**3GPP TSG-RAN WG3 Meeting #119bis** **R3-231976**

**Online, 17th – 26th April 2023**

**Title:** (TP for BLCR for 38.413): Inter-gNB mobility

**Source:** China Telecom, LG Electronics

**Agenda item:** 16.3

**Document Type:** other

1. Introduction

As guidance in CB: # SLRelay1\_ServiceContinuity, this contribution is to provide a TP to TS 38.413 for inter-gNB mobility of L2 U2N relay.

2. Text proposal

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8.4.2 Handover Resource Allocation

8.4.2.1 General

The purpose of the Handover Resource Allocation procedure is to reserve resources at the target NG-RAN node for the handover of a UE. The procedure uses UE-associated signalling.

8.4.2.2 Successful Operation

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**Figure 8.4.2.2-1: Handover resource allocation: successful operation**

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If the HANDOVER REQUEST message contains within the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IEthe *NGAP IE Support Information Request List* IE, the target NG-RAN node shall, if supported and the target NG-RAN node accepts the request for handover, for each included NGAP Protocol IE-Id provided within the *Target NG-RAN Node to Source NG-RAN Node Transparent Container* IE in the HANDOVER REQUEST ACKNOWLEDGE message

- set the *NGAP Protocol IE Support Information* IE to "supported" if the target NG-RAN node has information that the functionality associated with the indicated IE is supported

- set the *NGAP Protocol IE Support Information* IE to "not-supported" if the target NG-RAN node has information that the functionality associated with the indicated IE is not supported

on the interface instance via which the HANDOVER REQUEST message has been received, and

- set the *NGAP Protocol IE Presence Information* IE to "present" if the target NG-RAN node has received the respective NGAP Protocol IE-Id in the HANDOVER REQUEST message, and “not-present” otherwise.

If the *Candidate Relay UE* *Information List* IE is included in the *Source NG-RAN Node to Target NG-RAN Node Transparent Container* IE within the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, use it to configure the path switch to indirect path as specified in TS 38.300 [8].

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9.3.1.29 Source NG-RAN Node to Target NG-RAN Node Transparent Container

This IE is produced by the source NG-RAN node and is transmitted to the target NG-RAN node. For inter-system handovers to 5G, the IE is transmitted from the external handover source to the target NG-RAN node.

This IE is transparent to the 5GC.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| RRC Container | M |  | OCTET STRING | Includes the RRC *HandoverPreparationInformation* message as defined in TS 38.331 [18] if the target is a gNB.  Includes the RRC *HandoverPreparationInformation* message as defined in TS 36.331 [21] if the target is an ng-eNB. | - |  |
| **PDU Session Resource Information List** |  | *0..1* |  | For intra-system handovers in NG-RAN. | - |  |
| **>PDU Session Resource Information Item** |  | *1..<maxnoofPDUSessions>* |  |  | - |  |
| >>PDU Session ID | M |  | 9.3.1.50 |  | - |  |
| **>>QoS Flow Information List** |  | *1* |  |  | - |  |
| **>>>QoS Flow Information Item** |  | *1..<maxnoofQoSFlows>* |  |  | - |  |
| >>>>QoS Flow Identifier | M |  | 9.3.1.51 |  | - |  |
| >>>>DL Forwarding | O |  | 9.3.1.33 |  | - |  |
| >>>>UL Forwarding | O |  | 9.3.1.118 |  | YES | ignore |
| >>>>Source Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the sending node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| >>>>Source Node Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the source SN node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| >>DRBs to QoS Flows Mapping List | O |  | 9.3.1.34 |  | - |  |
| **E-RAB Information List** |  | *0..1* |  | For inter-system handovers to 5G. | - |  |
| **>E-RAB Information Item** |  | *1..<maxnoofE-RABs>* |  |  | - |  |
| >>E-RAB ID | M |  | 9.3.2.3 |  | - |  |
| >>DL Forwarding | O |  | 9.3.1.33 |  | - |  |
| >>Source Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the sending node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| >>Source Node Transport Layer Address | O |  | Transport Layer Address  9.3.2.4 | Identifies the TNL address used by the source SN node for direct data forwarding  towards the target NG-RAN node | YES | ignore |
| Target Cell ID | M |  | NG-RAN CGI  9.3.1.73 |  | - |  |
| Index to RAT/Frequency Selection Priority | O |  | 9.3.1.61 |  | - |  |
| UE History Information | M |  | 9.3.1.95 |  | - |  |
| SgNB UE X2AP ID | O |  | 9.3.1.127 | Allocated at the Source en-gNB | - |  |
| UE History Information from UE | O |  | 9.3.1.166 |  | YES | ignore |
| Source Node ID | O |  | 9.3.1.195 | Source SN ID | YES | ignore |
| UE Context Reference at Source | O |  | RAN UE NGAP ID  9.3.3.2 |  | YES | ignore |
| **MBS Active Session Information Source to Target List** |  | *0..1* |  |  | YES | ignore |
| **>MBS Active Session Information Source to Target Item** |  | *1..<maxnoofMBSSessionsofUE>* |  |  | - |  |
| >>MBS Session ID | M |  | 9.3.1.206 |  | - |  |
| >>MBS Area Session ID | O |  | 9.3.1.207 | If included, this IE indicates the MBS Area Session ID of the UE at the NG-RAN node from which the UE context is transferred | - |  |
| >>MBS Service Area | O |  | 9.3.1.208 | Included if available in source NG-RAN node. | - |  |
| >>MBS QoS Flows To Be Setup List | M |  | 9.3.1.236 |  | - |  |
| **>>MBS Mapping and Data Forwarding Request List** |  | *0..1* |  |  | - |  |
| **>>>MBS Mapping and Data Forwarding Request Item** |  | *1..<maxnoofMRBs>* |  |  | - |  |
| >>>>MRB ID | M |  | 9.3.1.218 | Contains the MRB ID value allocated at the source NG-RAN node. | - |  |
| **>>>>MBS QoS Flow List** |  | *1..<maxnoofMBSQoSflows>* |  |  | - |  |
| >>>>>MBS QoS Flow Identifier | M |  | QoS Flow Identifier  9.3.1.51 |  | - |  |
| >>>>MRB Progress Information | O |  | 9.3.1.219 | The SN information of the last packet which has already been delivered for the MRB. | - |  |
| QMC Configuration Information | O |  | 9.3.1.223 | Used for passing the QoE measurement information from the source NG-RAN node to the target NG-RAN node. | YES | ignore |
| **NGAP IE Support Information Request List** |  | *0..1* |  |  | YES | ignore |
| **>NGAP IE Support Information Request Item** |  | *1..<maxnoofIESupportInfo>* |  |  | - |  |
| >>NGAP Protocol IE-Id | M |  | 9.3.1.239 |  | - |  |
| **Candidate Relay UE Information List** |  | *0..1* |  |  | YES | ignore |
| **>** **Candidate Relay UE Information Item** |  | *1*..<*maxnoofCandidateRelayUEs*> |  |  | – |  |
| >> Candidate Relay UE ID | M |  | BIT STRING (SIZE(24)) | Includes the *SL-SourceIdentity* for the target relay UE as defined in TS 38.331 [18]. | – |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofPDUSessions | Maximum no. of PDU sessions allowed towards one UE. Value is 256. |
| maxnoofQoSFlows | Maximum no. of QoS flows allowed within one PDU session. Value is 64. |
| maxnoofE-RABs | Maximum no. of E-RABs allowed towards one UE. Value is 256. |
| maxnoofMBSSessions | Maximum no. of MBS sessions allowed within one PDU session. Value is 32. |
| maxnoofMBSSessionsofUE | Maximum no. of MBS sessions allowed towards one UE. Value is 256. |
| maxnoofMBSQoSflows | Maximum no. of MBS QoS flows allowed within one MBS session. Value is 64. |
| maxnoofMRBs | Maximum no. of MRBs. Value is 32. |
| maxnoofIESupportInfo | Maximum no. of IE Support Information. Value is 32. |
| maxnoofCandidateRelayUEs | Maximum no. of Candidate Relay UEs. Value is 32. |

Editor’s note: The range of the list is to be finally confirmed when RAN2 has finalised their work.

Editor’s note: Details on the RRC reference is FFS.

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9.4.5 Information Element Definitions

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--

-- Information Element Definitions

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

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

id-AdditionalDLForwardingUPTNLInformation,

id-AdditionalULForwardingUPTNLInformation,

id-AdditionalDLQosFlowPerTNLInformation,

id-AdditionalDLUPTNLInformationForHOList,

id-AdditionalNGU-UP-TNLInformation,

id-AdditionalRedundantDL-NGU-UP-TNLInformation,

id-AdditionalRedundantDLQosFlowPerTNLInformation,

id-AdditionalRedundantNGU-UP-TNLInformation,

id-AdditionalRedundantUL-NGU-UP-TNLInformation,

id-AdditionalUL-NGU-UP-TNLInformation,

id-AlternativeQoSParaSetList,

id-BurstArrivalTimeDownlink,

id-CandidateRelayUEInformationList,

id-Cause,

id-CNPacketDelayBudgetDL,

id-CNPacketDelayBudgetUL,

id-CNTypeRestrictionsForEquivalent,

id-CNTypeRestrictionsForServing,

id-CommonNetworkInstance,

id-ConfiguredTACIndication,

id-CurrentQoSParaSetIndex,

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maxnoofAllowedAreas,

maxnoofAllowedCAGsperPLMN,

maxnoofAllowedS-NSSAIs,

maxnoofBluetoothName,

maxnoofBPLMNs,

maxnoofCAGSperCell,

maxnoofCandidateCells,

maxnoofCandidateRelayUEs,

maxnoofCellIDforMDT,

maxnoofCellIDforQMC,

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-- C

CAG-ID ::= BIT STRING (SIZE(32))

CandidateRelayUEInformationList ::= SEQUENCE (SIZE(1.. maxnoofCandidateRelayUEs)) OF CandidateRelayUEInformationItem

CandidateRelayUEInformationItem ::= SEQUENCE {

candidateRelayUE-Id CandidateRelayUE-ID,

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

...

}

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

...

}

CandidateRelayUE-ID ::= BIT STRING (SIZE(24))

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SourceNGRANNode-ToTargetNGRANNode-TransparentContainer ::= SEQUENCE {

rRCContainer RRCContainer,

pDUSessionResourceInformationList PDUSessionResourceInformationList OPTIONAL,

e-RABInformationList E-RABInformationList OPTIONAL,

targetCell-ID NGRAN-CGI,

indexToRFSP IndexToRFSP OPTIONAL,

uEHistoryInformation UEHistoryInformation,

iE-Extensions ProtocolExtensionContainer { {SourceNGRANNode-ToTargetNGRANNode-TransparentContainer-ExtIEs} } OPTIONAL,

...

}

SourceNGRANNode-ToTargetNGRANNode-TransparentContainer-ExtIEs NGAP-PROTOCOL-EXTENSION ::= {

{ ID id-SgNB-UE-X2AP-ID CRITICALITY ignore EXTENSION SgNB-UE-X2AP-ID PRESENCE optional }|

{ ID id-UEHistoryInformationFromTheUE CRITICALITY ignore EXTENSION UEHistoryInformationFromTheUE PRESENCE optional }|

{ ID id-SourceNodeID CRITICALITY ignore EXTENSION SourceNodeID PRESENCE optional }|

{ ID id-UEContextReferenceAtSource CRITICALITY ignore EXTENSION RAN-UE-NGAP-ID PRESENCE optional }|

{ ID id-MBS-ActiveSessionInformation-SourcetoTargetList CRITICALITY ignore EXTENSION MBS-ActiveSessionInformation-SourcetoTargetList PRESENCE optional }|

{ ID id-QMCConfigInfo CRITICALITY ignore EXTENSION QMCConfigInfo PRESENCE optional }|

{ ID id-NGAPIESupportInformationRequestList CRITICALITY ignore EXTENSION NGAPIESupportInformationRequestList PRESENCE optional }|

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

...

}

SourceNodeID ::= CHOICE {

sourceengNB-ID GlobalGNB-ID,

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

}

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

...

}

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9.4.7 Constant Definitions

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--

-- Constant definitions

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

NGAP-Constants {

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

ngran-Access (22) modules (3) ngap (1) version1 (1) ngap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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maxnoofAllowedAreas INTEGER ::= 16

maxnoofAllowedCAGsperPLMN INTEGER ::= 256

maxnoofAllowedS-NSSAIs INTEGER ::= 8

maxnoofBluetoothName INTEGER ::= 4

maxnoofBPLMNs INTEGER ::= 12

maxnoofCAGSperCell INTEGER ::= 64

maxnoofCandidateRelayUEs INTEGER ::= 32

maxnoofCellIDforMDT INTEGER ::= 32

maxnoofCellIDforWarning INTEGER ::= 65535

maxnoofCellinAoI INTEGER ::= 256

maxnoofCellinEAI INTEGER ::= 65535

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id-NGAPIESupportInformationRequestList ProtocolIE-ID ::= 355

id-NGAPIESupportInformationResponseList ProtocolIE-ID ::= 356

id-MBS-SessionFSAIDList ProtocolIE-ID ::= 357

id-MBSSessionReleaseResponseTransfer ProtocolIE-ID ::= 358

id-ManagementBasedMDTPLMNModificationList ProtocolIE-ID ::= 359

id-EarlyMeasurement ProtocolIE-ID ::= 360

id-BeamMeasurementsReportConfiguration ProtocolIE-ID ::= 361

id-HFCNode-ID-new ProtocolIE-ID ::= 362

id-GlobalCable-ID-new ProtocolIE-ID ::= 363

id-TargetHomeENB-ID ProtocolIE-ID ::= 364

id-CandidateRelayUEInformationList ProtocolIE-ID ::= aaa

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