**3GPP TSG-CT3 Meeting #117e C3-214187\_r1**

**E-Meeting, 18th – 27th August 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.512** | **CR** | **0822** | **rev** | **1** | **Current version:** | **17.3.0** |  |
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| *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:*** | Replacement of TSN Terminology in 29.512 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IIoT | | | | |  | ***Date:*** | | | 2021-8-10 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | CR 0760 was agreed in CT3#116e to replace the TSN specific terminologies with generic terminologies, but there are missing changes in  Clauses 4.2.6.1 and 5.6.2.4. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clauses 4.2.6.1 and 5.6.2.4 updated to replace TSN bridge with TSC user plane node, and remove “TSN” from “TSN port”. | | | | | | | | |
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| ***Consequences if not approved:*** | | Inconsistent Terminologies used in this specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.6.1, 5.6.2.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact the OpenAPI specification file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**…**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

#### 4.2.6.1 General

Policy Decisions are provided from the PCF to the NF service consumer (SMF) as part of the following service operations:

- the Npcf\_SMPolicyControl\_Create Service Operation described in subclause 4.2.2;

- the SM Policy Association Notification request as part of the Npcf\_SMPolicyControl\_UpdateNotify Service Operation as described in subclause 4.2.3.2; and

- the Npcf\_SMPolicyControl\_Update service operation as described in subclause 4.2.4

Policy decisions shall be encoded within the SmPolicyDecision data structure defined in subclause 5.6.2.4

Policy decisions may include:

- Session Rule(s), as described in subclause 4.1.4.3, encoded within the "sessRules" attribute;

- PCC Rule(s), as described in subclause 4.1.4.2, encoded within the "pccRules" attribute;

- QoS decision(s), as described in subclause 4.1.4.4.3, which can be referenced from PCC rule(s), encoded within the "qosDecs" attribute;

- Charging decision(s), as described in subclause 4.1.4.4.4, which can be referenced from PCC rule(s), encoded within the "chgDecs" attribute;

- Traffic control decision(s), as described in subclause 4.1.4.4.2, which can be referenced from PCC rule(s), encoded within the "traffContDecs" attribute;

- Usage monitoring control decision(s), as described in subclause 4.1.4.4.5, which can be referenced from PCC rule(s) and session rule(s), encoded within the "umDecs" attribute;

- QoS monitoring decision, as described in subclause 4.1.4.4.6, which can be referenced from PCC rule(s), encoded within the "qosMonDecs" attribute;

- Condition(s) that can be referenced from PCC rule(s) and session rule(s), encoded within the "conds" attribute;

- QoS characteristics for non-standard 5QIs and non-preconfigured 5QIs provided within the "qosChars" attribute;

- A reflective QoS timer;

- Policy control request triggers and applicable additional information, e.g. Revalidation Time, PRA information;

- Last requested rule data;

- Last requested usage data;

- Default charging method of the PDU session;

- "PDU Session with offline charging only" indication;

- Charging information;

- P-CSCF Restoration Indication;

- IP index information;

- Presence Reporting Area information;

- TSC user plane node management information;

- port management information for the DS-TT port;

- port management information for the NW-TT port;

- The request of the PDU session termination;

- Usage of QoS flow;

- Redundant PDU session indication.

For the Npcf\_SMPolicyControl\_Create Service Operation, the SmPolicyDecision data structure shall contain a full description of all policy decision(s) provided by the PCF for the policy association.

For the Npcf\_SMPolicyControl\_UpdateNotify service operation for the SM Policy Association Notification request and for the Npcf\_SMPolicyControl\_Update service operation, the SmPolicyDecision data structure shall contain a description of the changes to the policy decision(s) with respect to the last provided policy decision(s) for the corresponding policy association. The redundant PDU session indication, the default charging method of the PDU session, the "PDU Session with offline charging only" indication, the charging information, the Reflective QoS Timer and the IP index information shall not be updated by the PCF.

If no other rule is defined for specific data types within the SmPolicyDecision data structure, the encoding of changes of the policy decision(s) in the SmPolicyDecision data structure shall follow the following principles:

1) To modify an attribute with a value of type map (e.g. the "sessRules" attribute, the "pccRules" attribute, the "qosDecs" attribute, the "traffContDecs" attribute, the "umDecs" attribute, the "conds" attribute, etc.), this attribute shall be provided with a value containing a map with entries according to the following principles:

- A new entry of the map shall be added by supplying a new identifier (e.g. rule / decision identifier) as the key and the corresponding structured data type instance (e.g. PCC rule) with the complete content as the value.

- An existing entry of the map shall be modified by supplying the existing identifier as the key and the corresponding structured data type instance as the value, with the same existing identifier (e.g. set the "qosId" to the same existing QoS data decision identifier), which shall describe the modifications following bullets 1 to 6.

- An existing entry of the map shall be deleted by supplying the existing identifier as the key and "NULL" as the value.

- For an unmodified entry of the map, no entry needs to be provided within the map.

2) To modify an attribute with a structured data type instance as the value, the attribute shall be provided with a value containing a structured data type instance with entries according to bullets 1 to 6.

3) To modify an attribute with another type than map or structured data type as the value, the attribute shall be provided with a complete representation of its value, which shall replace the previous value.

4) To create an attribute of any type, the attribute shall be provided with a complete representation of its value.

5) To delete an attribute of any type, the attribute shall be provided with "NULL" as the value.

NOTE 1: Attributes that are allowed to be deleted need to be marked as "nullable" within the OpenAPI file in Annex A.

6) Attributes that are not added, modified or deleted do not need to be provided.

NOTE 2: In the related data structures, no attribute can be marked as mandatory except the attribute containing the identifier (e.g. rule / decision identifier).

The PCF shall not remove a provisioned policy decision data or condition data from the SMF when the associated reference(s) from the PCC rule(s) or session rule(s) are still valid except the usage montoring data referred by the pre-defined PCC rule(s) (see subclause 4.2.6.5.3.2 for further information). If the PCF determines that the policy decision or condition data shall be used for future PCC or session rule(s), the PCF may keep a policy decision data or condition data valid when the PCF removes all the PCC rule or session rule(s) referring to that policy decision data or condition data; otherwise the PCF shall remove the provisioned policy decision data or condition data when the PCF removes all the PCC or session rule(s) referring to the policy decision data or condition data.

When the NF service consumer (SMF) accepts the notification of policy updates, and/or when after receiving the response to the request of policies the SM Policy association is retained in the NF service consumer (SMF), if the installation/activation of one or more new PCC rule(s) or the installation of one or more session rule(s) (i.e. rules which were not previously successfully installed) fails, although the failed PCC rule(s) or session rule(s) are removed, the policy decision and/or condition data which are referred by the failed PCC rule(s) or session rule(s) may remain applicable in the SMF until the PCF removes them. If the PCF determines that the policy decision or condition data that remain applicable shall be used for future PCC or session rule(s) (e.g. because the PCF reattempts to install the failed PCC rule) the PCF may keep these policy decision data or condition data valid; otherwise the PCF shall immediately remove these policy data or condition data from the SMF.

NOTE 3: Due to internal policies, the SMF could decide to remove the policy decision and/or condition data not referred by any PCC and/or session rule(s) before the PCF decides to remove them. When the PCF decides to remove the policy decision and/or condition data that were silently removed by the SMF, the SMF accepts the removal indication, as specified in subclauses 4.2.3.26 and 4.2.4.26. When the PCF decides to reuse the policy decision and/or condition data that were silently removed by the SMF, the SMF reports PCC and/or session rule error as specified in subclauses 4.2.3.16, 4.2.4.15, 4.2.3.20 and 4.2.4.21.

NOTE 4: When the PCF notification of policy updates is rejected as specified in subclauses 4.2.3.16 and 4.2.3.20 with a HTTP "400 Bad Request" status code, the whole update is rejected, including the provided policy decision and/or condition data. When the SMF reports PCC and/or session rule(s) error as specified in subclauses 4.2.4.15 and 4.2.4.21 for all the provisioned PCC rule and/or session rule(s), the valid policy decision and/or condition data provided in the corresponding update response can remain valid in the SMF until the PCF removes them.

The error handling for the policy decision and/or condition data which are not referred by any PCC rule and/or session rule stored at the SMF is defined in subclause 4.2.3.26 and 4.2.4.26.

\*\*\* 2nd Change \*\*\*

#### 5.6.2.4 Type SmPolicyDecision

Table 5.6.2.4-1: Definition of type SmPolicyDecision

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| sessRules | map(SessionRule) | O | 1..N | A map of Sessionrules with the content being the SessionRule as described in subclause 5.6.2.7. The key used in this map for each entry is the sessRuleId attribute of the corresponding SessionRule. (NOTE 2) |  |
| pccRules | map(PccRule) | O | 1..N | A map of PCC rules with the content being the PCCRule as described in subclause 5.6.2.6. The key used in this map for each entry is the pccRuleId attribute of the corresponding PccRule. |  |
| qosDecs | map(QosData) | O | 1..N | Map of QoS data policy decisions. The key used in this map for each entry is the qosId attribute of the corresponding QosData. (NOTE 2) |  |
| chgDecs | map(ChargingData) | O | 1..N | Map of Charging data policy decisions. The key used in this map for each entry is the chgId attribute of the corresponding ChargingData. |  |
| chargingInfo | ChargingInformation | C | 1 | Contains the CHF addresses, and if available, the associated CHF instance ID(s) and CHF set ID(s) of the PDU session. (NOTE 3) |  |
| traffContDecs | map(TrafficControlData) | O | 1..N | Map of Traffic Control data policy decisions. The key used in this map for each entry is the tcId attribute of the corresponding TrafficControlData. (NOTE 2) |  |
| umDecs | map(UsageMonitoringData) | O | 1..N | Map of Usage Monitoring data policy decisions. The key used in this map for each entry is the umId attribute of the corresponding UsageMonitoringData. | UMC |
| qosChars | map(QosCharacteristics) | O | 1..N | Map of QoS characteristics for non-standard 5QIs and non-preconfigured 5QIs. This map uses the 5QI values as keys. (NOTE 2) |  |
| qosMonDecs | map(QosMonitoringData) | O | 1..N | Map of QoS Monitoring data policy decision. The key used in this map for each entry is the qmId attribute of the corresponding QosMonitoringData. | QosMonitoring |
| reflectiveQoSTimer | DurationSec | O | 0..1 | Defines the lifetime of a UE derived QoS rule belonging to the PDU Session for reflective QoS. (NOTE 2) |  |
| offline | boolean | O | 0..1 | Indicates the offline charging is applicable to the PDU session when it is included and set to true. (NOTE 3) (NOTE 4) |  |
| online | boolean | O | 0..1 | Indicates the online charging is applicable to the PDU session when it is included and set to true. (NOTE 3) (NOTE 4) (NOTE 6) |  |
| offlineChOnly | boolean | O | 0..1 | Indicates that the online charging method shall never be used for any PCC rule activated during the lifetime of the PDU session, when this attribute is present and set to "true".  The default value is "false", e.g. if this attribute is omitted.  (NOTE 3) (NOTE 6) | OfflineChOnly |
| conds | map(ConditionData) | O | 1..N | A map of condition data with the content being as described in subclause 5.6.2.9. The key used in this map for each entry is the condId attribute of the corresponding ConditionData. |  |
| revalidationTime | DateTime | O | 0..1 | Defines the time before which the NF service consumer shall have to re-request PCC rules. |  |
| pcscfRestIndication | boolean | O | 0..1 | If this attribute is included and set to true, it indicates that P-CSCF Restoration is requested. The default value "FALSE" applies if the attribute is not present and has not been supplied previously. | PCSCF-Restoration-Enhancement |
| policyCtrlReqTriggers | array(PolicyControlRequestTrigger) | O | 1..N | Defines the policy control request triggers subscribed by the PCF. |  |
| lastReqRuleData | array(RequestedRuleData) | O | 1..N | Defines the last list of rule control data requested by the PCF. |  |
| lastReqUsageData | RequestedUsageData | O | 0..1 | Indicates whether the last accumulated usage report is requested by the PCF or not, and includes references to the targeted usage monitoring data instances. | UMC |
| praInfos | map(PresenceInfoRm) | O | 1..N | Defines the PRA information provisioned by the PCF. The "praId" attribute within the PresenceInfo data type shall also be the key of the map. The "presenceState" attribute within the PresenceInfo data type shall not be supplied. | PRA |
| ipv4Index | IpIndex | C | 0..1 | Information that identifies the IP address allocation method for IPv4 address allocation. (NOTE 3) |  |
| ipv6Index | IpIndex | C | 0..1 | Information that identifies the IP address allocation method for IPv6 address allocation. (NOTE 3) |  |
| qosFlowUsage | QosFlowUsage | O | 0..1 | Indicates the required usage for default QoS flow. |  |
| relCause | SmPolicyAssociationReleaseCause | O | 0..1 | The cause for which the PCF requests the termination of the policy association. | RespBasedSessionRel |
| suppFeat | SupportedFeatures | C | 0..1 | Indicates the list of negotiated supported features.  This parameter shall be supplied by the PCF in the response to the POST request that requested the creation of an individual SM policy resource. |  |
| tsnBridgeManCont | BridgeManagementContainer | O | 0..1 | Transports TSC user plane node management information | TimeSensitiveNetworking |
| tsnPortManContDstt | PortManagementContainer | O | 0..1 | Transports port management information for the DS-TT port. | TimeSensitiveNetworking |
| tsnPortManContNwtts | array(PortManagementContainer) | O | 1..N | Transports port management information for one or more NW-TT ports. | TimeSensitiveNetworking |
| redSessIndication | boolean | O | 0..1 | Indicates whether the PDU Session is a redundant PDU session:  true: end to end redundant PDU session; false: Not end to end redundant PDU session; If this attribute is absent it means the PDU session is not an end to end redundant PDU session.  (NOTE 2) (NOTE 3) | Dual-Connectivity-redundant-UP-paths |
| NOTE 1: For IPv4v6 PDU session, both the "ipv4Index" attribute and "ipv6Index" attribute may be provisioned by the PCF.  NOTE 2: This attribute shall not be removed if it was provisioned.  NOTE 3: This attribute may only be supplied by the PCF in the response to the initial POST request that requested the creation of an individual SM policy resource.  NOTE 4: If both the "offline" attribute and the "online" attribute are omitted by the PCF, the default charging method pre-configured at the SMF if available shall be applied to the PDU session. If both offline and online charging methods are pre-configured at the SMF, the SMF shall determine which one of them to be applied to the PDU session based on local policy. The “offline” attribute and the “online” attribute shall not be simultaneously present with the same value, i.e., both set to true or both set to false.  NOTE 5: If the "chargingInfo" attribute is not supplied by the PCF, the charging information configured at the SMF shall be applied to the PDU session.  NOTE 6: When the "OfflineChOnly" feature is supported, the "online" attribute shall not be present if the "offlineChOnly" attribute is present and set to "true". | | | | | |

Editor's Note: When the "OfflineChOnly" feature is supported, it is FFS whether the "offline" attribute can be provided within the SmPolicyDecision data type if the "offlineChOnly" attribute is present and set to "true".

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