



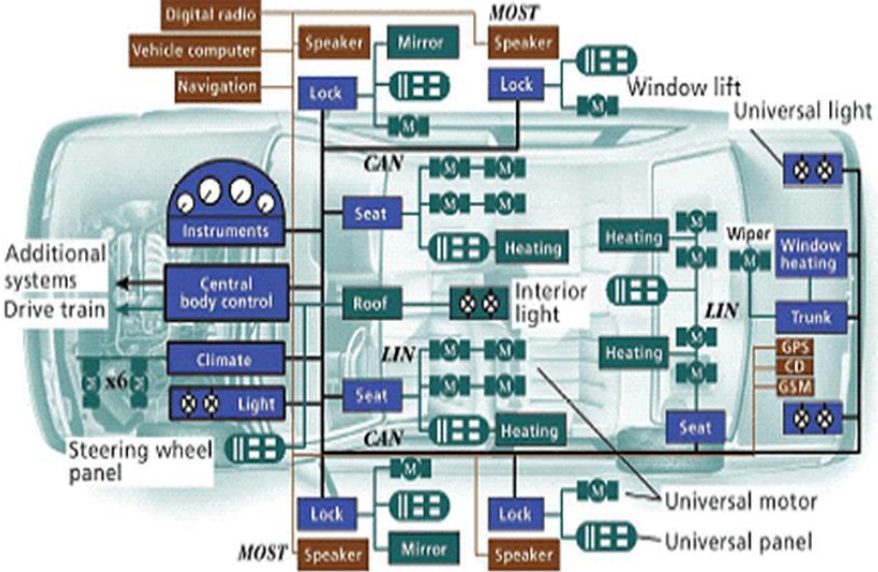
**REVERE**  
RESOURCE FOR VEHICLE  
RESEARCH AT CHALMERS



## **The goal with this project:**

- **Active safety**
- **Lower fuel consumption**
- **Autonomous driving**
- **Long combination vehicles**
- **Improve maneuverability and make it easier for the driver to keep control**
- **Vehicle dynamics (semitrailers)**





CAN	Controller area network
GPS	Global Positioning System
GSM	Global System for Mobile Communications
LIN	Local interconnect network
MOST	Media-oriented systems transport

PEI Technologies

**Equipment additionally  
installed on the truck:**

- 7 PCs**
- Radars**
- Cameras**
- Lidars/Laser scanner**
- Sensors**
- GPS Navigation (I-SEE Volvo)**



# CAN BUS => Ethernet => PTP

**CAN BUS doesn't have the flexibility which is needed for todays automotive.**



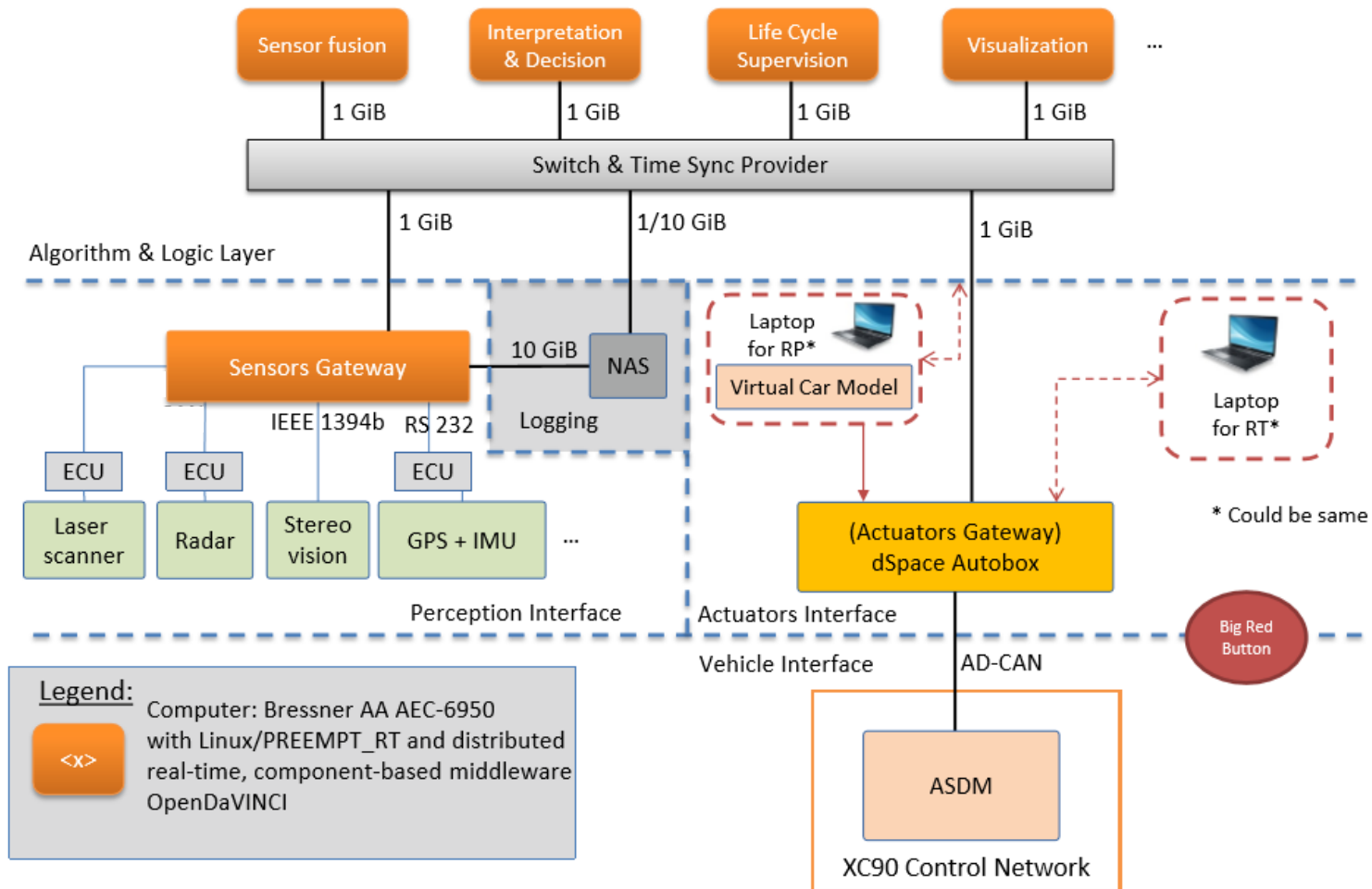
**Ethernet by itself doesn't carry the time information that's needed.**



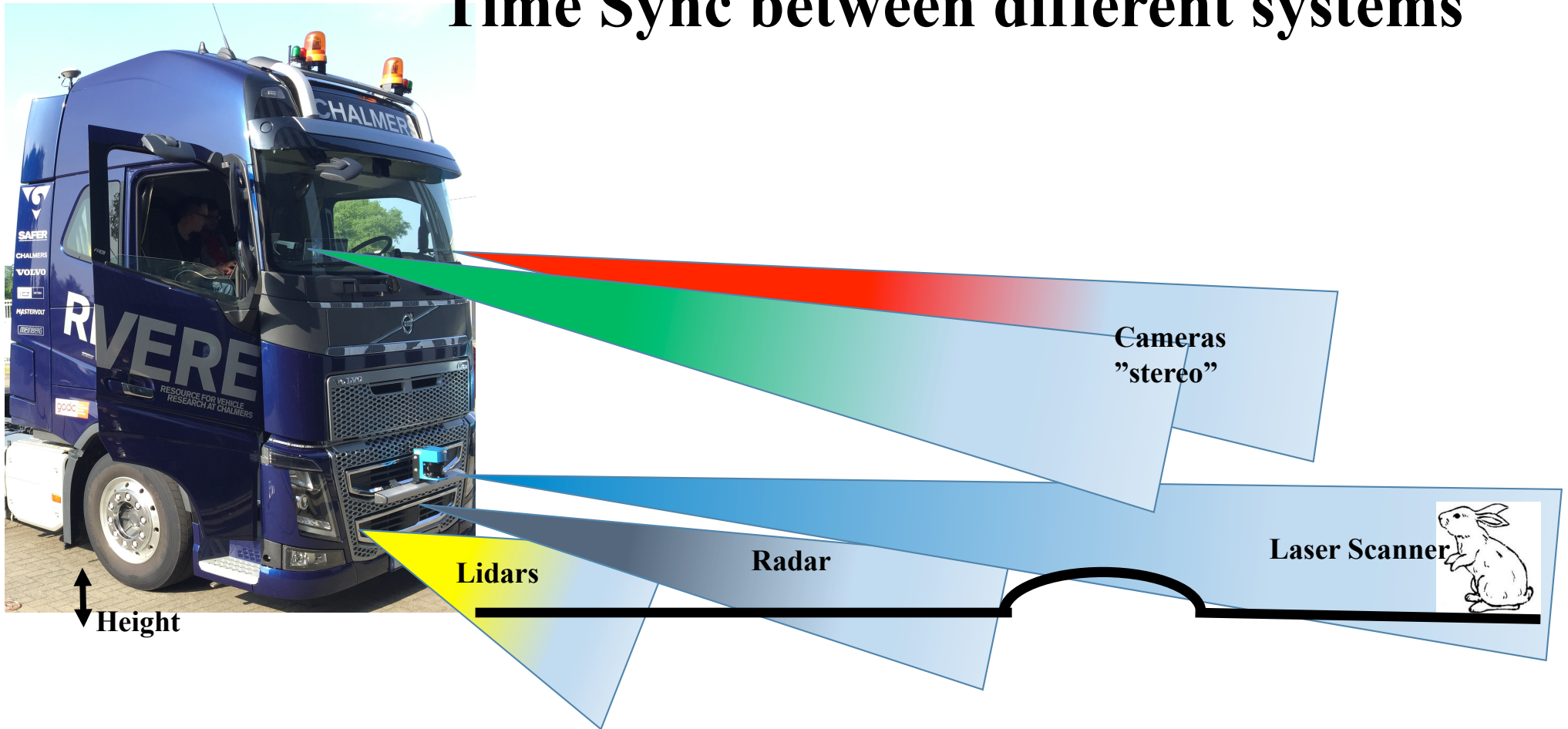
**PTP provides the time for the system.**  
"Default Profile"



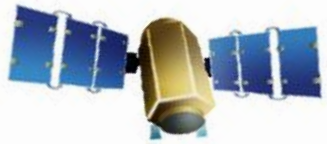
## System Architecture



# Time Sync between different systems

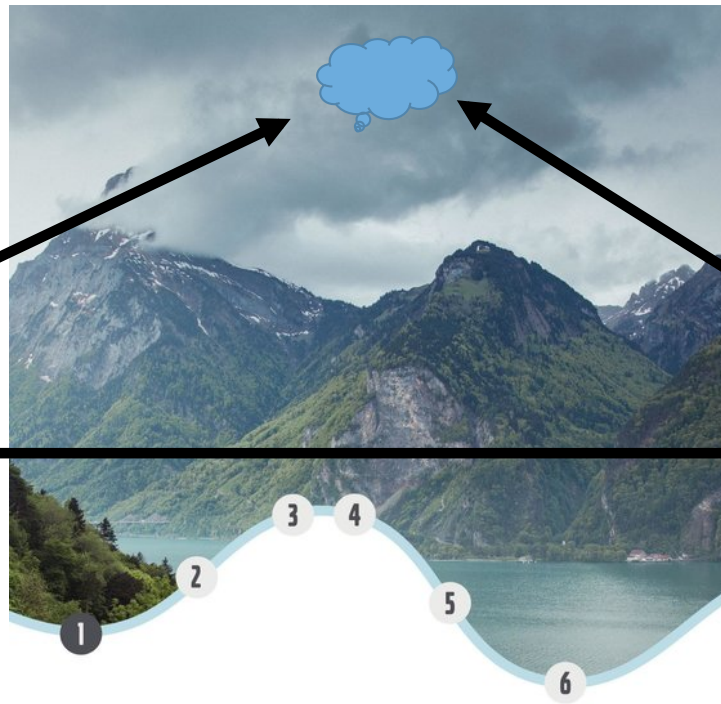






# Cloud

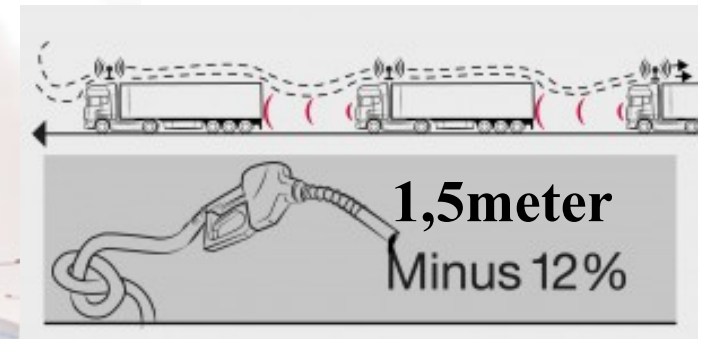
S (I SEE Volvo saves 5% fuel)



# Real time platooning PTP sync ?



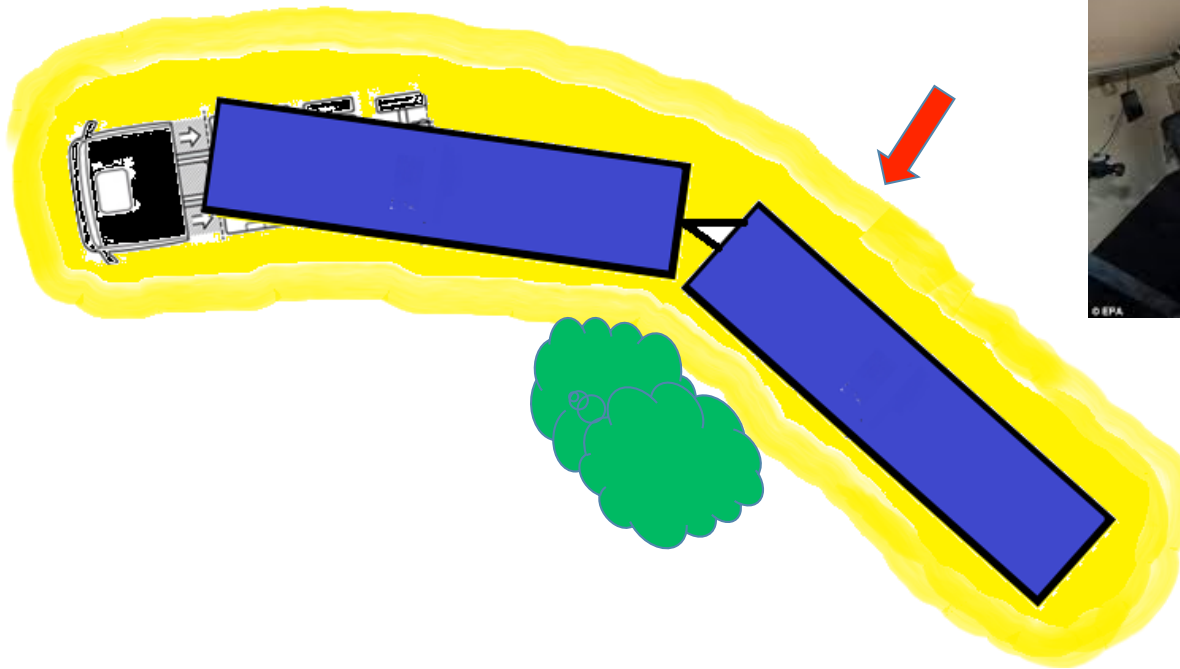
Wireless link



**The closer the gap =less fuel. How close can they drive to keep the safety but how will it go when the drivers need to brake?**

# Lidars need PTP sync

Lidar is an acronym of Light Detection and Ranging





# **GCDC 2016**

## **Grand Cooperative Driving Challenge**

[www.gcdc.net](http://www.gcdc.net)

- **Platoons are number of vehicles that merge or join a line.**
- **Automated crossing and exiting a junction.**
- **Automated space-making for emergency vehicles in a traffic jam.**



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