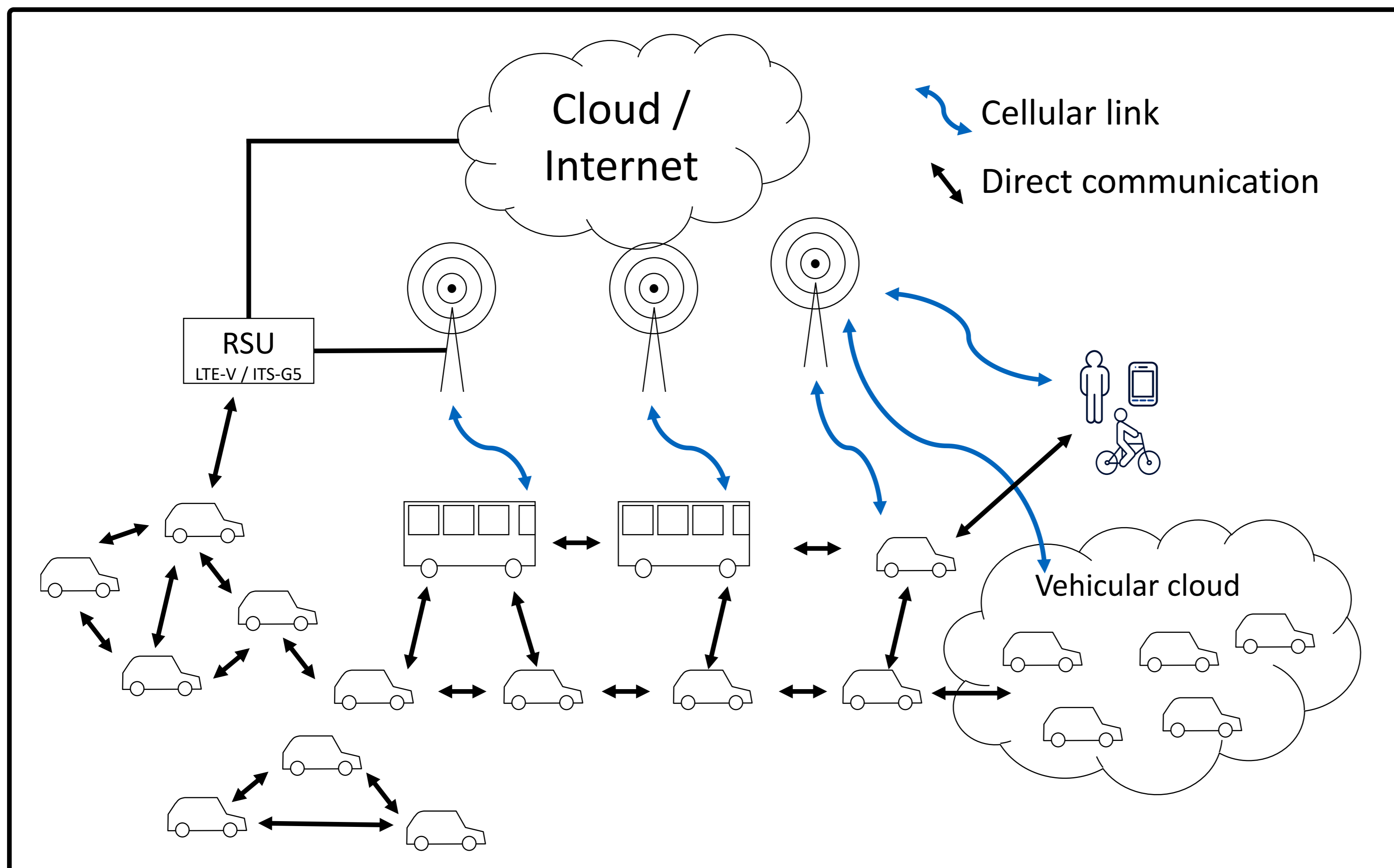


Network-Assisted Vehicular Communication

Current Research and Directions for Future Improvements

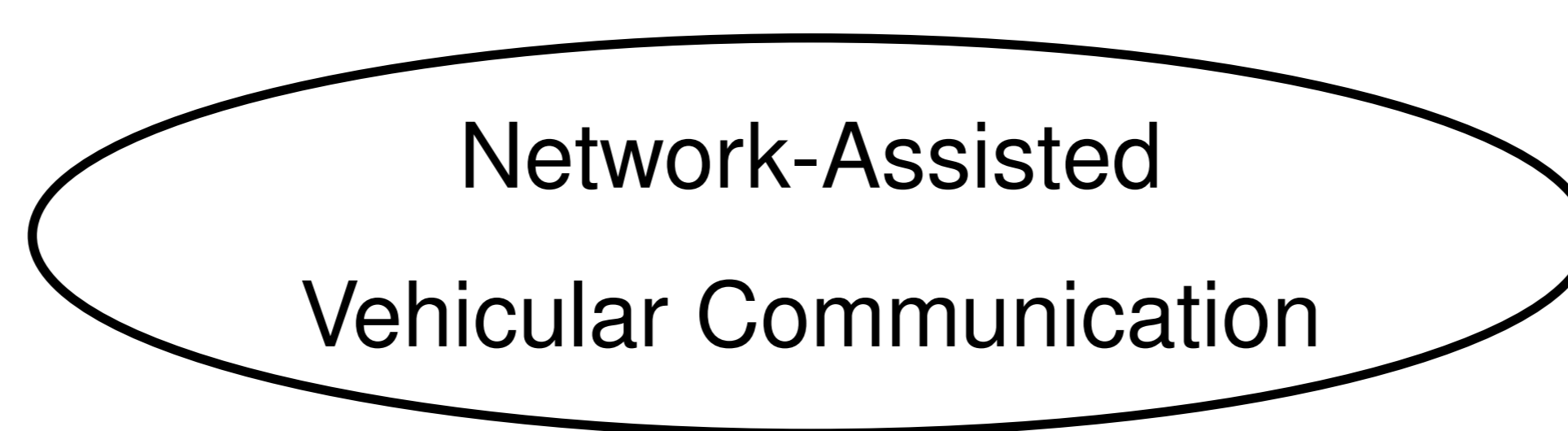


VANET Clouds

- Exploiting idle potential of vehicles
- Services provided: Network aaS, Storage aaS, Cooperation aaS
- Classification: Vehicle Cloud, Vehicles using Cloud, Hybrid Vehicle Clouds

Network Architecture

- Key enablers equipped with V2N, as well as V2V / V2I functionality
- Studies when to use what type of communication
- Investigation of use of unlicensed spectrum for cellular communication



Information Dissemination

- Efficient dissemination strategies
- Hybrid approaches (cellular and direct V2V)

Fog / Mobile Edge Computing

- Enable global coordination of services
- Extension of vehicles' limited processing capabilities
- Predictive off-loading schemes to make MEC fully effective
- First ideas for flexible MECs

Open Issues

- Resource allocation and interference mitigation techniques for LTE-A
- Lack of scalability of IEEE 802.11p due to the adopted CSMA/CA scheme
- Studies on how to use results on hybrid approaches if most cars might be equipped with only one technology
- Security and privacy protection in fog architectures
- Merging the paradigms of vehicular clouds and fog / edge computing

Current Questions

- How could a flexible communication architecture for autonomous driving look like, especially taking into consideration mixed traffic scenarios?
- How can VRUs be included into the communication architecture?
- Why is there so little research about V2V with LTE-V transmission mode 4?