3GPP TSG-RAN WG2 #116bis-e R2-220xxxx

Electronic meeting, 16th – 25th January 2022

Agenda Item: 8.4.2.2

Source: Ericsson

Title: [Pre116bis][002][eIAB] Summary of 8.4.2.2 CP-UP separation (Ericsson)

Document for: Discussion, Decision

#  Introduction

This contribution addresses the summary of AI 8.4.2.2 on CP-UP separation for Rel.17 IAB:

* [Pre116bis][002][eIAB] Summary of 8.4.2.2 CP-UP separation (Ericsson)

#  Discussion

## 2.1 primaryPath handling

In [1] [2] [3], [4], [5] CATT, Fujitsu, Vivo, Huawei, Samsung propose to adopt an approach similar to the solution for the fast MCG link recovery, i.e. the UE autonomously sets the primary path to SCG when transmitting the ULInformationTransfer message containing F1-C related information if SRB2 is configured as split SRB for scenario 2.

In [7], [8], [9], LG, Ericsson, Nokia notice that for SRBs only cell group ID corresponding to MCG is supported as primaryPath. Therefore, it is proposed to remove this restriction for the IAB node, so that the donor CU can configure the primaryPath as SCG. Also Fujitsu in [2] proposes discussing this as a possible alternative to the autonomous selection above. In [8] Ericsson proposes that the network implementation should ensure that the primaryPath is set to SCG when split SRB has to be used for the transmission of F1-C messages via RRC. According to the proponents, advantage of this approach will be the possibility to configure the same primaryPath for all the RRC messages, so that there is no need to have a special handling for the case in which the split SRB2 RRC message contains both F1-C traffic and other information unrelated to IAB (e.g. PDCP operations will not be affected).

In [6], ZTE proposes that the UE should just follow the f1c-TransferPath configuration to transmit split SRB2 F1-C traffic, regardless of the primaryPath configuration.

Given the above summary, since views are quite split, Rapporteur suggests focusing on the solutions that have more supports, and proposes the following to solve the above issue:

1. RAN2 to discuss the following solutions on how to handle the primaryPath when the ULInformationTransfer message containing F1-C related information should be transmitted via SCG in split SRB2 (i.e. scenario 2):
	1. The UE autonomously sets the primary path to SCG at the time of transmitting the ULInformationTransfer message with F1-C information
	2. The network is allowed to configure the primaryPath to SCG for the IAB-MT

## 2.3 Handling of RRC messages containing F1-C and non-F1C information

In [1][4] [3], [6], CATT, Huawei, Vivo, ZTE propose that if the split SRB2 RRC message contains F1-C packet, IAB-MT should follow the configuration of F1-C transfer path. Further, Huawei proposes that the donor CU ensures that the f1c-TransferPath is set to “SCG/both” if all the possible SRB2 messages are allowed to use the SCG. Otherwise the donor CU will select “mcg”.

In [7], [8], [9] LG, Ericsson, Nokia proposes that the same configured primaryPath should be used for all the RRC messages regardless of the content, as it would do in any other case in the legacy specification.

In [2], Fujitsu proposes that if the ULInformationTransfer message contains F1-C related information and uses split SRB2 via SCG, no other information unrelated to IAB should be included.

Given the above summary, since views are quite split, Rapporteur suggests focusing on the solutions that have more supports, and proposes the following to solve the above issue:

1. RAN2 to discuss the following solutions on how to handle the case in which the split SRB2 RRC message contains both F1-C traffic and other information unrelated to IAB:
	1. The IAB-MT should follow the configuration of the F1-C transfer path if the split SRB2 RRC message contains both F1-C traffic and other information unrelated to IAB
	2. The IAB-MT should always follow the primary path configuration for all the RRC messages, regardless of whether F1-C information or IAB-unrelated information are contained

## 2.4 Other issues

In [1], CATT proposes that if f1c-TransferPath-r17 is not configured, the default transfer path should be MCG. On the other hand in [8], Ericsson propose not specifying a default transfer path for the case in which the f1c-TransferPathNRDC is not configured.
Since no many views are provided related to this issue the following is proposed:

1. RAN2 to discuss whether there is the need to define a default path configuration for the f1c-TransferPath in NR-DC.

In [4], Huawei proposes to explicitly capture in the running CR the agreement from RAN2#116 according to which the “F1-C-over-BAP is selected as long as BH RLC CH for F1-C on the indicated CG is configured.”. In particular, according to [4], it should be captured that if the selected CG to transfer F1-C related information does not include BH RLC configuration, then the UE shall include the dedicatedInfoF1c. Rapporteur´s view is that even without specification impact, it seems obvious that the UE will use the F1-C transfer over RRC if for the path indicated by the f1c-TransferPath there is no BH RLC channel configuration.
Hence it is proposed to discuss the following:

1. RAN2 to discuss whether there is the need to clarify in the running CR the following:
	1. The UE shall include the dedicatedInfoF1c in the ULInformationTransfer message if for the CG indicated by the f1c-TransferPath to transfer F1 information, there is no BH RLC configuration.

In [9], Nokia further proposes that it should be allowed to set the primaryPath to SCG also for split SRB1 for IAB-MT in order to allow IAB-MT’s own RRC messages to be sent via SN, because if scenario 2 is in place IAB-MT’s own RRC messages over SRB1 cannot be sent via SN.

1. RAN2 to discuss how to transmit via SN the ordinary SRB1 RRC messages in case of scenario 2, e.g. allowing setting *primaryPath* to SCG also for split SRB1 for the IAB-MT.

In [9], Nokia proposes RAN2 to discuss whether split SRBs for access UEs in scenario 2 should be allowed to be configured with primaryPath = SCG. Rapporteur believes that this might be out-of-scope for the IAB WI. Therefore, it is proposed discussing it with lower priority.

1. (lower priority) RAN2 to discuss whether split SRBs for access UEs in scenario 2 should be allowed to be configured with *primaryPath* = SCG.

# Conclusion

Based on the discussion in the previous sections we propose the following.

[Proposal 1 RAN2 to discuss the following solutions on how to handle the primaryPath when the ULInformationTransfer message containing F1-C related information should be transmitted via SCG in split SRB2 (i.e. scenario 2):](#_Toc93000621)

[a. The UE autonomously sets the primary path to SCG at the time of transmitting the ULInformationTransfer message with F1-C information](#_Toc93000622)

[b. The network is allowed to configure the primaryPath to SCG for the IAB-MT](#_Toc93000623)

[Proposal 2 RAN2 to discuss the following solutions on how to handle the case in which the split SRB2 RRC message contains both F1-C traffic and other information unrelated to IAB:](#_Toc93000624)

[a. The IAB-MT should follow the configuration of the F1-C transfer path if the split SRB2 RRC message contains both F1-C traffic and other information unrelated to IAB](#_Toc93000625)

[b. The IAB-MT should always follow the primary path configuration for all the RRC messages, regardless of whether F1-C information or IAB-unrelated information are contained](#_Toc93000626)

[Proposal 3 RAN2 to discuss whether there is the need to define a default path configuration for the f1c-TransferPath in NR-DC.](#_Toc93000627)

[Proposal 4 RAN2 to discuss whether there is the need to clarify in the running CR the following:](#_Toc93000628)

[a. The UE shall include the dedicatedInfoF1c in the ULInformationTransfer message if for the CG indicated by the f1c-TransferPath to transfer F1 information, there is no BH RLC configuration.](#_Toc93000629)

[Proposal 5 RAN2 to discuss how to transmit via SN the ordinary SRB1 RRC messages in case of scenario 2, e.g. allowing setting *primaryPath* to SCG also for split SRB1 for the IAB-MT.](#_Toc93000630)

[Proposal 6 (lower priority) RAN2 to discuss whether split SRBs for access UEs in scenario 2 should be allowed to be configured with *primaryPath* = SCG.](#_Toc93000631)

# 4. References

1. [R2-2200324](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200324.zip), [Leftovers of CP-UP Separation](https://ericsson.sharepoint.com/R2-2200324.zip), CATT

1. [R2-2200565](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200565.zip), [Remaining issues on CP-UP separation](https://ericsson.sharepoint.com/R2-2200565.zip), Fujitsu

1. [R2-2200807](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200807.zip), [Remainings issues on CP-UP separation](https://ericsson.sharepoint.com/R2-2200807.zip), vivo

1. [R2-2201302](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201302.zip) [M](http://mannerheim.nomadiclab.com/Mannerheim/tdoc/R2-2201302) [F1 over NR access link](https://ericsson.sharepoint.com/R2-2201302.zip) Huawei, HiSilicon

1. [R2-2201308](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201308.zip), [CP-UP separation and other topology adaptation issues](https://ericsson.sharepoint.com/R2-2201308.zip), Samsung R&D Institute UK

1. [R2-2201350](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201350.zip), [Discussion on CP/UP spearation](https://ericsson.sharepoint.com/R2-2201350.zip), ZTE, Sanechips

1. [R2-2201428](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201428.zip), [Remaining issues on CP-UP separation](https://ericsson.sharepoint.com/R2-2201428.zip), LG Electronics Inc.

1. [R2-2201608](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201608.zip), [Remaining Issues Related to CP/UP Separation in IAB Network](https://ericsson.sharepoint.com/R2-2201608.zip), Ericsson
2. R2-2201651, IAB CP-UP separation remaining issues, Nokia, Nokia Shanghai Bell