**3GPP TSG-CT3 Meeting #121e C3-222152**

**E-Meeting, 6th – 12th April 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.514** | **CR** | **0404** | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *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:*** | Resolve the issue related to individual QoS parameters | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IIoT | | | | |  | ***Date:*** | | | 2022-04-12 |
|  |  | | | |  | |  | | |  |
| ***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 can be 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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As defined 6.1.3.22 of TS 23.503, the AF may provide either QoS reference and alternative QoS reference additionally or the individual QoS parameters and Alternative QoS Parameter Set additionally. The QoS notification control is also applied to the Alternative QoS Parameter Set(s). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Support the QoS notification control for the case of Alternative QoS Parameter Set(s). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not aligned with stage 2. AF can’t be aware of the QoS enforced at the access network. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.2.24, 4.2.2.32, 4.2.3.24, 4.2.3.30, 4.2.5.4, 4.2.5.8, 5.6.2.15, 5.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 doesn’t impact any OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* Start of Changes \* \* \* \*

#### 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 or TSN AF)) may provide within an entry of the "medComponents" attribute a reference to pre-defined QoS information within the "qosReference" attribute instead of providing the attributes "tsnQos", "marBwUl", "marBwDl", "mirBwUl", and/or "mirBwDl". 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.

When the feature "TimeSensitiveCommunication" is supported, and the feature "AltSerReqsWithIndQoS" is supported as specified in subclause 4.2.2.32, the NF service consumer (i.e. TSCTSF or TSN AF) may provide within an entry of the "medComponents" attribute individual QoS information within the e.g. "tsnQos", "marBwUl" and/or "marBwDl", attributes (instead of providing a QoS reference within the "qosReference" attribute) and adjustments to different QoS parameter combinations within a prioritized list of one or more individual QoS parameters sets within the "altSerReqsData"attribute as specified in subclause 4.2.2.32.

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].

\* \* \* \* Next change \* \* \* \*

#### 4.2.2.32 Initial provisioning of required QoS information

This procedure is used by a NF service consumer to request that a data session to a UE is set up with a specific QoS (e.g. low latency or jitter) and priority handling when the "AuthorizationWithRequiredQoS" feature is supported.

The NF service consumer may provide within one or more entries of the "medComponents" attribute included in the "ascReqData" attribute of the HTTP POST request message described in subclause 4.2.2.2 a reference to pre-defined QoS information within the "qosReference" attribute.

Additionally, if the NF service consumer supports adjustment to different QoS parameter combinations, the NF service consumer may provide a prioritized list of one or more QoS references within the "altSerReqs" attribute, where the lower the index of the array for a given entry, the higher the priority.

If the "AltSerReqsWithIndQoS" feature is supported, and the NF service consumer requests that the data session to a UE is set up with individual QoS parameters (i.e., with QoS information within "medComponents" attribute, e.g. the "tsnQos", "marBwUl" and/or "marBwDl" attributes, instead of a QoS reference within the "qosReference" attribute), the NF service consumer may instead of the "altSerReqs" attribute provide a prioritized list of alternative service requirements that include individual QoS parameter sets within the "altSerReqsData" attribute, where the lower the index of the array for a given entry, the higher the priority.

If the "DisableUENotification" feature is supported, the AF may also indicate to the PCF that the UE does not need to be informed about changes related to Alternative QoS Profiles by including the "disUeNotif" attribute set to true.

When the NF service consumer provides the "altSerReqs" attribute or "altSerReqsData" attribute, the NF service consumer shall also subscribe to receive notifications from the PCF when the resources associated to the corresponding service information have been allocated as described in subclause 4.2.2.10 and when the GBR QoS targets for one or more service data flows can no longer (or can again) be guaranteed, as described in subclause 4.2.2.6.

Due to the received QoS information, the PCF may need to provision or modify the related PCC rules as specified in 3GPP TS 29.513 [7] and provide the related information towards the SMF following the corresponding procedures specified in 3GPP TS 29.512 [8].

The PCF shall reply to the NF service consumer as described in subclause 4.2.2.2.

\* \* \* \* Next change \* \* \* \*

#### 4.2.3.24 Update of TSCAI Input Information and TSC QoS related data

If the "TimeSensitiveNetworking" or "TimeSensitiveCommunication" feature is supported, the NF service consumer may update the TSCAI Input container and the TSC QoS related data held in an "Individual Application Session Context" resource using the Npcf\_PolicyAuthorization\_Update service operation to modify the TSCAI input information and QoS characteristics delivered to the SMF for use in the 5G System.

The NF service consumer shall use the HTTP PATCH method as described in subclause 4.2.3.2 to modify TSCAI input container and the TSC QoS related information.

The NF service consumer may indicate TSCAI input information and/or TSC QoS related information for new TSC streams by adding, in the "ascReqData" attribute, one or more media component entries within the "medComponents" attribute including the "tsnQos" attribute and including the "tscaiInputUl" attribute and/or the "tscaiInputDl" attribute and, when the feature "TimeSensitiveCommunication" is supported, the "tscaiTimeDom" attribute, if available as described in subclause 4.2.2.24.

The NF service consumer may update the TSCAI input information and/or the TSC QoS related information for existing TSC traffic by including the updated values in the "tscaiInputUl" attribute and/or "tscaiInputDl"attribute and/orupdated values in the "tsnQos" attribute included in a media component entry of the "medComponents" attribute included in the "ascReqData" attribute.

The NF service consumer may delete the TSCAI input information and TSC QoS related information of removed TSC traffic by removing the corresponding media component entries within the "medComponents" attribute included in the "ascReqData" attribute.

Alternatively, when the "TimeSensitiveCommunication" and "AuthorizationWithRequiredQoS" features are supported, the NF service consumer (i.e., the TSCTSF or TSN AF) may update TSC QoS related information updating the "qosReference" attribute, and/or may indicate the update of the alternative service requirements updating the "altSerReqs" attribute or the "altSerReqsData" attribute as specified in subclause 4.2.3.30.

When the "TimeSensitiveCommunication" and "AltSerReqsWithIndQoS" features are supported, the NF service consumer (i.e., the TSCTSF or TSN AF) may update TSC QoS related information updating the individual QoS requirement within the "tsnQos" attribute, and/or may indicate the update of the alternative service requirements updating the "altSerReqsData" attribute as specified in subclause 4.2.3.30.

The PCF shall reply to the NF service consumer as described in subclause 4.2.3.2.

The PCF shall check whether the received TSCAI input information and TSC QoS related information require to modify or to remove PCC rules in the SMF. Provisioning of PCC rule(s) to the SMF shall be carried out as specified in 3GPP TS 29.512 [8].

\* \* \* \* Next change \* \* \* \*

#### 4.2.3.30 Modification of required QoS information

When the "AuthorizationWithRequiredQoS" feature is supported, this procedure is used by a NF service consumer to modify the required QoS by providing a different QoS reference(s) parameter while the AF session is ongoing. When the "AltSerReqsWithIndQoS" feature si supported, this procedure is used by a NF service consumer to modify the alternative set of individual QoS paremeters.

The NF service consumer shall use the HTTP PATCH method to modify the required QoS information.

When the "AuthorizationWithRequiredQoS" feature is supported, the NF service consumer may include in the HTTP PATCH request message described in subclause 4.2.3.2, in the "ascReqData" attribute, within one or more entries of the "medComponents" attribute included in the AppSessionContextUpdateData data type:

- a "qosReference" attribute, which may contain:

i. a QoS reference, that replaces an existing QoS reference value if the "qosReference" attribute was previously provisioned, or creates a new one if no "qosReference" attribute was previously provisioned;

ii. a "null" value, which removes a previously provisioned "qosReference" attribute value.

- an "altSerReqs" attribute, which may contain:

i. a prioritized list of alternative QoS references, which replaces an existing alternative QoS references list if the "altSerReqs" attribute was previously provisioned, or creates a new one if no "altSerReqs" attribute was previously provisioned;

ii. a "null" value, which removes a previously provisioned alternative QoS references list.

When the "AltSerReqsWithIndQoS" feature is supported, and the service QoS is provided, or was previously provided using individual QoS parameters (e.g. "marBwUl" and/or "marBwDl", attributes) instead of a QoS reference, the NF service consumer may include within one or more entries of the "medComponents" attribute:

- an "altSerReqsData" attribute, which may contain:

i. a prioritized list of alternative service requirements that include individual QoS parameter sets, which replaces an existing list of alternative service requirements that include individual QoS parameter sets if the "altSerReqsData" attribute was previously provisioned, or creates a new one if no "altSerReqsData" attribute was previously provisioned;

ii. a "null" value, which removes a previously provisioned list of alternative service requirements that include individual QoS parameter sets.

NOTE: The modification of the individual QoS parameters is performed by provisioning within the "medComponents" attribute an update of the existing values or deleting the previously provided values, as described in subclause 4.2.3.2.

When the "DisableUENotification" feature is supported, the NF service consumer may include a "disUeNotif" attribute, which may contain:

i. a "true" value if it was not provided or it was provided and set to "false";

ii. a "false" value if it was provided and set to "true".

When the NF service consumer provides the "altSerReqs" attribute containing a prioritized list of alternative QoS references or "altSerReqsData" attribute containing a prioritized list of alternative service requirements that include individual QoS parameter sets, the NF service consumer shall subscribe to receive notifications from the PCF when the resources associated to the corresponding service information have been allocated as described in subclause 4.2.3.10 and when the GBR QoS targets for one or more service data flows can no longer (or can again) be guaranteed, as described in subclause 4.2.3.6, if not previously subscribed.

Due to the updated required QoS information, the PCF may need to modify the related PCC rules as specified in 3GPP TS 29.513 [7] and provide the updated information towards the SMF following the corresponding procedures specified in 3GPP TS 29.512 [8].

The PCF shall reply to the NF service consumer as described in subclause 4.2.3.2.

\* \* \* \* Next change \* \* \* \*

#### 4.2.5.4 Notification about Service Data Flow QoS notification control

When the PCF gets the knowledge that one or more SDFs:

- cannot guarantee the GBR QoS targets; or

- can guarantee again the GBR QoS targets;

the PCF shall inform the NF service consumer accordingly if the AF has previously subscribed as described in subclauses 4.2.2.6 and 4.2.3.6.

The PCF shall notify the NF service consumer by including the "EventsNotification" data type in the body of the HTTP POST request as described in subclause 4.2.5.2.

The PCF shall include:

- within the "evNotifs" attribute an event entry of the "AfEventNotification" data type with the matched event "QOS\_NOTIF" in the "event" attribute; and

- the "qncReports" array with:

a) the "notifType" attribute to indicate whether the GBR targets for the indicated SDFs are "NOT\_GUARANTEED" or "GUARANTEED" again;

b) the identification of the affected service flows (if not all the flows are affected) encoded in the "flows" attribute if applicable; and

c) if the "AuthorizationWithRequiredQoS" feature or "AltSerReqsWithIndQoS" feature as defined in subclause 5.8 is supported, the reference to the Alternative Service Requirement corresponding alternative QoS parameter set if received from the SMF within the "altSerReq" attribute. When the "altSerReq" attribute is omitted and the "notifType" attribute is NOT\_GUARANTEED, it indicates that the lowest priority alternative QoS profile could not be fulfilled.

If "MediaComponentVersioning" feature is supported, and if the content version was included when the corresponding media component was provisioned, the "flows" attribute shall also contain the "contVers" attribute including the content version(s) of the media components. The PCF shall include more than one entry in the "contVers" attribute for the same media component if the PCF has received multiple content versions as described in subclause 4.2.6.2.14 in 3GPP TS 29.512 [8].

When the NF service consumer receives the HTTP POST request, it shall acknowledge the request by sending a "204 No Content" response to the PCF. The NF service consumer may also update the AF application session context information by sending an HTTP PATCH request to the PCF.

Signalling flows for Service Data Flow QoS notification control are presented in 3GPP TS 29.513 [7].

\* \* \* \* Next change \* \* \* \*

#### 4.2.5.8 Notification about resources allocation outcome

When the PCF becomes aware that the resources associated to service information for one or more SDFs have been allocated, the PCF shall inform the NF service consumer accordingly if the NF service consumer has previously subscribed to the "SUCCESSFUL\_RESOURCES\_ALLOCATION" event as described in subclauses 4.2.2.10 and 4.2.3.10. The PCF shall notify the NF service consumer by including the "EventsNotification" data type in the body of the HTTP POST request as described in subclause 4.2.5.2. The PCF shall include in the "evNotifs" attribute an entry with the "event" attribute set to "SUCCESSFUL\_RESOURCES\_ALLOCATION" and (if not all the flows are affected) the identification of the related media components in the "flows" attribute. If the "MediaComponentVersioning" feature is supported, the PCF shall also include in the "flows" attribute the "contVers" attribute with the content version(s) of the media components if the content version was included when the corresponding media component was provisioned.

If the "AuthorizationWithRequiredQoS" feature or "AltSerReqsWithIndQoS" feature as defined in subclause 5.8 is supported, when the PCF becomes aware that the resources associated to service information for one or more SDFs have been allocated and additionally receives the alternative QoS parameter set(s), the PCF shall notify the NF service consumer by including the "EventsNotification" data type in the body of the HTTP POST request as described in subclause 4.2.5.2. The PCF shall include:

- an entry in the "evNotifs" attribute with the "event" attribute set to "SUCCESSFUL\_RESOURCES\_ALLOCATION"; and

- the "succResourcAllocReports" attribute with the reference to the Alternative Service Requirement corresponding alternative QoS parameter set within the "altSerReq" attribute and the identification of the related media components in the "flows" attribute. If the "MediaComponentVersioning" feature is supported, the PCF shall also include in the "flows" attribute the "contVers" attribute with the content version(s) of the media components if the content version was included when the corresponding media component was provisioned.

When the PCF becomes aware that the resources associated to service information for one or more SDFs cannot be allocated, the PCF shall inform the NF service consumer accordingly if the NF service consumer has previously subscribed to the "FAILED\_RESOURCES\_ALLOCATION" event as described in subclauses 4.2.2.10 and 4.2.3.10. The PCF shall notify the NF service consumer by including the "EventsNotification" data type in the body of the HTTP POST request as described in subclause 4.2.5.2. The PCF shall include:

- an entry in the "evNotifs" attribute with the "event" attribute set to "FAILED\_RESOURCES\_ALLOCATION"; and

- the "failedResourcAllocReports" attribute with the active/inactive status of the PCC rules related to certain media components encoded in the "mcResourcStatus" attribute, and (if not all the flows are affected) the identification of the related media components in the "flows" attribute. If the "MediaComponentVersioning" feature is supported, the PCF shall also include in the "flows" attribute the "contVers" attribute with the content version(s) of the media components if the content version was included when the corresponding media component was provisioned.

The PCF shall include more than one entry in the "contVers" attribute for the same media component if the PCF has received multiple content versions as described in subclause 4.2.6.2.14 in 3GPP TS 29.512 [8].

NOTE: The NF service consumer will use the content version to identify the media component version that failed or succeeded when multiple provisions of the same media component occur in a short period of time. How the NF service consumer handles such situations is out of scope of this specification.

When the NF service consumer receives the HTTP POST request, it shall acknowledge the request by sending a "204 No Content" response to the PCF.

Signalling flows for resource allocation outcome are presented in 3GPP TS 29.513 [7].

\* \* \* \* Next change \* \* \* \*

#### 5.6.2.15 Type QosNotificationControlInfo

Table 5.6.2.15-1: Definition of type QosNotificationControlInfo

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| notifType | QosNotifType | M | 1 | Indicates whether the GBR targets for the indicated SDFs are "NOT\_GUARANTEED" or "GUARANTEED" again. |  |
| flows | array(Flows) | C | 1..N | Identification of the flows. It shall be included if "MediaComponentVersioning" feature is supported. When "MediaComponentVersioning" feature is not supported, if no flows are provided, the notification in the "notifType" applies for all flows within the AF session. |  |
| altSerReq | string | O | 0..1 | Indicates the alternative service requirement the NG-RAN can guarantee. It may correspond to an alternative QoS reference or a reference to the requested alternative QoS parameter set. | AuthorizationWithRequiredQoS, AltSerReqsWithIndQoS |

\* \* \* \* Next change \* \* \* \*

## 5.8 Feature negotiation

The optional features in table 5.8-1 are defined for the Npcf\_PolicyAuthorization API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6.2 of 3GPP TS 29.500 [5].

When requesting the PCF to create an Individual Application Session Context resource the NF service consumer shall indicate the optional features the NF service consumer supports for the Npcf\_PolicyAuthorization service by including the "suppFeat" attribute in the "AppSessionContextReqData" data type of the HTTP POST request.

The PCF shall determine the supported features for the created Individual Application Session Context resource as specified in subclause 6.6.2 of 3GPP TS 29.500 [5]. The PCF shall indicate the supported features in the HTTP response confirming the creation of the Individual Application Session Context resource by including the "suppFeat" attribute in the "AppSessionContextRespData" data type.

Table 5.8-1: Supported Features

| Feature number | Feature Name | Description |
| --- | --- | --- |
| 1 | InfluenceOnTrafficRouting | Indicates support of Application Function influence on traffic routing. If the PCF supports this feature, the NF service consumer may influence SMF routing to applications or subscribe to notifications of UP path management for the traffic flows of an active PDU session. |
| 2 | SponsoredConnectivity | Indicates support of sponsored data connectivity. If the PCF supports this feature, the NF service consumer may provide sponsored data connectivity to the SUPI. |
| 3 | MediaComponentVersioning | Indicates the support of the media component versioning. |
| 4 | URLLC | Indicates support of Ultra-Reliable Low-Latency Communication (URLLC) requirements, i.e. AF application relocation acknowledgement and UE address(es) preservation. The InfluenceOnTrafficRouting feature shall be supported in order to support this feature. |
| 5 | IMS\_SBI | Indicates support of the communication with the 5GC IMS NF service consumer via Service Based Interfaces. |
| 6 | NetLoc | Indicates the support of access network information reporting. |
| 7 | ProvAFsignalFlow | This indicates support for the feature of provisioning of AF signalling flow information as described in subclauses 4.2.2.16 and 4.2.3.17. If the PCF supports this feature the NF service consumer may provision AF signalling flow information.  NOTE: This feature is used by the IMS Restoration Procedures to provide to the SMF the address of the P-CSCF selected by the UE, refer to 3GPP TS 23.380 [39].  The IMS\_SBI feature shall be supported in order to support this feature. |
| 8 | ResourceSharing | This feature indicates the support of resource sharing across several "Individual Application Session Context" resources. The IMS\_SBI feature shall be supported in order to support this feature. |
| 9 | MCPTT | This feature indicates the support of Mission Critical Push To Talk services as described in 3GPP TS 24.379 [41]. |
| 10 | MCVideo | This feature indicates the support of Mission Critical Video services as described in 3GPP TS 24.281 [43]. |
| 11 | PrioritySharing | This feature indicates that Priority Sharing is supported as described in 3GPP TS 23.503 [4], subclause 6.1.3.15. |
| 12 | MCPTT-Preemption | This feature indicates the support of service pre-emption based on the information provided by the NF service consumer. It requires that both PrioritySharing and MCPTT features are also supported. |
| 13 | MacAddressRange | Indicates the support of a set of MAC addresses with a specific range in the traffic filter. |
| 14 | RAN-NAS-Cause | This feature indicates the support for the release cause code information from the access network. |
| 15 | EnhancedSubscriptionToNotification | Indicates the support of:  - Subscription to periodic notifications.  - Definition of a waiting time between the reporting of two event triggered events.  - Indication of whether the event has to be reported at PDU Session termination.  - Notification Correlation Id for a subscription to an event. |
| 16 | QoSMonitoring | Indicates the support of QoS monitoring information. This feature requires the support of the EnhancedSubscriptionToNotification feature. |
| 17 | AuthorizationWithRequiredQoS | Indicates support of policy authorization for the AF session with required QoS. |
| 18 | TimeSensitiveNetworking | Indicates that the 5G System is integrated within the external network as a TSN bridge. |
| 19 | PCSCF-Restoration-Enhancement | This feature indicates support of P-CSCF Restoration Enhancement. It is used for the PCF and the P-CSCF to indicate if they support P-CSCF Restoration Enhancement. |
| 20 | CHEM | This feature indicates the support of Coverage and Handover Enhancements for Media (CHEM). |
| 21 | FLUS | This feature indicates the support of FLUS functionality as described in 3GPP TS 26.238 [51]. |
| 22 | EPSFallbackReport | This feature indicates the support of the report of EPS Fallback as defined in subclauses 4.2.2.30, 4.2.3.29 and 4.2.5.15. |
| 23 | ATSSS | Indicates the support of the report of the multiple access types of a MA PDU session. |
| 24 | QoSHint | This feature indicates the support of specific QoS hint parameters as described in 3GPP TS 26.114 [30], subclause 6.2.10. |
| 25 | ReallocationOfCredit | This feature indicates the support of notifications of reallocation of credits events. It requires the support of IMS\_SBI feature. |
| 26 | ES3XX | Extended Support for 3xx redirections. This feature indicates the support of redirection for any service operation, according to Stateless NF procedures as specified in subclauses 6.5.3.2 and 6.5.3.3 of 3GPP TS 29.500 [5] and according to HTTP redirection principles for indirect communication, as specified in subclause 6.10.9 of 3GPP TS 29.500 [5]. |
| 27 | DisableUENotification | Indicates the support of disabling QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation. This feature requires that the AuthorizationWithRequiredQoS or AltSerReqsWithIndQoS featute is also supported. |
| 28 | PatchCorrection | Indicates support of the correction to the PATCH method:  When this feature is not supported, the interoperability between a NF service consumer and the PCF can only be ensured when it is not required the update of the Individual Application Session Context resource. |
| 29 | MPSforDTS | Indicates support for MPS for DTS as described in subclauses 4.2.2.12.2 and 4.2.3.12. |
| 30 | ApplicationDetectionEvents | This feature indicates the support of the subscription to notifications of the detection of the start and stop of an application's traffic. |
| 31 | TimeSensitiveCommunication | Indicates that the 5G System is integrated within the external network as a TSC user plane node to enable the Time Sensitive Communications and Time Synchronization. This feature requires that the TimeSensitiveNetworking feature is also supported. |
| 32 | ExposureToEAS | This feature indicates the support of the indication of direct event notification of QoS monitoring events from the UPF to the Local NEF or AF in 5GC. This indication requires that the QoSMonitoring feature is supported. |
| 33 | SatelliteBackhaul | Indicates the support of the report of the satellite or non-satellite backhaul category of the PDU session. |
| 34 | RoutingReqOutcome | Indicates the support of:  - the report of UP path change failures; and  - the indication of whether AF routing requirements are applied.  It requires the support of InfluenceOnTrafficRouting feature. |
| 35 | EASDiscovery | This feature indicates the support of EAS (re)discovery. |
| 36 | AltSerReqsWithIndQoS | Indicates the support of provisioning Alternative Service Requirements with individual QoS parameters. |
| 37 | SimultConnectivity | This feature indicates the support of the indication of temporary simultaneous connectivity over source and target PSA at edge relocation. This indication requires that the InfluenceOnTrafficRouting feature is supported. |
| 38 | EASIPreplacement | This feature indicates the support of provisioning of EAS IP replacement info. This support requires that InfluenceOnTrafficRouting feature is also supported |

\* \* \* \* End of change \* \* \* \*