SA5 Rel-19 23Q3 moderated discussion - Management of IAB nodes - Version 0.0.2

SA5

https://nwm-trial.etsi.org/#/documents/8702

1 Justification

Integrated access and backhaul (IAB) enables wireless in-band and out-of-band relaying of NR Uu access traffic via NR Uu backhaul links. A key benefit of IAB is enabling flexible and very dense deployment of NR cells without densifying the wired transport network proportionately.

The support of IAB was introduced to 3GPP since Rel-16 with basic IAB framework and support of Intra-Donor migration of IAB nodes. The enhancement was added in Rel-17 to enable inter-donor F1 traffic migration, while in Rel-18 IAB node mobility and MBSR (Mobile Base Station Relay) are supported. As specified in TS 23.501 and TS 38.401, the IAB architecture and its mobility behavior distinguish it from static gNodeB's, this requires additional support from OAM management.

As of today, TS 23.501 and TS 38.401 have some brief description about OAM management in term of IAB connection with OAM system and transport of OAM traffic, there is no collaboration with SA5 about how to support them, the further specification is needed in SA5.

SA5 has since received a few LSs from SA2, SA3 and RAN3 to clarify OAM behaviors regarding:

- S2-2301465, S3-231033 and S3-230833 secured and trusted access to the serving PLMN OAM server by a MBSR
- R3-236128 Cell ID (re)configuration for mobile IAB cell.

These requests from other WGs increase the urgency for SA5 to specify the OAM management for IAB node, especially for the IAB node mobility and support for MBSR roaming over PLMNs, the continuity of OAM connectivity needs to be ensured, various use cases and scenarios need to be studied to identify the impact to OAM management system.

IAB has been specified in SA2, SA3, RAN1, RAN2, RAN3, RAN4 and CT WGs, this study requires close collaboration with RAN3, SA2 and SA3, and possible cooperation with other WGs as well.

Feedback Form 1: Comments for Justification

1 – HUAWEI TECHNOLOGIES Co. Ltd.

IAB has been already supported in Rel-17 and Rel-18 in RAN, and specified in TS 23.501 and TS 38.401, the basic requirements for OAM has been described. No need to study, we suggest this topic can start with normative work.

2 – Ericsson LM

Thanks for the comments. Here are the Ericsson's replies:

There were many studies carried out in other WGs since IAB was introduced in REL 16 and later releases, but SA5 has never done the study.

The IAB architecture and its mobility behaviour distinguish it from static gNodeB's, this requires additional support from OAM management that need a study to identify the impact and solution.

TS 23.501 and TS 38.401 has brief description about OAM but it doesn't go to the level needed in SA5 for FCAP management and OAM connectivity.

2 Objective

Potential objectives include:

1. Identify the use cases and scenarios in which how IAB node connects to OAM system.
2. Investigate the potential enhancement to Plug and Connect NE to OAM system.
3. Identify the potential requirements and solutions to support the continuity of OAM connectivity during IAB node mobility and MBSR roaming over PLMNs.
4. Investigate the potential impact to CM, PM, and FM, and identify the potential requirements and solutions to support IAB FCAP management.

Feedback Form 2: Comments for Objective

1 – HUAWEI TECHNOLOGIES Co. Ltd.

For objective 2, clarify why only PnC Is Considered? why not consider SC?

Suggest merge objective 3 and 4, and need to make it clear about specific enhancements in FCAP.

2 – Ericsson LM

Thanks for the comments. Here are the Ericsson's replies:

As stated in justification, the OAM connectivity need to be ensured to support IAB startup and its mobility scenario, this implies potential impact to Plug and Connect.

The SC normative work in REL 18 is still work in progress, and it is currently specified that the SC capability is mainly to manage the SC process, we don't see any potential impact to SC. Please elaborate otherwise.

Whether or not to merge object 3 and 4, both aspects shall be part of the study. The impact shall be studied before concluding specific enhancements in FCAP.