**3GPP TSG-CT WG3 Meeting #134C3-242262**

**Changsha, China, 15 - 19 April, 2024 (revision of C3-242abc)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.514** | **CR** | **0622** | **rev** | **-** | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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:*** | Clarification for the presence conditions of QM parameters and removal of EN for congestion | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei,Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | XRM | | | | |  | ***Date:*** | | | 2024-04-01 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | * The clarification for the presence conditions of the QoS monitoring parameters is missing. * The QosMonitoringInformationRm data type was enhanced to include the requirements of congestion monitoring, hence the following Editor’s Note can be removed.   Editor’s Note: It is FFS whether the QoS monitoring requirements for congestion measurements are different than the ones for packet delay, i.e., it is FFS whether reporting period and reporting frequency apply, or different criteria needs to be applied. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Add clarification for the presence conditions of the QoS monitoring parameters is missing. * Remove the Editor’s Notes listed above. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Open issues in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.6.2.9, 5.6.2.25 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 5.6.2.9 Type EventsNotification

Table 5.6.2.9-1: Definition of type EventsNotification

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| adReports | array(AppDetectionReport) | C | 0..1 | Includes the detected application report. It shall be present when the notified event is "APP\_DETECTION". | ApplicationDetectionEvents |
| accessType | AccessType | C | 0..1 | Includes the access type. It shall be present when the notified event is "ACCESS\_TYPE\_CHANGE" or, if the feature "URSPEnforcement" is supported, when the notified event is "URSP\_ENF\_INFO". |  |
| addAccessInfo | AdditionalAccessInfo | O | 0..1 | Indicates the additional combination of Access Type and RAT Type available for MA PDU session. It may be present when the notified event is "ACCESS\_TYPE\_CHANGE" and the PDU session is a Multi-Access PDU session. | ATSSS |
| relAccessInfo | AdditionalAccessInfo | O | 0..1 | Indicates the released combination of Access Type and RAT Type previously available for MA PDU session. It may be present when the notified event is "ACCESS\_TYPE\_CHANGE" and the PDU session is a Multi-Access PDU session. | ATSSS |
| anChargAddr | AccNetChargingAddress | O | 0..1 | Includes the access network charging address. It shall be present if available when the notified event is "CHARGING\_CORRELATION". | IMS\_SBI |
| anChargIds | array(AccessNetChargingIdentifier) | C | 1..N | Includes the access network charging identifier(s). It shall be present when the notified event is "CHARGING\_CORRELATION". | IMS\_SBI |
| anGwAddr | AnGwAddress | O | 0..1 | Access network Gateway Address. It carries the IP address of the ePDG used as IPSec tunnel endpoint with the UE for EPC/ePDG and 5GS interworking. It shall be present, if applicable, when the notified event is "ACCESS\_TYPE\_CHANGE". |  |
| l4sReports | array(L4sSupport) | C | 1..N | ECN marking for L4S support information. It shall be present when the notified event is "L4S\_SUPP". | L4S |
| evSubsUri | Uri | M | 1 | The Events Subscription URI. Identifies the Events Subscription sub-resource that triggered the notification.  (NOTE 1, NOTE 5) |  |
| evNotifs | array(AfEventNotification) | M | 1..N | Notifications about individual events. |  |
| failedResourcAllocReports | array(ResourcesAllocationInfo) | C | 1..N | Indicates the status of the PCC rule(s) related to certain failed media components. It shall be included when the event trigger is "FAILED\_RESOURCES\_ALLOCATION". |  |
| succResourcAllocReports | array(ResourcesAllocationInfo) | O | 1..N | Indicates the alternative service requirement the NG-RAN can guarantee to certain media components. It may be included when the event trigger is "SUCCESSFUL\_RESOURCES\_ALLOCATION". | AuthorizationWithRequiredQoS |
| noNetLocSupp | NetLocAccessSupport | O | 0..1 | Indicates the access network does not support the report of the requested access network information. | NetLoc |
| outOfCredReports | array(OutOfCreditInformation) | C | 1..N | Out of credit information per service data flow. It shall be present when the notified event is "OUT\_OF\_CREDIT". | IMS\_SBI |
| plmnId | PlmnIdNid | C | 0..1 | PLMN Identifier or the SNPN Identifier.  It shall be present when the notified event is "PLMN\_CHG" or, if location information is required but is not available when the notified event is "ANI\_REPORT". It shall be present if available when the notified event is "RAN\_NAS\_CAUSE".  (NOTE 2) |  |
| qncReports | array(QosNotificationControlInfo) | C | 1..N | QoS notification control information. It shall be present when the notified event is "QOS\_NOTIF". |  |
| qosMonReports | array(QosMonitoringReport) | C | 1..N | QoS Monitoring reporting information. It shall be present when the notified event is "QOS\_MONITORING".  Only the "ulDelays", "dlDelays" and/or "rtDelays" attributes in QosMonitoringReport may be present. | QoSMonitoring |
| qosMonDatRateReps | array(QosMonitoringReport) | C | 1..N | QoS Monitoring reporting information with data rate measurements. It shall be present when the notified event is "QOS\_MONITORING" and data rate measurements are available.  Only the "ulDataRate" and/or "dlDataRate" attributes in QosMonitoringReport may be present. | EnQoSMon |
| congestReports | array(QosMonitoringReport) | C | 1..N | Congestion information. It shall be present when the notified event is "QOS\_MONITORING".  Only the "ulConInfo" and/or "dlConInfo" attributes in QosMonitoringReport may be present. | EnQoSMon |
| pdvMonReports | array(PdvMonitoringReport) | C | 1..N | Packet Delay Variation information. It shall be present when the notified event is "PACK\_DEL\_VAR". | EnQoSMon |
| rttMonReports | array(QosMonitoringReport) | C | 1..N | The measurement result of Round-Trip delay over two QoS flows. It shall be present when the notified event is "RT\_DELAY\_TWO\_QOS\_FLOWS".  Only the "rtDelays" attribute in QosMonitoringReport may be present. | EnQoSMon |
| ranNasRelCauses | array(RanNasRelCause) | C | 1..N | RAN-NAS release cause. It shall be present if available when the notified event is "RAN\_NAS\_CAUSE". | RAN-NAS-Cause |
| ratType | RatType | O | 0..1 | RAT type. It shall be present, if applicable, when the notified event is "ACCESS\_TYPE\_CHANGE" or, if the feature "URSPEnforcement" is supported, when the notified event is "URSP\_ENF\_INFO". |  |
| satBackhaulCategory | SatelliteBackhaulCategory | C | 0..1 | Indicates the satellite or non-satellite backhaul category of the PDU session. It shall be present, if applicable, when the notified event is "SAT\_CATEGORY\_CHG".  If the "EnSatBackhaulCatChg" feature is supported, the different dynamic satellite backhaul categories may also be provided. | SatelliteBackhaul |
| ueLoc | UserLocation | O | 0..1 | E-UTRA, or NR, and/or non-3GPP trusted and untrusted access user location information. "n3gppTai" and "n3IwfId" attributes within the "N3gaLocation" data type shall not be supplied. It shall be present if required and available when the notified event is "ANI\_REPORT". It shall be present if available when the notified event is "RAN\_NAS\_CAUSE".  (NOTE 3) (NOTE 4) | NetLoc, RAN-NAS-Cause |
| ueLocTime | DateTime | O | 0..1 | Contains the NTP time at which the UE was last known to be in the location.  (NOTE 3) | NetLoc |
| ueTimeZone | TimeZone | O | 0..1 | UE time zone.  It shall be present if required and available when the notified event is "ANI\_REPORT". It shall be present if available when the notified event is "RAN\_NAS\_CAUSE". | NetLoc, RAN-NAS-Cause |
| usgRep | AccumulatedUsage | C | 0..1 | Indicates the measured volume and/or time for sponsored data connectivity. It shall be present when the notified event is "USAGE\_REPORT". | SponsoredConnectivity |
| urspEnfRep | UrspEnforcementInfo | C | 0..1 | Includes the URSP rule enforcement information received from a UE from associated URSP rule(s). It shall be present when the notified event is "URSP\_ENF\_INFO". | URSPEnforcement |
| sscMode | SscMode | O | 0..1 | SSC Mode of the PDU session.  It may be present when the notified event is "URSP\_ENF\_INFO". | URSPEnforcement |
| ueReqDnn | Dnn | O | 0..1 | UE requested DNN.  It may be present when the notified event is "URSP\_ENF\_INFO". | URSPEnforcement |
| redundantPduSessionInfo | RedundantPduSessionInformation | O | 0..1 | RSN and PDU session pair ID of the redundant PDU session.  It may be present when the notified event is "URSP\_ENF\_INFO". | URSPEnforcement |
| 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 |
| ipv4AddrList | array(Ipv4AddrMask) | O | 1..N | List of Framed Route information of IPv4. | ExtraUEaddrReport |
| ipv6PrefixList | array(Ipv6Prefix) | O | 1..N | List of Framed Route information of IPv6 or list of IPv6 address prefixes of the served UE. | ExtraUEaddrReport |
| batOffsetInfo | BatOffsetInfo | C | 0..1 | The offset of the BAT and the optionally adjusted periodicity.  It shall be present if available when the notified event is "BAT\_OFFSET\_INFO". | EnTSCAC |
| NOTE 1: Either the complete resource URI included in the "evSubsUri" attribute or the "apiSpecificResourceUriPart" component (see clause 5.1) of the resource URI included in the "evSubsUri" attribute may be used by the NF service consumer for the identification of the Individual Application Session Context resource related to the notification.  NOTE 2: The SNPN Identifier consists of the PLMN Identifier and the NID.  NOTE 3: Whether the "ueLoc" attribute also encodes the age of location is implementation specific.  NOTE 4: When the "ueLoc" attribute contains both, the 3GPP and the non-3GPP UE location, the "ueLocTime" attribute contains the age of the last known 3GPP UE location.  NOTE 5: For event notifications of implicit subscriptions, the content of "evSubsUri" attribute shall be set as specified in clause 4.2.5.29. | | | | | |

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

#### 5.6.2.25 Type EventsSubscReqDataRm

This data type is defined in the same way as the "EventsSubscReqData" data type, but:

- with the OpenAPI "nullable: true" property; and

- the removable attribute "usgThres" is defined with the removable data type "UsageThresholdRm"; the removable attribute "avrgWndw" is defined with the removable data type "AverWindowRm"; and removable attributes "qosMon", "qosMonDatRate", "congestMon" and "pdvMon" are defined with the removable data type "QosMonitoringInformationRm".

Table 5.6.2.25-1: Definition of type EventsSubscReqDataRm

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| events | array(AfEventSubscription) | M | 1..N | Subscribed Events. |  |
| notifUri | Uri | O | 0..1 | Notification URI. |  |
| reqQosMonParams | array(RequestedQosMonitoringParameter) | O | 1..N | Indicates the QoS information to be monitored, e.g. UL packet delay, DL packet delay, round trip packet delay, and/or congestion information, and/or data rate is to be monitored when the QoS Monitoring is enabled for the service data flow.  It may be present when the event "QOS\_MONITORING" is subscribed.  (NOTE 3) | QoSMonitoring |
| qosMon | QosMonitoringInformationRm | O | 0..1 | Packet delay threshold(s) information. It may be present when the event "QOS\_MONITORING" is subscribed and event based packet delay measurements are required. | QoSMonitoring |
| qosMonDatRate | QosMonitoringInformationRm | O | 0..1 | Contains the data rate measurements information for the subscribed report. It may be present when the event "QOS\_MONITORING" is subscribed and event-based data rate measurements are required. | EnQoSMon |
| pdvReqMonParams | array(RequestedQosMonitoringParameter) | O | 1..N | Indicates the Packet Delay Variation to be monitored, e.g. UL packet delay, DL packet delay and/or round trip packet delay between the UE and the UPF is to be monitored. | EnQoSMon |
| pdvMon | QosMonitoringInformationRm | O | 0..1 | Packet Delay Variation information for the subscribed report. It may be present when the event "PACK\_DEL\_VAR" is subscribed. | EnQoSMon |
| congestMon | QosMonitoringInformationRm | O | 0..1 | Congestion threshold for the subscribed report. It may be present when the event "QOS\_MONITORING" is subscribed and event-based congestion measurements are required.  (NOTE 3) | EnQoSMon |
| reqAnis | array(RequiredAccessInfo) | C | 1..N | Represents the required access network information. It shall be present when the event "ANI\_REPORT" is subscribed. (NOTE 1) | NetLoc |
| usgThres | UsageThresholdRm | O | 0..1 | Includes the volume and/or time thresholds for sponsored data connectivity. | SponsoredConnectivity |
| notifCorreId | string | O | 0..1 | It is used to set the value of Notification Correlation ID in the corresponding notification. | EnhancedSubscriptionToNotification |
| directNotifInd | boolean | C | 0..1 | Indicates that the event notification of QoS Monitoring data is sent by the UPF to Local NEF or AF if it is included and set to true. It may be present when the event "QOS\_MONITORING" is subscribed.  (NOTE 2) | ExposureToEAS  EnQoSMon |
| avrgWndw | AverWindowRm | O | 0..1 | Averaging window for the calculation of the data rate for the service data flow | EnQoSMon |
| NOTE 1: "ANI\_REPORT" is the one-time reported event and thus the attribute "reqAnis" is not defined as removable attribute (i.e. with the removable data type "RequiredAccessInfoRm"). Once the access network information is reported to the NF service consumer the subscription to this event is automatically terminated in the PCF and the related information is removed.  NOTE 2: When the "EnQoSMon" feature is supported, the "directNotifInd" attribute indicates whether direct event notification is requested for the QoS measurement(s) provided (or previously provided) in the "reqQosMonParams" attribute.  NOTE 3: Only the "EVENT\_DETECTION" reporting frequency in "notifMethod" attribute included in "events" attribute is applicable when the "reqQosMonParams" includes "DOWNLINK\_CONGESTION" and/or "UPLINK\_CONGESTION". | | | | | |

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