3GPP TSG-RAN WG3 Meeting #125 R3-244703

Maastricht, NL, 19th – 23rd Aug 2024

Agenda Item: 16.3

Source: ZTE (moderator)

Title: Summary of Offline Discussion on CB: # AIoT2\_CNRANSignalling

Document for: Approval

# Introduction

**CB: # AIoT2\_CNRANSignalling**

**- Start with** [**R3-244059**](file:///D%3A%5C3GPPmeeting%5C202408%20RAN3%20125%5CInbox%5CR3-244059.zip)**, check the open issues above**

(moderator - ZTE)

Summary of offline disc [R3-244703](file:///D%3A%5C3GPPmeeting%5C202408%20RAN3%20125%5CInbox%5CR3-244703.zip)

# For the Chairman’s Notes

# Discussion-First round

RAN3 starts with inventory-only procedure. Discuss the content in Inventory/Command.

**The AIoT CN to select suitable reader (AIoT enabled gNB or AIoT enabled UE reader) for both topology 1 and topology 2?**

**Assistance information from AIoT CN to AIoT RAN?**

## Content of Inventory procedure

**Content of Inventory request message:**

1) Session id

2) Reader id

3) Device id

4) Periodicity

5) Other content, if any

**Question 1: Which content of Inventory request message do you agree? Any new content?**

|  |  |  |
| --- | --- | --- |
| **Companies** | **Yes/No** | **Comments** |
| ZTE | Yes for all |  |
| Nokia | Partly ok | Only Ok for 1/ mandatory, 2/ optional and 3/ optional. 4/ is FFS.I think the parameter “minimum number of responses“ should also be added so that the gNB knows when it can consider to stop and complete.  |
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**Content of Inventory response message:**

1) Session id

2) Reader id

**Question 2: Which content of Inventory response message do you agree? Any new content?**

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| **Companies** | **Yes/No** | **Comments** |
| ZTE | Yes for all |  |
| Nokia | Yes for both. |  |
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**Content of Inventory report message:**

1) Reader id

2) Device id

**Question 3: Which content of Inventory report message do you agree? Any new content?**

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| --- | --- | --- |
| **Companies** | **Yes/No** | **Comments** |
| ZTE | Yes for all |  |
| Nokia  | Yes for both. |  |
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## Overall procedure for inventory-only

RAN3 starts with inventory-only procedure. Discuss the content in Inventory/Command.

Overall procedure for AIoT Topology 1



Figure 1: Overall procedure for AIoT Topology 1

1. When the AIoT CN decides to initiate inventory procedure, it sends Inventory request message to the AIoT RAN node.

2. The AIoT RAN node sends Inventory response message to the AIoT CN.

*Note： In step 2, if the AIoT RAN node sends Inventory failure message to the AIoT CN, this Inventory procedure ends.*

3. The AIoT RAN node initiates inventory procedure at AIoT radio interface accordingly.

*Editor’s Note: This step is defined by RAN2.*

4/4b. After receiving part or full of inventory result from devices, the AIoT RAN node sends a single or multiple Inventory reports to the AIoT CN including the received inventory result.

**Question 4: Do you agree with the above figure and text description? Please modify it if any**

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| --- | --- | --- |
| **Companies** | **Yes/No** | **Comments** |
| ZTE | Yes for all |  |
| Nokia | Yes for all |  |
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Overall procedure for AIoT Topology 2



 Figure 2: Overall procedure for RRC based AIoT Topology 2

1. When the AIoT CN decides to initiate inventory procedure, it sends Inventory request message to the AIoT RAN node.

*Note: Before initiating inventory procedure, the AIoT CN selects suitable UE/reader.*

2. The AIoT RAN node sends Inventory response message to the AIoT CN.

Note： In step 2, if the AIoT RAN node sends Inventory failure message to the AIoT CN, this Inventory procedure ends.

3. The gNB initiates inventory procedure at Uu interface and AIoT radio interface accordingly.

*Editor’s Note: This step is defined by RAN2.*

4/4b. After receiving part or full of inventory result from UE, the gNB sends a single or multiple Inventory reports to the AIoT CN including the received inventory result.

**Question 5: Do you agree with the above figure and text description? Please modify it if any**

|  |  |  |
| --- | --- | --- |
| **Companies** | **Yes/No** | **Comments** |
| ZTE | Yes for all |  |
| Nokia  | OK to include as one potential option |  |
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Figure 3: Overall procedure for NAS/UP based AIoT Topology 2

1. When the AIoT CN decides to initiate inventory procedure, it sends Inventory request message included in NAS PDU/PDU session, to the UE/reader.

*Note: Before initiating inventory procedure, the AIoT CN selects suitable UE/reader.*

2. The UE sends Inventory response message included in NAS PDU/PDU session, to the AIoT CN.

Note： In step 2, if the UE sends Inventory failure message to the AIoT CN, this Inventory procedure ends.

3. The UE initiates inventory procedure at AIoT radio interface accordingly.

*Editor’s Note 3: This step is defined by RAN2.*

4/4b. After receiving part or full of inventory result from UE, the UE sends a single or multiple Inventory reports included in NAS PDU/PDU session, to the AIoT CN.

**Question 6: Do you agree with the above figure and text description? Please modify it if any**

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| --- | --- | --- |
| **Companies** | **Yes/No** | **Comments** |
| ZTE | Yes for all |  |
| Nokia | OK to include as one possible option but | Replace “UE/ reader” by “AIoT enabled UE” in step 1. |
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# Conclusion, Recommendations

# References

1. [R3-244104](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244104.zip) (TP for TR 38.769) Signalling and Procedures for Topology 1 (Huawei) other
2. [R3-244428](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244428.zip) Inventory, Command and device context management for Ambient IoT (Qualcomm Incorporated) discussion
3. [R3-244060](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244060.zip) Discussion on unified procedure for AIoT topology 1 and 2 (ZTE Corporation) discussion
4. [R3-244059](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244059.zip) (TP for TR38.769) NG interface impact for Ambient-IoT (ZTE Corporation) other
5. [R3-244105](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244105.zip) (TP for TR 38.769) Signalling and Procedures for Topology 2 (Huawei) other
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7. [R3-244184](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244184.zip) (TP to TR 38.769) Network signalling aspects for Topology 1 (CATT) other
8. [R3-244185](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244185.zip) (TP to TR 38.769) Network signalling aspects for Topology 2 (CATT) other
9. [R3-244192](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244192.zip) (TP for TR 38.769) AIoT interface impacts between RAN and CN (Xiaomi) other
10. [R3-244328](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244328.zip) Inventory procedure of ambient IoT (Lenovo) discussion
11. [R3-244329](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244329.zip) Context Management and Data Transport of Ambient IOT (Lenovo) discussion
12. [R3-244389](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244389.zip) [TP for TR 38.769] Elements for AIoT RAN – AIoT CN communication and overall signalling (Ericsson) other
13. [R3-244421](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244421.zip) Inventory Signalling Reusing Paging procedures for AIoT Topology 2 (Nokia ) discussion
14. [R3-244422](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244422.zip) [TP for TR 38.769] Inventory Signalling reusing Paging procedures for AIoT Topology 2 (Nokia ) other
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16. [R3-244556](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244556.zip) Discussion on RAN-CN interface impact for Ambient IoT (Samsung) discussion
17. [R3-244564](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244564.zip) Discussion on RAN-CN interface for Ambient IoT (China Telecom) discussion
18. [R3-244594](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244594.zip) Discussion on paging for Ambient IoT (CMCC) discussion
19. [R3-244595](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244595.zip) Discussion on Device Context Management and Data Transfer (CMCC) discussion
20. [R3-244607](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_125%5CDocs%5CR3-244607.zip) Discussion on NG impact for Ambient IoT (LG Electronics) discussion