M | 1 | Notification URI for event notification. |  |
| qosMon | QosMonitoringInformation | C | 0..1 | Qos Monitoring information. It can be present when the event "QOS\_MONITORING" is subscribed. |  |
| usgThres | UsageThreshold | C | 0..1 | Includes the volume and/or time thresholds for sponsored data connectivity. It can be present when the event "USAGE\_REPORT" is subscribed. |  |
| notifCorreId | string | M | 0..1 | It is used to set the value of Notification Correlation ID in the corresponding notification. |  |

#### 6.2.6.3 Simple data types and enumerations

##### 6.2.6.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

##### 6.2.6.3.2 Simple data types

The simple data types defined in table 6.2.6.3.2-1 shall be supported.

Table 6.2.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  | <one simple data type, i.e. boolean, integer, number, or string> |  |  |

##### 6.2.6.3.3 Enumeration: TscEvent

The enumeration TscEvent represents event for TSC. It shall comply with the provisions defined in table 6.2.6.3.3-1.

Table 6.2.6.3.3-1: Enumeration TscEvent

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| FAILED\_RESOURCES\_ALLOCATION | Indicates that one or more of the SDFs of an Individual TSC Application Session Context are deactivated. It also indicates that the resources requested for a particular service information cannot be successfully allocated. |  |
| SUCCESSFUL\_RESOURCES\_ALLOCATION | Indicates that the resources requested for particular service information have been successfully allocated. |  |
| USAGE\_REPORT | Indicates the usage report event. |  |
| QOS\_GUARANTEED | The QoS targets of one or more SDFs are guaranteed again. |  |
| QOS\_NOT\_GUARANTEED | The QoS targets of one or more SDFs are not being guaranteed. |  |
| QOS\_MONITORING | Indicates a QoS monitoring event. |  |

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