3GPP TSG-RAN WG3 Meeting #119bis-e R3-231887

Online, 17th – 26th April 2023

Agenda Item: 15.2

Source: Ericsson (moderator)

Title: CB: # MBS1\_NetworkSharing- Summary of email discussion

Document for: Approval

# Introduction

This document reports the offline discussion on Agenda Item 15.2 on “Support for MBS reception in RAN sharing scenarios”.

Mdme chair summarized the contributions referenced in Section 5 as follows:

**CB: # MBS1\_NetworkSharing**

**- Review of previous WA: Associated Session ID is per TMGI per Area Session ID (pending on SA2?)**

**- How to enable option 4 (i.e., optionally establishing NG-U tunnel, and gNB decides establishing tunnel in later phase)**

**- In case of MOCN, impacts to F1 interface (e.g., single or multiple F1AP, single or multiple F1-U)**

**- Whether and how the MRB configuration are aligned in case of RAN sharing with multiple Cell IDs (e.g., DU to arbitrates)?**

**- Capture agreements and open issues, provide TPs if agreeable**

**- LS to other WGs?**

Please provide your comments for the first round by Wednesday April 19 2023 end of business.

Please provide your comments for the **second** round by Monday April 24 2023 **9am UTC**.

# For the Chairman’s Notes

Support of location dependent services

WA: In case of location dependent broadcast services, the gNB deduces identical broadcast content from the MBS Associated Session ID and the MBS Service Area information provided by the participating 5GCs. (to be checked against the actual SA2 agreements / agreed CR text.)

“OAM solution”

RAN3 recognizes the fact that, although the gNB is an NG-RAN node, by approving [CR0176r9](http://3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_155_Athens_2023-02/Docs/S2-2303897.zip) as attached to the LS [R3-230789](http://3gpp.org/ftp/tsg_ran/WG3_Iu/TSGR3_119/LSin/R3-230789.zip), SA2 has obviously assumed responsibility for “UTRAN, E-UTRAN, and NG-RAN O&M requirements” for MBS, in contrast to the Terms Of References of RAN3 agreed at RP#91-e in [RP-210771](http://3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210771.zip).

Two possibilities

Either Option 1: TSG RAN and TSG SA are informed about the de-facto change of Terms of References and asked for guidance.

Or Option 2: TSG SA WG2 is requested to remove specification text outside their responsibility and TSG RAN and TSG SA are requested to ensure that ToRs are respected and that sufficient time is given to co-ordinate Work Items spanning across multiple TSGs.

No RAN3 specification work is needed following the approving CR0176r9 for TS 23.247 as attached to the LS R3-230789 from SA2.

To be continued: Whether SA2 should receive a RAN3 award for the “Best NG-RAN OAM solution of the year 2023”.

NG functions

WA: Introduce an explicit indication to 5GC in case that NG-U resources are not setup. Details are FFS.

F1 functions

Support, for MOCN, sharing of F1-U resources among multiple broadcast MBS sessions.

To be continued: Whether, for MOCN, F1 supports establishment of a single Broadcast Context for multiple MBS sessions at the DU.

PDCP aspects for RAN sharing with multiple Cell ID broadcast

WA: In case of RAN sharing with multiple Cell ID broadcast, the entity controlling the logical DUs decides which *MRB-PDCP-ConfigBroadcast* to provide on MCCH. Details are FFS.

# Discussion First Round

## On our working assumption from last meeting

The moderator senses from the working assumption captured at the last meeting the wish to identify identical location dependent content by means of an explicit indication from 5GC, which – from the February meeting’s point of view – was nourished by the wish to allow that the MBS Associated Session ID is provided on a per Area Session ID basis.

While it appears that the MBS Associated Session ID, if represented by an SSM as currently defined, cannot be allocated on a per Area Session ID (especially if the same SSM is announced to the UE on application layer) the question arises whether the “core” of the Working Assumption still applies?

**Q1: Do you still support the “core” of the WA, i.e. to introduce an explicit indication for identifying identical location dependent content, and if so, to communicate this to SA2? If you do not support that view, please explain how observing “overlapping/common” cell/TAI would work in general deployment/topological cases.**

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| --- | --- |
| Company | Comment |
| ZTE | I am afraid not..The WA was agreed because companies were worried that 1/ for different Area session ID the data will for sure be different; 2/ If the SSM is something in the payload, it will be different. We have got different intentions but accidentally got similar result.The method of observing "overlapping/common" cell/TAI without an explicit indication for identifying identical location dependent content, is based on the idea that for different PLMN, the same physical area will be mapped to the same cell/TAI list, which however is out of RAN3 scope.We are OK to ask any WG who is in charge. |
| Nokia | No.No explicit indication is needed. gNB can figure out based on TAIs/Cells of the service area. That was very well explained to Ericsson on the SA2 conference call last week. SA2 is discussing this already and we can wait their decision. |
| Qualcomm | Since SA2 is also discussing this aspect , we prefer to postpone this discussion until SA2 concludes. In addition to Nokia provided TAI/cell based method, another possibility is, if location dependent MBS services are provided, AF is expected to provide the same services across different 5GC based on SLA. One possible option is MOCN 5GCs based on co-ordination/SLA with App provider can provide same Area Session IDs towards RAN.Anyway, we prefer to wait until SA2 concludes on this issue. |
| CATT | On how NG-RAN node could identify identical location dependent content, From our point of view, a simple solution is that NG-RAN node deduce based on whether there is overlapping cells/TAs among the areas identified by different area session ID. Of course, if it is normal case that there is no overlapping cells/TAs in the MBS areas from different PLMNs, e.g. cell 1,2,3,4 broadcast the same MBS content while PLMNA only broadcast in cell1,2 and PLMN B only broadcast in cell 3,4 , maybe signaling based solution could be considered. |
| Lenovo | Assuming the geographical service areas are the same for different PLMNs, the shared NG-RAN node can recognize the same area with different MBS Area Session IDs and MBS Service Area information, e.g. based on the corresponding cell list/TA list. In this way, no extra indication is needed. |
| Huawei | SA2 made decision yesterday to use per session granularity:With this SA2 progress, we think that in the overlapping service area, the NG-RAN node can provide the service based on the request from one of the PLMNs, or the RAN node recognize the same location dependent area based on the related Cell/TAI list. There is no need for extra id. |
| Ericsson | Yes. Also, because we cannot assume that the per Area Session ID MBS Service Area definitions are always identical; the smaller those area definitions get the less the gNBs can deduce the appropriate overlap. As it is the RAN that would have to finally deduce identical content, it would be up to RAN3 to formulate respective requirements and inform other groups. |
| Samsung | Maybe a new explicit indicator is not needed. Since the NG-RAN can check the MBS service area and the overlapped areas broadcast the same content. |
| CMCC | There is no need to introduce the indication. Share same view with ZTE and Lenovo. We should first follow the principle that the geographical service areas are the same for different PLMNs, then we can conclude that NG-RAN can recognize the same location dependent area. |

## On an OAM RAN “solution” to provide the association between MBS Sessions IDs

CR0176r9 as attached to the LS R3-230789 received from SA2 in last meeting contains stage 2 description of an OAM solution that aims at substituting signaling via traffic interfaces by means of configuration.

While a multitude of documents comment that there cannot be any specification impact identified for RAN TSs, it is still rather uncommon that a TS outside TSG RAN responsibility contains normative text about RAN OAM.

**Q2: (a) Do you agree that there is no RAN specification impact on the OAM RAN solution and (b) do you agree that also SA2 should not have spent a single word on it in stage 2?**

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| Company | Comment |
| ZTE | It seems so for both (a) and (b). However we are open if companies can list the impacts or the TPs. |
| Nokia | No. For a) It is also part of our specifications to describe O&M impact and we should have some text about O&M RAN solution which is valid.For b) I suggest that we stop inferring in RAN3 on what SA2 should/should not do. |
| Qualcomm | For a) atleast RAN Stage-2 has to clarify applicability of RAN OAM for MBS RAN Sharing. For RAN OAM based solution, even if there are no new changes introduced within RAN interfaces and all 5GC provided Associated Session ID enhancements are applicable to RAN OAM based solution (i.e how many NG-U to establish, how to convey multiple TMGIs in F1-AP for MOCN, Multiple Cell ID scenarios, how many F1-U tunnels to setup, any E1-AP impact, is there need for CU-CP to provide configuration ID to DU etc. **How RAN configures any identifier for detecting RAN sharing can be left to implementation but RAN3 Stage-2 (in 38.300) at least has to clarify that if 5GC does not provide any Associated Session ID per TMGI, it is upto RAN to determine MBS RAN Sharing based on configuration.** For b) If some companies does not like some SA2 agreed CR text, **they should bring CRs directly to SA2 and it is not RAN3 to discuss SA2 CR changes.** |
| CATT | For OAM based solution, there also maybe singaling impact i.e. if it is configured in the CU side, then it is also necessary to let CU provide the Associated Session ID to DU. But this is common for signaling based solution and OAM based solution. No dedicated spec impact for OAM based solution is foreseen. |
| Lenovo | For a), some clarifications on stage 2 may be needed. |
| Huawei | Yes for a), by default OAM based solution should be left to implementation, without any stage 3 impact, no RAN specification impact is foreseen.Neutral for b), it is SA2’s business. |
| Ericsson | We agree that (a) no RAN specification impact is given and (b) we should communicate to SA2 that they have transgressed their responsibilities and should remove respective text from 23.247.  |
| Samsung | For a), as usual, some OAM description can be made in our stage 2. For b), SA2 is responsible for the architecture, in general, they touch the whole solutions. But it does not prohibit RAN stage 2 from making some descriptions |
| CMCC | For a, we think there should be stage2 impact. For b, we think this should be discussed under SA2’s scope, not RAN3 business. |

## NG functions to enable gNB deciding to not establish NG-U resources in MOCN

On enabling a gNB deciding to not establish NG-U, there are two aspects:

1. Introducing an explicit indication to 5GC in case that NG-U resources are not setup or any other NGAP protocol addition (and whether there needs to be a difference between unicast and multicast NG-U transport).
2. Introducing a new gNB triggered procedure (also seen in SA2 work) to request establishment of NG-U resources during an ongoing BC session (and whether there needs to be a difference between unicast and multicast NG-U transport.)

**Q3: Please provide your views on the 2 main NGAP aspects and also expand if necessary on any other additional missing main NGAP aspect missing?**

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| --- | --- |
| Company | Comment |
| ZTE | (a) as in our contribution, the IE is already optional, so nothing needs to be enhanced although we may need to notify 5GC that: a missing NG-U tunnel info is "a feature not a bug"(b) yes, but we see different solutions. and we think a RAN initiated modification is consistent with existing messages. one may even think it is there since Rel-17. |
| Nokia | 1. Agree. Needed to differentiate from multicast.
2. Agree for new procedure is needed as said in 1283.
 |
| Qualcomm | Enhancements needed for both a) and b). |
| CATT | 1. It is supported to not provide IP unicast transport address during Broadcast Service Setup procedure in Rel-17. So, the basic function for not establishing NG-U tunnel could be supported without extra spec udpate. Then one question is whether it is needed to let MB-SMF know the absent of UP unicast transport address is due to support of IP multicast transport or due to the decision of not establishing NG-U tunnel for RAN sharing. So, we think maybe RAN3 could first discuss whether/how this information is used in MB-SMF.

 b)Yes |
| Lenovo | Yes to both a) and b) |
| Huawei | Neutral for a), as currently there is no abnormal handling in case the NG-RAN node does not provide DL address in case of unicast transport.Yes for b), but we may only need a procedure for unicast transport, as in case of IP multicast transport, the NG-RAN node stores the IP multicast address information received from CN, and afterwards, joins the IP multicast group when needed. |
| Ericsson | Ad (a), not establishing NG-U resources while successfully terminating the setup procedure would represent a change in functionality, which has to be indicated by protocol means. We would be in favor to not distinguish between transport optionsAd (b) we are fine to go with approach indicated by SA2 |
| Samsung | Yes to a)But b), we have concern on how complex it is for the BC. If we don’t consider network sharing, the NG-RAN decides the UP is setup or not when session is start and keep this decision for whole period. It is not allowed the NG-RAN to trigger UP setup for BC in R17.In case of network sharing, the sessions from different PLMNs are for the same content. It is NG-RAN decision on how many UPs are setup. We think NG-RAN can make this decision and keep this decision for the session alive period, as R17. Some proposals assume a PLMN CN may want to stop the session early. We don’t know why this CN like to stop before session is stopped. Some proposals assume the N3 may be failed. But not sure, how NG-RAN distinguish N3 is failed or temporally no data transmission, e.g. N3 using IP multicast.  |
| CMCC | OK for a) and b) |

## F1 functions to support MOCN

While it clear that for RAN sharing with multiple Cell-ID broadcast a per 5GC, for MOCN there are 2 options outlined in the papers

1. Establishing multiple Broadcast Contexts at the DU,
while it would be still possible to establish only one set of F1-U resources.
2. Establishing a single Broadcast Contexts at the DU,
inherently ending up in a single set of F1-U resources, with protocol additions to allow configuring MCCH content on a per TMGI basis where necessary.

**Q4: Please provide your views on the 2 basic F1 options for establishing Broadcast Context(s) at the DU for MOCN?**

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| --- | --- |
| Company | Comment |
| ZTE | Multiple, easy and clean. to avoid any mind games in implementation.Similar to 3.3, one F1-U tunnel is still possible. |
| Nokia | We support (b). |
| Qualcomm | Both options would work. But option b) is efficient from signaling point of view. In either case, we think single F1-U is sufficient considering that fact that multiple TMGIs will share common MRB configuration given to all UEs via MCCH. i.e single PDCP is associated with one RLC bearer and one F1-U between CU-UP/PDCP and DU/RLC bearer. |
| CATT | We support b. From our point of view, it would be useless and also waste of resources in DU if multiple broadcast contexts which are completely the same are established in DU. |
| Lenovo | We support a. To be honest, both option a and option b can work well. We would prefer option a since it can also be applied to multiple cell-ID cases. |
| Huawei | Both works, slightly prefer b) although last meeting we proposed a :-).Prefer b) as in case both CU and DU are shared, this solution will by default establish on F1-U tunnel, but in case of a), we may need some special handling or new IE as currently the F1-U tunnel information is mandatory in the setup procedure, and this solution is more efficient as the CU only needs to send common parameters one time, no need to carry the same parameters in multiple setup messages. |
| Ericsson | We are in favor of (a), applicable for MOCN and RAN sharing with multiple cell ID broadcast. For MOCN, protocol additions can be discussed to allow reduced number of F1-U tunnels. |
| Samsung | We support b. b) is efficient.  |
| CMCC | Support B. |

## PDCP aspects in case of RAN sharing with multiple Cell ID broadcast.

There is some discussion contained in the documents on how to deal with potential differences in the *MRB-PDCP-ConfigBroadcast*, as received at different logical DUs:

1. there could be a PDCP configurations per-defined by OAM
2. the PDCP configurations is chosen which is received via the same F1 interface from which user data is chosen to be broadcast.
3. or ?

**Q5: Please provide your views on the topic regarding selection of PDCP configuration in case of RAN sharing with multiple Cell ID broadcast.**

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| --- | --- |
| Company | Comment |
| ZTE | (a), yes. (b), probably no. it smells strange to let DU decide an MRB config.. |
| Nokia | 1. No. We think (a) does not work because too static. the MBS session may not be created in advance (TMGI allocated in MBS session creation, MRB configuration, etc..).
2. Indeed data flow should come over F1-U from selected MRB PDCP. For that we find interesting the proposal from CATT in 1350 to reuse same mechanism as we designed for shared CU UP for the coordination (i.e. codepoints apply available/requested configuration, etc..).
 |
| Qualcomm | 1. Not a good option, not preferred.
2. Common PDCP configuration can be coordinated and we need to discuss DU arbitration mechanism.
3. Or allow MBS RAN sharing per logical DU (i.e PLMN A, B sharing common Cell ID x will use MRB configuration x, PLMN C,D,E,F using common Cell ID y uses MRB configuration y), even though its not fully efficient from L2 stack point of view but common CFR resources can still be configured.
 |
| CATT | Since PDCP configuration is per DRB which is dynamic, we do not think it is workable to let OAM configure the PDCP configuration. We think similar solution as we discussed on shared CU-UP could be considered. |
| Lenovo | As observed from TS 38.331, the parameters in PDCP configuration for broadcast MRB are very limited. For example, the PDCP SN is fixed as 12 bits for all MRBs, and the default value of t-Reordering can be used. The only thing is ROHC profiles may be differently used for different gNB-CUs. Since there is no UL feedback, only three ROCH profile are specified for broadcast MRB. In this case, it would be better to gNB-CUs configures ROCH profiles by pre-configurations. Besides that, the QoS flow to MRB mapping are also needs to be pre-configured anyway. |
| Huawei | Ok for both a) and b)* For a), there are only few parameters included in MRB-PDCP-ConfigBroadcast-r17, i.e. SN size DL, Header Compression, t-Reordering, it seems not very complex to ensure the same configuration by implementation.

For b), for example, the DU can use the MRB/PDCP configurations from the first CU, and also transmit the data packets received from the tunnel with this first CU, the DU drops the data packets from other CUs. There is no need for the other CU to know the configuration broadcast over radio, as the UEs will receive them by their selves. Nothing broken.We do not see the need to design complex solution to coordination among the CUs via the DU. |
| Ericsson | (b) in case multiple BC Contexts will be setup in the DU for both sharing options, multiple PDCP configurations will be provided by the CU/CUs. There is no obstacle or issue to apply (and communicate on MCCH) only that PDCP configuration which is provided via the BC context from which bc user data (via F1-U) was chosen.  |
| Samsung | Do we have agreement on how many F1 tunnel will be setup in this case? 1) only one F1 tunnel is setup. Then the DU selects one PDCP configuration and transmit the configuration in Uu. 2) Setup F1 tunnel to each CU. For sharing, only one copy will be broadcast by DU in Uu. That means the MRB configuration for different TMGIs is same in MCCH. In this case, DU can decide which PDCP configuration to use and discard the data received from other PDCP configuration. It is workable. Or let the DU to coordinate of PDCP configuration among different CUs. e.g. DU can reply the first received PDCP configuration to other CUs who sends the request in the following. But anyway, the DU broadcast only one copy and one only MRB configuration in Uu, I am not sure whether there is need to make coordination. |
| CMCC | 1. We do not find the strong motivation to configure PDCP by OAM.
2. PDCP Config coordination between gNB-CUs is ensured by appropriate implementation on CU.
 |

## Any other issue

**Q6: Please provide details of any other main issue missing in this questionnaire.**

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| Company | Comment |
| Nokia | For RAN sharing with multiple cell IDs and which F1-U tunnels to setup, Tdoc 1283 proposes that the gNB-CU can indicate if it also serves non-shared DU. This gNB-CU already receives data over NG-U. This may help to decide which F1-U tunnel to select.  |
| Qualcomm | Discuss about if any changes needed for E1-AP to enable CU-CP to indicate to CU-UP about MBS RAN Sharing identifier for bearer management.In case of RAN OAM based approach, discuss need for CU-CP to provide RAN sharing identifier to DU via F1-AP (in place of Associated Session ID per TMGI). |
|  |  |

# Discussion Second Round

The second round is on summarizing the first round’s discussion as a basis for the online discussion during the session on Monday April 24 2023.

## On our working assumption from last meeting

The moderator suggests the following:

WA: In case of location dependent broadcast services, the gNB deduces identical broadcast content from the MBS Associated Session ID and the MBS Service Area information provided by the participating 5GCs. (to be checked against the actual SA2 agreements / agreed CR text.)

To be continued: how, for location dependent broadcast services, the gNB deduces identical broadcast content, if the shared part of the MBS Service area information, as provided by participating 5GCs, are not identical.

To be continued: how, in particular for RAN sharing with multiple Cell-ID broadcast, the gNB-DU deduces identical broadcast content based on information provided to NG-RAN, as agreed in SA2.

**Q1: Please provide your comments to the text above, if any.**

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| --- | --- |
| Company | Comment |
| Huawei | Maybe we should first align with SA2 progress to agree to introduce the associated session id in a per MBS session granularity, instead of having these WA and FFSs.Agree with the WA, how about change it to agreement?Disagree with these two “To be continued” points, they should be contribution driven. As we think for the overlapping area, the gNB can transmit the data based on one of the PLMNs, or it recognizes the same area with different MBS Area Session IDs, e.g. based on the corresponding cell list/TA list. In case the gNB just transmit data based on the information from one PLMN in the overlapping area, the information from different PLMNs does not have to be identical. And we think in the overlapping area, the “not identical information” should be rare case. |
| Nokia | Agree the working assumption.Disagree the “to be continued”: we don’t see what needs to be continued as the working assumption works. As proposed by Huawei, we would need first to see contributions at next meeting. |
| ZTE | Agree with the working assumption.We may also need to check with other working group whether this is possible: "the shared part of the MBS Service area information, as provided by participating 5GCs, are not identical" while we continue. This may be something beyond SA2. |
| CATT | Agree with the WA.Ok to further discuss how NG-RAN node deduces identical broadcast content and whether all possible scenarios are covered. |
| Samsung | Agree the WA. |
| Qualcomm | Agree with the WA proposed “text” **but** this can be an agreement instead of keeping WA again.For location dependent MBS services, no need to keep them as continued and can be discussed based on company contributions if needed. |
| Lenovo | Agree with the WA.We are fine to further discuss whether all scenarios can be covered.  |

## On an OAM RAN “solution” to provide the association between MBS Sessions IDs

The moderator suggests the following:

RAN3 recognizes the fact that, although the gNB is an NG-RAN node, by approving [CR0176r9](http://3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_155_Athens_2023-02/Docs/S2-2303897.zip) as attached to the LS [R3-230789](http://3gpp.org/ftp/tsg_ran/WG3_Iu/TSGR3_119/LSin/R3-230789.zip), SA2 has obviously assumed responsibility for “UTRAN, E-UTRAN, and NG-RAN O&M requirements” for MBS, in contrast to the Terms Of References of RAN3 agreed at RP#91-e in [RP-210771](http://3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210771.zip).

Two possibilities

Either Option 1: TSG RAN and TSG SA are informed about the de-facto change of Terms of References and asked for guidance.

Or Option 2: TSG SA WG2 is requested to remove specification text outside their responsibility and TSG RAN and TSG SA are requested to ensure that ToRs are respected and that sufficient time is given to co-ordinate Work Items spanning across multiple TSGs.

No RAN3 specification work is needed following the approving CR0176r9 for TS 23.247 as attached to the LS R3-230789 from SA2.

To be continued: Whether SA2 should receive a RAN3 award for the “Best NG-RAN OAM solution of the year 2023”.

**Q2: Please provide your comments to the text above, if any.**

|  |  |
| --- | --- |
| Company | Comment |
| Huawei | Agree with the intention, RAN3 is the group responsible for RAN OAM requirements.RAN3 provided negative response to SA2 on the related OAM solution, the current status should be a compromise in SA2.Refer to R3-225987 RAN3 LS to SA2:* + Solution 24 brings configuration efforts which may have flexibility and scalability issue in case MBS services are dynamically added or removed.

There is no need for RAN3 to change our specifications to capture the OAM solution which RAN3 has negative view. |
| Nokia | NOK.Ericsson and Huawei supported the configuration solution in SA2 despite the negative answer from RAN3, now Ericsson and Huawei have to face the consequence of their positioning: the configuration solution has been agreed and needs to be reflected.Because the configuration solution has 5GC and RAN aspects so it is normal to have it described in SA2 specification and in RAN specifications: the RAN part should now have some text in TS 38.300. |
| ZTE | Save view with Huawei, and intention from Ericsson. No need to have impacts in RAN spec. // By the way, half of the companies were negative to the per UE per session indication, and here we are. SA2 definitely deserve the award. |
| CATT | Agree that there is no specification impact dedicated to OAM based solution. |
| Samsung | There is many debates on the work split between SA2 and RAN3. Maybe some coordination is beneficial. |
| Qualcomm | Disagree.Fully Agree with Nokia comments.Above summary does not reflect the all companies views in phase 1 responses and is more of rapporteur own view.RAN OAM based solution was agreed as one possible option in SA2 and companies can bring SA2 CRs to make further edits of SA2 and SA agreed CRs. No need to send any LSes. In RAN3, stage-2 level clarification can be added and all enhancements discussed for 5GC assistance based solution are equally applicable for RAN OAM solution as well except that AF does not provide Associated Session ID to 5GC and 5GC does not indicate to RAN. In this case RAN identifies MBS sharing based on OAM approach and RAN3 stage-2 level clarification should work as minimum and without specific new stage-3 impact.  |
| Lenovo | No RAN3 impact or we can add something in 300 stage 2. |

## NG functions to enable gNB deciding to not establish NG-U resources in MOCN

The moderator suggests the following:

WA: Introduce an explicit indication to 5GC in case that NG-U resources are not setup. Details are FFS.

Introduce NGAP protocol means to enable a gNB requesting establishment of NG-U resources during an ongoing BC session. Details are FFS.

**Q3: Please provide your comments on the text above, if any**

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| --- | --- |
| Company | Comment |
| Huawei | Agree. |
| Nokia | Agree |
| ZTE | Disagree.If the tunnel is already something optional, a field description change may be good enough. |
| CATT | We understand that MB-SMF could not different the case that NG-RAN node decides to use IP multicast transport from the cast that NG-RAN node decides to not establish the tunnel. However, we are not sure whether this information is useful to MB-SMF. If it is needed for MB-SMF to know that, we are OK to introduce an explicit indication.  |
| Samsung | Ok for the WA. But NOK for the agreement.As commented in the first round, when the gNB initiated the procedure is an issue. For IP multicast, the gNB can not know if there is error or there is no data transmission. And more, gNB can join the IP multicast at any time.Another issue is if the gNB-UP is not shared, gNB-CP doesn’t know when to initiate the procedure.For the BC/MC, we don’t consider to establish the NG-U by taking the UP error into account. Even for the MC, the gNB initiates UP setup considering the UE moving in, no to consider UP error.If we adopt the solution by considering the UP error case, maybe we will start to consider UP error for non-sharing case. |
| Qualcomm | Ok |
| Lenovo | Agree |

## F1 functions to support MOCN

The moderator suggests the following:

Support, for MOCN, sharing of F1-U resources among multiple broadcast MBS sessions.

To be continued: Whether, for MOCN, F1 supports establishment of a single Broadcast Context for multiple MBS sessions at the DU.

**Q4: Please provide your comments on the text above, if any**

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| --- | --- |
| Company | Comment |
| Huawei | AgreeFor MOCN case, both CU and DU are shared, the F1-U resources should be shared as well, in that case, only one set of F1-U tunnel(s) should be established for the MRB(s) for these MBS sessions which have the same associated session id.For the “to be continued”, can we have a try to make it as an agreement during this meeting? i.e. “For MOCN, F1 supports establishment of a single Broadcast Context for multiple MBS sessions at the DU.” |
| Nokia | OK |
| ZTE | OK |
| CATT | OK |
| Samsung | OK |
| Qualcomm | OK |
| Lenovo | OK |

## PDCP aspects in case of RAN sharing with multiple Cell ID broadcast.

The moderator suggests the following:

WA: In case of RAN sharing with multiple Cell ID broadcast, the entity controlling the logical DUs decides which *MRB-PDCP-ConfigBroadcast* to provide on MCCH. Details are FFS.

**Q5: Please provide your comments on the text above, if any**

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| --- | --- |
| Company | Comment |
| Huawei | Maybe we can reword the “decides which *MRB-PDCP-ConfigBroadcast*” to “decides which received *MRB-PDCP-ConfigBroadcast*”, as the high layer configuration should be generate by the CU. |
| Nokia | Proposed rewording for the WA:In case of RAN sharing with multiple Cell ID broadcast, the entity controlling the logical Dus decides which *MRB-PDCP-ConfigBroadcast* to provide on MCCH. FFS whether this is based on F1AP assistance information or on configuration.NOK for the “received” of Huawei because it excludes the configuration option whereas we could not evaluate. We would like to see at next meeting comparison papers between proposals such as CATT similar to shared CU UP or Lenovo based on configuration and be able to compare pros and cons before making a decision. |
| ZTE | OK. The original wording is OK, which includes the configuration option.Just being curious, do we have a name or term for “the entity controlling the logical Dus”? |
| CATT | OKWe tends to agree with Huawei to introduced “received”.We are open to further discuss on whether signaling based or configuration based solution works. However, even for configuration based solution, we think the configuration of *MRB-PDCP-ConfigBroadcast* should be configured in CU |
| Samsung | OK |
| Qualcomm | OK for first part but we are fine with Nokia proposed “FFS whether this is based on F1AP assistance information or on configuration” , which can be further discussed. |
| Lenovo | OK |

# References

1. [R3-231187](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231187.zip) Support of MBS in RAN sharing scenarios (Qualcomm Incorporated)
2. [R3-231197](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231197.zip) Sharing processing for both unicast reception and broadcast reception (TD Tech, Chengdu TD Tech)
3. [R3-231252](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231252.zip) Discussions and proposals concerning Rel-18 work on MBS reception in RAN sharing scenarios (Ericsson)
4. [R3-231283](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231283.zip) (TP for TS 38.300) RAN Impacts of Rel-18 RAN Sharing Solutions (Nokia, Nokia Shanghai Bell)
5. [R3-231336](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231336.zip) (TP for 38.473)Discussion on MBS RAN sharing (Samsung)
6. [R3-231350](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231350.zip) (TP for 38.413/38.473/38.401) Discussion on efficient MBS reception in RAN sharing scenario (CATT,CBN,China Telecom)
7. [R3-231397](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231397.zip) (TPs to TS 38.401, 38.410, 38.413, 38.473 BL CRs) MBS reception in RAN sharing scenario (Huawei, CBN)
8. [R3-231445](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231445.zip) Remaining issue of supporting MBS reception in RAN Sharing (Lenovo) discussion
9. [R3-231503](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_119bis-e/docs/R3-231503.zip) TP to TS 38.413 and 38.473 with discussion on network sharing of MBS (ZTE)