**3GPP TSG-RAN WG2 Meeting #111 electronic *R2-200nnnn***

**Online, August 17th - 28th, 2020**

Agenda Item: 8.7.3

Source: MediaTek Inc. (Email Discussion Rapporteur)

**Title: Phase-3 Discussion on [AT111-e][605][Relay] L2 Relay Mechanism**

Document for: Discussion and decision

# Introduction

This document is to kick of the phase-3 discussion of the following email thread based on the outcome of the discussion on R2-2008266:

* [AT111-e][605][Relay] L2 relay mechanism (MediaTek)

      Scope: Discuss remaining proposals from R2-2008266.

      Intended outcome: Summary for CB

      Deadline:  Monday 2020-08-27 1200 UTC

# Background

The following proposals (P2, P4, P5, P11, P13 and P14 in R2-2008266) remain open:

**Proposal-2: RAN2 to further discuss the following description for L2 UE-to-NW relay (TP needs to update based on the agreement)**

**For L2 UE-to-NW relay, adaptation layer over PC5 is supported between Remote UE and Relay UE for L2 UE-to-Network Relay.**

**Proposal-4: agree the following description for L2 UE-to-UE relay (also reflected by TP)**

**For L2 UE-to-UE relay, adaptation layer over PC5 is supported between transmitting Remote UE and Relay UE for L2 UE-to-UE Relay.**

**Proposal-5: agree the following description for L2 relay (also reflected by TP)**

**In L2 relay, the adaptation layer supports functions of both bearer mapping and packet routing.**

**Packet routing is supported for the purpose of remote UE identification.**

**From bearer mapping perspective for L2 UE-to-Network Relay, traffic of one or multiple Remote UEs may be mapped to a single DRB of Uu interface of the Relay UE. Multiple Uu DRBs may be used to carry traffic of different QoS characteristics, for one or multiple Remote UEs. In the PC5 between Remote UE and Relay UE, the support of many to one mapping between different bearers and sidelink RLC channels is dependent on decision on adaptation layer on PC5 interface.**

**From bearer mapping perspective for L2 UE-to-UE Relay, traffic of one or multiple Remote UEs from ingress RLC channel may be mapped to a single egress sidelink RLC channel of the Relay UE. Multiple egress RLC channel may be used to carry traffic of different QoS characteristics, for one or multiple Remote UEs.**

**Proposal-11: Agree to capture the following for the security aspect for L2 UE-to-NW Relay and L2 UE-to-UE relay into TR (reflected within TP also):**

**The end-to-end security (confidentiality and integrity protection) is enforced at the PDCP layer between the remote UE and gNB and then there is no data exposure to Relay UE for L2 UE-to-Network relay.**

**The end-to-end security (confidentiality and integrity protection) is enforced at the PDCP layer between the two remote UEs, then there is no data exposure to Relay UE for L2 UE-to-UE relay.**

*Editor Note: RAN2 needs to take SA3 input to confirm the understanding.*

**Proposal-13: Agree to capture the following for the system information aspect for L2 UE-to-NW Relay into TR (reflected within TP also):**

**For L2 UE to Network Relaying, it is assumed that Relay UE supports relaying of system information for its Remote UEs with the system information delivery mechanism studied by TR36.746 for FeD2D as the starting point. FFS for the detailed procedures.**

**Proposal-14: Agree to capture the following for the system information aspect for L2 UE-to-NW Relay into TR (reflected within TP also):**

**On-demand SI delivery is supported for Remote UEs in RRC Idle/Inactive and RRC Connected for L2 UE to Network Relaying.**

# Discussion

The companies are expected to show your position about agreeing the proposals (P2, P4, P5, P11, P13 and P14 in R2-2008266) in the following table:

|  |  |
| --- | --- |
| **Company Name** | **Comments** |
| MediaTek | We support to at least agree P2/P4/P5 in the come-back session, since there are majority support for them during previous discussion and they are the basics to describe the protocol stacks of L2 Relaying. |
| CATT | We support to at least agree P11 in the CB session on Friday, since we reckon that security is one important aspect in the current SID.  We agree with P11 and also agree adding an EN. I just wonder if we needed to notice SA3 our latest progress with the current RAN security mechanism for L2 through LS? Then SA3 can take the above information into account for subsequent work.  I don't mean that it has to be sent an LS to SA3 at this meeting. I just want to know whether it is needed or not. And if we need it, when we plan to do that? |
| LG | We have to check which on-demand system information is needed for remote UE before making P14 agreement.  We think the system information irrelevant in the relay operation should not be relayed to the remote UE. From this perspective, which of on-demand system information is required by remote UE? We believe essential SIBs will be relayed from relay UE to all linked remote UEs commonly. So we are not sure if there is any on-demand system information of which has to be relayed for the remote UE. |
| vivo | Not fine witl P2/P4/P5  For P2, similar to no adaption layer in first hop in IAB design, we think there is also no need to have adaption layer in first hop for U2N Relay case.  For P4/P5 we may need more technical discussion for the bearer mapping itself in U2U relay (due to multiple L2-ID issues) thus we prefer to not agree on this at now. |
| Philips | We agree on P2, P4, P5 (both bearer mapping and packet routing), P11, P13 and P14 as majority of companies agreed in R2-2008266. |
| Samsung | Not OK with:  P2 – we do not think the use case for Adapt on PC5 is clear and warrants the resulting specification effort and implementation complexity  P4 – not really needed, since the agreement to have Adapt on the UE relay to receiving Remote UE covers this agreement (assuming the reason behind the proposal is bi-directionality)  P5 – Isn’t “remote UE identification” (as part of bearer identification) part of bearer mapping? We believe a clear understanding of the terms is needed and see no need for packet routing as function of Adapt.  P11 - “enforced” seems to imply that security is always applied (across all bearers). However confidentiality or integrity protection should be configured per bearer. We need to clarify whether RAN2 wants this function as mandatory in L2 relaying, or whether RAN2 will let SA3 determine mandatory/optional per bearer, or per UE etc.  Unsure about:  P14 – is on-demand SI really needed to be relayed to Remote UE? |
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# Summary on Phase-3 discussion

To be added