**3GPP TSG-RAN WG3 Meeting #114-e *R3-216052***

**Online, 1st - 11th November 2021 was R3-215193**

**Title: [DRAFT]** Reply LS on paging for multicast session activation notification

**Response to:** LS (R3-214693/R2-2109177) on paging for multicast session activation notification from RAN2

**Release:** REL-17

**Work Item:** NR\_MBS

**Source:** Ericsson (will be RAN3)

**To:** RAN2, SA2

**Cc:**

**Contact Person:**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments:** -

**1. Overall Description:**

RAN3 thanks RAN2 for the LS received in R3-214693/R2-2109177 on paging for multicast session activation notification.

RAN3 has reviewed the overall 5GS approach, consisting of 5GC, NG-RAN and Uu functions and observed the following, which, RAN3 believes, cannot be ignored for the specification work in Rel-17:

1. The NG-RAN would need to process a potentially large list of UE identifiers which may cause quite some effort to process. If there is an expectation that mechanisms for efficient paging (e.g. first page only in the last served cell) is applied for NR MBS as well, this will add to the processing effort at NG-RAN and at the 5GC to identify necessary information from all concerned UEs. Such processing effort causes delay which may not be tolerable at least for certain applications.

2. RAN3 would like to remind RAN2 and SA2 on an LS received in R3-211515/R2-2104655, where RAN2 raised concerns about applying individual delivery of multicast traffic to UEs in non-supporting NG-RAN nodes, stating the following:

*Some companies are concerned about scalability issue when using legacy unicast paging if a large number of MBS users are served by non-supporting NG-RAN node (e.g. comparable to the number of users receiving an MBS service under MBS supporting node). However, majority of companies believes such scenario should be prevented by configuring/deploying the nodes to be MBS supporting node whenever there is sufficient demand. If a node covering large number of MBS UEs is configured/deployed as MBS non-supporting node, then radio resources capacity can be exceeded not only for paging channel, but also for data channels.*

It seems obvious that RAN2’s conditional agreement to select option 2 will end up in option 1 if the number of UEs to be “group”-paged exceeds a certain limit, which would most likely force the network to revert to option 1 in any case, either due to time constraints to reach all multicast group members, discouraging to minimise the paging resource utilisation, or due to the fact that with the number of UEs the current “group” paging approach would end up near option 1 anyhow.
Option 1, however, would contradict the general engineering virtue to use resources economically as already stated in R3-211515/R2-2104655.

3. In order to optimise the usage of paging resources, NG RAN would need to combine group paging information received from several connected AMFs and take into account RRC\_INACTIVE UEs as well.

4. Calculating optimum usage of POs for UEs configured with different DRX cycles adds to the complexity.

RAN3 acknowledges the motivation to use UE specific paging occasions but believes that the overall system performance (processing and resource usage) would benefit greatly from specifying in Rel-17 the possibility to configure UEs with MBS Session or NR MBS specific PO(s).

**2. Actions:**

**To RAN2 and SA2 group.**

**ACTION: RAN3 requests RAN2 and SA2 to reconsider their decisions and specify network functions allowing efficient and prompt group paging for NR MBS in Rel-17, not at all requiring processing potentially long lists of UE identifiers or wasting paging resources.**

**3. Date of Next TSG-RAN WG3 Meetings:**

TSG-RAN WG3 Meeting#114bis-e 17th - 26th January 2022

TSG-RAN WG3 Meeting#115-e 21st February - 3rd March 2022