3GPP TSG-RAN WG3 Meeting #128 R3-253792

**Malta, MT, 19th-23th May, 2025**

Title: (TP to TS 38.300 BL CR) Architecture aspects

Agenda Item: 16.2

Source: CMCC, Huawei

Document for: Other

# Introduction

This contribution provides TP to reflect the progress made during RAN3#128 meeting related to A-IoT architecture aspects.

# TP for TS 38.300 BL CR

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## 3.2 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], in TS 36.300 [2] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1] and TS 36.300 [2].

**2Rx XR UE**: two antenna port XR UE as specified in TS 38.101-1 [18].

**A2X communication**: A communication to support A2X services leveraging PC5 reference points. A2X services are realized by various types of A2X applications, i.e. BRID or DAA.

**Aerial UE communication:** functionality enabling Aerial UE function, as defined in 16.18.

**A-IoT CN node:** The core network node which the gNB connects to 5GC for A-IoT operation. More specifically, it is the AIOTF in case the gNB directly connects with the AIOTF, and it includes both the AMF and AIOTF in case the gNB connects with the AIOTF via AMF.

**Air to Ground network:** An NG-RAN consisting of ground-based gNBs, which provide cell towers that send signals up to an aircraft's antenna(s) of onboard ATG terminal, with typical vertical altitude of around 10,000m and take-off/landing altitudes down to 3000m.

**BH RLC channel**: an RLC channel between two nodes, which is used to transport backhaul packets**.**

**Boundary IAB-node:** as defined in TS 38.401 [4].

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## 16.xx Support of Ambient IoT

### 16.xx.x1 Introduction

### 16.xx.x2 Architecture

The NG-RAN overall architecture as depicted in section 4.1 is applicable for Ambient IoT along the following adaptations and additions:

- For the sake of supporting the provision of A-IoT services, the involved gNBs are enabled to support A-IoT, specifically, the gNB supports communication with A-IoT devices by means of A-IoT radio.

- A gNB may or may not only support communication with A-IoT devices by means of A-IoT radio.

- A gNB serves one or multiple readers which belong to the same of different A-IoT Areas.

- An A-IoT Area may include readers belong to the same or different gNBs.

- One reader only belongs to one gNB, and one reader can be mapped to one or multiple A-IoT Areas.

- As specified in TS 23.369 [xx], the A-IoT CN node which the gNB connects to is either the AIOTF (in case of direct connectivity with the AIOTF) or the AMF (in case of indirect connectivity with the AIOTF).

NOTE 1: A deployment with both direct connectivity and indirect connectivity is not expected.

- In this version of the specification A-IoT specific information is transported between the gNB and the A-IoT CN node via the NG-C interface, the protocol stack in section 4.3.1.2 applies. In case of indirect connectivity with the AIOTF, A-IoT specific information is transferred transparently via the AMF.

- In this version of the specification, no A-IoT specific communication takes place between gNBs.

- In this version of the specification, split gNB architecture is not supported.

The AIOTF may request the gNB to perform an A-IoT operation within a specific area (requested service area). The requested service area may be indicated by means of a list of A-IoT Areas and/or a list of readers. The A-IoT Area is represented by an A-IoT Area ID.

The AIOTF is aware of the area within which the gNB supports provision of A-IoT services by means of OAM configuration. This area may be represented as A-IoT Areas and/or the readers supported by the gNB.

The AIOTF may also be aware of the reader’s location by means of OAM configuration.

The AIOTF may also be aware of the mapping relationship among gNBs, readers and A-IoT areas by means of OAM configuration.

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