3GPP TSG-RAN WG3 #113-e R3-214155

**E-meeting, 16th – 26th August 2021**

Source: CATT (moderator)

Title: CB # 21\_UnmappedQoS

Agenda Item: 9.3.4.1

Document for: Approval

# Introduction

**CB: # 21\_UnmappedQoS**

**- Take RAN3#112e discussion into account**

**- A new IE “PDU Session To Notify List” should be added into the E1AP DL DATA NOTIFICATION message? For the case described in Annex A.2/A.3 of TS 38.300, the initial state (i.e. Step 0) is recommended to be “the considered QoS flow is not configured toward the gNB-CU-UP” if gNB-CU-CP/UP split architecture is adopted? The gNB-CU-UP triggers DL Data Notification procedure when receiving from the UPF of a packet which belongs to a QoS flow not configured in the gNB-CU-UP?**

**- Capture agreements and provide CRs if agreeable**

(CATT - moderator)

Summary of offline disc in [R3-214155](file:///C%3A%5CUsers%5Cliuaijuan%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5CIDLQ5HGM%5CInbox%5CR3-214155.zip)

This offline covers the following papers:

|  |  |  |
| --- | --- | --- |
| [R3-213494](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213494.zip) | Discussion on E1AP handling for unmapped DL flows (CATT, Intel Corporation, Huawei, China Telecom) | discussion |
| [R3-213496](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213496.zip) | CR on E1AP handling for unmapped DL flows (CATT, Intel Corporation, Huawei, China Telecom) | CR0589r1, TS 38.463 v16.6.0, Rel-16, Cat. F |
| [R3-213512](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213512.zip) | CR for 38.460 on E1AP handling for unmapped DL QoS flows (Intel Corporation, CATT, Huawei) | CR0049r1, TS 38.460 v16.3.0, Rel-16, Cat. F |
| [R3-213629](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213629.zip) | Correction for UL Data Notification over E1 (Huawei, Intel Corporation, CATT, China Telecom) | Discussion |
| [R3-213630](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_113-e%5CDocs%5CR3-213630.zip) | Correction for UL Data Notification over E1 (Huawei, Intel Corporation, CATT, China Telecom) | CR0622r, TS 38.463 v16.6.0, Rel-16, Cat. F\*\* |

This offline discussion is based on the agreement and FFSs last meeting, i.e.:

**Confirm that all of the cases shown in Annex A of TS 38.300 should be supported over Uu regardless of whether gNB-CU-CP/UP split architecture is adopted. It is FFS whether the unmapped DL flow should be configured in E1 interface or not when configured in NG interface.**

**For DL scenario, considering there is no challenge in RAN3 on support of the scenarios in Annex A of TS 38.300 for disaggregated scenario, LS to RAN2 is not needed.**

**For UL scenario, the procedure text for UL Data Notification should be updated (i.e. adding the QoS Flows Information To Be Setup IE in the text).**

**No CR is agreed at this meeting. If agreed in the future meeting, it should be Rel-16 CR only.**

**Capture in the Chairman notes as “To be continued” for the next meeting.**

The deadline for the first phase is 00:00 UTC on Friday August 20th .

# For the Chairman’s Notes

TBD.

# Discussion (first phase)

In the moderator’s understanding, there are downlink and uplink points mentioned in the 2 discussion papers and 3 CRs. In the following we will ask them one by one.

## Downlink

In [1] it is claimed that there should be more or less a method for the gNB-CU-UP to notify the gNB-CU-CP that a new DL flow arrives and RRC reconfiguration may be needed according to the Annex A.3 of TS 38.300, since this scenario is already confirmed as valid for gNB-CU-CP/UP split architecture in RAN3 #112-e meeting as follows.

* **Confirm that all of the cases shown in Annex A of TS 38.300 should be supported over Uu regardless of whether gNB-CU-CP/UP split architecture is adopted**
* **For DL scenario, considering there is no challenge in RAN3 on support of the scenarios in Annex A of TS 38.300 for disaggregated scenario, LS to RAN2 is not needed.**

It is then proposed to copy the method used for notifying UL data arrival over E1AP into the DL case, i.e.:

“A new IE “PDU Session To Notify List” should be added into the E1AP DL DATA NOTIFICATION message.”

**Questions 1-1**: Do companies agree with the proposal shown above?

| Company | Comment |
| --- | --- |
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And the next question by what means the gNB-CU-UP distinguishes whether to send such message upon receiving DL data of a new QoS flow. Two options are provided in [1]:

* Option 1: By not configuring the QoS flow toward the gNB-CU-UP, i.e. implicitly.
* Option 2: By including an explicit indicator per QoS flow.

The discussion paper [1] shows a preference to Option 1, and the two CRs [2][3] are also written according to this option.

**Questions 1-2**: Do companies agree with Option 1 raised in [1], i.e. gNB-CU-UP to trigger the E1AP DL Data Notification procedure when receiving a QFI currently not configured to this gNB-CU-UP, as well as the changes shown in [2] and [3]?

| Company | Comment |
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## Uplink

Last meeting already agreed that the procedural text in TS 38.460 and TS 38.463 for the UL Data Notification procedure should be updated to include the case of the *QoS Flows Information To Be Setup* IE as follows.

* **For UL scenario, the procedure text for UL Data Notification should be updated (i.e. adding the QoS Flows Information To Be Setup IE in the text).**

In this meeting it is proposed again in [4] and reflected in the two CRs [3][5].

The moderator thinks no need to further discuss the update of the procedural texts in TS 38.463.

[3] proposes the next question: **Over E1, whether there is the case where CU-CP does not configure QoS flow mapping list for the default DRB to the CU-UP?**

And an example is provided. Assuming the UE has only one QFI#1, and the CU-CP doesn’t configure QoS flow mapping rule to the UE, there are two possible use cases over E1 as follows (also provided in the Table I).

* Case 1: Not configure the QoS flow list for the default DRB.
* Case 2: Configure the QoS flow list for the default DRB.

**Table I Two possible configurations**

|  |  |  |
| --- | --- | --- |
|  | At UE side | At CU-UP side |
| Case 1:  | DRB1 (default): NULL | DRB1 (default): Null |
| Case 2:  | DRB1 (default): NULL | DRB1 (default): QFI#1 |

But Case 1 will incur a scenario that a default DRB should be established with no QoS flows mapped toward it. This is supported on the Uu as per RRC spec, but not supported in the E1 interface due to the ASN.1 structure.

Therefore, a backward compatible approach is proposed in [4], i.e. to add an indicator “Ignore Mapping Rule Indication” for the default DRB in order to indicate that the mapping rule of the *QoS Flows Information To Be Setup* IE should be ignored. This is also reflected in the associated CR [5].

**Questions 2-1**: Do companies agree to introduce a new indicator “Ignore Mapping Rule Indication” which indicates that the mapping rule of the *QoS Flows Information To Be Setup* IE should be ignored, in order to support establishing a default DRB in the gNB-CU-UP with no QoS flows mapped to it?

| Company | Comment |
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# Conclusion, recommendations [if needed]

# Reference

[1] R3-213494; Discussion on E1AP handling for unmapped DL flows; CATT, Intel Corporation, Huawei, China Telecom.

[2] R3-213496; CR on E1AP handling for unmapped DL flows; CATT, Intel Corporation, Huawei, China Telecom.

[3] R3-213512; CR for 38.460 on E1AP handling for unmapped DL QoS flows; Intel Corporation, CATT, Huawei.

[4] R3-213629; Correction for UL Data Notification over E1; Huawei, Intel Corporation, CATT, China Telecom.

[5] R3-213630; Correction for UL Data Notification over E1; Huawei, Intel Corporation, CATT, China Telecom.