**3GPP TSG-RAN WG2 #125bis *R2-240xxxx***

**Changsha, China, April 2024**

Agenda Item: 7.9.4

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Document for: Discussion

# Introduction

This paper is to collect companies comment for SRAP corrections for R18 Relay enhancement.

# Discussion

In R2-2402587, it is proposed to add the following condition in 5.3a.1.2:

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| 5.3a.1.2 UE ID fields and BEARER ID field determinationFor an U2U SRAP SDU received from upper layer, the SRAP entity shall:- If there is an entry in *sl-LocalID-PairToAddModList*, in which the *sl-RemoteUE-L2Identity* and the *sl-PeerRemoteUE-L2Identity* match the source L2 ID of the L2 U2U Remote UE and the destination L2 ID of the peer L2 U2U Remote UE: - Determine the UE ID (for SRC) field corresponding to *sl-RemoteUE-LocalIdentity* configured for the concerned *sl-RemoteUE-L2Identity* and UE ID (for DST) field corresponding to *sl-PeerRemoteUE-LocalIdentity* configured for the concerned *sl-PeerRemoteUE-L2Identity* as specified in TS 38.331 [3];- Determine the egress link on PC5 interface towards the U2U relay UE based on the concerned *sl-RemoteUE-L2Identity* and *sl-PeerRemoteUE-L2Identity* as specified in TS 38.331 [3];- Determine the BEARER ID field for SL-SRBs as the fixed value (i.e., set 0/1/2/3 for SL-SRB0/1/2/3 respectively) or for SL-DRBs as the 5 LSBs of *slrb-PC5-ConfigIndex* used in end-to-end SL DRB configuration procedure as specified in TS 38.331 [3]. |

During the online session, there are different views on whether this change is needed or the UE behaviour on determining local ID/egress link based on the corresponding L2 ID is already clear. So the following question is to check companies’ view on whether this change is needed.

**Question-1: Do you think the above change in R2-2402587 is needed?**

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| **Company** | **Yes/No** | **Comments** |
| ASUSTeK | Yes | We think this change is needed, considering the following reasons:1. It was agreed in RAN2#123bis that the UE ID assignment for U2U remote UEs is up to U2U relay UE implementation, while the current ASN.1 seems to support two different ways of UE IDs allocation i.e. per Remote UE and per end-to-end PC5 RRC connection.
2. In our understanding, error handling in clause 5.4 does not suggest which way to apply either.
3. The following condition added after RAN2#125 for U2U Relay UE seems to suggest UE IDs allocation per end-to-end PC5 RRC connection:

5.3a.3 Transmitting operation of U2U Relay UE…5.3a.3.2 Egress link determinationFor an U2U SRAP SDU to be transmitted, the SRAP entity shall:- If there is an entry in *sl-LocalID-PairToAddModList*, in which the *sl-RemoteUE-LocalIdentity* and *sl-PeerRemoteUE-LocalIdentity* match the UE ID fields in the U2U SRAP Data PDU:- Determine the egress link on PC5 interface towards the peer U2U remote UE identified by *sl-PeerRemoteUE-L2Identity* configured for the concerned *sl-PeerRemoteUE-LocalIdentity* as specified in TS 38.331 [3].Therefore, we think it is better to align U2U Remote UE behavior in 5.3a.1.2 with U2U Relay UE behavior in 5.3a.3.2 to make it clearer. |
| ZTE | Yes | We think this change makes sense. Before determine the UE ID fields and bearer ID field, the remote UE should have obtained the local ID configuration from the Relay UE. It is reasonable to check the local ID entry associated with the UE pair before the determination. But in the sentence, for the peer remote UE ID, it should be the source L2 ID of the peer remote UE.- If there is an entry in *sl-LocalID-PairToAddModList*, in which the *sl-RemoteUE-L2Identity* and the *sl-PeerRemoteUE-L2Identity* match the source L2 ID of the L2 U2U Remote UE and the ~~destination~~source L2 ID of the peer L2 U2U Remote UE: |
| Apple | See comments | First, we think there is no need to add new restriction of local ID allocation because RAN2 has agreed that this is up to relay UE implementation.Then, regarding the new sentence added, my understanding is that it is only apply to the first bullet for Source remote UE behavior, so I suggest to change the 1st bullet as below:- Determine the UE ID (for SRC) field corresponding to *sl-RemoteUE-LocalIdentity* configured for the concerned *sl-RemoteUE-L2Identity* and UE ID (for DST) field corresponding to *sl-PeerRemoteUE-LocalIdentity* configured for the concerned *sl-PeerRemoteUE-L2Identity* as specified in TS 38.331 [3] if there is an entry in *sl-LocalID-PairToAddModList*, in which the *sl-RemoteUE-L2Identity* and the *sl-PeerRemoteUE-L2Identity* match the source L2 ID of the L2 U2U Remote UE and the destination L2 ID of the peer L2 U2U Remote UE;The other two bullets in this section does not to need the change. |
| Nokia | No strong view | We think this may be more suitable to add to the error handling instead, like the PDU but would assume that since this is the receiving case it may not be that critical. OK to align with the remote UE behaviour.“when an SRAP Data PDU with SRAP header that contains UE ID fields which does not match *sl-PeerRemoteUE-LocalIdentity* and *sl-RemoteUE-LocalIdentity”***Note:** Please remember to format new bullets correctly as “B2” |

[Rapp summary]:

Only 4 companies provide views on this issue: 2 support the change from R2-2402587, 1 proposes another change alterative, 1 has no strong view. Considering splitting views and few replies, it is suggested not include this change in the CR now.

**Question-2: Any comments on the drafted SRAP CR?**

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| **Company** | **Clause** | **Comment/suggested change** |
| ZTE |  | 1. In Figure 4.2.2-4, it says “Determine UE ID, BEARER ID and egress link”. While in 5.3a.1.2, it is “UE ID fields, egress link and BEARER ID field determination”. In addition, some company commented online that the egress link should be determined firstly. Not sure whether the sequence of “egress link”/ “UE ID”/ “BEARER ID” should keep the same in the different clauses.

[Rapp] Thanks for the comments, the figure will be updated to align the order.my understanding is the “Determine UE ID, BEARER ID and egress link” is considered as one step in figure 4.2.2-4, and no restriction on UE implementation. 1. The “Source to TSG” and revision history in the cover sheet need to be added?

[Rapp] Thanks for the comments, will add it. |
| Apple | 5.3a.1.2 | It is better to move the 2nd bullet below ahead as the first bullet and change it as below: - *Determine the egress link on PC5 interface towards the U2U relay UE based on the intended end-to-end PC5 link that the U2U SRAP DATA SDU belongs to ~~concerned sl-RemoteUE-L2Identity and sl-PeerRemoteUE-L2Identity as specified in TS 38.331 [3]~~;*This is because the remote UE need determine the egress link (1st hop) first based on its U2U relay selection for the particular e2e link the SRAP SDU belongs to, then it can check the “*sl-LocalID-PairToAddModList* “ sent by this selected U2U relay UE in prior PC5-RRC configuration. Otherwise, the specification seems suggest the Source remote UE need have a completely blind search of all “*sl-RemoteUE-L2Identity, sl-PeerRemoteUE-L2Identity “* from all different relay UEs, which is not a plausible UE implementation.Then, we suggest the align the title of 5.3a.1.2 as “Egress link, UE ID fields, and BEARER ID field determination”[Rapp] Thanks for the comments, the order of link determination and UE ID determination will be updated as suggested.For the rewording of egress link determination, the current wording seems clearer since the “intended end-to-end PC5 link” is actually identified by the L2 ID of the source/target remote UE pair. Besides, the current wording is also aligned with R17 U2N relay and the link determination at the U2U Relay UE, so prefer to keep the wording as it is.[Apple2] There is a difference between the“ L2 ID of the source/target remote UE pair” and the text currently used as “*sl-RemoteUE-L2Identity, sl-PeerRemoteUE-L2Identity” because the former means the information of L2 ID are passed from upper layer along with SRAP SDU, but the latter means the entry received in RRCReconfigurationSidleink. Both those two needs to match. To make this clear, I suggest to change the wording as exactly as below:**Determine the egress link on PC5 interface towards the U2U relay UE based on the associated L2 ID of the source/target remote UE pair of the U2U SRAP DATA SDU matching the ~~concerned~~ sl-RemoteUE-L2Identity and sl-PeerRemoteUE-L2Identity configured by the U2U relay UE as specified in TS 38.331 [3];*I do not understand why the current wording is aligned with R17 U2N relay for remote UE because there is no “egress link determination” part in U2N remote UE operation in section 5.3.1. So, it is unclear how this can be “aligned” between U2N and U2U. Anyway, the U2N remote UE only have a single relay selected, so there is no any ambiguity of the egress link.[Rapp] Thanks for the further clarification, considering this change is raised during this POST email discussion, and not fully discussed among companies, due to limited time, it is suggested to have more discussion on this in next RAN2 meeting and not include it in the CR for now. |
| Apple | 5.3a.3.2 | The current condition to determine egress link is insufficient. A relay UE can allocate the same local ID pair (e.g.,. <1,1>) to several different source remote UEs as long as the L2 ID of remote UE is different. Therfeore, it is wrong to just rely on the local ID pair checking to determine egress link:I suggest to change the condition as below* For the If there is an entry in *sl-LocalID-PairToAddModList* configured by this relay UE to the remote UE sending the concerned U2U SRAP DATA PDU, in which the *sl-RemoteUE-LocalIdentity* and *sl-PeerRemoteUE-LocalIdentity* match the UE ID fields in the U2U SRAP Data PDU:

[Rapp] Thanks for the comments, local ID is designed and carried in SRAP data PDU to identify the remote UEs, although the local ID allocation is fully up to relay UE implementation, but there seems no reason from relay UE perspective to set same local ID pair value for different U2U Relay link since it means the local ID is meaningless. [Apple2] local ID is not “meaningless” as long as the relay UE can use it to determine the right second hop. There is no need to repeating the same debate on how local ID is allocated and whether one ID or two IDs are needed. RAN2 has reached the conclusion that all of those are completely up to relay UE implementation. Therefore, as long as allocation the same local ID pair to different source remote UE works, then there is no reason for the spec to excluding such an allocation. As implied by the above rapporteur reply, it is clear that the current wording has mandate the relay UE to NOT allocate same ID pair to different source remote UEs, this is in violation of the RAN2 agreement that local ID is up to relay UE implementation. So, I think it is right to adopt Apple’s suggestion to make the current SRAP spec “neutral” to any relay UE local ID allocation implementation. .[Rapp] Thanks for the further clarification, considering this change is raised during this POST email discussion, and not fully discussed among companies, due to limited time, it is suggested to have more discussion on this in next RAN2 meeting and not include it in the CR for now. |
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