3GPP TSG-RAN WG3 #117-e R3-225018

Online, 15. – 24.08 2022

Agenda Item: 14.3

Source: Nokia (moderator)

Title: Summary of Offline Discussion on CHO with NR-DC   
(CB #MobilityEnh2\_CHO)

Document for: Approval

# Introduction

**CB: # MobilityEnh2\_CHO**

**- Focus on scenarios and potential issue, e.g. if forwarding the same data over multiple paths to the same target SN.**

**- If CHO is executed first, whether the associated CPAC config should be maintained or released?**

**- Whether to support early data forwarding, CHO in NR-DC, CHO with C-MN initiated CPA/CPC, and identify RAN3 impacts?**

**- Capture agreements and open issues**

# For the Chairman’s Notes (1st round)

**RAN3 will continue in Rel.18 the work on the CHO with SCG at the target. The scope will be limited to the data forwarding optimisations.**

**Regarding CHO with multiple SCGs at the target, RAN3 will wait for the progress in RAN2 with signalling design. RAN3 will open discussion on the data forwarding aspects.**

Propose the following:

R3-20xxxa, R3-20xxxc merged

R3-20xxxc rev [in xxxg] – agreed

R3-20xxxd rev [in xxxh] – agreed

R3-20xxxe rev [in xxxi] – agreed

R3-20xxxf rev [in xxxj] – endorsed

Propose to capture the following:

**Agreement text…**

**Agreement text…**

**WA: carefully crafted text…**

Issue 1: no consensus

**Issue 2: issue is acknowledged; need to further check the impact on xxx. May be possible to address with a pure st2 change. To be continued…**

# Discussion (1st round)

## CHO with SCG at the target (cont. of Rel.17 work)

There are three separate threads related to the continuation of the work on CHO with a classic DC operation at the target side, as started in Rel.17:

1. In [4251], it is proposed to continue the work and enhance the data forwarding from the source to the target SN.
2. In [4519], it is proposed to describe the Rel.17 signalling in more detailed form in stage-2.
3. In [4510], it is proposed to complete the Rel.17 signalling so that possible SCG reconfiguration before CHO execution is addressed (based on a decision in RAN2).

**Question 1: Please, which of the above points should further be addressed in Rel.18.**

|  |  |  |
| --- | --- | --- |
| Company | Points (a, b, c) | Please, explain why some topics are preferred to be excluded from the Rel.18 WI. |
| Nokia | (a) | We consider (b) and (c) as corrections to the mechanism agreed in Rel.17, so we are fine to discuss these as corrections (point (c) is already addressed in CB # 10). However, data forwarding has not been addressed yet, so it should be addressed as a new feature in Rel.18. |
| E/// | a, b | Regarding the signaling flows proposed in (b), we would continue addressing here and then as indicated in objectives, i.e., whether it belongs to R17 will be reviewed in next RP.  We are open to discuss data forwarding in (a).  For c, agree with Nokia. |
| CATT | a | Agree with Nokia. For b and c, we may wait for the WID updating after RP meeting |
| ZTE | (a) | For (a), in previous release, the legacy mechanism is that early data forwarding is handled during conditional reconfiguration preparation phase. For R18 CHO with CPAC, if it is one-step execution, then we think it is similar to legacy, however, if it is two-step execution, the early data forwarding can be handled after CHO execution but before CPAC execution phase. So, R18 early data forwarding procedure is depended on the down selection of one-step/two-step execution.  (b) We think (as CR **R3-224520**) it shall be belonged to R17, and it can extend to R18. However, we are not sure of the need of new signalling.  (c) We agree with both Nokia and Ericsson. |
| China Telecom | a | We agree to enhance data forwarding form source SN to target SN, because it much benefit to relieve the network load.  For b) and c), we share similar view with Nokia. |
| Huawei | a |  |
| Google | a |  |
| Lenovo | a, c | For c), we propose two failure cases to be considered in [4436] that will impact the signalling. We are also fine to discuss this point in R17 this meeting.  For a), we agree with Nokia.  For b), we think it belongs to R17. |
| Qualcomm | (a) | Agree with Nokia. |
| vivo | c |  |
| Samsung | (a) | Data forwarding aspect needs to be discussed. We can discuss (b) and (c) in Rel-17 correction (CB #10) before the RP’s decision. |

## CHO with multiple SCGs at the target

In numerous papers it is acknowledged to work on CHO with multiple SCGs prepared at the target side ([4252, 4269, 4322, 4343, 4394, 4794, 4834, 4436, 4509, 4793]). However, most of them list issues that are either purely RAN2’s domain or depend on RAN2’s progress.

**Question 2: Please, comment if RAN3 can start considering particular signalling solutions without waiting for RAN2’s progress.**

|  |  |
| --- | --- |
| Company | Comment |
| Nokia | At this moment, we don’t see much space for discussing principles of signalling.  We could agree some general principles like that we’ll try to reuse existing procedures defined for CHO and CPAC, but we can’t really move much further. |
| E/// | Fine to wait for RAN2’s progress. |
| CATT | Fine to wait for RAN2 |
| ZTE | We are not sure which RAN group to decide either one-step execution or two-step execution. Can RAN3 decide it? |
| China Telecom | Prefer to wait for RAN2 progress. |
| Huawei | Agree with Nokia. |
| Google | Fine to wait for RAN2 progress |
| Lenovo | We can start the working on some scenarios and general principles, e.g., Xn/F1 signalling for the CHO including target MCG and target SCG should be used as baseline. |
| Qualcomm | Fine to wait for RAN2 progress. |
| vivo | We agree most issues listed need input from RAN2 to make progress. |
| Samsung | We are also fine to wait for RAN2 progress. |

In [4394], [4794] and [4834], it is proposed to start considering early data forwarding for the CHO with multiple SCGs prepared at the target side.

**Question 3: Please, comment if RAN3 can start working on the early data forwarding for CHO with multiple SCGs prepared at the target side.**

|  |  |
| --- | --- |
| Company | Comment |
| Nokia | Yes, we agree, we can start discussing principles for early data forwarding. |
| E/// | Agree that this is a valid point. |
| CATT | We can start the working on this point. |
| ZTE | Of course, early data forwarding is a good point. However, in our view, it is depended on either one-step or two-step execution. If it is one-step execution, then we think it is similar to legacy, however, if it is two-step execution, the early data forwarding can be handled after CHO execution but before CPAC execution phase. |
| China Telecom | Agree to start working on the early data forwarding. |
| Huawei | ok |
| Google | ok |
| Lenovo | Agree to start the working on early data forwarding with some general principles. |
| Qualcomm | Yes, we agree. |
| vivo | Yes, some initial discussion on early data forwarding is possible. |
| Samsung | Yes, we agree. |

# Conclusion, Recommendations [if needed]

If needed

# References

[4251] R3-224251, Continuation of the work on CHO with DC and optimisation of the data forwarding (Nokia, Nokia Shanghai Bell)

[4252] R3-224252, CHO with multiple candidate SCGs (Nokia, Nokia Shanghai Bell)

[4269] R3-224269, Discussion on CHO with CPA (ZTE)

[4270] R3-224270, New procedure for support of CHO with CPA feature to TS37.340 (ZTE)

[4322] R3-224322, Consideration on CHO related aspects (Huawei)

[4343] R3-224343, Support of CHO with CPAC (vivo)

[4394] R3-224394, Consideration on support of CHO including target MCG and SCGs (China Telecommunication)

[4436] R3-224436, Discussion on CHO in NR-DC (Lenovo)

[4509] R3-224509, CHO including target MCG and candidate SCGs (Qualcomm Incorporated)

[4510] R3-224510, CHO with SCG configuration (Qualcomm Incorporated)

[4519] R3-224519, Outstanding issues for CHO + MR-DC (Ericsson)

[4520] R3-224520, Introduction of signaling flows for CHO+MR-DC (Ericsson)

[4793] R3-224793, Discussion on the scenarios of CHO with multiple candidate SCGs (CATT)

[4794] R3-224794, Discussion on the procedure of CHO with multiple candidate SCGs (CATT)

[4834] R3-224834, (TP to TS37.340 on Mobility Enhancements)Considerations on CHO+CPAC procedure (Samsung)

[4835] R3-224835, (TP to TS38.423 on Mobility Enhancements) Considerations on CHO+CPAC configuration (Samsung)