



Integrated Sensing and Communication in Rel-19

RAN-Release 19 workshop
15th and 16th June 2023, Taipei
RWS-230469

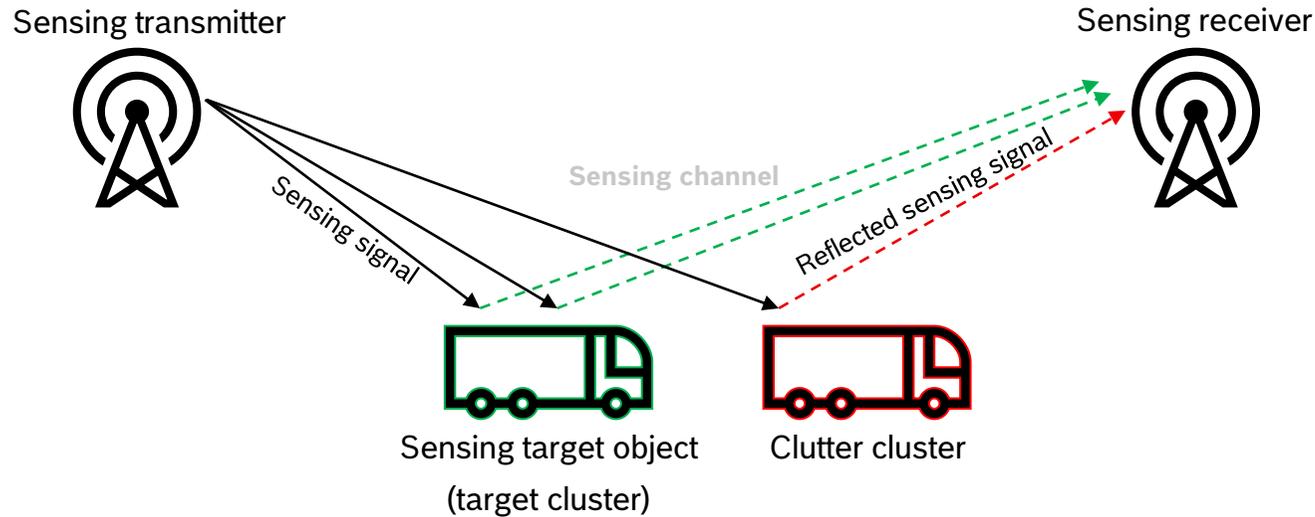
Integrated Sensing and Communication in RAN Rel-19

Motivation

- Integrated Sensing and Communication is one of the focus topics for Bosch in Rel-19 (RWS-230467)
- Several use cases and 5GS requirements have been discussed in the SA1 Study Item FS_Sensing, focusing on various domains, documented in TR 22.837, e.g.:
 - Automotive
 - Factory
 - Smart home
 - Health monitoring
- Objectives for Rel-19 in RAN working groups
 - Identify and prioritize sensing use cases for RAN study
 - Discuss channel models required for sensing performance evaluation
 - Consider existing architectures and signaling, and identify required enhancements
 - Prioritize sensing modes

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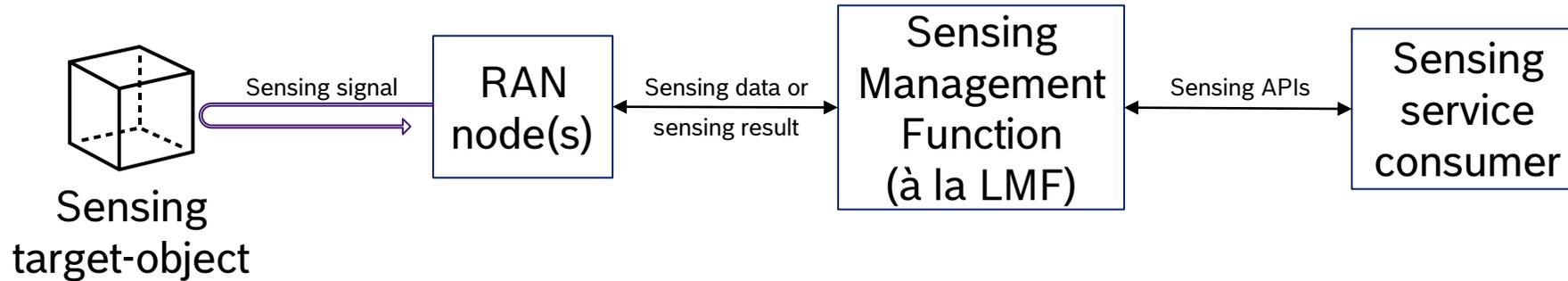
The need for sensing-appropriate channel models



- The existing statistical channel models (3GPP TR 38.901) cannot appropriately model physical characteristics (parameters such as Radar Cross Section) of sensing target objects (target clusters) and noise (clutter clusters)
- Discuss possible extensions to develop channel models for sensing evaluation methodology

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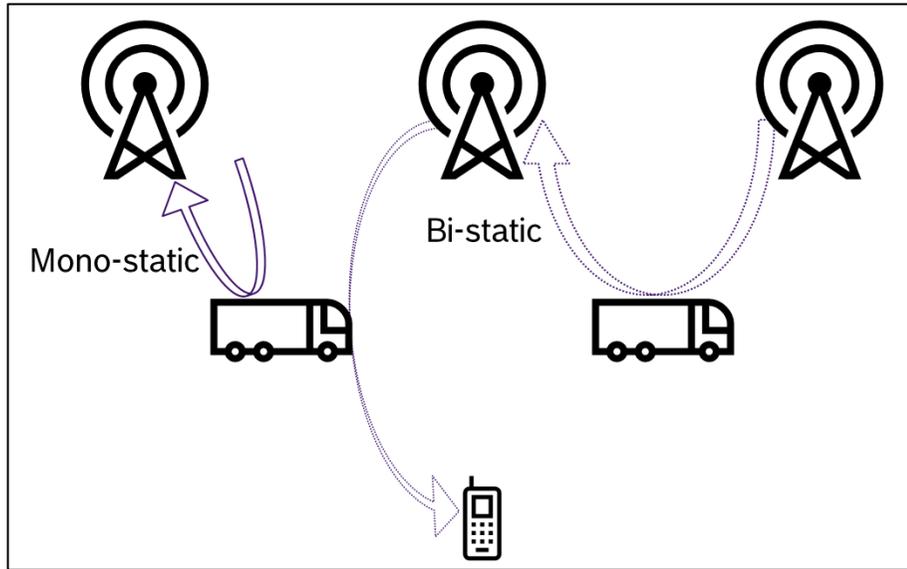
Architecture and signaling for sensing



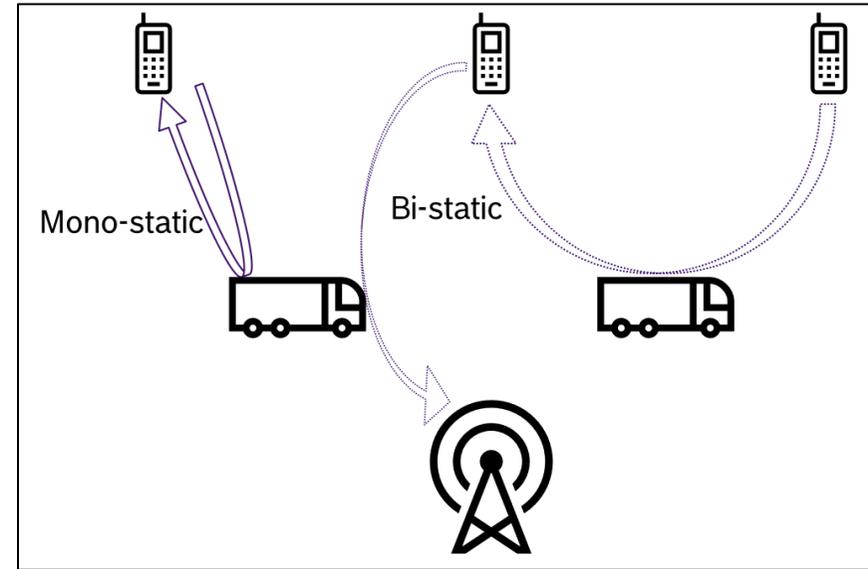
- Identify existing architecture and signaling to support sensing
 - Consider reusing positioning functions (e.g. LMF) and signaling (e.g. PRS, SRS, etc.)
- Discuss the necessary RAN-level enhancements for detection of objects

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Prioritization of sensing modes



Base station as sensing transmitter



UE as sensing transmitter

- Several sensing modes are possible with mono-static or bi-static sensing
- Prioritize sensing modes based on specification impact in Rel-19



BOSCH

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