**3GPP TSG-RAN WG3 Meeting #116-e *<TDoc#>***

**E-meeting, 09 May – 19 May 2022**

**Title:** Record List of MBS Editor's notes and FFFs

**Source:** Huawei (Rapporteur)

**Agenda item:** <Agenda>

**Document Type:** Discussion

# 1. Introduction

This paper records the Editor’s Notes and FFSs in the MBS CRs which were agreed in RAN3#115-e meeting.

# 2. MBS Editor's notes and FFFs

1. TS 38.401

#### 8.xx.1.1 Broadcast MBS Session Setup

…

In case of shared NG-U termination,

- the gNB-CU-UP may provide the gNB-CU-CP at E1 setup or configuration update about established shared NG-U terminations, indicated by one or several MBS Session IDs.

- at establishment of the BC bearer context in the gNB-CU-UP, the gNB-CU-UP may overwrite the QoS flow mapping indicated by the gNB-CU-CP, if the gNB-CU-CP has provided its consent to do so at BC bearer context setup.

Editor’s Note:             providing the consent from the gNB-CU-CP to the gNB-CU-UP needs further discussions.

#### 8.xx.1.2 Multicast MBS Session Activation

…

In case of shared NG-U termination,

- the gNB-CU-UP may provide the gNB-CU-CP at E1 setup or configuration update about established shared NG-U terminations, indicated by one or several MBS Session IDs.

- at establishment of the MC bearer context in the gNB-CU-UP, the gNB-CU-UP may overwrite the QoS flow mapping indicated by the gNB-CU-CP, if the gNB-CU-CP has provided its consent to do so at MC bearer context setup.

Editor’s Note:             providing the consent from the gNB-CU-CP to the gNB-CU-UP needs further discussions.

1. TS 38.410 BL CR

## 4.4 NG interface capabilities

The NG interface supports:

- procedures to establish, maintain and release NG-RAN part of PDU sessions

- procedures to perform intra-RAT handover and inter-RAT handover;

- the separation of each UE on the protocol level for user specific signalling management;

- the transfer of NAS signalling messages between UE and AMF;

- mechanisms for resource reservation for packet data streams.

- procedures to establish, maintain and release NG-RAN part of MBS sessions

Editor’s note: The definition of MBS session can be refined.

6.xx NR MBS Session Management Procedures

The following list of MBS Session management procedures are used to establish, release, or modify NG-RAN resources for a NR MBS session:

- Broadcast Session Resource Setup;

- Broadcast Session Modification;

- Broadcast Session Resource Release;

- Multicast Session Activation;

- Multicast Session Deactivation;

- Distribution Setup;

- Distribution Release;

Editor’s Note 4: FFS on NG-RAN triggered release procedures for both, BC and MC session resources.

## 7.2 NG User Plane

The NG user plane (NG-U) interface is defined between a NG-RAN node and a UPF. The NG-U interface provides non guaranteed delivery of PDU Session /MBS session user plane PDUs between the NG-RAN node and the UPF.

Editor’s note: Changes are expected for MBS session.

The protocol stack for NG-U is shown in Figure 7.2-1.



Figure 7.2-1: NG-U protocol structure for PDU Session

< TBD >

Figure 7.2-2: NG-U protocol structure for MBS Session

Editor’s note: If NG-U protocol structure is the same for both PDU Session and MBS Session, the Figure 7.2-2 shall be removed.

1. TS 38.413 BL CR

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

Editor’s note: FFS whether to add an indication of which MBS session is active.

#### 9.3.A MB-SMF Related IEs

#### 9.3.A.Xa MBS Session TNL Information 5GC

This IE provides 5GC TNL information for location dependent and location independent broadcast MBS Sessions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | *Range* | IE type and reference | Semantics description |
| CHOICE *Session Type* | M |  |  |  |
| *>location independent* |  |  |  |  |
| >>MBS Session TNL Information 5GC Item | M |  | 9.3.A.Xb |  |
| *>location dependent* |  |  |  |  |
| **>>MBS Session Information Setup Request Transfer List** |  | *1..maxnoofMBSServiceAreaInformation* |  |  |
| >>>MBS Area Session ID | M |  | 9.3.1.aaa |  |
| >>>MBS Session TNL Information 5GC Item | M |  | 9.3.A.Xb |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMBSServiceAreaInformation | Maximum no of per MBS Area Session ID Information. Value is 256 [FFS] |

#### 9.3.A.Xc MBS Session TNL Information NG-RAN

This IE provides NG-RAN TNL information for location dependent and location independent broadcast MBS Sessions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | *Range* | IE type and reference | Semantics description |
| CHOICE *Session Type* | M |  |  |  |
| >*location independent* |  |  |  |  |
| >Shared NG-U Unicast TNL Information | O |  | UP Transport Layer Information  9.3.2.2 |  |
| >*location dependent* |  |  |  |  |
| **>>MBS Session Information Setup Request Transfer List** |  | *1..maxnoofMBSServiceAreaInformation* |  |  |
| >>>MBS Area Session ID | M |  | 9.3.1.aaa |  |
| >>>Shared NG-U Unicast TNL Information | O |  | UP Transport Layer Information  9.3.2.2 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMBSServiceAreaInformation | Maximum no of per MBS Area Session ID Information. Value is 256 [FFS] |

### 9.4.7 Constant Definitions

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maxnoofE-RABs INTEGER ::= 256

maxnoofErrors INTEGER ::= 256

maxnoofExtSliceItems INTEGER ::= 65535

maxnoofForbTACs INTEGER ::= 4096

maxnoofFreqforMDT INTEGER ::= 8

maxnoofMBSAreaSessionIDs INTEGER ::= 256 -- FFS

maxnoofMBSQoSFlows INTEGER ::= 64

maxnoofMBSSessions INTEGER ::= 32

maxnoofMBSServiceAreaInformation INTEGER ::= 256 -- FFS

maxnoofMDTPLMNs INTEGER ::= 16

maxnoofMRBs INTEGER ::= 32

maxnoofMultiConnectivity INTEGER ::= 4

maxnoofMultiConnectivityMinusOne INTEGER ::= 3

maxnoofNeighPCIforMDT INTEGER ::= 32

maxnoofNGConnectionsToReset INTEGER ::= 65536

1. TS 38.423 BL CR

#### 9.2.1.eee MBS Session Information List

This IE contains MBS session resource related information used at UE context transfer between NG-RAN nodes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **MBS Session Information To Be Setup List** |  | *1..<maxnoofMBSSessions>* |  |  |
| >MBS Session ID | M |  | 9.2.3.bbb |  |
| >MBS Area Session ID | O |  | 9.2.3.eee3 | MBS Area Session ID of the UE at the NG-RAN node from which the UE context is transferred |
| >MBS Service Area | O |  | 9.2.3.ggg |  |
| **>MBS QoS Flows to Add List** |  | *1..<maxnoofMBSQoSFlows>* |  |  |
| *>>*MBS QoS Flow Identifier | M |  | QoS Flow Identifier  9.2.3.10 |  |
| *>>*MBS QoS Flow Level QoS *Parameters* | M |  | QoS Flow Level QoS Parameters  9.2.3.5 |  |
| >MBS Mapping and Data Forwarding Request Info from source NG-RAN node | O |  | 9.2.1.xxx |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMBSSessions | Maximum no. of MBS Sessions. Value is 8192. |
| maxnoofMBSQoSFlows | Maximum no. of QoS flows allowed within one MBS session. Value is 64. |

Editor’s note: FFS whether to add an indication of which sessions are inactive.

1. TS 38.460 BL CR

### 5.1.x E1 bearer context management function for NR MBS

The E1 bearer context management function for NR MBS consists of two sub-sets for functions, one for NR MBS broadcast, one for NR MBS multicast.

Both sets follow the principles of the E1 bearer context management functions, with the following differences

- E1 NR MBS procedure concerns a single MBS Session Resource only.

- E1 NR MBS procedures concern the control of MRB resources in gNB-CU-UP

Editor’s Note: Specification of gNB-CU-UP initiated procedures for both, multicast and broadcast, are FFS and requires specification text if not defined.

- E1 NR MBS procedures do not contol security information, as for NR MBS, PDCP does not apply security as specified in TS 38.300 [4].

- QoS flow to MRB mapping is determined by the gNB-CU-CP or, in case of shared NR-U terminations, the gNB-CU-UP may be notified about the QoS flow to MRB mapping already determined in the bearer context for the shared NR-U termination. The gNB-CU-CP may inform the gNB-CU-UP whether it is contended with the already determined mapping decision.

NOTE: Not all QoS flow parameters are applicable for NR MBS, as specified in TS 23.247 [x].

Editor’s Note: Some specification text for data forwarding, where applicable, to be inserted here.

Editor’s Note: Header Compression text to be inserted here as well. So far only schemes w/o feedback schemes assumed.

- DL data arrival detection is not applicable for NR MBS.

- Data volume reporting is not applicable for NR MBS.

- Suspension and resumption of bearer contexts is not applicable for NR MBS.

- CA based packet duplication is not applicable for NR MBS.

1. TS 38.463 BL CR

#### 9.3.1.y1x3 BC MRB Setup Configuration

This IE contains MRB configuration information for a BC Bearer Context Context.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **BC MRB To Setup List** |  | *1..<maxnoofMRBs>* |  |  |
| >MRB ID | M |  | 9.3.1.16a |  |
| >SDAP Configuration | M |  | 9.3.1.39 |  |
| >MBS PDCP Configuration | M |  | PDCP Configuration  9.3.1.38 | Editor’s Note: along running RRC CR |
| >MBS QoS Flows Information To Be Setup | M |  | QoS Flow QoS Parameters List  9.3.1.25 |  |
| >MRB QoS | O |  | QoS Flow Level QoS Parameters 9.3.1.26 | Indicates the MRB QoS when more than one QoS Flow is mapped to the MRB. |

#### 9.3.1.y1c Consent to Apply Available Shared UP MBS QoS flow mapping

This IE provides information whether the gNB-CU-CP consents to the gNB-CU-UP’s decision to apply the MBS QoS flow to MRB mapping already decided at the shared NG-U termination.

Editor’s Note: This IE is FFS.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Consent to Apply Available Shared UP Termination MBS QoS flow mapping | M |  | ENUMERATED (allowed, ...) |  |

#### 9.3.1.ym1x1 MC MRB Setup Configuration

This IE contains MRB configuration information for a MC Bearer Context Context.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **MC MRB To Setup List** |  | *1..<maxnoofMRBs>* |  |  |
| >MRB ID | M |  | 9.3.1.16a |  |
| >SDAP Configuration | M |  | 9.3.1.39 |  |
| >MBS PDCP Configuration | M |  | PDCP Configuration  9.3.1.38 | Editor’s Note: along running RRC CR |
| >MBS QoS Flows Information To Be Setup | M |  | QoS Flow QoS Parameters List  9.3.1.25 |  |
| >MRB QoS | O |  | QoS Flow Level QoS Parameters 9.3.1.26 | Indicates the MRB QoS when more than one QoS Flow is mapped to the MRB. |

#### 9.3.3.y1 BC Bearer Context To Setup

This IE contains MBS session resource related information used to request BC Bearer Context Context Setup.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| S-NSSAI | M |  | 9.3.1.9 |  |
| BC Bearer Context NG-U TNL Info at 5GC | M |  | 9.3.1.y1x1 |  |
| BC MRB To Setup List | M |  | BC MRB Setup Configuration  9.3.1.y1.x3 |  |
| Consent to Apply Available Shared UP MBS QoS flow mapping | O |  | 9.3.1.y1c | Consent to Apply Available Shared NG-U Termination’s MBS QoS flow mapping  Editor’s Note: Whether the CU CP needs to indicate its consent to the CU UP is FFS, as well as the semantics of this IE and its usage. |

#### 9.3.3.y4 BC Bearer Context To Modify

This IE contains MBS session resource related information used to request BC Bearer Context Modification.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| BC Bearer Context NG-U TNL Info at 5GC To Setup or Modify | O |  | BC Bearer Context NG-U TNL Info at 5GC  9.3.1.y1x1 |  |
| BC MRB To Setup List | O |  | BC MRB Setup Configuration  9.3.1.y1.x3 |  |
| **BC MRB To Modify List** |  | *0..<maxnoofMRBs>* |  |  |
| >MRB ID | M |  | 9.3.1.16a |  |
| >BC Bearer Context F1-U TNL Info at DU | O |  | 9.3.1.y4x1 |  |
| >SDAP Configuration | O |  | 9.3.1.39 |  |
| >MBS PDCP Configuration | O |  | PDCP Configuration  9.3.1.38 | Editor’s Note: along running RRC CR |
| >MBS QoS Flows Information To Be Setup | O |  | QoS Flow QoS Parameters List  9.3.1.25 |  |
| >MRB QoS | O |  | QoS Flow Level QoS Parameters 9.3.1.26 | Indicates the MRB QoS when more than one QoS Flow is mapped to the MRB. |
| **BC MRB To Remove List** |  | *0..<maxnoofMRBs>* |  |  |
| >MRB ID | M |  | 9.3.1.16a |  |

#### 9.3.3.ym1 MC Bearer Context To Setup

This IE contains MBS session resource related information used to request MC Bearer Context Context Setup.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| S-NSSAI | M |  | 9.3.1.9 |  |
| MC MRB To Setup List | M |  | MC MRB Setup Configuration  9.3.1.ym1x1 |  |
| Consent to Apply Available Shared UP MBS QoS flow mapping | O |  | 9.3.1.y1c | Consent to Apply Available Shared NG-U Termination’s MBS QoS flow mapping  Editor’s Note: Whether the CU CP needs to indicate its consent to the CU UP is FFS, as well as the semantics of this IE and its usage. |

#### 9.3.3.ym4 MC Bearer Context To Modify

This IE contains MBS session resource related information used to request a modification of a multicast MC Bearer Context.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| MC Bearer Context NG-U TNL Info at 5GC | O |  | 9.3.1.ym4x1 |  |
| MC Bearer Context NG-U TNL Info at NG-RAN Request | O |  | 9.3.1.ym4x2 | To request NG-U TNL information from the gNB-CU-UP, if not yet available at gNB-CU-CP |
| MBS Multicast F1-U Context Descriptor | C-ifSetupOrRemove |  | 9.3.1.ym4x4 |  |
| **MC MRB To Setup or Modify List** |  | *0..<maxnoofMRBs>* |  |  |
| >MRB ID | M |  | 9.3.1.16a |  |
| >MC Bearer Context F1-U TNL Info at DU | O |  | 9.3.1.ym4x3 |  |
| >SDAP Configuration | O |  | 9.3.1.39 |  |
| >MBS PDCP Configuration | O |  | PDCP Configuration  9.3.1.38 | Editor’s Note: along running RRC CR |
| >MBS QoS Flows Information To Be Setup | O |  | QoS Flow QoS Parameters List  9.3.1.25 |  |
| >MRB QoS | O |  | QoS Flow Level QoS Parameters 9.3.1.26 | Indicates the MRB QoS when more than one QoS Flow is mapped to the MRB. |
| **MC MRB To Remove List** |  | *0..<maxnoofMRBs>* |  |  |
| >MRB ID | M |  | 9.3.1.16a |  |

1. TS 38.473 BL CR

#### 9.3.1.ccc1 MBS Service Area

This IE contains the MBS service area.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| CHOICE *Session Type* | M |  |  |  |
| *>location independent* |  |  |  |  |
| >>MBS Service Area Information | M |  | 9.3.1.ccc2 |  |
| *>location dependent* |  |  |  |  |
| **>>MBS Service Area Information Location Dependent List** |  | *1..maxnoofMBSServiceArea Information* |  |  |
| >>>MBS Area Session ID | M |  | 9.3.1.aaa |  |
| >>>MBS Service Area Information | M |  | 9.3.1.ccc2 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofMBSServiceAreaInformation | Maximum no. of MBS Service Area Information elements in the MBS Service Area Information Location Dependent List IE. Value is 512 Editor’s Note: this value is FFS. |

#### 9.3.1.ccc2 MBS Service Area information

This IE contains MBS service area information.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **MBS Service Area Cell List** |  | *0..<maxnoofCellsforMBS>* |  |  |
| *>*NR CGI | M |  | 9.3.1.12 |  |
| **MBS Service Area TAI List** |  | *0..<maxnoofTAIforMBS>* |  |  |
| >PLMN-Identity |  |  | 9.3.1.14 |  |
| >5GS TAC | M |  | 9.3.3.29 |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCellsforMBS | Maximum no. of cells allowed within one MBS Service Area. Value is 8192. Editor’s Note: whether this constant should actually exceed the maximum number of cells a DU can support is to be further discussed. |
| maxnoofTAIforMBS | Maximum no. of TAs allowed within one MBS Service Area. Value is 1024. Editor’s Note: whether this constant should actually exceed the maximum number of cells a DU can support is to be further discussed. |