Sensor-Assisted Vehicular Networking

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Connected Vehicle Scalability (VSC-3)

- 200 DSRC equipped vehicles transmitting Basic Safety Messages
- Conducted on testing grounds with vehicles arranged / driven to model typical and extreme scenarios
Automated Driving

Percentage of Vehicle-Miles

- Hands off
- Eyes off
- Driverless

2015  2020 (?)  2025 (?)  2030 (?)
Providing in-motion network capacity

- 76.1% of workers drove alone to work in 2009
- Mean travel time to work: 25.1 minutes
- Approximately an hour per day of truly mobile, in-motion broadband access

(Source for commuting statistics: US Census, Commuting in the United States)
Networks to Extend Vehicle Sensing
Harnessing Maps and Sensor-assisted Automated Vehicles
Harnessing Motion Sensor information and Maps

- Trend to sensor-rich automated vehicles leads to much richer maps being available
- Providing capacity through 60 GHz and visible light is much more constrained by physical obstructions
- How can we exploit such information to allow in-motion use of 60 GHz spectrum and beyond?
Balancing the use of Infrastructure?
Orchestrated Driving – Roadtraffic Control for Efficiency
Thank you