ITS use-cases C-ACC and Platooning

draft-petrescu-its-cacc-sdo-04

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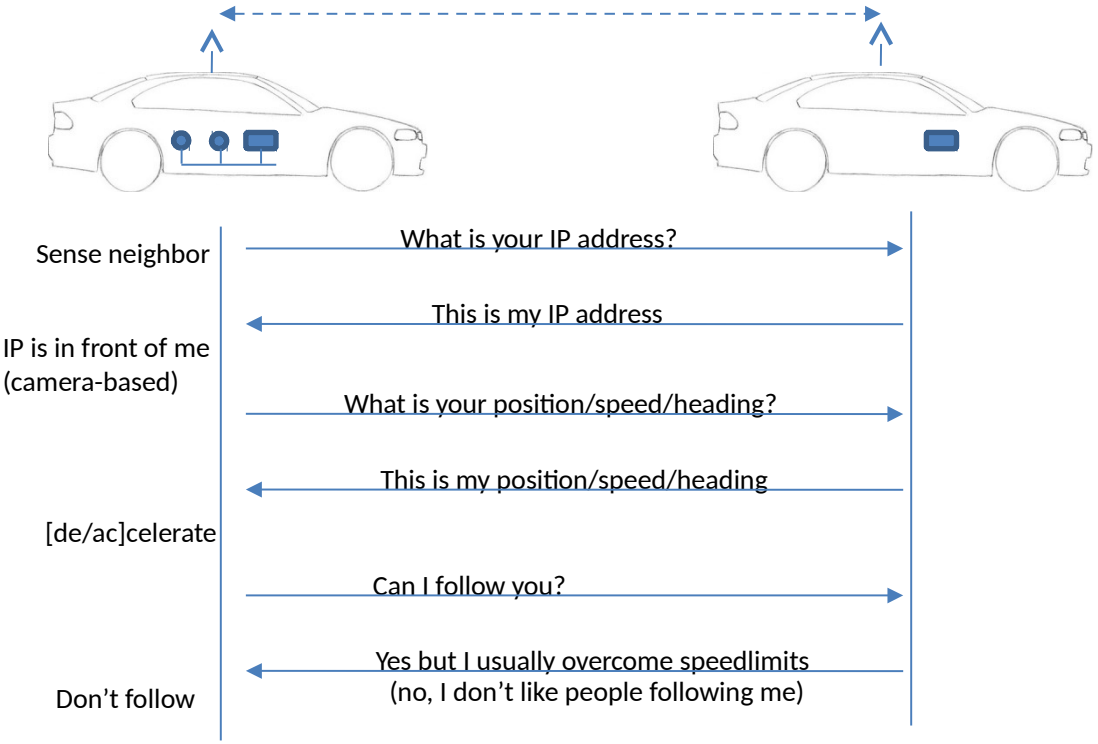
Cooperative Adaptive Cruise Control

- “combination of automated speed control with a cooperative element, such as Vehicle-to-Vehicle (V2V) and/or Infrastructure-to-Vehicle (I2V) communication”[CACC-def].
- “C-ACC is understood as a automated formation of chains of automobiles following each other at constant speed.”

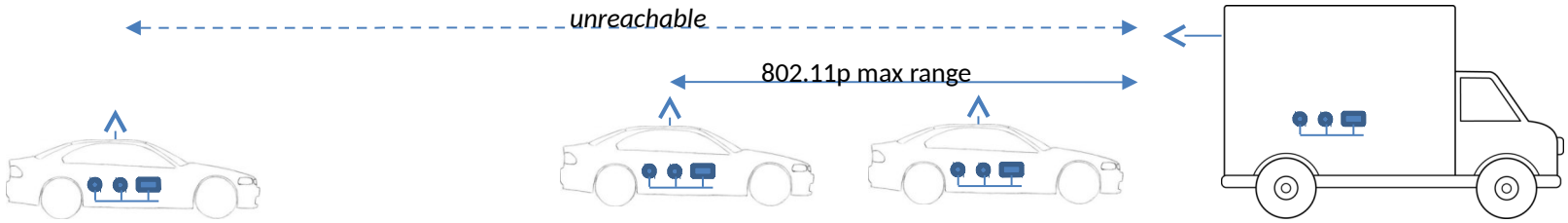
C-ACC (2)

- An ETSI ITS term, but
- BMW:
  - Cruise Control -> Dynamic Cruise Control
  - Dynamic Cruise Control -> ?
- Renault:
  - Cruise Control -> Adaptive Cruise Control
  - Adaptive Cruise Control -> ?
- Drawbacks of *non-Cooperative* ACC: “In a complex environment (metal bridge, etc.), the system [ACC] may be affected.” [user’s guide]

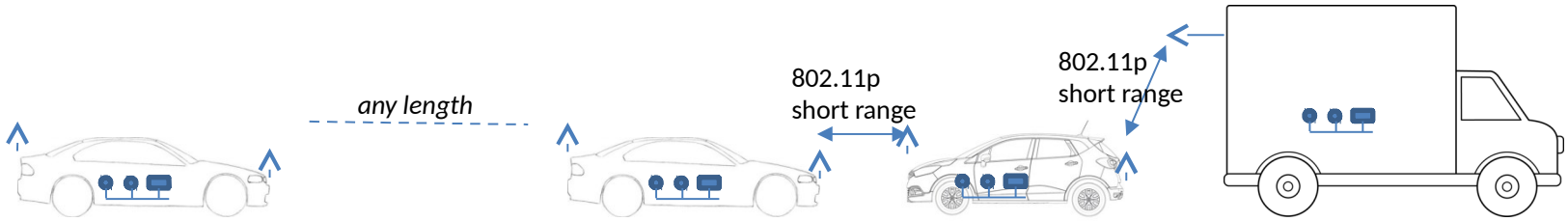
C-ACC example app-layer exchange



Platooning
scalability and interoperability



Scalability and interoperability issue of initial demonstrators



Later developments including scalability and interoperability

Gap Analysis

- Neighbor Discovery critique: RA only for Hosts, prefix must be on-link can not be of other link.
- Mobile IP: must use HA, irrelevant in V2V
- AODVv2: default routes are out of scope of AODV whereas V2V needs it; V2V topology is not complex whereas AODV is for complex topologies
- More gap analysis is needed: how other IETF protocols in the stack (related to DNS, HTTP, others) can work in a V2V setting?