3GPP TSG-RAN WG3 #121 R3-234531

Toulouse France, 21-25 August 2023

Agenda Item: 9.2

Source: Nokia (moderator)

Title: Summary of Offline Discussion on CB: # 8\_InactiveTimeOver E1

Document for: Approval

# Introduction

**CB: # 8\_InactiveTimeOver E1**

**- Check the comments above**

**- Identify the issue**

(moderator - Nok)

Summary of offline disc [R3-234531](Inbox%5CR3-234531.zip)

# For the Chairman’s Notes

**TBU**

# Discussion

Contribution R3-233839 discussed online at RAN3#121 highlighted the issue that in handover scenarios, a gNB is able to over Xn, forward the “inactive” time spent for the UE to the target gNB, which is part of RRC: HandoverPreprationInformation within rrm-Config, which can include ue-InactiveTime IE. However, in case of CP-UP separation there following issues were highlighted:

* (1) Source gNB-CU-CP, is not aware of the “inactive” time as it is measured at gNB-CU-UP and not reported with E1AP. Hence, as consequence cannot signal inactive-time over Xn.
* (2) Target gNB-CU-CP, is not able to take the inactive-time and signal it to gNB-CU-UP even if received over Xn.

The following remarks were made during the online discussion regarding the solution proposed in R3-233839. The moderator proposes to break the discussion in two (a) Source gNB-CU-CP scenario, and (b) Target gNB-CU-CP scenario.

* (1) Source gNB
	+ Companies acknowledged the issue and gap in the E1AP specification
	+ Whether solution should be limited to UE level inactivity, as since “ue inactive-time” over Xn only applies at UE level inactivity and not DRB or PDU inactivity
	+ Whether the IE format proposed in the CR need to be revised
* (2) Target gNB
	+ Different views on need for specification changes on E1AP
	+ Whether gNB-CU-CP at target can determine how to utilize the received value over Xn without involving gNB-CU-UP at target

## Companies to provide valuable comments for the possible solutions

**(1) Questions regarding Source gNB**

**Q1: Should signaling over E1 at Source gNB be limited to UE inactivity reporting (and not per DRB or PDU inactivity)?**

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Nokia | No | We see useful to not limit to UE level over E1. We understand that reporting over Xn is specified per UE. However, over E1, it is possible to measure inactivity per UE, PDU or DRB level. A gNB-CU-CP could determine how to transmit it to the target node even if information was received on DRB or PDU level.For example, consider the scenario for UE with 2 x DRB, and inactivity reporting set to DRB level.* DRB1 has *DRB Activity =*  “not active”, for this DRB it does not matter for how long it has been not active, since an Inactivity Notification to the CU-CP has already been sent when inactivity threshold was reached for this DRB
* DRB2 has *DRB Activity* = “active”, for this DRB the e.g., “inactive time = 2 seconds”. If over E1 CU-UP signals the inactive time for DRB2, the CU-CP could take this value into consideration when determining what to report over Xn to the target gNB. That is, Source gNB could report the “2 seconds” to the Target gNB
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| **Moderator Summary :**  |

**Q2: Any comments regarding whether “inactive time” granularity should match same structure as the “ue inactive-time” IE defined in 38.331 RRC specification?**

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| --- | --- | --- |
| Company | Yes/No | Comment |
| Nokia | Either is acceptable | Either option is acceptable.In our view, it is possible to align to RRC spec regarding the values over E1. However, the consequence is that values over Xn can of very large duration significantly exceeding the maximum currently supported inactivity threshold specified in E1.Therefore, it could be considered to specify a different structure/range over E1, which aligns with current thresholds for inactivity reporting over E1 (1second - 7200 seconds) rather than the RRC structure. |
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| **Moderator Summary :**  |

**Q3: Any other comments/remarks?**

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| Company | Comment |
| Nokia | This issue exists since Rel-15. Hence, Rel-15 Cat F can be considered as target release. |
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| **Moderator Summary :** |

**(2) Questions regarding Target gNB**

**Q4: Does the Target gNB-CU-CP, when establishing bearer contexts, need to inform gNB-CU-UP the inactive time spent at the Source gNB?**

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| Company | Yes/No | Comment |
| Nokia | Yes | In our view it is useful and would enabling the immediate report from CU-UP to account for the inactive time at the Source gNB, while still allow setting up the bearer context with a larger value. This approach would avoid an additional modification procedure to update to a larger value. |
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| **Moderator Summary :**  |

**Q5: Any other comments/remarks?**

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| **Moderator Summary :** |

# Conclusion, Recommendations [if needed]

# References

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| [R3-233839](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_121%5CDocs%5CR3-233839.zip) | Inactive Time Signaling over E1 for Mobility (Nokia, Nokia Shanghai Bell) | CR0068r, TS 37.483 v17.5.0, Rel-17, Cat. F |