

Personal Signal Assistant...

...changing the driver's experience at the traffic signal...



Traffic Technology Services

- International technology firm specializing in data content for Connected Vehicle applications and services
- Expert team of traffic engineers, data scientists, and programmers
- Headquarters in Beaverton, Oregon, office in Munich, Germany

What is a Connected Vehicle?



Google

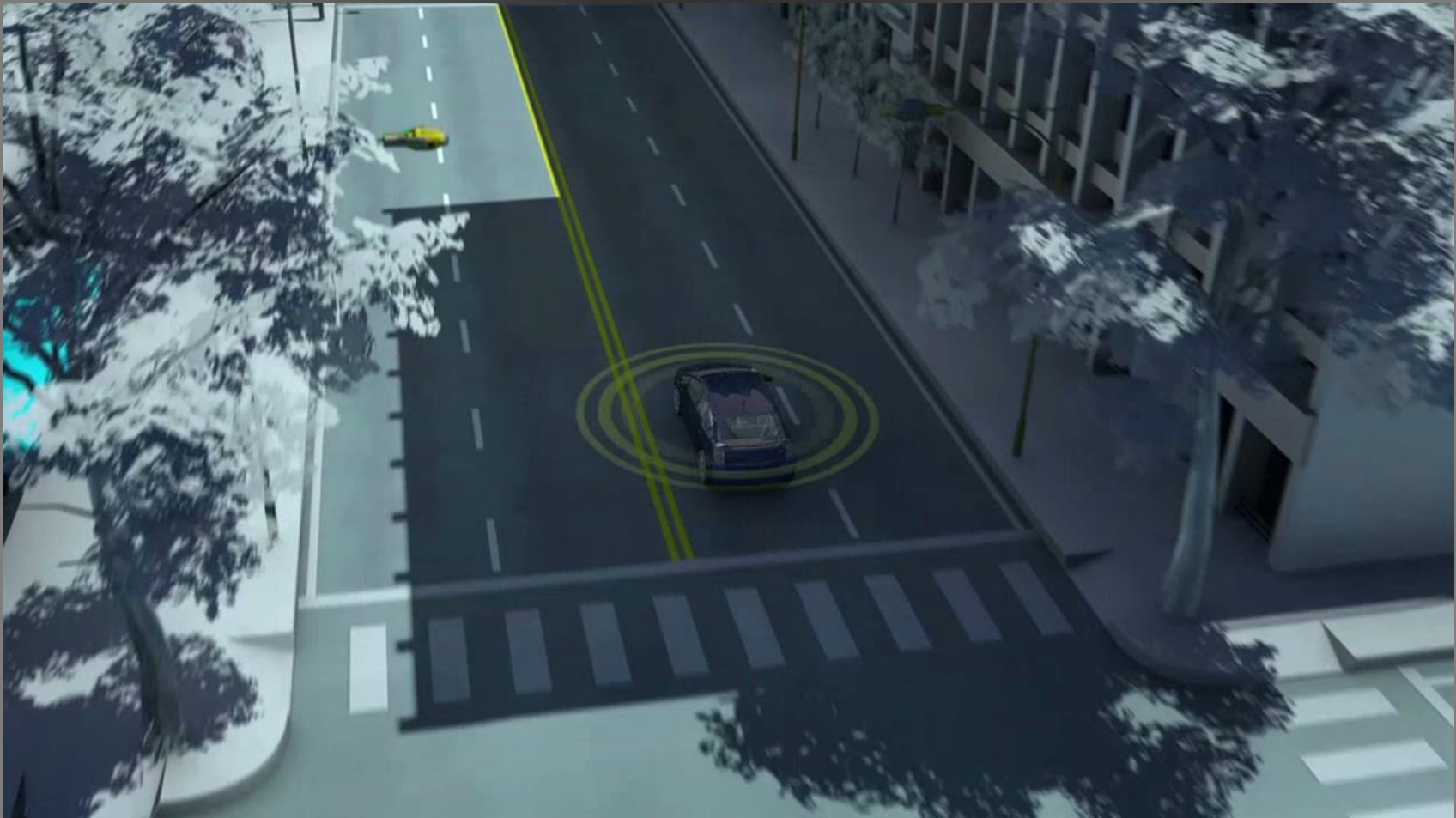


USDOT Connected Vehicle

- Applications for the Environment: Real-Time Information Synthesis (AERIS) Program
 - Eco-Approach and Departure at Signalized Intersection
 - Connected Eco-Driving
 - Eco-Integrated Corridor Management
 - Dynamic Eco-Routing
- Vehicle-to-Infrastructure (V2I) Communications for Safety



USDOT Connected Vehicle



The Opportunity

- 61%-84% of total congestion is spent on streets vs. freeways
- Increased pressure for automotive OEMs to reach reduced NOx and greenhouse gas emissions
- Technologies have matured
 - Communications
 - GPS
 - Traffic controller

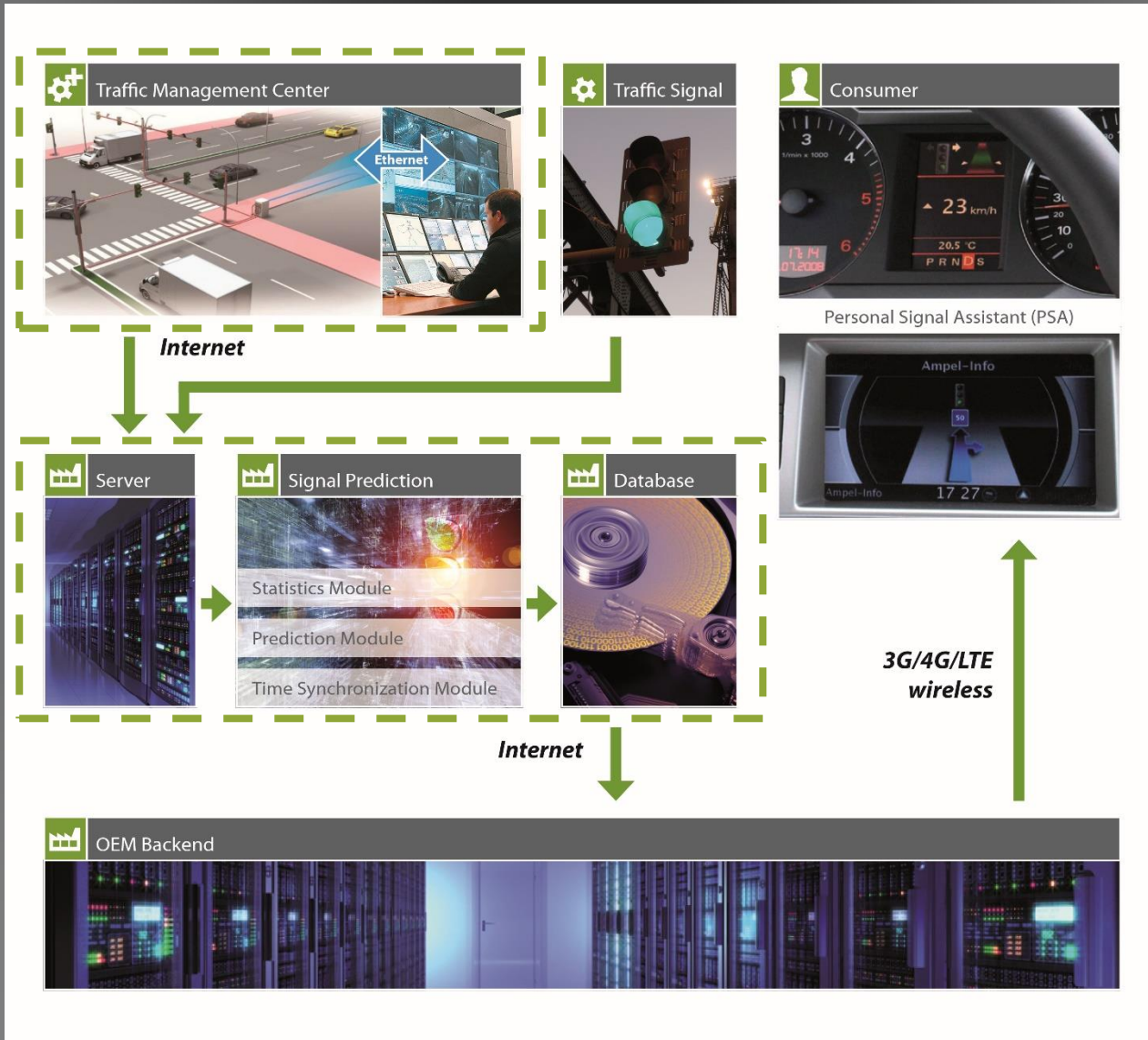
What We Do

- Interface existing traffic control systems from government agencies
- Produce data product based on industry standards
- Deliver data product to automotive manufactures and other service providers
- Cloud-based services

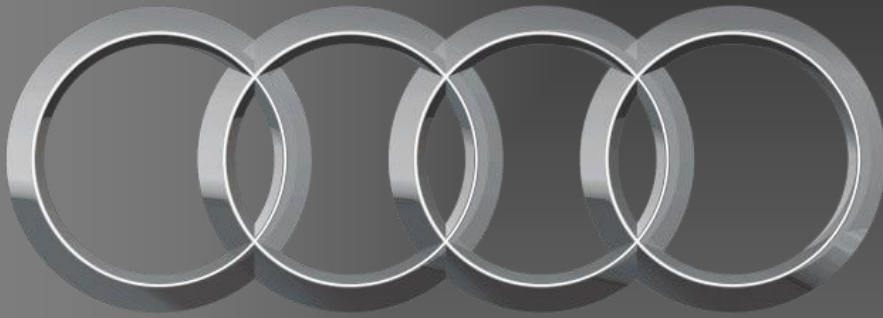
What is Our Product?

- Personal Signal Assistant
 - mSPaT (Signal Phasing and Timing) message
 - current signal status
 - predicted signal switch times
 - SAE J2735 compliant
 - mMAP message
 - lanes, widths, crosswalks, stop line
 - phase assignments
 - speed limits
 - SAE J2735 compliant
 - Custom Delivery or API

How Does It Work?



OEM Partners



Audi



Audi Application Example¹

- Approach on red
 - Remaining time exceeds approach time with min speed advisory
 - Engine automatically shuts off and turns back on when remaining timer reaches 5 seconds
- Approach on red
 - Remaining time less than approach time at speed limit
 - Speed advisory set to avoid stopping
- Approach on green
 - Speed advisory set to local speed limit



¹ As implemented by Audi for CES 2014.

The Benefits

- Preservation of momentum
 - Reduced stops
 - Reduced maintenance
 - Ride Comfort
- Fuel reductions 10-15% based on simulation and field measurements
- Traffic platooning can be managed

Consumer Possibilities

- Engine management
- EV/Hybrid drive cycle optimization
- Last mile re-routing (eco-routing)
 - Left turn avoided at current intersection, left turn anticipated on green at next intersection
- Pedestrian/Bicycle feedback and apps
- Adaptive cruise control
- Driver assist functions

Public Agency Possibilities

- Performance metrics from connected vehicle fleets
- Signal optimization based on connected vehicle fleets
- Vehicle detection feedback into system
 - Dilemma zone corrections
 - Priority detections
 - Detection zone adjustments
- Transit agencies can benefit from same technology

THANK YOU!

KIEL.OVA@TRAFFICTECHSERVICES.COM

