**3GPP TSG-RAN WG3 Meeting #110-e *R3-206981***

**E-meeting, 2 – 12 Nov 2020**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.413** | **CR** | **0511** | **rev** | **1** | **Current version:** | 16.3.0 |  |
|  | | | | | | | | |
| *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 | **X** | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Introducing AQP in path switch request acknowledge message | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Orange, BT, Vodafone | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL | | | | |  | ***Date:*** | | | 2020-10-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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:*** | | It is described in section of 4.9.1.2.2 in 23.502 that:  *" 6. SMF to AMF: Nsmf\_PDUSession\_UpdateSMContext Response (N2 SM information)*  *……*  *If the Source NG-RAN does not support Alternative QoS Profiles (see TS 23.501 [2]) and the Target NG-RAN supports them, the SMF sends the Alternative QoS Profiles (see TS 23.501 [2]) to the Target NG-RAN on a per QoS Flow basis, if available.*  *7. AMF to NG-RAN: N2 Path Switch Request Ack (N2 SM Information, Failed PDU Sessions, UE Radio Capability ID). "*  The main intention is to allow the NG-RAN to receive the AQP parameters from the CN during the Xn based handover, and perform the notification control at the first place. Hence there is a need to align stage3 spec with the stage 2 spec.  Note that at this time, the QoS flow already successfully passes the admission control at the target NG-RAN node based on the requested QoS parameters sent from the source NG-RAN. This means that there is no need for the target NG-RAN node to feedback any admission control result upon reception of the Alternative QoS Parameters Set List IE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the AQP parameters in the PATH SWITCH REQUEST ACKNOWLEDGE message.    Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has impact on the path switch request.  This CR has an impact under functional point of view.  The impact can be considered isolated since it impacts path switch request. | | | | | | | | |
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| ***Consequences if not approved:*** | | Misalignment between stage 2 and stage 3 specifications. | | | | | | | | |
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| ***Clauses affected:*** | | 8.4.4, 9.3.4.9 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **Change Begins** |

### 8.4.4 Path Switch Request

#### 8.4.4.1 General

The purpose of the Path Switch Request procedure is to establish a UE associated signalling connection to the 5GC and, if applicable, to request the switch of the downlink termination point of the NG-U transport bearer towards a new termination point.

#### 8.4.4.2 Successful Operation



Figure 8.4.4.2-1: Path switch request: successful operation

<Unchanged Text Omitted>

If the PATH SWITCH REQUEST ACKNOWLEDGE message contains the *UE Radio Capability ID* IE, the NG-RAN node shall, if supported, use it as specified in TS 23.501 [9] and TS 23.502 [10].

If the PATH SWITCH REQUEST ACKNOWLEDGE message contains the *Alternative QoS Parameters Set List* IE, the NG-RAN node shall, if supported, use it as specified in TS 23.502 [10].

**Interactions with RRC Inactive Transition Report procedure:**

If the *RRC Inactive Transition Report Request* IE is included in the PATH SWITCH REQUEST ACKNOWLEDGE message and set to "single RRC connected state report" and the UE is in RRC\_CONNECTED state, the NG-RAN node shall, if supported, send one RRC INACTIVE TRANSITION REPORT message to the AMF to report the RRC state of the UE.

If the *RRC Inactive Transition Report Request* IE is included in the PATH SWITCH REQUEST ACKNOWLEDGE message and set to "single RRC connected state report" and the UE is in RRC\_INACTIVE state, the NG-RAN node shall, if supported, send to the AMF one RRC INACTIVE TRANSITION REPORT message plus one subsequent RRC INACTIVE TRANSITION REPORT message when the RRC state transitions to RRC\_CONNECTED state.

If the *RRC Inactive Transition Report Request* IE is included in the PATH SWITCH REQUEST ACKNOWLEDGE message and set to "subsequent state transition report", the NG-RAN node shall, if supported, send one RRC INACTIVE TRANSITION REPORT message to the AMF to report the RRC state of the UE and subsequent RRC INACTIVE TRANSITION REPORT messages to report the RRC state of the UE when the UE enters or leaves RRC\_INACTIVE state.

<Unchanged Text Omitted>

#### 9.3.4.9 Path Switch Request Acknowledge Transfer

This IE is transparent to the AMF.

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| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| UL NG-U UP TNL Information | O |  | UP Transport Layer Information  9.3.2.2 | UPF endpoint of the NG-U transport bearer corresponding to the *DL NG-U UP TNL Information* IE received in the *Path Switch Request Transfer* IE. | - |  |
| Security Indication | O |  | 9.3.1.27 |  | - |  |
| Additional NG-U UP TNL Information | O |  | UP Transport Layer Information Pair List  9.3.2.11 | NG-RAN node endpoint of the NG-U transport bearer indicated in the *Path Switch Request Transfer* IE and the corresponding UPF endpoint for split PDU session. | YES | ignore |
| Redundant UL NG-U UP TNL Information | O |  | UP Transport Layer Information  9.3.2.2 | UPF endpoint of the NG-U transport bearer, for delivery of UL PDUs for the redundant transmission. | YES | ignore |
| Additional Redundant NG-U UP TNL Information | O |  | UP Transport Layer Information Pair List  9.3.2.11 | NG-RAN node endpoint of the NG-U transport bearer for the redundant transmission indicated in the *Path Switch Request Transfer* IE and the corresponding UPF endpoint for split PDU session. | YES | ignore |
| **QoS Flow Parameters List** |  | *0..1* |  |  | YES | ignore |
| **>QoS Flow Parameters Item** |  | *1..<maxnoofQoSFlows>* |  |  | - |  |
| >>QoS Flow Identifier | M |  | 9.3.1.51 |  | - |  |
| >>Alternative QoS Parameters Set List | O |  | 9.3.1.151 | Indicates alternative sets of QoS parameters for the QoS flow. | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofQoSFlows | Maximum no. of QoS flows allowed within one PDU session. Value is 64. |

9.4.5 Information Element definitions

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-- Information Element Definitions

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XnAP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

<Unchanged Text Omitted>

id-PrivacyIndicator,

id-PWSFailedCellIDList,

id-PC5QoSParameters,

id-QosFlowParametersList,

id-RANNodeName,

id-RANPagingPriority,

id-RANStatusTransfer-TransparentContainer,

id-RAN-UE-NGAP-ID,

<Unchanged Text Omitted>

PathSwitchRequestAcknowledgeTransfer ::= SEQUENCE {

uL-NGU-UP-TNLInformation UPTransportLayerInformation OPTIONAL,

securityIndication SecurityIndication OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {PathSwitchRequestAcknowledgeTransfer-ExtIEs} } OPTIONAL,

...

}

PathSwitchRequestAcknowledgeTransfer-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

{ ID id-AdditionalNGU-UP-TNLInformation CRITICALITY ignore EXTENSION UPTransportLayerInformationPairList PRESENCE optional }|

{ ID id-RedundantUL-NGU-UP-TNLInformation CRITICALITY ignore EXTENSION UPTransportLayerInformation PRESENCE optional }|

{ ID id-AdditionalRedundantNGU-UP-TNLInformation CRITICALITY ignore EXTENSION UPTransportLayerInformationPairList PRESENCE optional }|

{ ID id-QosFlowParametersList CRITICALITY ignore EXTENSION QosFlowParametersList PRESENCE optional },

...

}

<Unchanged Text Omitted>

QosFlowNotifyItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

{ ID id-CurrentQoSParaSetIndex CRITICALITY ignore EXTENSION AlternativeQoSParaSetNotifyIndex PRESENCE optional },

...

}

QosFlowParametersList ::= SEQUENCE (SIZE(1..maxnoofQosFlows)) OF QosFlowParametersItem

QosFlowParametersItem ::= SEQUENCE {

qosFlowIdentifier QosFlowIdentifier,

alternativeQoSParaSetList AlternativeQoSParaSetList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { {QosFlowParametersItem-ExtIEs} } OPTIONAL,

...

}

QosFlowParametersItem-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

...

}

QosFlowPerTNLInformation ::= SEQUENCE {

uPTransportLayerInformation UPTransportLayerInformation,

associatedQosFlowList AssociatedQosFlowList,

iE-Extensions ProtocolExtensionContainer { { QosFlowPerTNLInformation-ExtIEs} } OPTIONAL,

...

}

<Unchanged Text Omitted>

### 9.4.7 Constant Definitions

<Unchanged Text Omitted>

id-ConfiguredTACIndication ProtocolIE-ID ::= 272

id-Extended-RANNodeName ProtocolIE-ID ::= 273

id-Extended-AMFName ProtocolIE-ID ::= 274

id-QosFlowParametersList ProtocolIE-ID ::= xxx

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| **Change Ends** |