3GPP TST RAN Meeting #101
Bangalore, India, September 11-15, 2023
Agenda Item: 8A.2.14.1

RP-232540

Views on Topological Enhancements for Mobile Backhaul Use Cases

AT&T

© 2023 AT&T Intellectual Property. AT&T and globe logo are registered trademarks and service marks of
AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners

Background: Rel-18 Mobile Integrated Access and Backhaul (IAB) for NR

Mobile IAB builds on the architecture and protocols developed in Rel-16 and Rel-17 IAB feature and enhancements

Focus on vehicle-mounted mobile-IAB-nodes providing 5G coverage/capacity to onboard and/or surrounding UEs:

- The mobile IAB-node should have no descendent IAB-nodes, i.e., it serves only UEs
- Inter-donor migration support with simultaneous DUs on the mobile IAB node
- Enhancements for Rel-18 UEs (e.g. RACH-less HO) are backwards compatible to ensure that mobile IAB nodes can also serve legacy UEs

Commercial use cases e.g. buses, trains
Military and public safety use cases

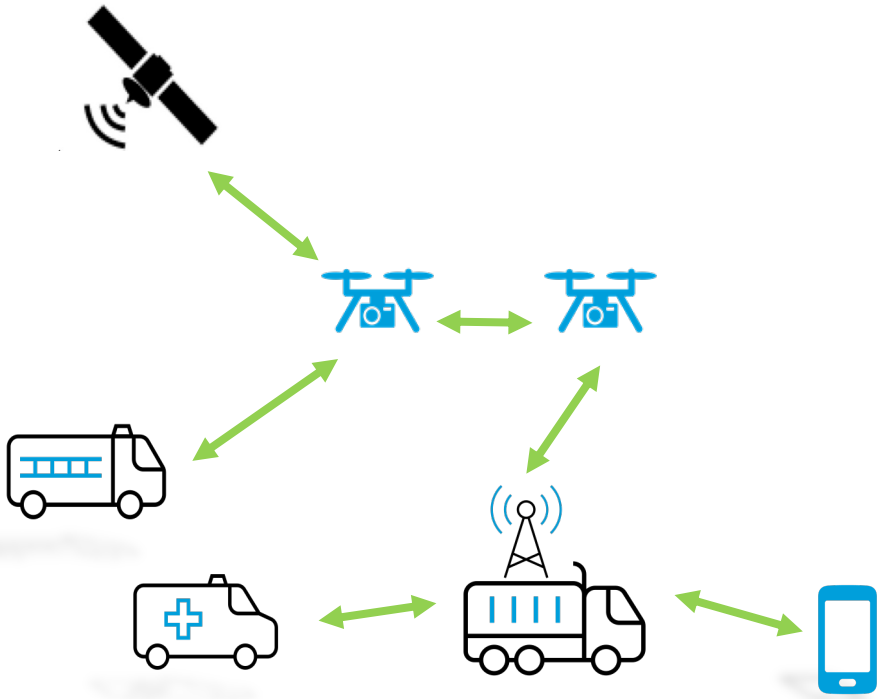
Views on Rel-19 Topological Enhancements / RAN#101 Bangalore, India / © 2023 AT&T Intellectual Property

Rel-19 Scope

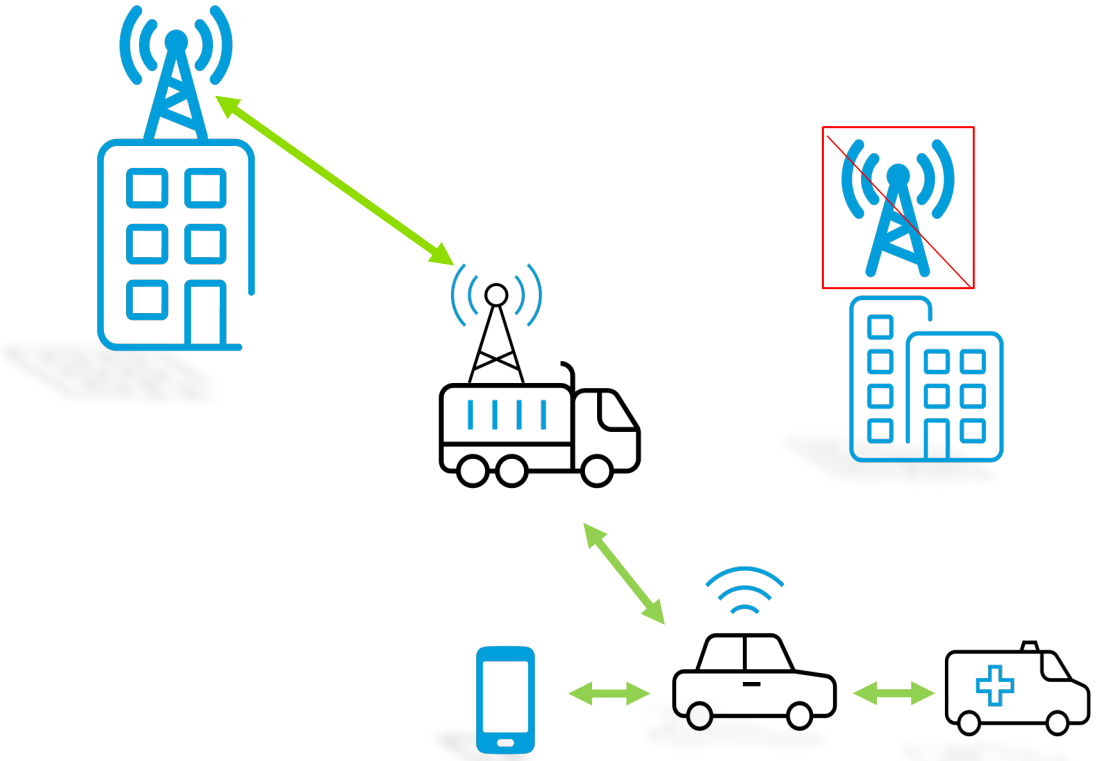
Public Safety and verticals use cases for dynamic coverage extension

Support scalable deployments of UAV-based IAB nodes

Lower complexity/cost to support portable vs. fixed node form-factors



Remote deployments



Disaster recovery

Rel-19 Key Objectives

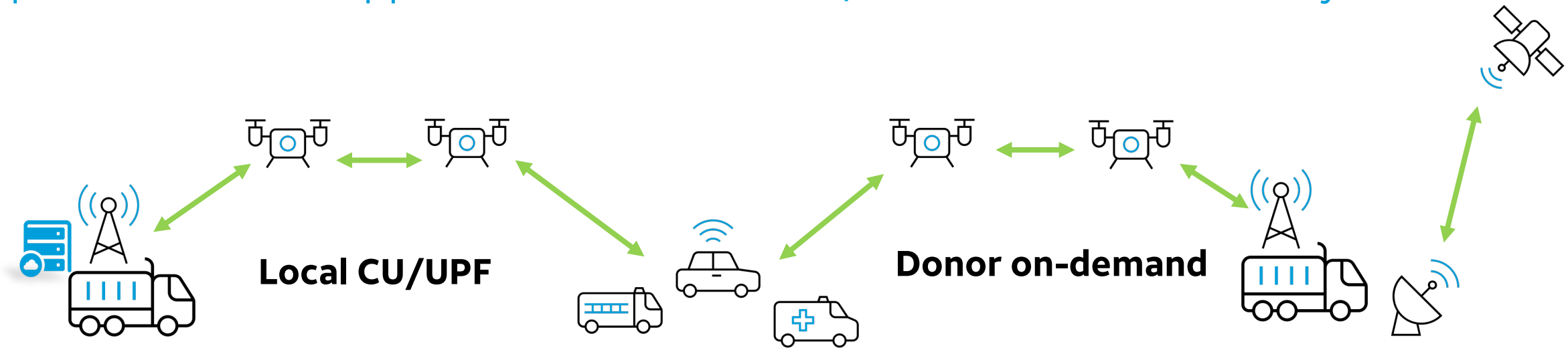
Local gNB-CU/UPF for mobile IAB topologies

- Bottleneck for rapid deployment of mobile IAB nodes is a lack of donor support on the fixed network
- Requires support for scalable and efficient traffic management under constrained RAN-CN backhaul scenarios
- Standards-based solutions needed for multi-vendor interoperability and to avoid fragmented implementations

Multi-hop, network-controlled mobile topology adaptation

- Extensions of group mobility for UAV + VMR case
- Leverage UAV/NTN solutions for dynamic resource coordination and interference management

Explicit standards support for NTN-based IAB/donor node connectivity



AT&T