3GPP TSG RAN Rel-18 workshop

RWS-210557

Electronic Meeting, June 28 - July 2, 2021

Agenda Item: 4.2

Source: CBN

Title: Email discussion summary for [RAN-R18-WS-non-eMBB-CBN]

Document for: Report

1 Introduction

This email discussion summary covers the following documents:

RWS-210195 NR MBS enhancements for Release-18 CBN

In section 2, companies are invited to provide their comments and/or questions to the above contribution. In section 3, the moderator provides answers to the questions. Section 4 provides a summary for the discussions.

2 Comments/questions to RWS-210195

2.1 Round 1

In RWS-210195, we focus on NR MBS enhancement. From operator point of view, we see strong market requirements for continuous NR MBS evolution based on what has been developed in Rel-17.

The following is a summary from RWS-210195.

Rel-17 specifies fundamental NR MBS functionality, and continuous improvements are demanded based on strong market requirements for NR MBS deployment.

• Proposal 1 RAN discuss and aim at forming a work scope for NR MBS enhancement in Rel-18

• Proposal 2 Rel-18 MBS work consider the following potential objectives

Consider potential enhancements for the FTA Broadcast, e.g. to optimize simultaneous unicast and FTA broadcast reception.

Support multicast in idle/inactive state.

□ *Improve MBS transmission efficiency in RAN sharing scenario.*

□ Better XR support with Low-latency on MBS can be considered in Rel-18

Please provide your comments/question to the contribution in the following.

Feedback Form 1: Comments/question to CBN contribution RWS-210195

1 – CATT

We support NR MBS enhancement in Rel-18, for the similar reasons/motivations mentioned by this contribution. We are open to discuss with operators and other companies on the exact work scope, to acheive a good balance of market requirements and work load.

2 – BBC

BBC supports the evolution of NR MBS under Rel-18.

In particular to the specific topics listed in your contribution, we think the following topics have higher priority:

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Enhancements for support of Free-to-Air/receive only mode;

Note that BBC has also proposed receive only mode operation to support FTA for Rel-18 in RWS-210133 and being discussed under [RAN-R18-WS-crossFunc-BBC] in NWM.

3 – Guangdong OPPO Mobile Telecom.

The data rate of media stream for XR is around 0.1Gbps 10Gbps, and latency requirement is supposed to be less than 20ms. Applying MBS to support better XR performance especially with high data rate & Low latency (e.g. first-person-view in live sport games or concert) faces challenges.

4 – Qualcomm Incorporated

Q1. Regarding Free-To-Air Broadcast in P2: in our understanding FTA is just a service requirement defined in TS 22.101, and has nothing to do with RAN. The solution defined by SA2, which also impacts RAN, is Receive Only Mode (ROM). So, we wonder whether you actually meant ROM in Proposal 2?

Q2. Regarding support of multicast in idle state in P2: We wonder how multicast can be supported in idle? According to R17 SA2 system design, "multicast" is supported in NAS CM_CONNECTED however the UE in RRC_IDLE is in NAS CM_IDLE. Additionally, "broadcast" is already supported in all RRC states.

We think multicast reception in RRC_INACTIVE state can save UE power, but RRC_IDLE should be excluded.

Q3. For the support of lower latency, what are the techniques you had in mind?

5 – Intel Corporation (UK) Ltd

Q1. For multicast reception in RRC_*IDLE*, since SA2 only agrees the support of multicast in CM-CONNECTED while RRC_IDLE corresponds to CM-IDLE state, how to resolve the conflicts with SA2 conclusion?

Q2. Given that FTA was deprioritized in Rel-17, whether "enhancements for FTA broadcast" actually means the introduction of FTA in Rel-18? Whether the introduction of inter-DU SFN to NR MBS is required for FTA?

Q3. Regarding RAN sharing support, is the motivation and solution similar to what is discussed in Huawei contribution RWS-210446?

6 – MediaTek Inc.

Thanks for the proposal. What is the standards impact for "MBS transmission efficiency in RAN sharing scenario".

7 – ZTE Corporation

Thanks for the contribution.

We are interested to see the evolution of NR MBS in Rel-18. Regarding the technique part:

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We support RAN sharing for NR MBS for a diverse ecosystem.

In our view FTA is more of a requirement from service layer. i.e., designed in CT in 3GPP.

8 – HUAWEI TECHNOLOGIES Co. Ltd.

[Huawei, HiSilicon] Thank you for the paper, we also support evolution of MBS in Rel-18. Some questions for clarification: Q1: For potential enhancements of FTA broadcast, are you targeting FTA service provided by the same operator as the unicast service provider or by a operator different from the unicast service provider...or both cases? Q2: can you expand a bit on the XR and MBS part, especially on which services would benefit from work in this area and what would be the problems and limitations if we do not look into this in Rel-18?

2.2 Round 2

Feedback Form 2: Round 2 comments and questions to CBN contribution RWS-210195.

1 – ZTE Corporation

Thanks for the reply and clarifications. We have below further question:

- Based on the 1st round of Q&A, it seems CBN is also interested in IDLE/INACTIVE enhancement for MBS. Without any enhancement, network has to use conservative MCS to schedule MBS, which may end up with low system efficiency. Do you see any potential necessity to increase the throughput/spectrum efficiency for MBS transmission in IDLE/INACTIVE?

3 Answers by moderator

3.1 Round 1

Thank you CATT, BBC, OPPO, Qualcomm, Intel, MediaTek, ZTE, and Huawei for your valuable questions and comments.

Our response is in the following.

@CATT

Thank you for your support. And, we also agree with you that the work scope can be further discussed, taking many aspects and company input into account.

@BBC

Thank you for your support.

We agree 'FTA' is quite important as you pointed out. And just to add that, as we responded to CATT the other aspects could be discussed as well based on more input from companies.

@OPPO

Thank you for your comment.

In order for us to understand your comment, could you explain a bit further what additional challenges do your imagine comparing with unicast delivery method?

@Qualcomm

Thank you for your comment and question.

Q1 - Yes, what we mean is that we need to provide a solution on RAN side for FTA. 'ROM' is LTE solution name for FTA, probably we can consider some new terminology in NR to distinguish with LTE ROM, but the naming is something that can be discussed later on.

Q2 - For Q2, In Rel-17 the "multicast" is indeed supported only in NAS CM_CONNECTED, hence the support of multicast in IDLE would require also some work in SA2 in Rel-18. We are open to discuss this.

Q3 - We are open to the techniques, just promote some requirements

@Intel

Thank you for your comment and question.

Q1 – see response to QC Q2.

Q2 - We think Rel-17 DM2/broadcast can be used to deploy FTA even though FTA is not mentioned explicitly. We hope FTA can be supported better with Rel-18 work.

Then for SFN, we are open to discuss, taking into account both the potential system performance and work load.

Q3 – Yes.

@MediaTek

Thank you for your question.

We see a possibility to optimize the radio resources in MOCN. For example, if one OTT server requests the same service delivery from multiple operators sharing a RAN network, several independent TMGIs will be allocated and RAN will treat these TMGIs as different services and thus allocate separate radio resources for each of them. As a consequence, the same contents/data will be transmitted twice. We think this duplicated transmission can be avoided if RAN was aware of such situation.

@ZTE

Thank you for your comments. And, for your 2nd comment, please see our response to QC's Q1.

@Huawei

Q1 - We think both scenarios need to be considered.

Q2 - We hope XR services with tight latency requirement and high reliability requirement can be provided by MBS.....

3.2 Round 2

@ZTE

Thanks for your question in round 2. Regarding the potential enhancements that you mentioned, we are open to look into that. Perhaps we could first discuss on the issue/gap, and once those become clearer, we don't

have very strong opinion regarding specific technical solution.

4 Summary of the discussions

In the previous sections, Q&As have been recorded for the following contribution

RWS-210195 NR MBS enhancements for Release-18 CBN

in which we made the following proposals and suggestions.

Rel-17 specifies fundamental NR MBS functionality, and continuous improvements are demanded based on strong market requirements for NR MBS deployment.

• Proposal 1 RAN discuss and aim at forming a work scope for NR MBS enhancement in Rel-18

• Proposal 2 Rel-18 MBS work consider the following potential objectives

+ Consider potential enhancements for the FTA Broadcast, e.g. to optimize simultaneous unicast and FTA broadcast reception.

+ Support multicast in idle/inactive state.

+ Improve MBS transmission efficiency in RAN sharing scenario.

+ Better XR support with Low-latency on MBS can be considered in Rel-18

In the following, there is a brief summary for the aspects that have been discussed in round 1 and 2 before the Rel-18 RAN workshop.

General aspects

From all the discussions, we observe general support for continuous NR MBS evolution in Rel-18, as one of the important vertical areas. Companies seem willing to further discuss exact work scope, taking many aspects such as requirements, gains and potential complexity into consideration.

Observation 1 : From high level NR MBS evaluation in Rel-18 gets wide support, exact work scope can be further discussed.

Support of FTA

Some companies expressed that they also support FTA and it needs to be included in R18 NR MBS work.

But some other companies are not sure what needs to be done from RAN perspective.

Observation 2 : In the next step, companies can further discuss the exact work required to support FTA in NR MBS in Rel-18.

Support of multicast in Idle/inactive

From companies' comments it seems inactive state is widely supported. But there were questions about idle state. In the discussions, it was clarified that some work in SA2 is also needed to make it work for idle.

Observation 3 : Support of multicast in Idle may require some work in SA2 in Rel-18. Thus coordination between SA and RAN Rel-18 NR MBS work scope is needed, as is the case for Rel-17.

MBS transmission efficiency in RAN sharing scenario

There were questions on what needs to be done to improve MBS transmission efficiency in RAN sharing scenario. Some clarifications were made. It seems companies can further discuss on this aspect.

On SFN

SFN is mentioned in company question. This is one area for further discussion.

Better XR support with MBS

There were also clarifications on this aspect. And it can be further discussed.

Observation 4 : Other aspects such as MBS transmission efficiency in RAN sharing scenario, enhanced SFN support, and better XR support with MBS, etc., can be further discussed.