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Experimenter Perspective: Towards a Cloud-Assisted Smart Intersection

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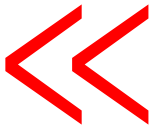
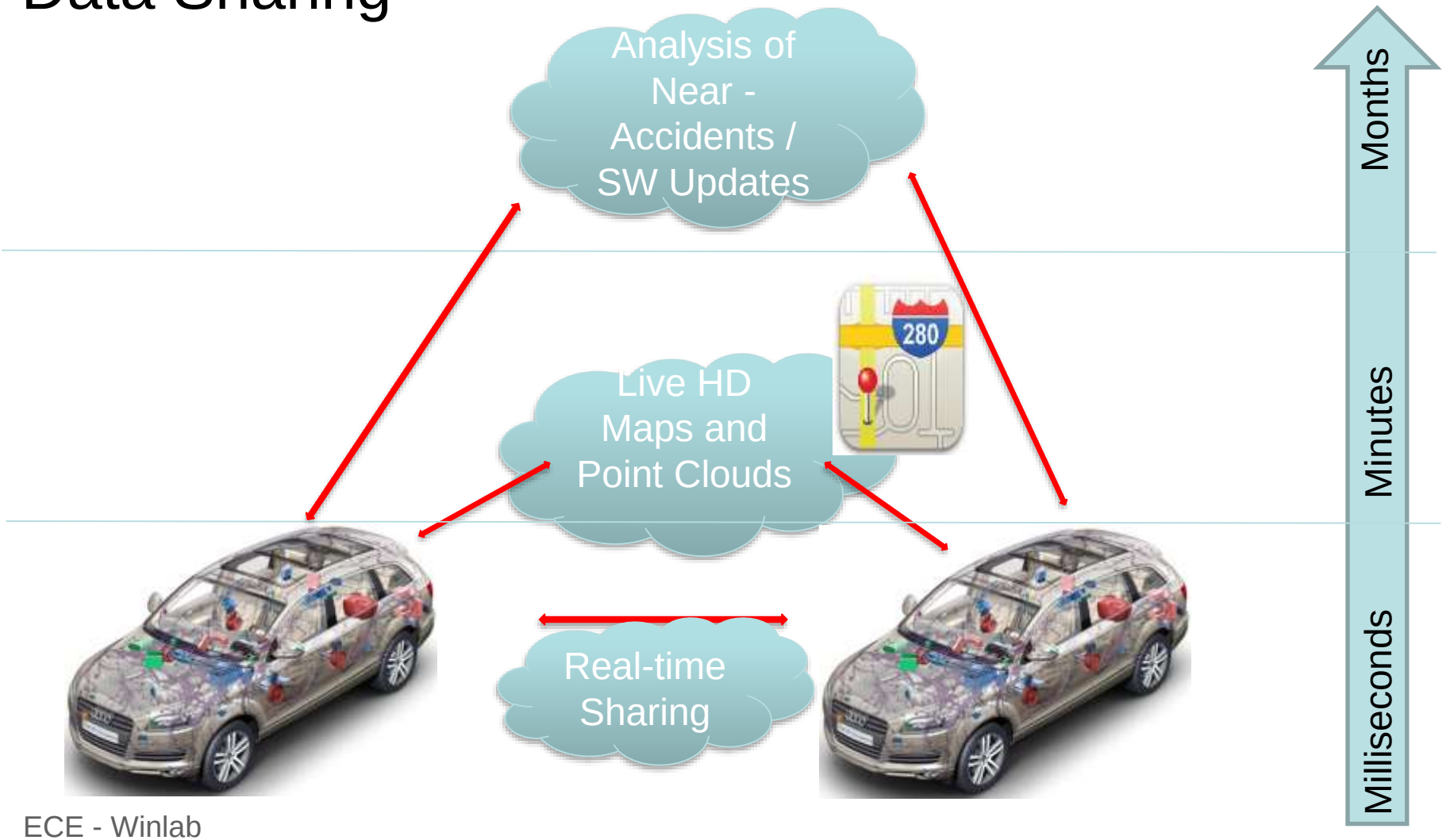
HUMAN DRIVER  **SELF-DRIVING CARs**

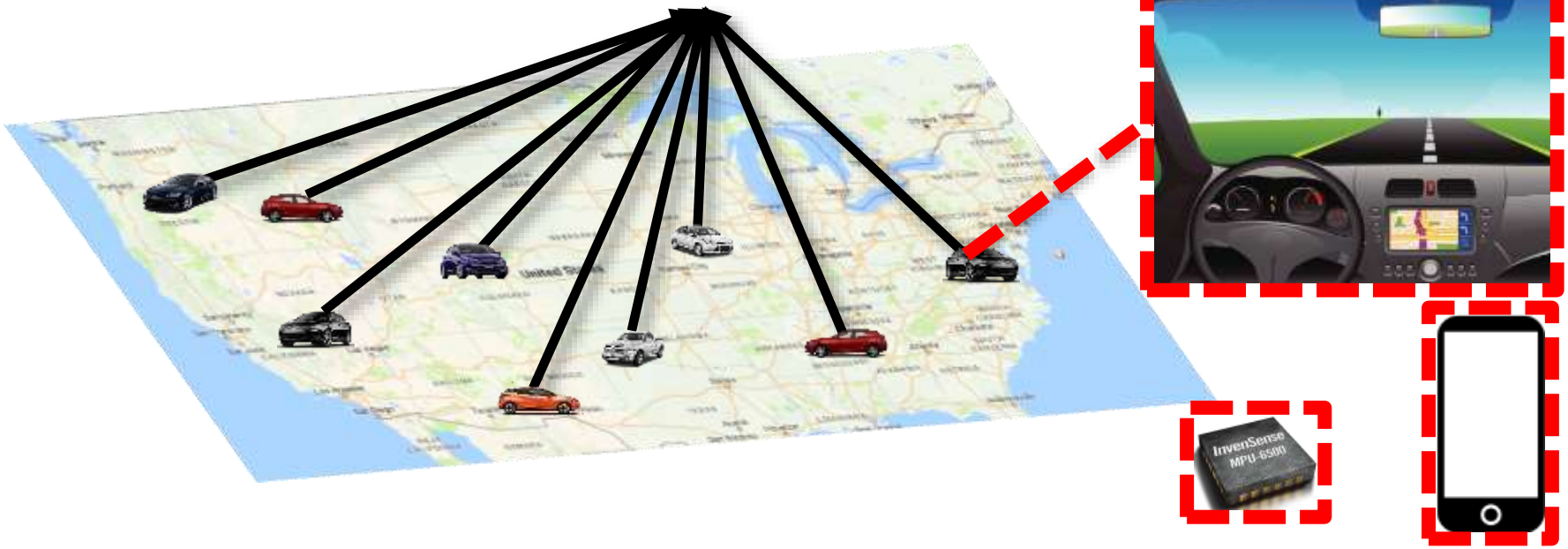
~100 million miles / fatality **Billions of miles / fatality**

Connectivity Enables Foresight Through Road Data Sharing

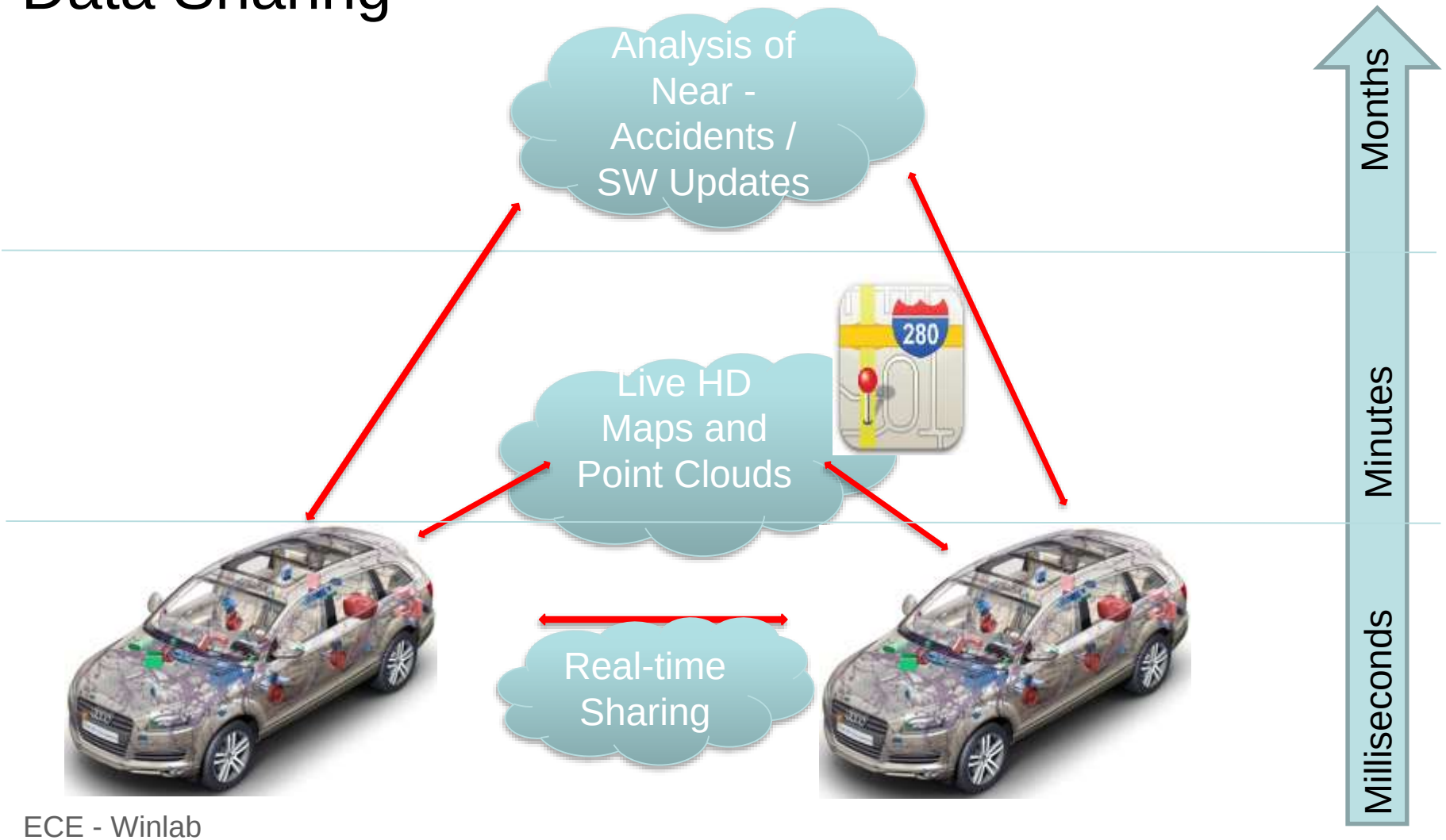


BigRoad

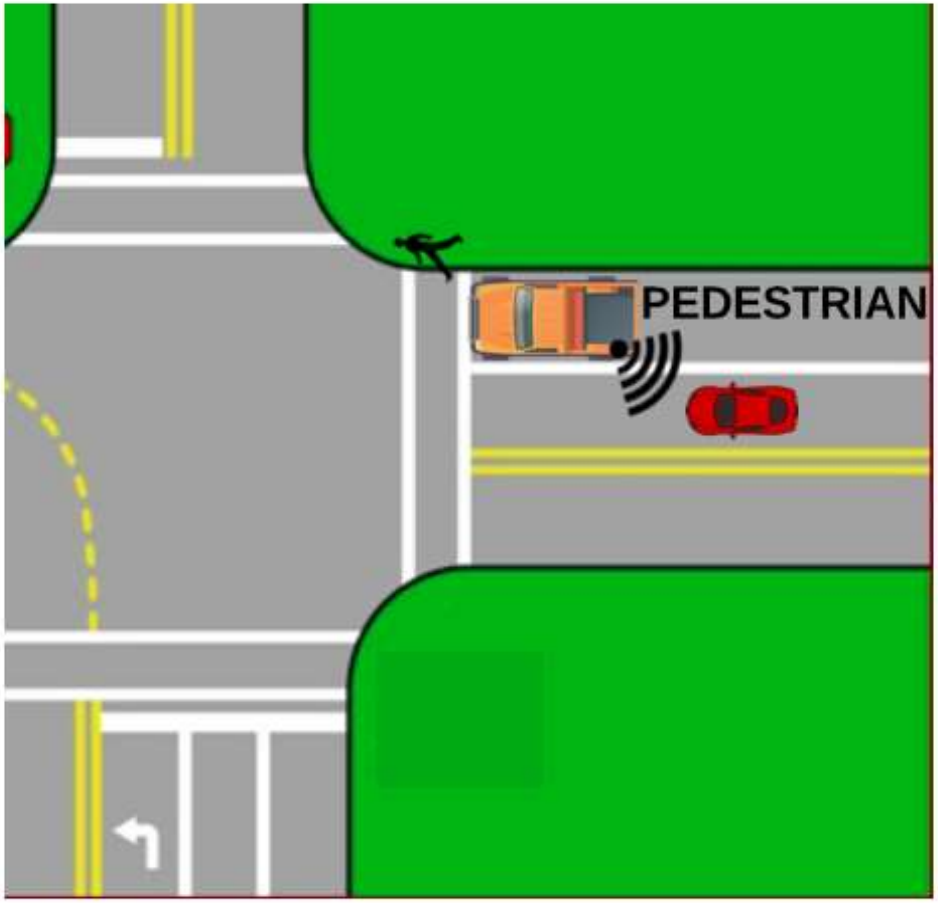
$$\frac{\text{Mileage Goal}\ 1{,}000{,}000{,}000}{\text{Mileage / Year}\ 100{,}000 \times \text{Vehicle Num}\ 100} = \text{Years}\ 100$$



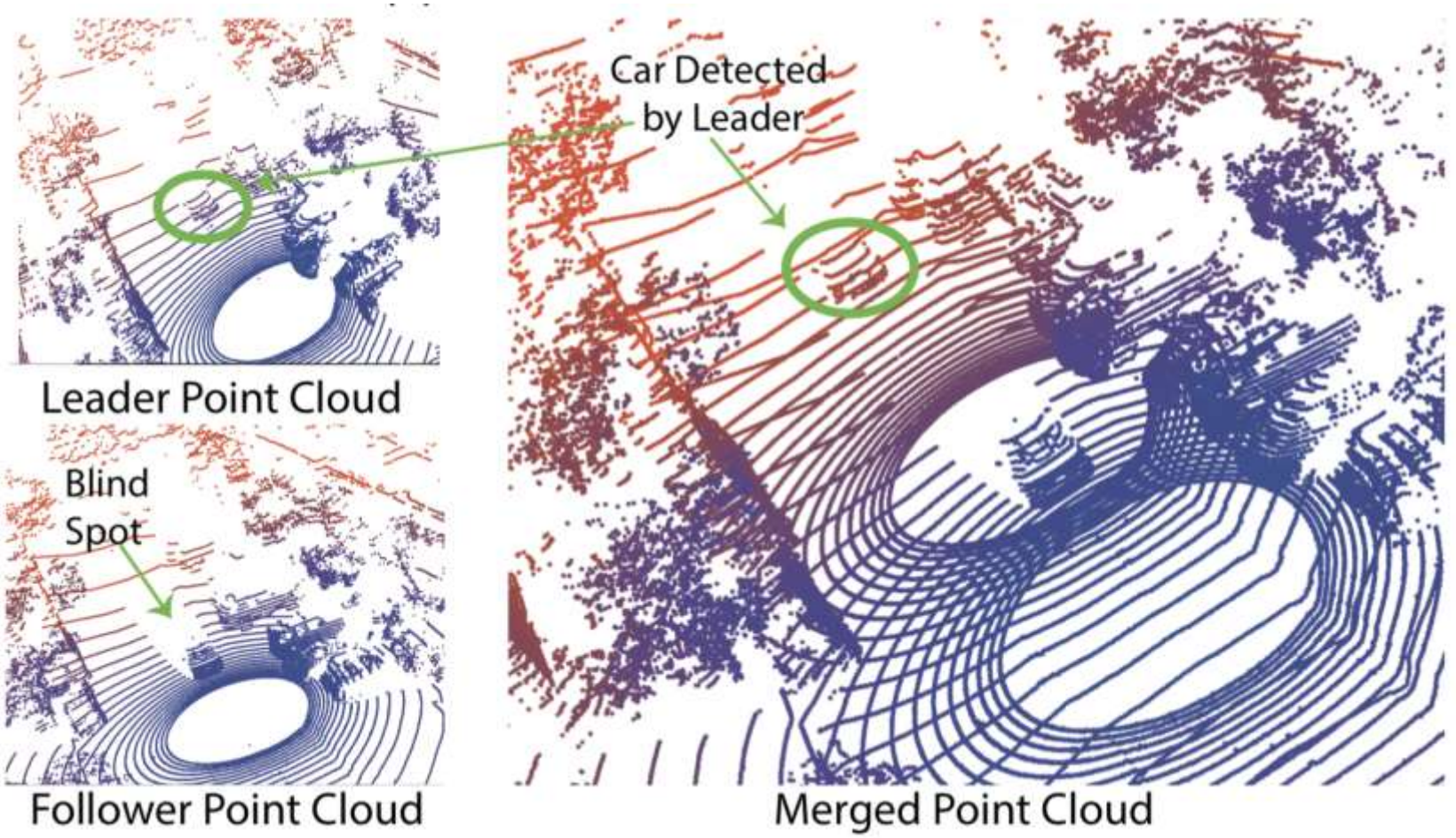
Connectivity Enables Foresight Through Road Data Sharing



Eliminating Blind Spots with Intersection Sensor Sharing

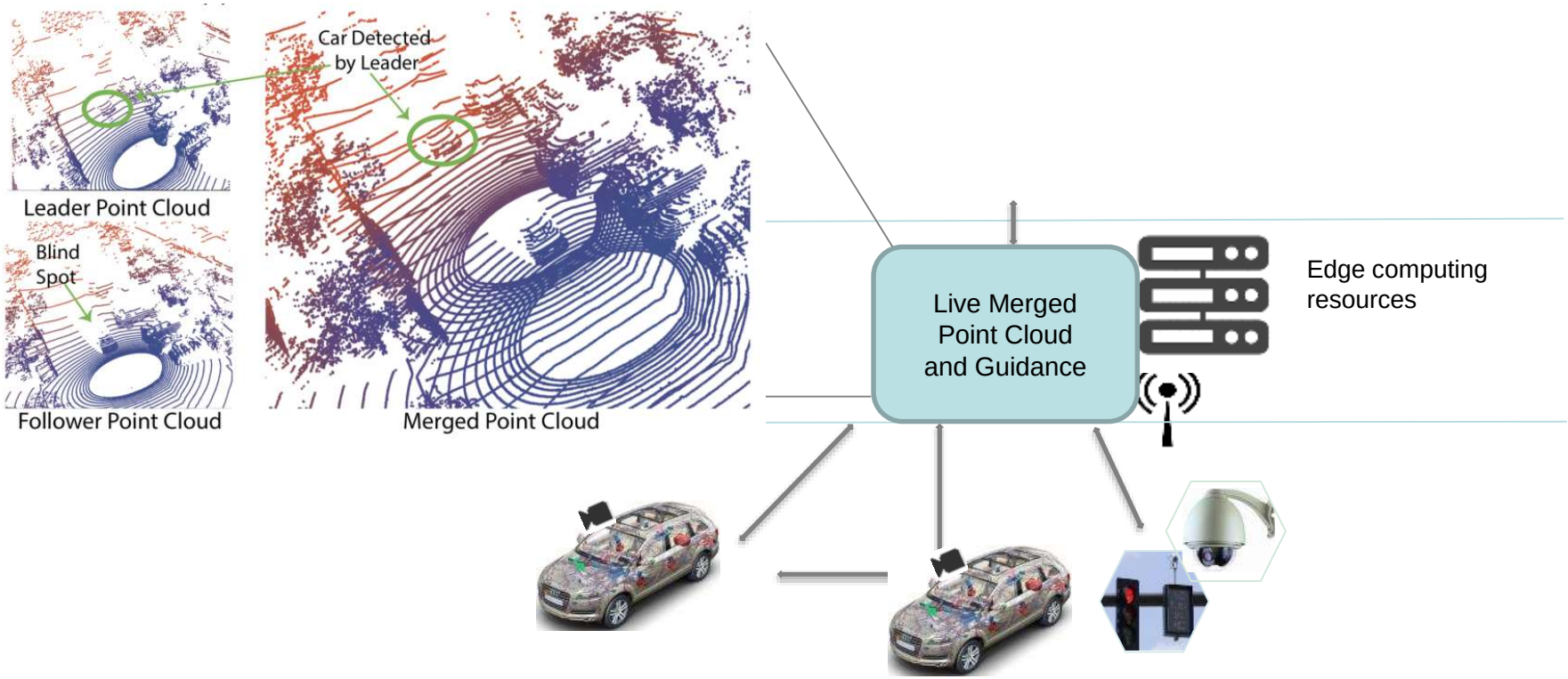


Sharing Rich Sensor Data over V2V

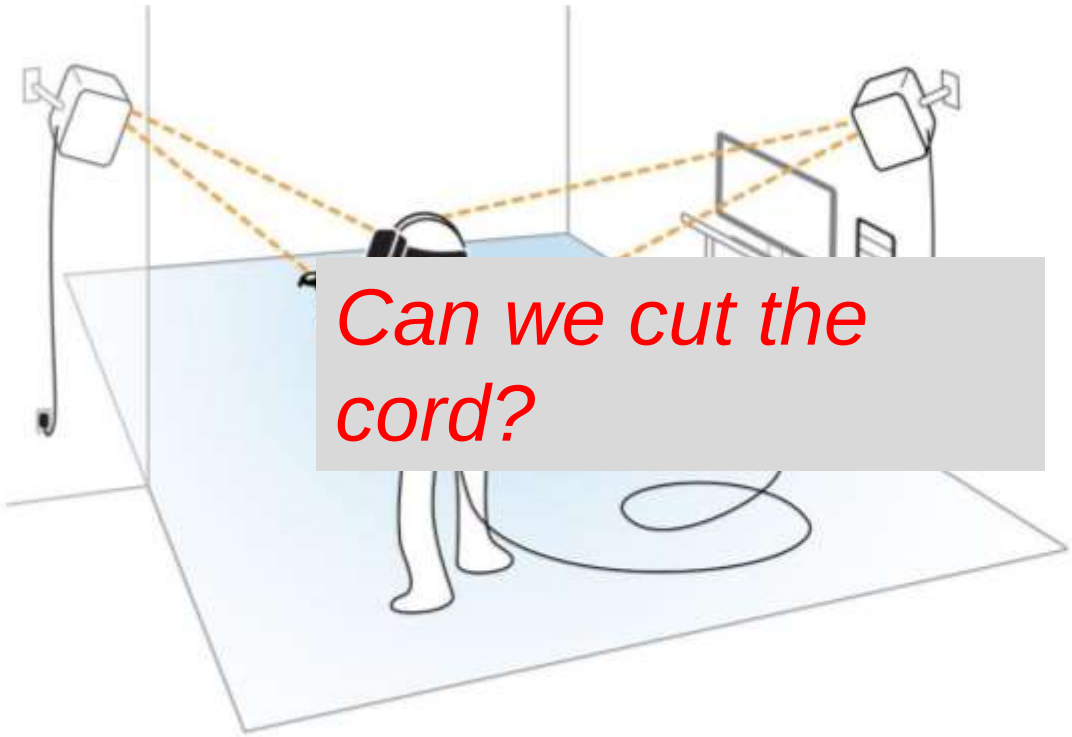


w/ R. Govindan (USC)

Edge-assisted Intersection Model



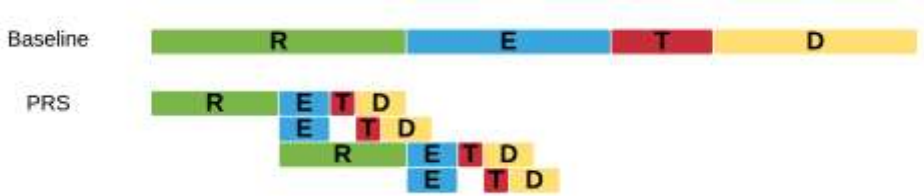
Tethered design in high-quality VR systems



Can we cut the cord?

- ✗ Inconvenient
- ✗ Limited mobility
- ✗ Hazards

Contribution of our system

- We design an untethered VR system that is able to achieve both low-latency and high-quality requirements over a wireless link.
- 

- Remote VSync Driven Rendering

Scalable Vehicle-2-Vehicle Communication Simulator (CAMP VSC3, USDOT)

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Developing Model and Robust Protocols for Real Road Environments (CAMP VSC6, USDOT)


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COSMOS: Sensor Sharing Experiments

Vehicular Sensor Sharing and automated driving

- Experiment involves multiple mobile nodes, high BW/low latency wireless access and multiple levels of cloud processing
- Real world traffic and network conditions
- Outcomes include evaluation of system performance and application demo