**3GPP TSG-S4 Meeting #132*****S4-250968***

**Fukuoka, Japan, 19th–23rd May 2025** Revision of S4-250634

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **26.510** | **CR** | **0008** | **rev** | **4** | **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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | [AMD\_PRO-MED] Stage-3 Aspects of Network Slicing | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung Electronics Co. Ltd | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AMD\_PRO-MED | | | | |  | ***Date:*** | | | 2025-05-11 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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:*** | | Adding OpenAPI code based on endorsed CR (26510-CR0008rev3) during SA4-131-bis-e meeting | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | OpenAPI changes are proposed based on agreements during SA4-131-bis-e on topic of WT9: Policy Template changes to support network slicing  Changes 1-2 were endorsed in previous SA4 meeting. Change 3 includes the proposed OpenAPI updates. | | | | | | | | |
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| ***Consequences if not approved:*** | | Feature for network slicing will be incomplete. | | | | | | | | |
| ***Q*** | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.7.1, 8.7.3.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | S4-241753: Changes to PolicyTemplate data model  S4-250503: Extending S4-241753 with an introduction statement about policy provisioning for a plurality of network slices and/or data networks  S4-250634: Editorial corrections and minor clarifications from previous version  S4-250968: OpenAPI changes based on agreements from S4-250634 | | | | | | | | |

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# Code changes

The code changes associated with this Change Request are available for review at the following URL on 3GPP Forge:

<https://forge.3gpp.org/rep/sa4/amd-pro-med/-/merge_requests/2>

The proposed changes are reproduced below for posterity.

## Maf\_Provisioning\_PolicyTemplates.yaml

|  |
| --- |
| ---a/TS26510\_Maf\_Provisioning\_PolicyTemplates.yaml +++b/TS26510\_Maf\_Provisioning\_PolicyTemplates.yaml  @@ -303,7 +303,6 @@ components:  303 303 applicationSessionContexts:  304 304 type: array  305 305 minItems: 1  306 - maxItems: 1  307 306 items:  308 307 type: object  309 308 anyOf: |

change 1 - Dynamic Policy Provisioning

#### 5.2.7.1 General

These operations are used by the Media Application Provider to configure Policy Templates for the media delivery sessions of a particular Provisioning Session.

A Policy Template, identified by its policyTemplateId, represents a set of PCF/NEF API parameters which defines the service quality and/or associated charging for the corresponding media delivery session(s). The Policy Template is configured as part of the provisioning procedures with the Media AF using the API specified in clause 8.7 and is subsequently instantiated by a Media Session Handler or Media AS (whichever is acting as Dynamic Policy invoker) using the interactions specified in clause 5.3.3.

When a Policy Template requires media to be delivered in specific Data Network(s) and/or network slice(s) at reference point M4, the applicationSessionContext array shall be present with at least one of the following properties populated in each member of the array:

- The dnn property contains the name of the Data Network in which the Media AS is hosted.

- When Network Slicing is used, the sliceInfo property contains information about the network slice which is serving the UE.

Multiple Network Slice and/or Data Network tuples may be provisioned if the Policy Template allows media to be delivered in multiple Data Networks and/or network slices at reference point M4.

When a Policy Template is intended to influence the network QoS of Service Data Flows used for media delivery, the qoSSpecifications array shall be populated with objects of type QosRange (see clause 7.3.3.4). Each member of the array describes the QoS limits of an application service component that a Media Client is permitted request when instantiating the Policy Template:

- The componentReference property is a string used by the Dynamic Policy invoker to reference this QosRange when instantiating the Policy Template. It shall be unique for all members of the same qoSSpecifications array.

- The qosReference value, as specified in clause 5.6.2.7 of TS 29.514 [18], is obtained with the Service Level Agreement. See TS 23.502 [3] for detailed usage.

- The maximumBitRate properties of the downlinkQosSpecification and uplinkQosSpecification objects define the maximal bit rates which are permitted to be requested by a Dynamic Policy invoker on (respectively) downlink and uplink Service Data Flows. These values are defined by configuration of the 5G System and are therefore populated by the Media AF rather than by the Media Application Provider.

- The maximumAuthorisedBitRate properties of the downlinkQosSpecification and uplinkQosSpecification objects define the maximal bit rates which a Dynamic Policy invoker is authorised to request on (respectively) downlink and uplink Service Data Flows. Higher bit rates are not authorised by the Media Application Provider when the Policy Template is instantiated.

- The minimumPacketLossRate properties of the downlinkQosSpecification and uplinkQosSpecification objects define the minimal packet loss rates which are permitted to be requested by a Dynamic Policy invoker on (respectively) downlink and uplink Service Data Flows. Lower packet loss rates are not permitted by the Media Application Provider when the Policy Template is instantiated.

- The pduSetQosLimits properties of the downlinkQosSpecification and uplinkQosSpecification objects define the minimal delay budget and minimal error rates for PDU Sets which are permitted to be requested by a Dynamic Policy invoker on (respectively) downlink and uplink Service Data Flows. Lower delay and error rates are not permitted by the Media Application Provider when the Policy Template is instantiated.

- The pduSetMarking flag is used to specify whether Media Clients instantiating this Policy Template for uplink media delivery, or Media AS instances for downlink media delivery, are required to apply PDU Set marking to media transport protocol PDUs falling within the scope of a Dynamic Policy Instance based on this Policy Template.

NOTE 1: PDU Set marking is used by the 5G System to satisfy the QoS requirements of application flows.

When a Policy Template is intended to be used for differential charging, the chargingSpecification property shall be present.

When a Policy Template is intended to be used for Background Data Transfer, the properties of a new Background Data Transfer policy are specified by the Media Application Provider in the bdtSpecification property (of type Bdt‌Policy‌Schedule).

- The startDate and endDate indicate the time period for which the Background Data Transfer specification is valid. A Background Data Transfer specification may be removed from its parent Policy Template by the Media AF when it expires.

- The windows property indicates the time windows over which the Background Data Transfer may occur.

- Each such time window is characterised by a start time (startTime), a duration (duration) and the days of the week on which the time window is scheduled (daysOfWeek).

- The numberOfUes property indicates the maximum number of UEs permitted to instantiate the Policy Template and make use of Background Data Transfers during a single time window instance.

- The estimatedDataVolumePerUe that reflects the average data volume that each UE is expected to transfer during a single time window instance.

NOTE 2: The product of the numberOfUes and estimatedDataVolumePerUe properties represents an estimate of the maximum data volume that may be transferred during any given time window instance.

- The aggregate‌Uplink‌BitRate‌Limit and aggregate‌DownlinkBitRate‌Limit properties specify limits on the total aggregate bit rate of all currently instantiated Policy Templates to be enforced by the Media AF's admission control function. If omitted, the Media AF may instantiate a Policy Template with a Background Data Transfer specification regardless of additional costs that may be incurred by the Media Application Provider as a result.

HTTP responses for successful and operation-specific failure cases are specified in the following clauses. For all other failure cases, an HTTP response indicating a response code in accordance with clause 7.1.6 shall be returned to the API client. In all failure cases a message body in accordance with clause 7.1.7 shall be included in the response message.

change 2 - Data Model CHANGES (Endorsed in sa4-131-bis-e)

#### 8.7.3.1 PolicyTemplate resource

Table 8.7.3.1-1: Definition of PolicyTemplate resource

| Property | | Type | Cardinality | Usage | Description |
| --- | --- | --- | --- | --- | --- |
| policyTemplateId | | ResourceId | 1..1 | C: RO R: RO U: RO | Resource identifier of this Policy Template assigned by the Media AF that is unique within the scope of the Provisioning Session. |
| state | | string enum | 1..1 | C: RO R: RO U: RO | Current state of this Policy Template (see clause 5.2.7.2) exposed to the 5GMS Application Provider by the Media AF.  Only a Policy Template in the READY state may be instantiated as a Dynamic Policy Instance and applied to media streaming sessions. |
| stateReason | | Problem‌Details | 1..1 | C: RO R: RO U: RO | Additional details about the current state of this Policy Template exposed to the Media Application Provider by the Media AF.  The instance sub-property shall be present and shall indicate the URL of this Policy Template resource at reference point M1.  The title sub-property shall be present and shall indicate a human-readable representation of the *state* property specified above, e.g., "Policy Template ready for use" or "Policy Template invalid".  The detail sub-property shall be present and shall indicate a human-readable status/error message.  All other properties shall be omitted. |
| externalReference | | string | 1..1 | C: RW R: RW U: RW | Additional identifier for this Policy Template, unique within the scope of its Provisioning Session, that may be cross-referenced with external metadata about a media delivery session.  Example: "HD\_Premium". |
| application‌Session‌Contexts | | array(object) | 0..1 | C: RW R: RW U: RW | A set of application session contexts at reference point M4 to which this Policy Template may be applied.  Each object in the array shall specify at least one property. If more than one property is specified, instantiation of the Policy Template is restricted to the conjunction of all the object's properties. |
|  | sliceInfo | Snssai | 0..1 | C: RW R: RW U: RW | A Network Slice on which this Policy Template may be instantiated. (See clause 5.4.4.2 of TS 29.571 [33].) |
|  | dnn | Dnn | 0..1 | C: RW R: RW U: RW | A Data Network on which this Policy Template may be instantiated. (See clause 7.3.2.) |
| qoSSpecifications | | array(Qos‌Range) | 0..1 | C: RW R: RW U: RW | The network Quality of Service policy limits to be applied to the application service component(s) of media delivery sessions that instantiate this Policy Template (see NOTE and clause 7.3.3.4).  Each member of the array is identified by a component reference that is unique in this array.  If present, the array shall contain at least one object. |
| charging‌Specification | | Charging‌Specification | 0..1 | C: RW R: RW U: RW | The charging policy to be applied to media delivery sessions that instantiate this Policy Template is instantiated (see NOTE and clause 7.3.3.7). |
| bdtPolicyId | | BdtReferenceId | 0..1 | C: RW R: RO U: RW | A reference to an existing Background Data Transfer policy in the PCF (see NOTE).  Mutually exclusive with bdtSpecification. |
| bdtSpecification | | Bdt‌Policy‌Schedule | 0..1 | C: RW R: RO U: RW | The Background Data Transfer policy specification to be associated with media delivery sessions that instantiate this Policy Template (see clause 8.7.3.2).  Mutually exclusive with bdtPolicyId property. |
| NOTE: Data type BdtReferenceId is specified in TS 29.122 [20]. | | | | | |

At least one of the following properties shall be present: qosSpecification, chargingSpecification, bdtPolicyId, bdtSpecification.

End of changes