[97e-23-R18-MBS] - Version 0.0.4
RAN

3GPP TSG-RAN WG #97-e RP-22XXXX

E-meeting, 12th – 16th September 2022

Source: CATT (moderator)

Title: Moderator's summary for discussion [97e-23-R18-MBS]

Agenda Item: 9.3.2.8

Document for: Discussion and decision

1 Introduction

This email discussion is on the scope of Rel-18 MBS enhancement WID. The related contributions [1]-[5] are listed in the following.

[1] RP-221909 LS on the scope of resource efficiency for MBS reception in RAN sharing scenario (R3-225229; to: RAN; cc: SA2, SA; contact: CATT) RAN3

[2] RP-222264 On Rel-18 MBS WI scope for resource efficiency for MBS reception in RAN sharing scenario Ericsson

[3] RP-222389 Discussion on the scope of resource efficiency for MBS reception in RAN sharing scenario CATT

[4] RP-222390 [Draft] Reply LS on the scope of resource efficiency for MBS reception in RAN sharing scenario CATT

[5] RP-222447 Discussion on the scope of Rel-18 NR MBS ZTE, Sanechips

2 Phase 1 discussions

2.1 Scope of resource efficiency improvement for MBS reception in RAN sharing scenarios

Benefit to support resource efficiency improvement for both broadcast and multicast reception in RAN sharing scenarios

In [2] and [3], it was observed that it is beneficial to support resource efficiency for RAN sharing scenario in both broadcast and multicast with the following reasons:

Allowing efficient resource utilisation to be applicable for both, broadcast and multicast MBS sessions has the potential to strengthen the usability of such feature in supporting a large range of services which are deployed across mobile networks - and should therefore not be prohibited.[2]

Without improvement on resource efficiency for MBS reception in RAN sharing scenario, there would be duplicated PTM radio resources consumed in Uu interface which is the waste of radio resources.[3]

Moderator's understanding is that the RAN3 LS [1] already mentioned the scope of that work task is not restricted with regards to the type of the MBS session (broadcast / multicast), and RAN may align companies' understanding on the following question.

Question 1: **Do you agree that from technical point of view it is beneficial to support resource efficiency improvement for multicast reception in RAN sharing scenarios? And, if your answer is No, please share your reasoning.**

Feedback Form 1: for Q1

1 – ZTE Corporation Agree.
2 – Deutsche Telekom AG We believe that the topic is limited to broadcast in combination with network sharing. *(which was also my understanding while previously beging assigned as the thread moderator for this Rel-18 topic.)*
3 – Nokia In RAN sharing scenarios, there can be technical benefit to support resource efficiency improvement for multicast reception assuming there is operator interest to also share multicast MBS services in addition to sharing cell resources.
4 – Qualcomm Incorporated From purely technical point of view, we agree with Nokia's comment: there can be technical benefit to support resource efficiency improvement for multicast reception assuming there is operator interest to also share multicast MBS services in addition to sharing cell resources. However, we also share DT's view: We believe that the topic is limited to broadcast in combination with network sharing.
5 – CATT We share the similar view with Nokia and Qualcomm on that it is benefical to support resource efficiency for multicast service.Also,in current Rel-18 MBS enhancement WID in RAN,both broadcast and multicast are included for resource efficiency improvement in RAN sharing scenario.It seems there is no reason to preclude multicast from techinical point of view.

6 – Futurewei

We share similar with Nokia.

7 – Beijing Xiaomi Mobile Software

Agree with Nokia.

8 – CBN

Agree. We share same view with Nokia.

9 – Samsung R&D Institute UK

Yes, we agree that it is beneficial to support resource efficiency for both broadcast and multicast.

10 – Spreadtrum Communications

Agree. We share same view with Nokia. Both broadcast and multicast should be consideredto support resource efficiency improvement.

11 – Ericsson LM

We share the view that it is beneficial to support resource efficiency for multicast reception in RAN sharing scenarios.

12 – vivo Mobile Communication Co.

We agree with Nokia and QC.

13 – Huawei Technologies Sweden AB

Yes, Agree with Nokia and Ericsson

14 – Intel Corporation (UK) Ltd

Agree that it is beneficial to support resource efficiency improvement for multicast reception in RAN sharing scenarios.

15 – Lenovo Information Technology

Agree. From technical point of view, it is beneficial to support resource efficiency improvement for multicast reception in RAN sharing scenarios

16 – TCL Communication Ltd.

Agree with Nokia and Ericsson

17 – Kyocera Corporation We agree with Nokia and other companies and think it's beneficial to support resource efficiency improvement for multicast reception in RAN sharing scenarios.
18 – CITC we agree.
19 – BT plc We agree it is beneficial to support resource efficiency improvement for multicast reception in RAN sharing scenarios.
20 – AT&T Agree

Coordination with SA2

In [2][3][5],it was analysed that similar solutions applied to broadcast service and multicast service on the information which enables NG-RAN node to identify the MBS service(s) for the same contents.

MBS sessions, regardless their session type (broadcast/multicast) are both identified by the same type of identifier, the MBS Session ID (see TS 23.247 [6]). If NG-RAN is able to identify broadcast MBS sessions delivering the same content from different 5G Core Networks, it can be also assumed, that the same function can be applied for multicast MBS sessions.[2]

In case the information comes from 5GC, it seems common solution could be used for both broadcast and multicast on the way to generate the information no matter which solution in this camp is selected in SA2 on broadcast. The reason is that there is only one MBS creation procedure captured in 23.247 regardless the service type.[3]

In case the information is provided by OAM configuration, then obviously, similar configuration could also applied to multicast service.[3]

Part of the impacts to 5GC can be similar, e.g., as in service layer 5GC shares much common between multicast and broadcast.[5]

In [3][5],it is observed that there are still distinctions between multicast and broadcast on resource efficiency in RAN sharing scenario with the following reasons:

However, since the mechanism for establishment/activation of MBS service is different for Broadcast service and Multicast service, the way how MB-SMF/AMF provides the information to NG-RAN node would also be different. Currently, in broadcast, the information would be provided to NG-RAN node via Broadcast Session Setup procedure. For multicast, it is unclear whether the information should be provided via UE associated procedures or non UE associated procedure which may needs further evaluation. Nevertheless, if configuration based solution is adopted for broadcast, it seems no further work is needed.[3]

There are indeed considerable, if not more, distinctions especially on the session management part for multicast. Such distinction is reflected in RAN3 spec too:

- *MBS Session ID, session status for multicast needs to be synced between RAN and 5GC,*
- *NG-U tunnel management / coordination,*
- *There might be even issues for how to support Rel-18 features like RRC_INACTIVE support.[5]*

It seems all the contributions on the topic agree that coordination between RAN3 and SA2 is needed [2][3][5].However, on how to coordinate with SA2 on this topic, there are different proposals as below:

Option 1: RAN3 should feedback to SA2 as part of the review process triggered by the SA2 LS.[2]

Option 2: RAN directly contact SA2 on the possibility to support multicast service for resource efficiency.[3][5]

The moderator's understanding is that the SA2 LS mentioned by [2] was not sent to RAN and it is then up to RAN WGs to address the questions therein. And, as the RAN3 LS [1] explicitly asks for RAN action and guidance, it seems reasonable to consider Option 2 , i.e., RAN send LS to SA2/SA on the issue, and provide RAN3 with some guidance on their future work, which is addressed by a later question.

Question 2: Do you agree that RAN send LS to SA2/SA on the scope of resource efficiency improvement for MBS reception in RAN sharing scenarios (i.e., Option 2 above)?

Feedback Form 2: for Q2

1 – ZTE Corporation Agree (with option 2), as indicated in RAN3 LS [1].
2 – Deutsche Telekom AG No
3 – Nokia We think that regardless of the final solution selected by SA2 for broadcast, there is different work to be done by SA2 for multicast. We are OK with Option 2 but with the following comments: - LS must be sent to both SA and SA2; and - Ask "whether there is a possibility to expand the scope of the Release 18 SA2 SID at this late stage to include multicast?"
4 – Qualcomm Incorporated No need to send separate LS to SA or SA2 by RAN. RAN3 LS was sent To: RAN, and CC: SA2/SA. So, RAN should provide feedback to RAN3 with CC to SA and SA2.

5 – Futurewei

If we can agree to request SA2 to consider taking a specific action, Option 2 would be better, because RAN3 LS to RAN was only CC'ed SA2 without requesting them to take a specific action.

6 – CATT

Agree with option 2.The reason we prefer direct contact with SA2 is that tight coordination between SA2 and RAN3 is needed on support of resource efficiency for multicast.If SA2 is only in CC,it is possible that no further action/feedback is provided and thereby the ambiguity would still exist which bring much controversity to future work on this topic.

7 – Beijing Xiaomi Mobile Software

Agree with option 2.

8 – Samsung R&D Institute UK

Agree option 2. LS triggered by SA2 asked multiple questions to RAN WGs related to the solutions. It would be better to send out a LS to SA2 for expecting their reply.

9 – Spreadtrum Communications

Agree with option 2. The LS needs to be sent to SA2 directly for feedback.

10 – Ericsson LM

We are fine to send an LS to SA2, but we do not agree to the analysis in [3] and [5] regarding the differences between BC and MC handling. And we do not see the options being exclusive alternatives, we definitely go with option 1 (as well).

11 – vivo Mobile Communication Co.

we are fine with OP2.

12 – Huawei Technologies Sweden AB

Answer: Slight preference for the Qualcomm proposal. Regarding the comment from Nokia, we think RAN should not ask about SID/WID. This is up to SA/SA2. If RAN ask the question in teh LS it should be about the possibility to add this in Rel18 (not for SID).

13 – Intel Corporation (UK) Ltd

We are fine to contact SA2 directly (option 2).

14 – Lenovo Information Technology

Agree with option 2. LS should be sent to both SA and SA2.

15 – TCL Communication Ltd. Ok with option 2.
16 – Kyocera Corporation We agree with the moderator's suggestion (i.e., Option 2).
17 – CITC Agree with option 2.
18 – BT plc We are fine to send LS to SA2/SA, we agree with Huawei's comment the LS should be about the possibility to add in R18 (not specifically for the SID)

If the group can agree on the intention of sending an LS to SA2, the exact content of the LS could be discussed in Ph2.

RAN's guidence to RAN3

As mentioned above, the RAN3 LS asks RAN's guidance on their future work on the topic. On how to feedback to RAN3, similar, different proposals were raised in [2][3][5] as follows:

Option 1: TSG RAN should suggest to RAN3 considering all aspects contained in the RAN WI on "Enhancements of NR Multicast and Broadcast Services".[2]

Option 2: RAN3 work corresponding to the objective prioritizes the broadcast services, before feedback is received from SA2.[3][5]

Moderator's understanding is that Option 2 is more reasonable, due to the fact that a) the work related to multicast has SA2 impact and RAN3 should wait for SA2 feedback, and b) from RAN point of view the solutions for broadcast and multicast have some commonality so prioritizing broadcast as in Option 2 does not lead to much inefficiency in case SA2 confirms multicast can be supported in their Rel-18 work.

Question 3: Do you agree with Option 2, i.e., RAN suggest RAN3 to prioritize the broadcast services for the work of resource efficiency improvement for MBS reception in RAN sharing scenario, before feedback is received from SA2/SA?

Feedback Form 3: for Q3

1 – ZTE Corporation Agree.
2 – Deutsche Telekom AG Yes, as there is no 2nd priority (see our comments above, as multicast is excluded)

3 – Nokia

Disagree, since ”prioritize” is ambiguous. We think that unless/until RAN3 receives a confirmation from SA/SA2 for multicast, we propose to put on hold any RAN3 discussion on multicast RAN sharing.

4 – Qualcomm Incorporated

RAN should provide feedback to RAN3 that RAN3 should continue to work only on broadcast RAN sharing until RAN3/RAN receives any feedback from SA/SA2 regarding multicast RAN sharing.

5 – Futurewei

Agree with the comments from Nokia and Qualcomm. Option 2 would be OK, if modified accordingly, e.g., changing ”prioritize” to ”focus on”.

6 – CATT

Agree.As analyzed by several companies,there is commonity between broadcast and multicast on support of resource efficiency in RAN sharing scenario.It seems that the current solutions proposed in SA2 on this topic could applied to both braodcast and multicast from high level with some detailed distinctions.So,when RAN3 evaluate the solutions based on LS from SA2,maybe no big difference between broadcast and multicast.Neverthless,we also acknowledge that multicast is not discussed in SA2 yet,so RAN3 could prioritize broadcast before receiving feedback from SA2.

7 – Beijing Xiaomi Mobile Software

Agree.

8 – Samsung R&D Institute UK

It is fine to reword the “priority” to “focus on”. RAN3 discussion will not have conclusion regarding multicast until SA2 confirms the multicast will be supported in Rel-17.

9 – Spreadtrum Communications

Agree.

10 – Ericsson LM

We do not agree. And it seems that this is the very point of the whole discussion at RAN#97-e. As TSG RAN seems to agree on the benefit for applying resource efficiency methods for both, broadcast and multicast sessions and as the differences are from an NG-RAN perspective rather little, TSG RAN should give a more optimistic and demanding answer to RAN3 and encourage work for both, broadcast and multicast. The same attitude should be shown towards SA2, as TSG RAN should not decide or give recommendations upon technical aspects outside TSG RAN’s expertise.

11 – vivo Mobile Communication Co.

Agree

12 – Intel Corporation (UK) Ltd We are fine with Option 2.
13 – Huawei Technologies Sweden AB We have sympathy with Ericsson's view, any guidance to RAN3 (cc to SA/SA2) should reflect that having a solution for multicast is beneficial. But we can also see that it may be difficult for RAN3 to have progress on a complete solution for multicast before SA2 discussion occurs. Therefore, we prefer the original wording (prioritize) which means that companies are not prohibited to provide input for multicast.
14 – Lenovo Information Technology Agree. RAN3 can start the work with broadcast firstly since network sharing for multicast needs SA2 involvement. Without input from SA2, RAN3 is difficult to discuss network sharing for multicast.
15 – TCL Communication Ltd. Agree
16 – Kyocera Corporation We agree with the moderator's suggestion.
17 – CITC Agree. RAN3 should hold the discussion on multicast RAN sharing until the feedback from SA2.
18 – BT plc We have a similar view to Ericsson. Most companies believe that a solution for multicast is beneficial. RAN3 should be encourage to continue work on solutions for both Multicast and Broadcast, unless SA2/SA states otherwise.

2.2 Enhancements for Redcap UEs

In [5] the following proposal is made

For Rel-18 NR MBS, RAN does not pursue enhancement for RedCap UEs (only if it is required by other WGs).

The main points in the contributions were that a) RAN WG confirms that it is up to network implementation whether/how to enable Redcap UE to receive MBS broadcast/multicast, and b) Capability limited UE support is not in the scope of Rel-18 NR MBS.

Moderator's understanding is that if the above proposal is agreeable then no changes to the current WID is needed on this matter.

Question 4: Do you agree with the above proposal in [5], and therefore no new objective needs to be added to the WID on enhancements for Redcap UEs?

Feedback Form 4: for Q4

1 – ZTE Corporation

Agree. We shall utilize the limited TUs for Rel-18 NR MBS on existing objectives, not others.

2 – Deutsche Telekom AG

Redcaps target cheap devices, hence we can not see that any MBS enhancement for Redcaps shall be pursued in 3GPP at all.

3 – Nokia

Agree that no new objectives need to be added to the WID on enhancements for Redcap UEs. It is however unclear whether "capability limited UE" refers to Redcap UEs or some other devices (e.g. NBIOT devices).

4 – Qualcomm Incorporated

Disagree with proposal in [5]. In general we are supportive of further enhancements to enable efficient support of MBS by RedCap UEs (including properly replying to SA2 questions from their original LS in RP-221041 (S2-2203020) which are still unanswered). RAN2 agreement to leave it up to network was specific to Rel-17. But Rel-18 discussion is just starting. So, we do not see a reason to upscope/downscope or agree/endorse anything explicitly for this aspect at this time.

Instead, we should aim at replying to SA2 questions from their original LS in RP-221041 (S2-2203020) for Rel-18.

5 – Futurewei

Agree.

6 – CATT

Agree

7 – Beijing Xiaomi Mobile Software

Agree that no new objective needs to be added to the WID on enhancements for Redcap UEs.

8 – HUAWEI TECHNOLOGIES Co. Ltd.

Clarification/revision needed. It is not clear whether the proposal refers to 1) to exclude the applicability of Rel-18 MBS feature on Redcap; or 2) to have Redcap-specific optimization for MBS, e.g. enhancement related to the LS from SA2. If it is 1), we believe this is against the principal, based on which, RAN made conclusion for the applicability of Rel-17 MBS on Redcap. If it is 2), we did not see the urgency to include such Redcap-specific optimization for MBS in Rel-18, so we support the proposal not to add new objective. On another aspect, we believe whether or not to have Redcap-specific RAN optimization for MBS should be a RAN decision instead of SA decision, we therefore do not agree with the exception condition in the proposal ("only if it is required by other WGs").

9 – MediaTek Inc.

We are positive on the intention. We understand the general guideline from Chair is ”no upsocpe of Rel-18 WI at this moment”. However, since there is no proposal to change the MBS scope, probably there is no need to capture the negative proposal as an agreement. In any case, no change on the MBS objective for now.

10 – Samsung R&D Institute UK

No particular enhancement to support redcap is needed, thus WID objective needn’t be changed.

11 – LG Electronics Polska

Agree.

12 – Ericsson LM

The proposal is not clear, as RAN is not a WG: Is the intention to say that no enhancements are pursued, unless requested by SA and/or CT (WGs)? Or that RAN does not make any assumptions unless requested by RAN WGs?

In any case, we do not support making such agreement at this point. Although we agree the current status is that it is up to NW implementation and configuration whether RedCap UEs receive MBS multicast/broadcast, there has been discussions (e.g. in RAN2) identifying possible enhancements. Rel-17 will not include such enhancements, but it was not precluded there would be no need or support to do so in Rel-18.

As up-scoping of Rel-18 items is not done in this plenary, we think there is no need to agree on anything related to this topic (i.e. no positive or negative agreement), and the WID can stay as it is for now.

13 – Spreadtrum Communications

In R17, the Redcap UE can support MBS. If the minimum MBS bandwidth requirement exceeds the RedCap capabilities, this would prevent a RedCap UE from supporting MBS. RAN2 agreed that how to address this issue is up to network implementation in R17.

In R18, it is beneficial to consider the support of Redcap UE at beginning for better performance.

14 – vivo Mobile Communication Co.

agree

15 – Intel Corporation (UK) Ltd

Agree. RAN2#119-e meeting has already agreed that for Rel-17, “It is up to network implementation whether/how to enable Redcap UE to receive MBS broadcast/multicast”, “No essential changes are identified to enable the MBS support of Redcap UE (Rel-17)”. We think that above agreements are also applicable to Rel-18. In addition, there is no RAN1 TU for Rel-18 MBS, and it will be challenging to add new objective without RAN1 involvement.

16 – TCL Communication Ltd.

Agree.

17 – Lenovo Information Technology Agree
18 – Kyocera Corporation We agree with the moderator's suggestion.
19 – CITC we support not adding new objectives for Redcap UEs.
20 – BT plc Agree no new objectives are needed.

2.3 Summary and suggested WF based on phase 1 discussions

Summary of Question 1 – on the benefit to support resource efficiency improvement for multicast reception in RAN sharing scenarios

Most of the companies (18 out of 19 companies) agree that from technical point of view it is beneficial to support resource efficiency improvement for multicast reception in RAN sharing scenarios.

2 companies think the topic is limited to broadcast service.

Summary of Question 2 – on whether to send LS to SA2/SA

Great majority (15 out of 18 companies) support to send LS to SA2/SA on the issue. Multiple companies suggest the LS should be sent to both SA and SA2.

2 companies do not see a need to send LS, 1 companies slightly agrees with such view.

Summary of Question 3 – on RAN's guidance to RAN3

Great majority (16 out of 18 companies) supports that RAN gives RAN3 clear guidance to 'focus on' or 'prioritize' (there are different views regarding what is the best wording in the guidance) the broadcast service for the objective, before reply is received from SA2/SA.

2 companies do not agree and seem to suggest RAN3 progresses both multicast and broadcast before reply is received from SA2/SA.

Moderator's suggested WF

Given that there is great majority's preference for Q1-Q3, for the sake of progress, it is suggested to agree on sending a LS to SA2, SA and RAN3.

While the detailed wording can be further discussed in the 2nd round, the following is assumed when discussing the LS

1) It is indicated in the LS that RAN sees benefit to support resource efficiency improvement for both broadcast and multicast reception in RAN sharing scenarios

2) To Ask SA2 and SA whether from their point of view it is feasible to support resource efficiency improvement for multicast reception in RAN sharing scenarios in Rel-18

3) To give RAN3 the guidance to 'focus on' or 'prioritize' (wording can be further discussed) the broadcast service for their work on the objective, before reply is received from SA2/SA.

Summary of Question 4 – on enhancements for Redcap UEs

All the companies see to agree that no change to the WID is needed at this stage for enhancements for redcap UEs.

Some companies think the proposal in [5] is not crystal clear and may need some further clarification. Some companies think no conclusion is needed on the topic anyway based on RAN Chair's guidance of no up-scoping the R18 WIDs.

Moderator's suggested WF

The following WF is suggested:

No conclusion is made based on the discussions on this question (which then means no change is needed to the WID for now).

3 Phase 2 discussions

Firstly, please provide your comments to the next question only if the moderator's suggested WFs in section 2.3 is NOT acceptable to you. Otherwise you may comment directly to the draft LS for the sake of progress.

Question 5 Please share your comments if the moderator's suggested WFs in section 2.3 is NOT acceptable to you.

Feedback Form 5: for Q5

1 – Ericsson LM

There seem to be a general trend in 3GPP to count pro/con votes instead of going through a discursive process, which is sad to see and hopefully gets better when meeting again face-to-face.

Strictly speaking - we think that we can state that there is only consensus on Q4, but not on Q1-Q3.

Reviewing answers to Q1, however, it can be stated that also on Q1 there is consensus as the statements from 2 companies that "the topic is limited to broadcast service" was not in scope of Q1.

We agree on the attempt to draft a reply LS, but the content is for further discussions and the detailed WF cannot be agreed.

2 – CATT

Thanks for the addtional comments. I believe companies in the 1st round expressed their own views based on their technical understanding, as well as their observations to the RAN3 situation. It is good to see your agreement on attempting to draft a LS. Thanks for being constructive. But then from moderator point of view, it would very helpful to set up a few general WF bullets to help the next step discussions on the LS, to aviod discussing everything again in the next rounds. This is why some suggested WFs are provided based on great majority's view in section 2.3.

3 – CATT

Thanks for the addtional comments. I believe companies in the 1st round expressed their own views based on their technical understanding, as well as their observations to the RAN3 situation. It is good to see your agreement on attempting to draft a LS. Thanks for being constructive. But then from moderator point of view, it would very helpful to set up a few general WF bullets to help the next step discussions on the LS, to aviod discussing everything again in the next rounds. This is why some suggested WFs are provided based on great majority's view in section 2.3.

4 – CATT

...for some reason my previuos comments appear twice in nwm. plz ignore one of them. sorry for that.

5 – BT plc

We do not agree with the WF, as stated in the initial round as we believe RAN3 should be encouraged to continue work on solutions for both Multicast and Broadcast, unless SA2/SA states otherwise.

6 – Ericsson LM

1) The moderator's summary claims that there is a necessity to align the RAN and SA WID scope. This is however not the case, as we have shown in Q6: the work tasks are well aligned as they neither rule out multicast for the resource efficiency work task nor has the ongoing discussion produced any results that would suggest any reduction of the scope. TSG RAN should have confidence in clarity and meaningfulness of WIDs it has produced.

2) We do not see our arguments, which we kindly ask to be reflected in this discussion, taken into account in the proposed LS with no real counterarguments:

(a) the draft LS is contradicting with RAN's general supportive view (b) does not take into account the current scope of work tasks which are sufficiently clear (c) there is no reason to focus/prioritize from a work-load perspective (d) the request to prioritize is too early from a RAN perspective (no real discussion took place and the RAN WI has passed its first quarter only) (e) we see the necessity to discuss this topic in a common way for BC and MC.

3) The draft LS proposal above effectively suggests to down-prioritise work of resource efficiency for multicast MBS sessions. This is a very biased starting point for both, SA2 and RAN3 discussions. We want to see a neutral start for SA2 and RAN3 discussions when receiving such an LS, which allows companies to expect respective technical discussions taking place. Statements like the third sentence in the overall description section of the LS only unnecessarily introduces friction in an otherwise undisturbed and open discussion process.

Then in the next question companies' comments to the content/wording of the LS to RAN3, SA and SA2 are collected. Once these content are stable the draft LS can be reviewed in doc format for finalization.

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1. Overall Description:

TSG RAN thanks RAN3 for the LS on the scope of resource efficiency for MBS reception in RAN sharing scenarios.

TSG RAN considers support of resource efficiency for MBS reception beneficial regardless of the MBS session type (broadcast / multicast).

TSG RAN would like to ask the following question towards SA2:

Would SA2 be able to include efficient MBS reception in RAN sharing scenario for multicast service in Rel-18 scope?

Meanwhile, TSG RAN suggests RAN3 to prioritize the broadcast service for resource efficiency improvement for MBS reception in RAN sharing scenarios, before feedback is received from SA2.

2. Actions:

To SA2:

TSG RAN kindly asks SA2 to provide feedback on the above question.

To RAN3:

TSG RAN kindly asks RAN3 to follow the suggestions above.

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Question 6 Please share your comments if any on the above content for the draft LS to SA2, SA and RAN3.

Feedback Form 6: for Q6

1 – Nokia

We propose to rephrase the question as follows: "If there is operator interest, would SA2 be able to…". This is because discussion in RAN3/RAN has focused only on technical benefits, but not on other important factors (e.g. operator interest) that are typically considered when deciding what to include in a Release package.

Also, the guidance to RAN3 seems quite weak since "prioritize" does not seem to preclude RAN3 discussing multicast RAN Sharing even without SA2 feedback (which is the key issue raised by the RAN3 LS). Therefore, we propose to say "focus only on the broadcast service" rather than "prioritize the broadcast service".

2 – Qualcomm Incorporated

We also think the guidance to RAN3 seems quite weak since "prioritize" does not seem to preclude RAN3 discussing multicast RAN Sharing even without SA2 feedback (which is the key issue raised by the RAN3 LS). Therefore, "focus only on the broadcast service" seems better than "prioritize the broadcast service".

3 – ZTE Corporation

Agree with Nokia and QC that,

- SA2 should be aware that this RAN confirms technical benefits, while SA2 can decide based on other factors like operator interests.

- "focus only on broadcast service, before.." is slightly preferred.

4 – Futurewei

Although we are generally OK with the proposed wording, we slightly prefer to replace "prioritize" with "focus on".

5 – Ericsson LM

As stated on our comments on Q5, I guess we should only reply where consensus is given in TSG RAN. Please bear in mind, that our willingness to address SA2 in the reply LS is already one step towards a compromise. And we agree with Qualcomm's observation, that SA2 was not addressed in the RAN3 LS.

The proposed wording is not acceptable for the following reasons:

1) Limiting the scope of the Rel-18 RAN WID is premature, we have only seen one round of discussions which was limited to reviewing the scope of the WID w/o real technical discussion in the WGs.

2) Agreeing on the benefit of resource efficiency for BC and MC sessions but suggesting to limit the scope is contradicting. TSG RAN should be rather encouraging work on both, BC and MC.

3) The WID was carefully crafted after long discussion in TSG RAN and it can be assumed that all delegates are skilled in drafting and interpreting specification-like text. We have not seen any technical reasons for changing the scope.

4) The scope of the resource efficiency work task should be only limited to BC if support for both MBS session types is not feasible (in Rel-18). But the technical analysis for that should rather come from SA2 (for the 5GC part) and RAN3 (for the NG-RAN part).

5) Looking back into previous release, broadcast was not part of the original Rel-17 work-package and was introduced only later. Comparing the amount of work introduced for Rel-17 at a rather late stage and the rather small package we are discussing now for Rel-18, we believe that it is very well possible to include multicast for resource efficiency in Rel-18 - given that SA2 has still one quarter available to include this aspect into their study. We also believe that it makes sense to perform a common work for BC and MC in a single Release to avoid potential interoperability issues.

6) We all should be aware of the fundamental settings of the SA2 Rel-18 Study, which states in the "common architectural requirements and principles" as of TR 23.700-47 that "*The system shall provide an efficient transport for a variety of multicast and broadcast services.*" - which is very much aligned with intentions captured in the RAN WID and the positive reaction on Q1.

Given the direction this discussion is taking we propose to

- reduce the content of section 1 in the LS to the consensus part, i.e. we can only agree to the first and the second sentence

- include a common action *To SA2 and RAN3: TSG RAN asks RAN3 and SA2 to take the above view into account for further work and coordinate where necessary*.

6 – TURKCELL

We agree with Ericsson.

7 – CATT

From CATT point of view, we are fine with the draft LS propsoed by the moderator with the fowlloing reasons:

1) Clear guidance from TSG RAN to RAN3 should be provided as requested from RAN3.Otherwise,the discussion would still be controverisal in RAN3.

2) Feedback from SA2 on whether resource efficiency for multicast could be included in Rel-18 is needed for future RAN3 work. For example, if SA2 could not support this feature,it would be waste of time in RAN3 to spent time on this topic.

8 – Spreadtrum Communications

Agree with Nokia.

9 – BT plc

We agree with the Ericsson proposal for the LS to SA2 & RAN3.

10 – Ericsson LM

(1) for the reasons provided on the questions above, mainly Q3, Q5 and Q6, we cannot agree with the third sentence in the draft LS. We propose to remove it and provide a common action to SA2 and RAN3 as suggested in Q6:

To SA2 and RAN3: TSG RAN asks RAN3 and SA2 to take the above view into account for further work and coordinate where necessary.

(2) We do not see a reason to address SA.

4 Phase 3 discussions

Summary of the intermediate round discussions

Compared with 1st round where nearly 20 companies shared their comments, in the intermediate round only less than 10 companies commented on Q5 or Q6. So moderator assumes the companies that didn't comment in the intermediate round do not have strong concern on the suggested draft LS. Then for the companies that commented in the intermediate round, moderator observed quite different views from different companies and they seems to be equally strong.

Summary on guidance to R3

In the intermediate round, some companies think the wording for the guidance to RAN3 is 'quite weak', and suggests to change 'prioritize' to 'focus on' for the broadcast service. While some other companies do not agree, and suggest to change the guidance to a even 'weaker' version such as 'take into account…'.

Summary on question to SA2 and SA

Some companies seem to be fine with the current suggested question to SA2 and SA.

Some other companies suggest to not to have a question to SA2 and SA, but to just include a common action (i.e., same as to RAN3 as in their suggestion, with the wording 'take into account' as mentioned above)

Moderator's suggested WF

Basically, moderator's understanding is that for the alignment of the RAN and SA WID scope, it is meaningful to ask explicit question to SA2 and SA, and for RAN3's discussion efficiency, it is meaningful to give RAN3 clear guidance as has been requested by RAN3.

But on the other hand, due to the strong views that have been expressed, it seems not possible to move forward with the previously suggested wording.

So some updates are further proposed for the draft LS. The main point of the updates were that for guidance to RAN3 we keep the wording as before (not to make it stronger or to completely drop it), and for SA2 question we change from the previously suggested question to a somewhat softer request for them to take the information into account.

****

1. Overall Description:

TSG RAN thanks RAN3 for the LS on the scope of resource efficiency for MBS reception in RAN sharing scenarios.

TSG RAN considers support of resource efficiency for MBS reception beneficial regardless of the MBS session type (broadcast / multicast).

TSG RAN suggests RAN3 to prioritize the broadcast service for resource efficiency improvement for MBS reception in RAN sharing scenarios, before the feedback is received from SA2 and SA.

2. Actions:

To SA2 and SA:

TSG RAN kindly ask SA2 and SA to take the above information into account for their further work and coordinate with RAN and RAN3 if needed.

To RAN3:

TSG RAN kindly asks RAN3 to follow the suggestions above.

****

Question 7 Is this updated version an acceptable compromise to you? (Please only comment to this question if this is NOT acceptable, other detailed comments can be provided to the next question.)

Feedback Form 7: for Q7

1 – Ericsson LM

1) The moderator's summary claims that there is a necessity to align the RAN and SA WID scope. This is however not the case, as we have shown in Q6: the work tasks are well aligned as they neither rule out multicast for the resource efficiency work task nor has the ongoing discussion produced any results that would suggest any reduction of the scope. TSG RAN should have confidence in clarity and meaningfulness of WIDs it has produced.

2) We do not see our arguments, which we kindly ask to be reflected in this discussion, taken into account in the proposed LS with no real counterarguments:

(a) the draft LS is contradicting with RAN's general supportive view (b) does not take into account the current scope of work tasks which are sufficiently clear (c) there is no reason to focus/prioritize from a work-load perspective (d) the request to prioritize is too early from a RAN perspective (no real discussion took place and the RAN WI has passed its first quarter only) (e) we see the necessity to discuss this topic

in a common way for BC and MC.

3) The draft LS proposal above effectively suggests to down-prioritise work of resource efficiency for multicast MBS sessions. This is a very biased starting point for both, SA2 and RAN3 discussions. We want to see a neutral start for SA2 and RAN3 discussions when receiving such an LS, which allows companies to expect respective technical discussions taking place. Statements like the third sentence in the overall description section of the LS only unnecessarily introduces friction in an otherwise undisturbed and open discussion process.

2 – BT plc

We agree with Ericsson, we would not like to down-prioritise work of resource efficiency for multicast MBS sessions in RAN3 at this early stage.

Question 8 Assuming the suggested compromise is generally OK with you, do you have further detailed comments on the content of the draft LS?

Note: The draft ls, with the same content as shown above, can be found in the server folder but please only provide your comments if any in the nwm document.

Feedback Form 8: for Q8

1 – ZTE Corporation

Well the intermediate version was good to us. Let me explain:

- it is not limiting the scope but trying to clear the obstacles to fulfill the scope we have decided earlier (if that was our intention, but as Axel indicated it seems different companies might *still* have different views on the scope. if everything is 100% clear once the initial WID was nailed down, that will be lifesaving for Plenary meeting). Also remember BC was in the scope of Rel-17 NR MBS since the beginning, and that was confirmed by RAN plenary when SA wanted some down-scope. Please read RP-202086 or chairman notes for RAN 89e).

- nothing's been ruled out for now, since anyway we need SA2's support on multicast network sharing and decide later. Rapporteur had also made it clear that without SA2's efforts it wont work even RAN supports it. We need SA2's expertise on this issue, and this is also Ericsson's intention if I understand it right. We also agree that pursuing the same design for BC and MC is good and wish the same thing for network sharing. Again, this should be left to SA2's discussion first.

- it was always good to have explicit RAN plenary guidance based on our observation to Rel-17 NR MBS discussion.

That being said, we are willing to compromise and we support Rapporteur's latest version for the sake of progress.

2 – Qualcomm Incorporated

Similar to ZTE, we would have preferred to have clear guidance to RAN3 to 'focus on broadcast only' but are ok with current version as compromise.

3 – Nokia

We also prefer clearer guidance to RAN3, but can live with the current version as long as the following (hopefully non-controversial) comment is taken into account:

- Since the intention of the 2nd paragraph is to capture the (near) consensus on Q1, the wording of the 2nd paragraph should be aligned with what was actually asked in Q1 as follows: "*TSG RAN considers **that from a technical point of view**, support of resource efficiency for MBS reception **is** beneficial regardless of the MBS session type (broadcast / multicast)*."

4 – CATT

Moderator:

Thanks for the further comments and thanks to the companies for being constructive.

Regarding the rewording suggested by Nokia above: at least from my point of view it is reasonable, because the question 1 was asked this way and there were positive feedback from almost all the companies, as summarized after the initial round.

=>

@all: I'd suggest we consider the moderator's suggested updates with the rewording proposed by Nokia above as a possible WF. Please further comment if any taking into account the above comments. Thank you.

5 – Ericsson LM

(1) for the reasons provided on the questions above, mainly Q3, Q5 and Q6, we cannot agree with the third sentence in the draft LS. We propose to remove it and provide a common action to SA2 and RAN3 as suggested in Q6:

To SA2 and RAN3: TSG RAN asks RAN3 and SA2 to take the above view into account for further work and coordinate where necessary.

(2) We do not see a reason to address SA.

6 – Nokia

In our understanding, all companies share the goal of aligning RAN3 & SA2 efforts on multicast RAN Sharing. The potential difference is that:

- (a) At least one company believes the needed SA2 effort is "not large", and therefore RAN3 can assume that SA2 will support multicast RAN Sharing based on LS coordination.

- (b) Other companies believe the needed SA2 effort is “large”, and therefore SA2 should first commit to supporting multicast RAN Sharing in Rel-18 before RAN3 begins corresponding effort.

In our view, the prudent way forward is (b) which is the spirit of the latest draft LS from the moderator and respects the release planning of SA/SA2. If proponents of (a) are correct in assuming that the SA2 effort is “not large”, then it can be expected that SA2 will commit to supporting multicast RAN sharing. So, we don’t see any drawback to follow (b) as mentioned also by ZTE.

7 – Huawei Technologies Sweden AB

The LS looks reasonable to us. A possible rewording could be to say that RAN3 ”prioritize the discussion for broadcast” rather than prioritizing a technical solution.

8 – BT plc

We agree with Ericsson and prefer to remove the 3rd sentence and have a common action to SA2 and RAN3 as per Ericsson suggestion for the LS.

9 – China Mobile Com. Corporation

We are ok with moderator’s suggested WF.

10 – CBN

We support Rapporteur‘s proposal.

11 – Futurewei

We are OK with the moderator’s proposal, including the update suggested by Nokia.

12 – Futurewei

We are OK with the moderator’s proposal, including the update suggested by Nokia.

5 Conclusions

Two topics have been discussed in [97e-23-R18-MBS], i.e.,

- Topic 1: Proposal 1 from RP-222447 on ‘enhancements to Redcap UEs’
- Topic 2: Reply to RAN3 LS (RP-221909) on Scope of resource efficiency improvement for MBS reception in RAN sharing scenarios

For topic 1, based on the discussions it seems agreeable to make no conclusion on the topic.

For topic 2, during the final round discussions, 9 companies shared their views, the suggested WF by the

moderator seems to be acceptable to majority of the companies, but 2 companies do not agree such WF. Therefore further discussions will be needed to reach a conclusion on the topic.

More information can be found in the summary document RP-222583.