**3GPP TSG-SA WG4 Meeting #132 *S4-250886r01***

**Japan, Fukuoka, 19 – 23 May 2025**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.510** | **CR** | **0026** | **rev** |  | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | [iRTCW, 5GMS\_Pro\_Ph2] Correction of Media AF Handling of PDU Set QoS and Media Transport Parameters | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Lenovo | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | iRTCW, 5GMS\_Pro\_Ph2 | | | | |  | ***Date:*** | | | 2025-05-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to clause 5.2.7, a Media Application Provider shall provide a QoS specification in downlink/uplink direction indicating the PDU Set QoS limits, i.e. the minimal delay budget and minimal error rates which are permitted to be requested by a Dynamic Policy invoker on (respectively) downlink and uplink Service Data Flows.  In addition, according to clause 5.3.3.2, a Dynamic Policy invoker may indicate the desired downlink/uplink PDU Set QoS parameters in the QoS specification to indicate the desired delay budget and error rate for PDU Sets in the downlink/uplink direction when it attempts to activate a QoS-related Policy Template.  However, the usage of PDU Set QoS limits and desired PDU Set QoS parameters is currently unspecified since in the case of the Dynamic Policies feature (clause 5.5.3), the text describing their usage is left in square brackets.  Further, it is currently unspecified how the media transport parameters associated to an Application Flow Description is indicated by the Media AF to the 5GC. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Remove the brackets around the text defining the usage of PDU Set QoS limits and desired PDU Set QoS parameters in clause 5.5.3, and rearrange existing paragraphs into a subclause structure in preparation for Rel-19 additions. 2. Add a new clause 5.5.3.3 on the mapping of media transport parameters associated to an Application Flow Description into the PCF. 3. Correct a typo in Annex D.1.3. *pduSe****r****QosDl* needs to be changed to *pduSe****t****QosDl*. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | * PDU Set QoS limits provided by the Media Application Provider and desired PDU Set QoS parameters that may be provided by the Dynamic Policy invoker are not used by the Media AF. The Media AF cannot indicate the PDU Set QoS parameters to the 5GC. * The Media AF cannot indicate the media transport parameters to the 5GC. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.5.3, 5.5.3.1 (new clause), 5.5.3.2 (new clause), 5.5.3.3 (new clause), 5.5.3.4 (new clause), 5.5.3.5 (new clause), D.1.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

### 5.5.3 Policy control interactions for Dynamic Policies

#### 5.5.3.1 General

The Dynamic Policies feature operates at reference point M5 between the Media Session Handler in the Media Client and a Media AF that has been appropriately provisioned with Policy Templates (see clause 5.2.7). The Dynamic Policy API at reference point M5 (see clauses 5.3.3 and 9.3) is specified in a generic way such that the associated functionality in the 5GC may be realised by various means.

NOTE 1: This clause does not limit the possible set of 5G System exposure functionalities for realising dynamic policies.

In this release, the Media AF converts Dynamic Policies API invocations received at reference point M5 into direct or indirect invocations of the Policy Authorization Service exposed by the PCF, and converts responses from the PCF into their equivalents at reference point M5 for return to the Media Session Handler.

To realise dynamic policies, the Media AF shall interact with the PCF using one of the following methods:

A. If the Media AF is deployed in the Trusted DN, it may directly invoke the Npcf\_Policy‌Authorization service at reference point N5, as specified in TS 29.514 [18].

NOTE 2: It is the responsibility of the Media AF in this case to discover and track changes to the PCF instance responsible for the PDU Session supporting the media streaming session at reference point M4 using the discovery services provided by the NRF and/or BSF.

B. If the Media AF is deployed outside the Trusted DN, or if it is more convenient for a Media AF deployed in the Trusted DN to do so, it invokes the Nnef\_AFSession‌With‌QoS and/or Nnef\_Chargeable‌Party services exposed by the NEF, as specified in clauses 4.4.9 and 4.4.8 respectively of TS 29.522 [19], to indirectly invoke the PCF at reference point N33.

NOTE 3: Per clause 4.4.9 of TS 29.522 [19], the Nnef\_AFSession‌With‌QoS service is realised at reference point N33 by the AsSession‌With‌QoS exposure API. Similarly, the Nnef\_Chargeable‌Party service is realised by the Chargeable‌Party exposure API per clause 4.4.8 of [19].

NOTE 4: Configuration of the NEF endpoint address and access credentials in the Media AF in this case is beyond the scope of the present document.

When the first Dynamic Policy is created by the Media Session Handler for a particular media delivery session (per clause 5.3.3.2), the Media AF shall create an *AF application session context* in the PCF responsible for the PDU Session corresponding to the M4 application flows indicated in the DynamicPolicy.‌application‌Flow‌Bindings array.

If no corresponding AF application session context already exists, the Media AF shall use the Npcf\_‌Policy‌Authorization\_‌Create operation at reference point N5 (or, if deployed outside the Trusted DN, the equivalent Nnef\_AFsession‌WithQoS service operation at reference point N33) with the appropriate service information to create and provision a new AF application session context. The information in the AppSessionContext‌ReqData shall be derived from the application flow descriptions in the Dynamic Policy Instance resource and/or the requested QoS.

The mapping of application flows listed in the DynamicPolicy.‌application‌Flow‌Bindings array to media components and sub-components of the AF application session context is implementation-dependent. Example mappings are provided in annex D.

#### 5.5.3.2 Mapping of Background Data Transfer parameters

#### 5.5.3.3 Mapping of media transport parameters

##### 5.5.3.3.1 Mapping of PDU Set QoS parameters

If the *Application*‌*Flow*‌*Description.*‌*media*‌*Transport*‌*Parameters* property of an *Application*‌*Flow*‌*Binding* object is populated, then the *Media*‌*Component* object at reference point N5 associated with the *Application*‌*Flow*‌*Binding* shall be populated as follows by the Media AF:

- The *MediaComponent.*‌*protoDescDl* property shall be set to the values of the *Application*‌*Flow*‌*Description.*‌*media*‌*Transport*‌*Parameters* object if the *Client*‌*Qos*‌*Specification*.‌desired‌Downlink‌Pdu‌Set‌Qos‌Parameters property is present in the corresponding Application‌Flow‌Binding.

- The *MediaComponent.*‌*protoDescUl* property shall be set to the values of the *Application*‌*Flow*‌*Description.*‌*media*‌*Transport*‌*Parameters* object if the *Client*‌*Qos*‌*Specification*.‌desired‌Uplink‌Pdu‌Set‌Qos‌Parameters propertiy is present in the corresponding Application‌Flow‌Binding.

If the pduSetQoSLimits property is populated in QosRange.‌downlink‌QoS‌Specification, then the Media‌Component.‌pduSetQosDl object shall be populated as follows by the Media AF:

- The pduSetDelayBudget property shall be set to the larger value of pduSetQoSLimits.‌pduSetDelayBudget and desiredDownlink‌PduSet‌QosParameters.‌pduSetDelayBudget.

- The pduSetErrorRate property shall be set to the larger value of pduSetQoSLimits.pduSetErrorRate and desiredDownlink‌PduSet‌QosParameters.‌pduSetErrorRate.

- The pduSetHandlingInfo property shall be set to the value of pduSetQoSLimits.pduSetHandlingInfo, ignoring the value of desiredDownlink‌PduSet‌QosParameters.‌pduSetHandlingInfo, if any.

Otherwise, the Media‌Component.‌pduSetQosDl object shall be populated directly from the desiredDownlink‌PduSet‌QosParameters object.

If the pduSetQoSLimits property is populated in QosRange.‌uplink‌QoS‌Specification, then the Media‌Component.‌pduSetQosUl object shall be populated as follows by the Media AF:

- The pduSetDelayBudget property shall be set to the larger value of pduSetQoSLimits.‌pduSetDelayBudget and desiredUplink‌PduSet‌QosParameters.‌pduSetDelayBudget.

- The pduSetErrorRate property shall be set to the larger value of pduSetQoSLimits.‌pduSetErrorRate and desiredUplink‌PduSet‌QosParameters.‌pduSetErrorRate.

- The pduSetHandlingInfo property shall be set to the value of pduSetQoSLimits.‌pduSetHandlingInfo, ignoring the value of desiredUplink‌PduSet‌QosParameters.‌pduSetHandlingInfo, if any.

Otherwise, the Media‌Component.‌pduSetQosUl object shall be populated directly from the desiredUplink‌PduSet‌QosParameters object.

#### 5.5.3. Subscription to PCF notifications

For each of the Dynamic Policy Instances it is managing, the Media AF shall subscribe to the following PCF notifications on the corresponding AF application session context:

- Service Data Flow QoS notification control;

- Service Data Flow deactivation;

- Resources allocation outcome.

\* \* \* \* Second change \* \* \* \*

### 5.5.4 Policy control interactions for AF-based Network Assistance

The AF-based Network Assistance feature operates at reference point M5 between the Media Session Handler in the Media Client and a Media AF that provides Network Assistance capabilities. The Network Assistance API at reference point M5 (see clauses 5.3.4 and 9.4) is specified in a generic way such that the associated Network Assistance functionality in the 5GC may be realised by various means.

NOTE 1: This clause does not limit the possible set of 5G System exposure functionalities for obtaining Network Assistance information.

In this release, the Media AF converts Network Assistance API invocations received at reference point M5 into direct or indirect invocations of the Policy Authorization Service exposed by the PCF, and converts responses and notifications from the PCF into their equivalents at reference point M5 for delivery to the Media Session Handler.

If it supports the Network Assistance feature, the Media AF shall offer the bit rate recommendation (throughput estimation) and delivery boost request API based on existing Policy Templates that match the filtering criteria for a media streaming session, and the Media AF shall interact with the PCF using one of the following methods:

A. If the Media AF is deployed in the Trusted DN, it may directly invoke the Npcf\_Policy‌Authorization service at reference point N5, as specified in TS 29.514 [18].

NOTE 2: It is the responsibility of the Media AF in this case to discover and track changes to the PCF instance responsible for the PDU Session supporting the media streaming session at reference point M4 using the discovery services provided by the NRF and/or BSF.

B. If the Media AF is deployed outside the Trusted DN, or if it is more convenient for a Media AF deployed in the Trusted DN to do so, it invokes the Nnef\_AFSessionWithQoS service exposed by the NEF, as specified in clause 4.4.9 of TS 29.522 [19], to indirectly invoke the PCF at reference point N33.

NOTE 3: Per clause 4.4.9 of TS 29.522 [19], the Nnef\_AFSession‌With‌QoS service is realised at reference point N33 by the AsSession‌With‌QoS exposure API.

NOTE 4: Configuration of the NEF endpoint address and access credentials in the Media AF in this case is beyond the scope of the present document.

When the first Network Assistance Session is created by the Media Session Handler for a particular media delivery session (per clause 5.3.4.2), the Media AF shall create an *AF application session context* in the PCF responsible for the PDU Session corresponding to the M4 application flow indicated in the NetworkAssistanceSession.‌applicartionFlow‌Description property.

If no corresponding AF application session context already exists, the Media AF shall use the Npcf\_‌Policy‌Authorization\_‌Create operation at reference point N5 (or, if deployed outside the Trusted DN, the equivalent Nnef\_AFsession‌WithQoS service operation) with the appropriate service information to create and provision a new AF application session context. The information in the AppSessionContext‌ReqData shall be derived from the application flow descriptions in the Network Assistance Session resource, as well as from the referenced Policy Template (if any) and/or the requested QoS.

The mapping of application flows listed in the DynamicPolicy.‌application‌Flow‌Bindings array to media components and sub-components of the AF application session context is implementation-dependent.

The Media‌Component.‌pduSetQosDl object shall not be populated by the Media AF

The Media‌Component.‌pduSetQosUl object shall not be populated by the Media AF

For each of the Network Assistance Sessions it is managing, the Media AF shall subscribe to the following PCF notifications on the corresponding AF application session context:

- Service Data Flow QoS notification control;

- Service Data Flow deactivation;

- Resources allocation outcome.

When requesting QoS provisioning for a Network Assistance Session, the Media AF shall use the configured Policy Templates of the Provisioning Session to determine the list of the QoS references within altSerReqs. The lowest priority index shall be assigned to the Policy Template with the lowest QoS requirement, and the highest priority shall be assigned to the Service Operation Point requested by the UE (if the UE is allowed to use that operation point).

When a Network Assistance session is subsequently destroyed by the Media Session Handler (per clauses 5.3.4.7 and 11.6.4.6), the Media AF shall destroy the corresponding AF application session context in the relevant PCF instance.

\* \* \* \* Third change \* \* \* \*

## D.1.3 QoS mapping for Dynamic Policy at reference point N33

When the Media AF invokes the Nnef\_AFsessionWithQoS service at reference point N33 according to TS 29.522 [19] and TS 29.122 [20], each DynamicPolicy resource is mapped by the Media AF to an AsSession‌WithQoS‌Subscription resource in the NEF.

Each Application‌Flow‌Binding object of the Dynamic Policy Instance (each one representing a distinct Service Component) is associated with a different AsSession‌Media‌Component object in the NEF, as shown in figure D.1.3‑1. The qosReference, protoDescDl, protoDescUl, pduSetQosDl and pduSetQosUl properties are not populated in this resource.

The QoS requirements of the Service Component are instead populated in the AsSession‌Media‌Component.

The descriptions of the downlink and/or uplink directions of the application flow corresponding to the Service Component are populated the flowInfos array of the AsSession‌Media‌Component unless a qosReference is cited in the corresponding QosRange.



Figure D.1.3‑1: Mapping of ApplicationFlowBinding to NEF AsSessionMediaComponent at reference point N33