**3GPP TSG-RAN WG3 Meeting #110-e *R3-206444***

**E-meeting, 2 – 12 Nov 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.413** | **CR** | **0508** | **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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Introducing QoS parameters update at Xn handover | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Ericsson, Samsung | | | | | | | | | |
| ***Source to TSG:*** | RAN3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IIOT-Core | | | | |  | ***Date:*** | | | 2020-10-22 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | SA2#141-e meeting has agreed S2-2008235 and S2-2007002.  In section of 4.9.1.2.2 in 23.502 for Xn based inter NG-RAN handover without User Plane function re-allocation, it depicts that the SMF may provide in the PATH SWITCH REQUEST ACKNOWLEDGE message to the NG-RAN node via AMF   * the updated CN PDB and, * TSCAI Burst Arrival Time for traffic in **downlink** direction based on the updated CN PDB.   This is benefical for the target NG-RAN node for early handling of the URLLC and TSC services. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | In the PATH SWITCH REQUEST ACKNOWLEDGE message:   * add the CN PDB and TSCAI downlink Arrival Time for each accepted QoS Flow.   **Impact assessment towards the previous version of the specification (same release):**  This CR has an isolated impact towards the previous version of the specification (same release). This CR only has an impact on the path switch request procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment between stage 2 and stage 3 specifications. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.4.4, 9.3.4.9, 9.4.5, 9.4.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS38.413 CR 0518 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | V0: R3-206444  V1: R3-207089  Update based on the online comments | | | | | | | | |

|  |
| --- |
| **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 *Redundant UL NG-U UP TNL Information* IE is included within the *Path Switch Request Acknowledge Transfer* IE of the PATH SWITCH REQUEST ACKNOWLEDGE message, the NG-RAN node shall store this information and use it as the uplink termination point for the user plane data for the redundant transmission for this PDU session as specified in TS 23.501 [9].

If the *Additional Redundant NG-U* *UP TNL Information* IE is included within the *Path Switch Request Acknowledge Transfer* IE of the PATH SWITCH REQUEST ACKNOWLEDGE message, the NG-RAN node shall store this information and use the included *UL NG-U UP TNL Information* IE(s) as the uplink termination point(s) of the user plane data for this PDU session split in different tunnel.

If the *CN Packet Delay Budget Downlink* IE is included within the *Path Switch Request Acknowledge Transfer* IE of the PATH SWITCH REQUEST ACKNOWLEDGE message, the NG-RAN node shall, if supported, replace the previously provided CN Packet Delay Budget Downlink if any, and use it as specified in TS 23.502 [10].

If the *CN Packet Delay Budget Uplink* IE is included within the *Path Switch Request Acknowledge Transfer* IE of the PATH SWITCH REQUEST ACKNOWLEDGE message, the NG-RAN node shall, if supported, replace the previously provided CN Packet Delay Budget Uplink if any, and use it as specified in TS 23.502 [10].

If the *Burst Arrival Time Downlink* IE is included within the *Path Switch Request Acknowledge Transfer* IE of the PATH SWITCH REQUEST ACKNOWLEDGE message, the NG-RAN node shall, if supported, replace the previously provided value if any, and use it as specified in TS 23.502 [10].

<Unchanged Text Omitted>

9.3.4.9 Path Switch Request Acknowledge Transfer

This IE is transparent to the AMF.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 |  | - | - |
| >>CN Packet Delay Budget Downlink | O |  | Extended Packet Delay Budget  9.3.1.135 | Core Network Packet Delay Budget is specified in TS 23.501 [9].  This IE may be present in case of GBR QoS flows and is ignored otherwise. | - | - |
| >>CN Packet Delay Budget Uplink | O |  | Extended Packet Delay Budget  9.3.1.135 | Core Network Packet Delay Budget is specified in TS 23.501 [9].  This IE may be present in case of GBR QoS flows and is ignored otherwise. | - | - |
| >>Burst Arrival Time Downlink | O |  | Burst Arrival Time  9.3.1.133 | Indicates the downlink Burst Arrival Time of the TSC QoS flow |  |  |

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

<Unchanged Text Omitted>

### 9.4.5 Information Element Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

NGAP-IEs {

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

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

<Unchanged Text Omitted>

id-PDUSessionAggregateMaximumBitRate,

id-PDUSessionResourceFailedToSetupListCxtFail,

id-PDUSessionResourceReleaseResponseTransfer,

id-PDUSessionType,

id-PSCellInformation,

id-QosFlowAddOrModifyRequestList,

id-QosFlowParametersList,

id-QosFlowSetupRequestList,

id-QosFlowToReleaseList,

id-QosMonitoringRequest,

<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>

-- Q

QosCharacteristics ::= CHOICE {

nonDynamic5QI NonDynamic5QIDescriptor,

dynamic5QI Dynamic5QIDescriptor,

choice-Extensions ProtocolIE-SingleContainer { {QosCharacteristics-ExtIEs} }

}

QosCharacteristics-ExtIEs NGAP-PROTOCOL-IES ::= {

...

}

<Unchanged Text Omitted>

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

QosFlowParametersItem ::= SEQUENCE {

qosFlowIdentifier QosFlowIdentifier,

cNPacketDelayBudgetDL ExtendedPacketDelayBudget OPTIONAL,

cNPacketDelayBudgetUL ExtendedPacketDelayBudget OPTIONAL,

burstArrivalTimeDownlink BurstArrivalTime OPTIONAL,

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

...

}

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

...

}

<Unchanged Text Omitted>

### 9.4.7 Constant Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- 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 ::= yyy

END

-- ASN1STOP

|  |
| --- |
| **Change Ends** |