Network-Assisted Vehicular Communication
Current Research and Directions for Future Improvements

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

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

Information Dissemination
• Efficient dissemination strategies
• Hybrid approaches (cellular and direct V2V)

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?