# NAS Non Delivery – moderated e-mail discussion…

Author: Cisco

The LS from RAN3 is the following:

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**1. Overall Description:**

RAN3 has discussed the scenario of the NG-RAN node receiving a PDU Session Release Command which includes a NAS PDU for a UE which is in RRC\_INACTIVE state and therefore not reachable.

There are two interpretations of NG-RAN node expected behaviour:

Option 1/ NG-RAN node sends back to AMF a NG UE Context Release Request including the cause “UE not reachable” which should be interpreted by AMF that the NAS PDU was not delivered, enabling the AMF to tell the SMF as per C4-195487. The NG-RAN node does not trigger the NAS Non Delivery procedure and therefore does not feed back the NAS PDU.

Option 2/ NG-RAN node shall trigger the NAS Non delivery procedure which includes back the undelivered NAS PDU before/after sending the UE Context Release Request.

A majority of companies assume that option 1/ is the right expected behaviour, especially because the benefit of sending back the NAS PDU is not clear to them in the discussed scenario. However, some other companies think that 1/ contradicts the following statement in TS 23.501:

*If the RAN paging procedure, as defined in TS 38.300 [27], is not successful in establishing contact with the UE the procedure shall be handled by the network as follows:*

*- If NG-RAN has at least one pending NAS PDU for transmission, the RAN node shall initiate the AN Release procedure (see TS 23.502 [3], clause 4.2.6,) to move the UE CM state in the AMF to CM-IDLE state and indicate to the AMF the NAS non-delivery.*

**2. Actions:**

**To SA2 group:**

**ACTION: Q1/** RAN3 would like to ask SA2 to clarify the meaning of the above statement in TS 23.501 for the considered scenario and clarify whether option 1/ or option 2/ is the expected behaviour?

 **Q2/** In general, does SA2 see any other scenario for which the 5GC expects the NAS-non-delivery report in addition to those failed NAS-PDUs in the DL NAS Transport message?

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# Question Q1: Option 2 vs Option-1-last-sentence?

Option 1 has several parts. This question is trying to resolve between:

**Option 2:** NG-RAN node shall trigger the NAS Non delivery procedure

**Option 1-last sentence**: The NG-RAN node does not trigger the NAS Non Delivery procedure

**Question**: Do you support Option 2, or Option 1-last sentence?.

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| **Company** | **Comments** |
| Cisco | Option 1-last sentence |
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# Question Q2: Option 1-first sentence

The first sentence says this:

NG-RAN node sends back to AMF a NG UE Context Release Request including the cause “UE not reachable” which should be interpreted by AMF that the NAS PDU was not delivered, enabling the AMF to tell the SMF as per C4-195487.

**Question**: Do you agree with Option 1-first sentence? If not, what should be your response?

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| **Company** | **Comments** |
| Cisco | 1. NG-RAN sends to AMF PDU Sess Resource Release Resp (PDU Sess Res Rel Item (PDU SID)). There is no indication of NAS non-delivery2. AMF clears the SM context with SMF. If the N1-delivery-skip=yes in the PDU session Resource Command that the SMF has send to the AMF, procedure ends here.3. UE Context is released between NG-RAN and AMF with cause "UE not reachable". AMF does not need to do anything special here.4. If N1-delivery-skip=no, then SMF times-out since it does not receive PDU Session Release Accept from the UE (16 sec). The SMF sends N1N2MessageXfer to AMF with N1 message.5. AMF pages the UE and delivers the NAS message to the UE.We do not see any reason for " AMF to tell the SMF as per C4-195487", neither do we see how that will occur. |
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# Question Q3: Q2 of RAN3 LS

**Q2/** In general, does SA2 see any other scenario for which the 5GC expects the NAS-non-delivery report in addition to those failed NAS-PDUs in the DL NAS Transport message?

**Question**: What is your answer to the above?

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| **Company** | **Comments** |
| Cisco | No. |
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# Rapporteur Summary

# Proposed Conclusions

**ACTION: Q1/** RAN3 would like to ask SA2 to clarify the meaning of the above statement in TS 23.501 for the considered scenario and clarify whether option 1/ or option 2/ is the expected behaviour?

Response:

NG-RAN node shall/shall-not trigger the NAS Non delivery procedure. Additional sentence…

 **Q2/** In general, does SA2 see any other scenario for which the 5GC expects the NAS-non-delivery report in addition to those failed NAS-PDUs in the DL NAS Transport message?

Response:

Yes/No. Additional sentence…