**3GPP TSG CT WG3 Meeting #142 C3-253434**

**Goteborg, Sweden, 25 – 29 August, 2025 (Revision of C3-253xxx)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.512** | **CR** | **1414** | **rev** | **-** | **Current version:** | **19.3.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Support of MDBV and average window in AQP contained in the PCC rule | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Nokia | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | XRM\_Ph2, XRM | | | | |  | ***Date:*** | | | 2025-08-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | * As defined in clause 6.1.3.22 of TS 23.503, the Averaging Window and a Maximum Burst Size may be provided by the AF, which means that the Alternative QoS Parameter Sets may be included in the PCC rule. The PCC rule needs to be enhanced to include this information. * To keep consistency with TS 29.514 and 29.122, one feature is used to support PDU Set QoS parameters, Averaging Window and Maximum Data Burst Volume parameters in the AQP. The EnPDUSetHandling feature needs to be enhanced and renamed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Enhance the PccRule data type and the "EnPDUSetHandling" feature to include Averaging Window and a Maximum Burst Size. | | | | | | | | |
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| ***Consequences if not approved:*** | | The stage 2 requirement is not implemented completely. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.6.6.2, 5.6.2.6, 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 does not impact any OpenAPI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

##### 4.2.6.6.2 Policy provisioning and enforcement of authorized QoS per service data flow

The Provisioning of authorized QoS per service data flow is a part of PCC rule provisioning procedure, as described in clause 4.2.6.2.1.

The authorized QoS per service data flow shall be provisioned within a QosData data structure. The PCF shall include a "qosDecs" attribute containing the corresponding QoS data decision within the SmPolicyDecision data structure and include the reference to this QoS data decision within the "refQosData" attribute of the PccRule data instance.

When network slice data rate policy control applies and the authorized QoS per service data flow refers to a 5QI of GBR type, the PCF shall derive the authorized QoS per service data flow as described in clause 4.2.6.8.

When group related data rate policy control applies for a 5G VN group and the authorized QoS per service data flow refers to a 5QI of GBR type, the PCF shall derive the authorized QoS per service data flow as described in clause 4.2.6.9.

Within the QoS data decision, for 5QI of GBR type or delay critical GBR type, the PCF shall include the authorized GBR 5QI or delay critical GBR 5QI respectively within the "5qi" attribute, the ARP within the "arp" attribute, and max bandwidth in uplink within the "maxbrUl" attribute and/or max bandwidth in downlink within the "maxbrDl" attribute, the guaranteed bandwidth in uplink within the "gbrUl" attribute and/or the guaranteed bandwidth in downlink within the "gbrDl" attribute. If the PCF determines that the application traffic can be adapted to the change in the QoS based on the configuration (e.g. if the AF is capable to trigger rate adaptation), the PCF may request a notification when authorized GBR or delay critical GBR cannot be guaranteed or can be guaranteed again by including the "qnc" attribute set to true.

Within the QoS data decision, for 5QI of non-GBR type, the PCF shall include the authorized non-GBR 5QI within the "5qi" attribute and the ARP within the "arp" attribute. The PCF may authorize the max bandwidth in uplink within the "maxbrUl" attribute and/or max bandwidth in downlink within the "maxbrDl" attribute.

When the PCF authorizes a standardized 5QI but a Priority Level, an Averaging Window and/or a Maximum Data Burst Volume which are different from the standardized value in the table 5.7.4-1 of 3GPP TS 23.501 [2] are required, the PCF shall include the Priority Level within the "priorityLevel" attribute, the Averaging Window within the "averWindow" attribute and/or the Maximum Data Burst Volume within the "maxDataBurstVol" attribute or the "extMaxDataBurstVol" attribute (if supported, see clause 4.2.2.1).

NOTE 1: For the non-standardized or non-configured 5QI, the PCF needs to authorize explicitly signalled QoS Characteristics associated with the 5QI if the PCF has not provisioned it.

If the configured policy allows at reception of the service information from the AF and the application of the rules of the QoS mapping procedures defined in 3GPP TS 29.513 [7] clause 7.3.2 for the received service information result in a 5QI of 1 associated with the corresponding flows, and the RAN-Support-Info feature as defined clause 5.8 is supported, the PCF shall determine the Maximum Packet Loss Rate for UL and DL for those flows associated within 5QI of 1. In this case, the PCF shall include the value of Maximum Packet Loss Rate for UL within the "maxPacketLossRateUl" attribute and/or the value of Maximum Packet Loss Rate for DL within the "maxPacketLossRateDl" attribute.

NOTE 2: If CHEM feature is supported, then PCF as described in clause 7.2.3 of 3GPP TS 29.513 [7] or based on local configuration, the PCF sets the downlink and uplink maximum packet loss rates corresponding to either the most robust codec mode or the least robust codec mode of the negotiated set in each direction.

If the PCF wants to ensure that a PCC Rule is always bound to the default QoS flow, the policy provisioning for the related authorized QoS shall be done as described in clause 4.2.6.2.10.

When the "PDUSetHandling" feature is supported, within the QoS data decision, for 5QI of GBR and non-GBR type, the PCF may include the authorized PDU Set QoS parameter(s) within the "pduSetQosDl" and/or "pduSetQosUl" attribute(s) of the QosData policy decision referenced from the PCC rule. At least one of the following PDU Set QoS parameter(s) shall be provisioned within the "pduSetQosDl" and/or "pduSetQosUl" attribute(s) to enable PDU Set based handling: 1) the PSIHI within the "pduSetHandlingInfo" attribute and/or 2) both, the PSDB within the "pduSetDelayBudget" attribute and the PSER within the "pduSetErrRate" attribute.

If the "ExtQoSR19" feature is supported, and the PSDB (UL and/or DL) and PSER (UL and/or DL) in "pduSetQosDl" and/or "pduSetQosUl" attribute(s) within the QosData referenced by the "refQosData" attribute are provided, the PCF shall also provide the PSDB (UL and/or DL) and PSER (UL and/or DL) in Alternative QoS Parameter set(s) by including the "pduSetQosDl" and/or "pduSetQosUl" attribute(s) within the QosData referenced by the "refAltQosParams" attribute; otherwise, the corresponding Alternative QoS Parameter set(s) shall not contain the PSDB and PSER in the respective direction(s). The PCF may also provide the Averaging Window and Maximum Data Burst Volume parameters in Alternative QoS Parameter set.

The SMF shall perform a QoS flow binding based on the QoS information within the Qos data decision as defined in clause 6.4 of 3GPP TS 29.513 [7] after the SMF installs or activates the PCC rules.

The SMF shall reserve the resources necessary for the guaranteed bitrate for the PCC rule upon receipt of a PCC rule provisioning including QoS information. For GBR QoS flows the SMF should set the QoS flow's GBR to the sum of the GBRs of all PCC rules that are active/installed and bound to that GBR QoS flow. For GBR QoS flow the SMF should set the QoS flow's MBR to the sum of the MBRs of all PCC rules that are active/installed and bound to that GBR QoS flow.

NOTE 3: Since the PCF controls the GBR value in the PCC rule, the PCF can prevent that uplink GBR resources are reserved by providing an uplink GBR value of zero for that PCC rule. This may be useful e.g. for a PCC rule with application identifier as the uplink traffic can be received in other QoS flow than the one the PCC rule is bound to.

The SMF shall assign a QFI if a new QoS flow needs to be established and shall derive, if applicable, the QoS profile required towards the Access Network, the QoS rule required towards the UE and the QoS information with PDRs towards to the UPF. If multiple PCC rules with the Maximum Packet Loss Rate for UL and DL are bound to the same QoS flow, the SMF shall choose the lowest value per direction related to the PCC rules within the QoS profile towards to the access network.

If the PCC rule contains one or more PDU Set QoS parameter(s), the SMF adds these PDU Set QoS parameter(s) to the derived QoS Profile of the QoS Flow as described in 3GPP TS 29.502 [22].

For PIN scenarios (defined in 3GPP TS 23.501 [2], clause 5.44), the SMF may, for a (S-NSSAI, DNN) combination of the PDU Session, determine the CN PDB in the derived QoS profile corresponding to a GBR flow if the UE requested non-3GPP delay budget as part of a UE-initiated resource modification procedure based on operator policy and implementation.

NOTE 4: The non-3GPP delay budget does not impact the QoS flow binding as defined in clause 6.4 in 3GPP TS 29.513 [7].

If one or more of the 5QI, ARP, QNC, Priority level, Averaging Window and Maximum Data Burst Volume attributes of a PCC rule are modified to the same updated values for all the PCC rules bound to the same QoS flow, then the SMF should modify the corresponding attributes for that impacted QoS flow.

Upon deactivation or removal of a PCC rule, the SMF shall free the resources reserved for that PCC rule, and initiate the corresponding procedure with access network, UE and UPF to remove the resources.

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

#### 5.6.2.6 Type PccRule

Table 5.6.2.6-1: Definition of type PccRule

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| flowInfos | array(FlowInformation) | C | 1..N | An array of Ethernet or IP flow packet filter information. (NOTE 3) |  |
| appId | string | C | 0..1 | A reference to the application detection filter configured at the UPF. (NOTE 3) | ADC |
| appDescriptor | ApplicationDescriptor | C | 0..1 | ATSSS rule application descriptor. It shall be present when the PDU session is a MA PDU session and the SDF template contains an Application Identifier (i.e. when the "appId" attribute is present). | ATSSS |
| contVer | ContentVersion | O | 0..1 | Indicates the content version of the PCC rule. | RuleVersioning |
| pccRuleId | string | M | 1 | Univocally identifies the PCC rule within a PDU session. |  |
| precedence | Uinteger | C | 0..1 | Determines the order in which this PCC rule is applied relative to other PCC rules within the same PDU session. It shall be included if the "flowInfos" attribute is included or may be included if the "appId" attribute is included when the PCF initially provisions the PCC rule. (NOTE 2) (NOTE 4) |  |
| afSigProtocol | AfSigProtocol | O | 0..1 | Indicates the protocol used for signalling between the UE and the AF. The default value "NO\_INFORMATION" shall apply, if the attribute is not present and has not been supplied previously. | ProvAFsignalFlow |
| appReloc | boolean | O | 0..1 | It indicates that the application relocation possibility.  - Set to "true": the application is not relocated once a location of the application is selected by the 5GC.  - Set to "false": the application is relocated once a location of the application is selected by the 5GC.  - The default value is "false", if the attribute is not present and has not been supplied previously. | TSC |
| easRedisInd | boolean | O | 0..1 | Indicates whether the EAS rediscovery is required for the application or not.  - Set to "true": the EAS rediscovery is required for the application.  - Set to "false": the EAS rediscovery is not required for the application.  - the default value is "false" if omitted.  The indication shall be invalid after it was applied unless it is provided again. | EASDiscovery |
| addrPreserInd | boolean | O | 0..1 | Indicates whether UE IP address should be preserved.  - Set to "true": the UE IP address should be preserved.  - Set to "false": the UE IP address should not be preserved.  - The default value "false" shall apply, if the attribute is not present and has not been supplied previously. | URLLC |
| refQosData | array(string) | O | 1..N | A reference to the QosData policy type decision type. It is the qosId described in clause 5.6.2.8.  (NOTE 1) |  |
| refAltQosParams | array(string) | O | 1..N | A Reference to the QoS Data policy decisions for the Alternative QoS parameter sets of the service data flow.  Only the "qosId" attribute, the "gbrUl" attribute, the "gbrDl" attribute, the "packetDelayBudget" attribute, the "packetErrorRate" attribute,"pduSetQosDl" attribute,"pduSetQosUl" attribute, "averWindow" attribute, "maxDataBurstVol" attribute and "extMaxDataBurstVol" attribute are applicable within the associated QosData data types.  This attribute represents an ordered list, where the lower the index of the array for a given entry, the higher the priority.  (NOTE 11) (NOTE 12) | AuthorizationWithRequiredQoS |
| refTcData | array(string) | O | 1..N | A reference to the TrafficControlData policy decision type. It is the tcId described in clause 5.6.2.10.  (NOTE 1) |  |
| refChgData | array(string) | O | 1..N | A reference to the ChargingData policy decision type. It is the chgId described in clause 5.6.2.11.  (NOTE 1) (NOTE 7) |  |
| refChgN3gData | array(string) | O | 1..N | A reference to the ChargingData policy decision type only applicable to Non-3GPP access. It is the chgId described in clause 5.6.2.11.  (NOTE 1) (NOTE 5) (NOTE 7) | ATSSS |
| refUmData | array(string) | O | 1..N | A reference to UsageMonitoringData policy decision type. It is the umId described in clause 5.6.2.12.  (NOTE 1) | UMC |
| refUmN3gData | array(string) | O | 1..N | A reference to UsageMonitoringData policy decision type only applicable to Non-3GPP access. It is the umId described in clause 5.6.2.12.  (NOTE 1) (NOTE 6) | UMC, ATSSS |
| refCondData | string | O | 0..1 | A reference to the condition data. It is the condId described in clause 5.6.2.9. |  |
| refQosMon | array(string) | O | 1..N | Reference(s) to QosMonitoringData policy decision type. It is the qmId described in clause 5.6.2.40.  (NOTE 10) | QosMonitoring |
| protoDescDl | ProtocolDescription | O | 0..1 | Downlink protocol description for the identification of the DL packets of the PDU Set, the dectection of the last packet of the data burst, the dectection of the Data Burst Size, and/or indication of whether MoQ or UDP-option is used to carry media related information. | PDUSetHandling  PowerSaving  TrafficCharChange  OnPathN6MediaInfo |
| protoDescUl | ProtocolDescription | O | 0..1 | Uplink protocol description for the identification of the UL packets of the PDU Set in the UE. | PDUSetHandling |
| tscaiInputUl | TscaiInputContainer | O | 0..1 | Transports TSCAI input parameters for TSC traffic at the ingress interface of the DS-TT/UE (uplink flow direction).  (NOTE 9) | TimeSensitiveNetworking |
| tscaiInputDl | TscaiInputContainer | O | 0..1 | Transports TSCAI input parameters for TSC traffic at the ingress of the NW-TT (downlink flow direction).  (NOTE 9) | TimeSensitiveNetworking |
| tscaiTimeDom | Uinteger | O | 0..1 | Indicates the (g)PTP domain that the (TSN)AF is located in. | TimeSensitiveCommunication |
| capBatAdaptation | boolean | O | 0..1 | Indicates the capability for AF to adjust the burst sending time.  - Set to "true": the AF is capable.  - Set to "false": the AF is not capable.  - The default value is "false" if omitted.  (NOTE 9) | EnTSCAC |
| ddNotifCtrl | DownlinkDataNotificationControl | O | 0..1 | The Downlink Data Notification Control applying to the control of DDD Status event notifications and DDN Failure event notification. This attribute shall not be present when the DDNEventPolicyControl2 feature is supported. | DDNEventPolicyControl |
| ddNotifCtrl2 | DownlinkDataNotificationControlRm | O | 0..1 | The Downlink Data Notification Control applying to the control of DDD Status event notifications and DDN Failure event notification including the removal of provisioned the downlink data notification control information. | DDNEventPolicyControl2 |
| disUeNotif | boolean | O | 0..1 | Indicates to disable QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation when it is included and set to "true". The fulfilled situation is either the QoS profile or an Alternative QoS Profile. Otherwise, the default value "false" shall apply, if the attribute is not present and has not been supplied previously. | DisableUENotification |
| packFiltAllPrec | Uinteger | C | 0..1 | Determines the order of TFT packet filter allocation for PCC rules. (NOTE 8) | PackFiltAllocPrecedence |
| nscSuppFeats | map(SupportedFeatures) | O | 1..N | A map of Network Function Service Consumer features supported per service. The key used in this map for each entry is the ServiceName value as defined in 3GPP TS 29.510[29] (e.g. for Nsmf\_EventExposure API, the key shall be set to nsmf-event-exposure). | NscSupportedFeatures |
| callInfo | CallInfo | O | 0..1 | Indicates the caller and the callee information. | VBCforIMS |
| traffParaData | TrafficParaData | O | 0..1 | Traffic Parameter measurement data. | PowerSaving |
| multiModalId | MultiModalId | O | 0..1 | Multi-modal Service Identifier. | MultiModaIId |
| expTranInd | boolean | O | 0..1 | Expedited Transfer Indication for the downlink traffic to enable expedited data transfer with reflective QoS for the non-GBR service data flow.  - "true": the expedited data transfer of larger payload for XR application is enabled in the flow.  - "false": the expedited data transfer of larger payload for XR application is not enabled in the flow.  - If omitted, the feature expedited data transfer with reflective QoS is disabled. | TrafficCharChange |
| NOTE 1: Arrays are only introduced for future compatibility. In this release of the specification the maximum number of elements in the array is 1.  NOTE 2: For a PCC rule with the "appId" attribute, the precedence can be preconfigured in SMF or provided in the PCC rule from PCF. The precedence provided by the PCF shall take precedence.  NOTE 3: Either the "flowInfos" attribute or "appId" attribute shall be supplied by the PCF when the PCC rule is initially provisioned. If the "appId" attribute is supplied, the PCF shall not modify the application identifier supplied within the "appId" attribute later.  NOTE 4: The "precedence" attribute is used to specify the precedence of the PCC rule among all PCC rules associated with the PDU session. It includes an integer value in the range from 0 to 255 (decimal). The higher the value of the "precedence" attribute, the lower the precedence of that PCC rule is. The precedence value range from 70 to 99 (decimal) shall be used for the PCC rules subject to Reflective QoS.  NOTE 5: For a MA PDU Session, Charging Data decision referred by the "refChgData" attribute applies to both accesses if there is no "refChgN3gData" attribute included. If there is a "refChgN3gData" attribute included, the Charging Data decision referred by the "refChgN3gData" attribute applies to non-3GPP access and the Charging Data decision referred by the "refChgData" attribute applies to 3GPP access. The value(s) of attribute(s) within the Charging Data decision except the "chgId" attribute referred by the "refChgN3gData" attribute shall be the same as the one(s) within the Charging Data decision referred by the "refChgData" attribute.  NOTE 6: For a MA PDU Session, Usage Monitoring Data decision referred by the "refUmData" attribute applies to both accesses if there is no "refUmN3gData" attribute included. If there is a "refUmN3gData" attribute included, the Usage Monitoring Data decision referred by the "refUmN3gData" attribute applies to non-3GPP access and the Usage Monitoring Data decision referred by the "refUmData" attribute applies to 3GPP access.  NOTE 7: If no "refChgData" attribute and/or "refChgN3gData" attribute is/are provisioned for a PCC rule, then this PCC rule shall not be subject to charging accordingly. If the "refChgData" attribute and/or "refChgN3gData" attribute is/are set to NULL for a PCC rule, then charging shall be deactivated accordingly for this PCC rule.  NOTE 8: If the PackFiltAllocPrecedence feature is supported, the packFiltAllPrec attribute shall be present in every PCC rule of the PDU Session when the PCC rule is installed for the first time.  NOTE 9: The "burstArrivalTimeWnd" attribute, within the "tscaiInputUl" and/or "tscaiInputDl" attributes, and the "capBatAdaptation attribute are mutually exclusive.  NOTE 10: In this release of the specification, if the feature "EnQoSMon" is not supported, the maximum number of elements in the array is 1, and if the feature "EnQoSMon" is supported, the maximum number of elements in the array is 3.  NOTE 11: Only the "pduSetDelayBudget" and "pduSetErrRate" attributes within the "pduSetQosDl" and "pduSetQosUl" attributes are applicable.  NOTE 12: The "averWindow", "maxDataBurstVol" and "extMaxDataBurstVol" attributes may be present only when the "ExtQoSR19" feature is supported. | | | | | |

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

## 5.8 Feature negotiation

The optional features in table 5.8-1 are defined for the Npcf\_SMPolicyControl API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

Table 5.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | TSC | This feature indicates support for traffic steering control in the (S)Gi-LAN, steering the 5G-LAN type of services or routing of the user traffic to a local Data Network identified by the DNAI per AF request. If the NF service consumer supports this feature, the PCF shall behave as described in clause 4.2.6.2.6. |
| 2 | ResShare | This feature indicates the support of service data flows that share resources. If the NF service consumer supports this feature, the PCF shall behave as described in clause 4.2.6.2.8. |
| 3 | 3GPP-PS-Data-Off | This feature indicates the support of 3GPP PS Data off status change reporting. |
| 4 | ADC | This feature indicates the support of application detection and control. |
| 5 | UMC | Indicates that the usage monitoring control is supported. |
| 6 | NetLoc | This feature indicates the support of the Access Network Information Reporting for 5GS. |
| 7 | RAN-NAS-Cause | This feature indicates the support for the detailed release cause code information from the access network.  (NOTE) |
| 8 | ProvAFsignalFlow | This feature indicates support for the feature of IMS Restoration as described in clause 4.2.3.17. If NF service consumer supports this feature the PCF may provision AF signalling IP flow information. |
| 9 | PCSCF-Restoration-Enhancement | This feature indicates support of P-CSCF Restoration Enhancement. It is used for the NF service consumer to indicate if it supports P-CSCF Restoration Enhancement. |
| 10 | PRA | This feature indicates the support of presence reporting area change reporting. The support of the update of a UE Dedicated Presence Reporting Area is unspecified. |
| 11 | RuleVersioning | This feature indicates the support of PCC rule versioning as defined in clause 4.2.6.2.14. |
| 12 | SponsoredConnectivity | This feature indicates support for sponsored data connectivity feature. If the NF service consumer supports this feature, the PCF may authorize sponsored data connectivity to the subscriber. |
| 13 | RAN-Support-Info | This feature indicates the support of maximum packet loss rate value(s) for uplink and/or downlink voice service data flow(s). |
| 14 | PolicyUpdateWhenUESuspends | This feature indicates the support of report when the UE is suspended and then resumed from suspend state. Only applicable to the interworking scenario as defined in Annex B. |
| 15 | AccessTypeCondition | This feature indicates the support of access type conditioned authorized Session-AMBR as defined in clause 4.2.6.3.2.4. |
| 16 | MultiIpv6AddrPrefix | This feature indicates the support of additional new/removed (up to two) Ipv6 address prefixes reporting. |
| 17 | SessionRuleErrorHandling | This feature indicates the support of session rule error handling. |
| 18 | AF\_Charging\_Identifier | This feature indicates the support of long character strings as charging identifiers. |
| 19 | ATSSS | This feature indicates the support of the access traffic switching, steering and splitting functionality as defined in clauses 4.2.6.2.17 and 4.2.6.3.4. |
| 20 | PendingTransaction | This feature indicates support for the race condition handling as defined in 3GPP TS 29.513 [7]. |
| 21 | URLLC | This feature indicates support of Ultra-Reliable Low-Latency Communication (URLLC) requirements, i.e. AF application relocation acknowledgement requirement and UE address(es) preservation. The TSC feature shall be supported in order to support this feature. |
| 22 | MacAddressRange | Indicates the support of a set of MAC addresses with a specific range in the traffic filter. |
| 23 | WWC | Indicates support of wireless and wireline convergence access as defined in annex C. |
| 24 | QosMonitoring | Indicates support of QoS monitoring as defined in clause 4.2.3.25 and 4.2.4.24. Reporting of monitoring data applies to packet delay information when only this feature is supported. |
| 25 | AuthorizationWithRequiredQoS | Indicates support of policy authorization for the AF session with required QoS as defined in clause 4.2.3.22. |
| 26 | EnhancedBackgroundDataTransfer | Indicates the support of applying the Background Data Transfer Policy to a future PDU session. |
| 27 | DN-Authorization | This feature indicates the support of DN-AAA authorization data for policy control. |
| 28 | PDUSessionRelCause | Indicates the support of "PS\_TO\_CS\_HO" PDU session release cause. |
| 29 | SamePcf | This feature indicates the support of same PCF selection for the parameter's combination. |
| 30 | ADCmultiRedirection | This feature indicates support for multiple redirection information in application detection and control. It requires the support of ADC feature. |
| 31 | RespBasedSessionRel | Indicates support of handling PDU session termination functionality as defined in clause 4.2.4.22. |
| 32 | TimeSensitiveNetworking | Indicates that the 5G System is integrated within the external network as a TSN bridge. |
| 33 | EMDBV | This feature indicates the support of the ExtMaxDataBurstVol data type defined in 3GPP TS 29.571 [11]. The use of this data type is specified in clause 4.2.2.1. |
| 34 | DNNSelectionMode | This feature indicates the support of DNN selection mode. |
| 35 | EPSFallbackReport | This feature indicates the support of the report of EPS Fallback as defined in clauses B.3.3.2 and B.3.4.6. |
| 36 | PolicyDecisionErrorHandling | This feature indicates the support of the error report of the policy decision and/or condition data which is not referred by any PCC rule or session rule as defined in clause 4.2.3.26 and 4.2.4.26. |
| 37 | DDNEventPolicyControl | This feature indicates the support for policy control in the case of DDN Failure and Delivery Status events as defined in clause 4.2.4.27. |
| 38 | ReallocationOfCredit | This feature indicates the support of notifications of reallocation of credit. |
| 39 | BDTPolicyRenegotiation | This feature indicates the support of the BDT policy re-negotiation. |
| 40 | ExtPolicyDecisionErrorHandling | This feature indicates the support of the error report of a faulty SM policy decision parameter as defined in clause 4.2.3.26 and 4.2.4.26. It requires the support of PolicyDecisionErrorHandling feature. |
| 41 | ImmediateTermination | This feature indicates the support of the termination the PDU session when the NF service consumer cannot ensure the UE, RAN, AMF, or UPF can revert to the status before the PDU session modification occurred, as defined in clause 4.2.4.21. |
| 42 | AggregatedUELocChanges | This feature indicates the support of notifications of serving area (i.e. tracking area) and/or serving cell changes. |
| 43 | 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 clauses 6.5.3.2 and 6.5.3.3 of 3GPP TS 29.500 [4] and according to HTTP redirection principles for indirect communication, as specified in clause 6.10.9 of 3GPP TS 29.500 [4]. |
| 44 | GroupIdListChange | This feature indicates the support for the notification of changes in the list of internal group identifiers. |
| 45 | 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 featute is also supported. |
| 46 | OfflineChOnly | This feature enables the PCF to signal the "PDU Session with offline charging only" indication as defined in clause 4.2.2.3.3. |
| 47 | Dual-Connectivity-redundant-UP-paths | Indicates the support of policy authorization of end to end redundant user plane path using dual connectivity as described in clause 4.2.2.20. |
| 48 | DDNEventPolicyControl2 | This feature indicates the support for the policy control removal in the case of DDN Failure and/or Delivery Status event(s) is cancelled as defined in clause 4.2.4.27. The DDNEventPolicyControl feature shall be supported in order to support this feature. |
| 49 | VPLMN-QoS-Control | Indicates the support of QoS constraints from the VPLMN for the derivation of the authorized Session-AMBR and authorized default QoS. |
| 50 | 2G3GIWK | This feature indicates the support of GERAN and UTRAN access over N7 interface. |
| 51 | 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. |
| 52 | AF\_latency | This feature indicates the support of Edge relocation considering user plane latency. This feature requires that the TSC feature is also supported. |
| 53 | SatBackhaulCategoryChg | This feature indicates the support of notification of a change between different satellite backhaul categories, or between satellite backhaul and non-satellite backhaul. |
| 54 | CHFsetSupport | Indicates the support of CHF redundancy and failover mechanisms based on CHF instance availability within a CHF Set, as described in clause 4.2.2.3.1. |
| 55 | EnATSSS | Indicates the support of ATSSS enhancement. It requires the support of ATSSS feature. |
| 56 | MPSforDTS | Indicates support of the MPSfor DTS feature as described in clause 4.2.6.2.12.4. |
| 57 | RoutingInfoRemoval | Indicates the support of the removal of the "routeToLocs" attribute from the TrafficControlData instance. |
| 58 | ePRA | This feature indicates the support of presence reporting area change reporting. It additionally supports the update of the elements of a UE Dedicated Presence Reporting Area by the full replacement of the previously provided one comparing with the PRA feature. |
| 59 | AMInfluence | Indicates the support of the delivery of the PCF for the UE request to be notified by the PCF for the PDU session about PDU session established/terminated events. |
| 60 | PvsSupport | This feature indicates the support of SNPN UE Remote Provisioning via User Plane as described in clause 4.2.2.21. |
| 61 | EneNA | This feature indicates the support of NWDAF data reporting. |
| 62 | BIUMR | This feature bit indicates whether the NF Service Consumer (e.g. SMF) and PCF supports Binding Indication Update for multiple resource contexts specified in clauses 6.12.1 and 5.2.3.2.6 of 3GPP TS 29.500 [4]. |
| 63 | EASIPreplacement | This feature indicates the support of EAS IP replacement. This feature requires that the TSC feature is also supported. |
| 64 | ExposureToEAS | This feature indicates the support of exposure of QoS monitoring results to local AF. This feature requires that QosMonitoring feature is also supported. |
| 65 | SimultConnectivity | This feature indicates the support of temporary simultaneously connectivity at edge relocation. This feature requires that the TSC feature is also supported. |
| 66 | SGWRest | This feature indicates the support of SGW Restoration procedures. Only applicable to the interworking scenario as defined in Annex B. |
| 67 | ReleaseToReactivate | This feature indicates that the PCF can request the SMF for reactivation of a PDU session based on an SM Policy Association release cause. |
| 68 | EASDiscovery | This feature indicates the support of EAS (re)discovery. |
| 69 | AccNetChargId\_String | This feature indicates the support of long character strings as access network charging identifier. |
| 70 | WLAN\_Location | This feature indicates the support of the report of the WLAN location information received from the ePDG/EPC, if available. It is only applicable to EPS interworking scenarios as specified in Annex B. |
| 71 | PackFiltAllocPrecedence | This feature indicates the support of the control of the maximum number of packet filters in the EPS network in the EPS interworking scenarios as described in Annex B. |
| 72 | SatBackhaulCategoryChg\_v2 | This feature indicates the support of the indication of satellite backhaul categories, or the indication of non-satellite backhaul during the response to the update notify request. |
| 73 | PacketDelayFailureReport | Indicates the support of packet delay failure report as part of QoS Monitoring procedures. This feature requires that QosMonitoring feature is supported. |
| 74 | AltQoSProfilesSupportReport | This feature indicates the support of the report of whether Alternative QoS parameters are supported by NG-RAN. This feature requires that AuthorizationWithRequiredQoS feature is also supported. |
| 75 | Ext2PolicyDecisionErrorHandling | This feature indicates the support of the error report of the policy decision and/or condition data which is not referred by any PCC rule or session rule when no PCC rules and no session rules are provided and the handling of partial errors.  It requires the support of ExtPolicyDecisionErrorHandling feature. |
| 76 | UEUnreachable | This feature indicates the support for the reporting of UE temporarily unavailable. |
| 77 | EnTSCAC | Indicates the support of extensions to TSCAC and the RAN feedback for BAT offset and adjusted periodicity.  This feature requires that TimeSensitiveCommunication feature is also supported. |
| 78 | MTU\_Size | This feature indicates the support of the report of the MTU size of the device side port. This feature requires that the TimeSensitiveCommunication feature is also supported. |
| 79 | EnSatBackhaulCatChg | This feature indicates the support of notification of dynamic satellite backhaul categories.  It requires the support of SatBackhaulCategoryChg and SatBackhaulCategoryChg\_v2 features. |
| 80 | SFC | This feature indicates support for application function influence on service function chaining(s).  It requires the support of TSC feature. |
| 81 | EpsUrsp | This feature indicates the support of URSP provisioning in EPS. Only applicable to the interworking scenario as defined in Annex B. |
| 82 | CommonEASDNAI | This feature controls the support of the common EAS/DNAI selection. It requires the support of TSC feature. |
| 83 | UnlimitedMultiIpv6Prefix | This feature indicates the support of multiple Ipv6 address prefixes reporting. |
| 84 | NscSupportedFeatures | This feature indicates the support of provisioning of the Network Function Service Consumer features supported in Nsmf\_EventExposure service as described in 3GPP TS 29.508 [12]. |
| 85 | URSPEnforcement | This feature indicates the support of awareness of URSP rule enforcement |
| 86 | VBCforIMS | This feature indicates the support of provisioning of the caller and callee informations in volume based charging for IMS as defined in clause A.16 of 3GPP TS 29.214 [18] (replacing PCRF with PCF). |
| 87 | ExposureToTSC | This feature indicates the support of the direct event notification of TSC management information from the UPF to the TSCTSF or TSN AF in 5GC.  This feature requires that TimeSensitiveCommunication feature is also supported. |
| 88 | NetSliceRepl | This feature indicates the support of the network slice replacement functionality introduced in this specification as part of the end-to-end network slicing functionality.  The following functionalities are supported:  - Support the reporting of the network slice replacement information to the PCF. |
| 89 | SessQoSModEnforcementFailure | This feature indicates the support of the report PDU session modification failure because the enforcement of the default QoS modification or session-AMBR modification of the active session rule failed. |
| 90 | HR-SBO | This feature indicates the support of VPLMN specific Offloading policy in Home Routed deployments with Session Breakout (HR-SBO). |
| 91 | EnATSSS\_v2 | Indicates the support of ATSSS enhancements which includes REDUNDANT steering mode, MPQUIC-UDP functionality and MA PDU session interworking enhancements. It requires the support of the EnATSSS features. |
| 92 | NetSliceUsageCtrl | This feature indicates the support of the network slice usage control functionality introduced in this specification as part of the end-to-end network slicing functionality.  The following functionalities are supported:  - Support the provisioning by the PCF of the network slice usage control information (e.g., slice PDU session inactivity timer value). |
| 93 | VPLMN-5QIPrioLevel | Indicates the support of the indication of the VPLMN supported 5QI priority level when the required 5QI Priority Level is different from the standardized Default Priority Level value in the QoS characteristics Table 5.7.4-1 in 3GPP TS 23.501 [2].  This feature requires that VPLMN-QoS-Control feature is also supported. |
| 94 | PDUSetHandling | This feature indicates the support of PDU Set handling. This feature may be used for eXtended Reality (XR) and interactive media services. |
| 95 | EnQoSMon | This feature indicates the support of enhanced QoS monitoring functionality, i.e. the report of the congestion information, and/or, the data rate information monitoring.  This feature requires that QosMonitoring feature is supported. |
| 96 | PowerSaving | This feature indicates the PCC support for UE Power Saving management.  The following functionalities are supported:  - Policy provisioning of Periodicity and N6 Traffic Parameters to be measured.  - End of Data Burst Handling. |
| 97 | L4S | This feature indicates the support of the PCF indication of ECN marking for L4S support. |
| 98 | UPEAS | This feature indicates the support of UPF enhancements for exposure related to the identification of QoS monitoring event exposure subscription. |
| 99 | QoSMonCapRepo | This feature indicates the support of QoS Monitoring for packet delay and/or congestion Capability Report.  This feature requires that QosMonitoring feature is supported if packet delay is requested.  This feature requires that the EnQoSMon feature is supported if congestion is requested.  This feature requires that the EnQoSMon\_v2 feature is supported if available bitrate is requested. |
| 100 | LocalOffloading | This feature indicates the support of Local Offloading Management Policy, i.e. local offloading management via the I-SMF. |
| 101 | TraffRouteReqOutcome | This feature indicates the support in PCF for the indication of AF requesting the installation outcome of requested traffic routing in the traffic route requirement installation outcome event notification.  This feature requires that the TSC feature is supported. |
| 102 | EnATSSS\_v3 | Indicates the support of ATSSS enhancements which includes MPQUIC-IP and MPQUIC-E functionalities. It requires the support of the EnATSSS\_v2 features. |
| 103 | EnEpsUrsp | This feature indicates the support of enhancement for URSP provisioning in EPS.  The following functionalities are supported:  - Indication of URSP provisioning in EPS. Only applicable to the interworking scenario as defined in Annex B.  This feature requires that EpsUrsp feature is supported. |
| 104 | MpxMedia | This feature indicates the support of uniquely identifying each media flow of multiplexed media with the provided Multiplexed Media Information. |
| 105 | N6DelayMeasurement | This feature indicates the support of considering N6 delay measurement for traffic steering. |
| 106 | Non3gppDevice | This feature indicates support of provisioning policies based on information about the non-3gpp device behind the UE. |
| 107 | TrafficCharChange | This feature indicates the support of dynamically changing traffic characteristics, including:  - the handling of Data Burst Size marking indication.  - the handling of Expedite Data Transfer Indication. |
| 108 | HeaderHandling | This feature indicates the support of the header handling functionality.  This feature enables the following functionality:  - the support of provisioning of Header Handling Control information for handling of payload headers. |
| 109 | UeSatUeComm | This feature indicates the support of reporting about serving satellite identity for UE-Satellite-UE communication in IMS.  In order to support of access network information reporting, the NetLoc feature also requires to be supported.  In order to support for the release cause code information from the access network, the RAN-NAS-Cause feature also requires to be supported.  In order to support of UP path event reporting from SMF to AF via PCF, the TSC feature also requires to be supported. |
| 110 | ExtQoSR19 | This feature indicates the enhancements on the extensions to the QoS mechanisms, including:  - the support of PDU Set QoS parameters in Alternative QoS Profile when the PDUSetHandling feature is supported.  - the support of Averaging Window and Maximum Data Burst Volume parameters.  This feature requires that the AuthorizationWithRequiredQoS feature is also supported. |
| 111 | SimConnFailure | This feature indicates the support of Simultaneous Connectivity failure events.  It requires that the SimultConnectivity feature is also supported. |
| 112 | CHFGroupID | This feature indicates the support of the CHF Group ID handling for the discovery of the CHF. |
| 113 | EnQoSMon\_v2 | This feature indicates the enhancements on the QoS monitoring functionality, including:  - the reporting of available bitrate rate for a GBR QoS Flow.  This feature requires that the EnQoSMon feature is supported. |
| 114 | MultiModaIId | This feature indicates the support of providing Multi-modal Service Id to the NG-RAN. |
| 115 | OnPathN6MediaInfo | This feature indicates the support of deliver media related information for encrypted traffic, including:  - Using on-path N6 signaling method to deliver media related information for encrypted traffic. |
| 116 | RuleVersioning\_Ext | This feature indicates the support of one or more content version(s) for a PCC rule versioning.  This feature requires the support of the "RuleVersioning" feature. |
| NOTE: 5GS and EPS release cause code information is supported. The EPS release cause code information from the access network is only applicable to EPS interworking scenarios as specified in Annex B. | | |

Editor's note: Available bitrate capability reporting dependency on the EnQoSMon\_v2 feature is FFS.

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