3GPP TSG-RAN WG2 Meeting #121bis-e R2-230xxxx

e-Meeting, 17th April – 26th April 2023

Agenda Item: 7.11.2.1

Source: ZTE

Title: Summary of [AT121bis-e][603][eMBS] Service continuity and notifications (ZTE)

Document for: Discussion, Decision

# 1 Introduction

This document is the report of the following email discussion,

* **[AT121bis-e][603][eMBS] Service continuity and notifications (ZTE)**

Scope: Treat the remaining proposals from R2-2303553

Outcome: List of proposals for offline agreement and, if needed, a list of proposals for online discussion in W2

Deadline: Report available Tuesday W2 1200 UTC, interim deadlines up to the rapporteur

Please provide your comments Monday W2 10:30 UTC UTC.

Final proposals are to be sent out on reflector around 11:00 UTC of Monday W2, if no objection is found in the next 24hours (before the report availability deadline) the proposal can be declared agreed.

# 2 Contact information

Participants are encouraged to leave their contact information in the following table.

|  |  |
| --- | --- |
| Company | Contact info (name, email address) |
| LGE | SangWon Kim, sangwon7.kim@lge.com |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# 3 Proposals on Notification mechanism for agreement

// The proposals are not re-numbered for better indexing. Part of the summary in R2-2303553 were pasted here for reference.

Based on the feedback, the observation is companies do not have a clear view or consensus on the question (a). Without that we can not proceed on the second half. Following proposals is suggested (based on company's feedback to make it concise and clearer), to encourage companies in RAN2 to have further study per SA2 progress:

**Proposal 7: FFS whether a "special UE" identified by 5GC can be released to RRC\_INACTIVE (e.g., when the session is deactivated); and if yes, FFS how can network enable such UE to resume to RRC\_CONNECTED (e.g., upon session activation).**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Yes | We cannot see any reason to prevent the ‘special UE’ from being transited to RRC\_INACTIVE during session de-activation. The special UE can be moved to RRC\_CONNECTED using the group paging, like Rel-17 UEs. This is rel-17 mechanism and, of course, can be applied to Rel-18 UEs.  If the PTM configuration is not provided in RRC release message when the RRC connection is suspended, even Rel-18 UE should follow this Rel-17 mechanism, i.e. RRC resume upon group paging for session activation. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

There is a clear support to legacy group paging (1/22) or its enhancement (17/22), on how to enable UE to stay in RRC\_INACTIVE but start monitoring the G-RNTI upon session activation/data transmission resumed. And there are supports to other solution: 1 for option 1 (PTM config availability) from Intel, 1 for option 3 (MCCH) from Ericsson (which supported both option 2/3 for different scenarios), and 1 for option 4 (RRC Release) from LGE.

The group paging solution is consistent with our previous agreement, and also consistent with Rel-17 UE behaviour. Therefore in the draft proposal, let's try to agree on group paging solution first, and then go FFS on how to enhance group paging (e.g., to indicate what). The final solution is actually coupled with Q9/12, therefore for now it is better to keep it open.

On whether we shall consider the case "data transmission resumed", in current TS 38.300, there is indeed description on related scenarios: TS 38.300/16.10.5.2 "When there is temporarily no data to be sent to the UEs for a multicast session that is active, the gNB may move the UE to RRC\_INACTIVE state." I put it here in the draft proposal of this question and the following ones. Further comments are welcome. The same applies for other proposals.

**Proposal 8: (17/22) Rel-18 UE can stay in RRC\_INACTIVE and start monitoring corresponding G-RNTI upon an enhanced group paging (e.g., upon session activation or data transmission resumed). FFS how to enhance group paging (e.g., flag to indicate UE behaviour on monitoring of G-RNTI, UE's RRC state or session state).**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Comment | The group paging doesn’t need to be enhanced to enable Rel-18 UE to keep RRC\_INACTIVE upon session activation. The tmgi list in the existing group paging means the corresponding multicast sessions are activated. When the session is activated, Rel-17 UE and Rel-18 UE having no PTM configuration should resume RRC connection because they cannot receive the multicast in RRC\_INACTIVE. Rel-18 UE having the PTM configuration can stay RRC\_INACTIVE upon receiving the legacy group paging.  The group paging needs to be enhanced if we need to make Rel-18 UEs having the PTM configuration resume RRC connection upon receiving the group paging, e.g. session release or RAN congestion is over. For these purposes, new tmgi list needs to be added in the group paging (because the existing tmgi list only can be signaled when the session is activated). |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

(20/22) think it is reasonable to have: Upon session activation/data transmission resumed, if PTM configuration is not available to UE, UE need to resume RRC connection. One company think a network implementation does not allow so. However it may be good to have it clarified in case a mis-configuration is issued. A few think network may configure UE in RRC Release, therefore it is modified as below:

**Proposal 9: (20/22) Upon events like session activation/data transmission resumed, if PTM configuration is not available to UE, UE initiates RRC connection resumption.**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Yes | NW should be able to select UE that can receive the multicast in RRC\_CONNECTED only, at least for the special UE in P7. So we are OK for UE to decide whether to resume RRC connection based on the received PTM configuration, but only PTM configuration received via DCCH should be applied. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

(22/22) suggest to have such enhancement; one further suggest in such case no need to monitor MCCH either, which however can be of later discussion.

**Proposal 10: (22/22) For one UE already in RRC\_INACTIVE, it can stay in RRC\_INACTIVE and stop monitoring corresponding G-RNTI upon events like session deactivation/temporary no data.**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Yes, but | It is NW implementation whether to inform UE of the de-activation/temporary no data, so it seems better to change the wording to ‘, if session deactivation/temp no data is indicated by NW’. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Magically we have two camps with equal support on which solution to notify UE to stay in RRC\_INACTIVE/stop monitoring G-RNTI, upon session deactivation/temporary no data.

* **Option 2 (9/22) Group paging.** This camp thinks,
  + a unified solution and no extra load (1 bit info may be enough?). it may be strange to have different solutions for session state change. if group paging can be used to indicate session activation, it can be used for session deactivation as well. if we go other way, it makes things unnecessarily complicated.
  + MCCH method may increase the frequency for one UE to monitor MCCH. (CATT, with the assumption that PTM config removal wont trigger MCCH change notification)
  + if MCCH is not always available, then option 2 shall be defined. (Apple)
* **Option 3 (9/22) MCCH**. This camp says,
  + The UE anyway reads MCCH, and deactivation is not as urgent as activation, simple to include the deactivation status of the multicast session on MCCH
  + session state change is a part of PTM config change, therefore it is natural to reuse MCCH. (QC)
  + on how to MCCH is undetermined: indicating session state in MCCH per MTCH, or DCI to indicate, though.

On the one hand, it is good to have a unified solution (group paging for both session activation/deactivation); on the other hand, MCCH is already there for UE to monitor, especially when session is deactivated (which further is seen as MCCH change). We drop the other solutions which is short of support for now. And moderator suggests to have this during online discussion:

**Proposal 11: (Need online decision) Consider the following two options: enhanced group paging (9/22) or enhanced MCCH (9/22), to enable Rel-18 UE to stay in RRC\_INACTIVE and stop monitoring corresponding G-RNTI upon events like session deactivation/temporary no data.**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Prefer group paging | MCCH is subject to the modification period and it brings delayed notification. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Most does not see the necessity to enhance for case of session release. (18/22) do not think enhancement is needed, it is shown that one UE that is expecting NAS PDU or unicast data will eventually resume RRC connection. Indicating UE the session state but not finishing the NAS procedure may be problematic. Therefore it is suggested the following proposal:

**Proposal 12. (18/22) No additional enhancement is needed specifically for enabling UE to stay in RRC\_INACTIVE and stop monitoring corresponding G-RNTI upon session release.**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Yes | We think no special enhancement is needed only for session release case. However, NW should be able to move all UEs (though it has a valid PTM configuration) to RRC\_CONNTED using group paging, and such enhanced group paging can be used widely, e.g. when the RAN congestion is over, or when session is released. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

There is a clear majority support (16/22) to option 1, i.e., a legacy group paging resumes UE's RRC connection, good to see legacy mechanism still works! Option 4 with (13/22) support definitely works, and we did not intent to enhance unicast paging. While there is only one support for option 5 and three supports for option 3.

**Proposal 13: (16/22) Legacy group paging (Rel-17) or legacy per UE paging are used to resume UE to RRC\_CONNECTED state.**

Is it agreeable, and if not, any suggestions to the proposals are welcome (to make it agreeable)

|  |  |  |
| --- | --- | --- |
| Company | Yes or no | Comment if any |
| LGE | Comment | As mentioned in P8 and P12, the group paging needs to be enhanced to indicate ‘to resume RRC connection though PTM configuration is available’. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# 4 Conclusions

TBD