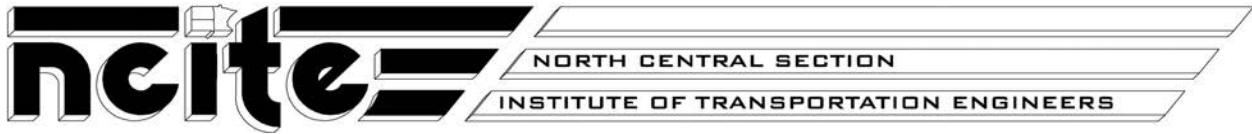


MEETING MINUTES
NCITE January Section Meeting
Monday, January 23, 2017; 11:30 AM– 1:30 PM



Location: Rose Vine Hall (Grumpy's), Roseville, MN

1. Call Meeting to Order

Mike M. called the meeting to order at 11:55 am. A buffet style lunch preceded the business meeting.

2. Introductions

All attendees introduced themselves, stated their employer, NCITE involvement, and answered the question posed: "What was your first "Engineering" related job?" The total attendee count was 56. The breakdown is as follows:

- 54 in-person attendees
- 2 online attendees

3. Announcements

Mike M. made the following announcements:

- A Section Meeting is being planned in Fargo, ND. Details will be shared as plans progress.
- The MWITE annual meeting is in Madison, Wisconsin June 18-20, 2017. Registration information is available on the Midwestern District website.
- The Joint ITE/CITE Annual Meeting is in Toronto, Ontario, Canada July 30 – August 2, 2017. Registration information is available on the ITE website.
- A Young Member Committee (YMC) event is scheduled for January 26, 2017. See NCITE website for details.
- Kevin Peterson announced the student intern scholarship winners and presented checks to the two winners present:
 - Hannah Johnson (Alliant)
 - Leah Klein (Alliant)

4. Technical Presentation

Nick O. introduced Ray Starr, MNDOT and Brian Scott, SRF, to discuss The SPaT Challenge.

- What is SPaT?
 - Definition – Signal Phase and Timing
 - SPaT enables applications: Red light violation warnings, Eco-Driving, Automated vehicles

MEETING MINUTES

NCITE January Section Meeting
Monday, January 23, 2017; 11:30 AM– 1:30 PM

- What is the SPaT Challenge?
 - “AASHTO is challenging the state and local public sector transportation infrastructure owners and operators to cooperate together to achieve deployment of DSRC infrastructure with SPaT, MAP, and RTCM broadcasts in at least one corridor or network (approximately 20 signalized intersections) in each of the 50 states by January 2020 (referred to as the “AASHTO SPAT Challenge”)”
- Why the SPaT Challenge?
 - Provides groundwork for vehicle to infrastructure dimension of connected and automated vehicles.
 - Demonstrate to vehicle manufacturers (OEMs) Infrastructure Owner Operator (IOO) commitment to SPaT
 - Gain experience with procurement, licensing, installation, and operation
 - Provide entry into DSRC-based V2I deployment
 - Lay ground work for more advanced V2I deployments
- Messages for SPaT
 - SPaT
 - MAP (=GID)
 - RTCM
 - Optional messages include signal request, signal status, and basic safety message
- Accepting the SPaT Challenge will:
 - Demonstrate to vehicle manufacturers (OEMs) Infrastructure Owner Operator (IOO) commitment to SPaT
 - • Gain experience with procurement, licensing, installation, and operation
 - • Provide entry into DSRC-based V2I deployment
 - • Lay ground work for more advanced V2I deployments
- Delivering the traffic signal to the cloud (Traffic Technology Services)
 - TTS is currently deploying a nationwide V2I/I2V system for automotive OEMs, tier 1s, and other services
- Audi is currently working to provide TTS data products in 2017 vehicle models.
- Personal Signal Assistant product:
 - SPaT (Signal Phasing and Timing) message
 - Current signal status
 - Predicted signal switch times
 - Emergency vehicle preemption
 - Protected/permissive operations

MEETING MINUTES

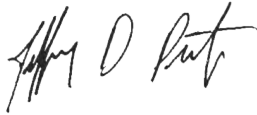
NCITE January Section Meeting
Monday, January 23, 2017; 11:30 AM– 1:30 PM

- MAP message
 - Lanes, geometry, stop bar locations
 - Phase assignments
 - Speed limits

5. Adjournment

Nick O. thanked the speakers and adjourned the business meeting at 12:49 PM.

Respectfully submitted,



Jeff Preston

2017 NCITE Secretary

Date: January 24, 2017



The SPaT Challenge

Ray Starr | Assistant State Traffic Engineer

Date

Optional Tagline Goes Here | mn.gov/websiteurl

Topics

Topics

- What is SPaT?
- What is the SPaT Challenge?
- Why the SPaT Challenge?
- Messages for SPaT
- Hardware, Software, Data & Interfaces

What Is SPaT?

- Past tense of spit?
- A small quarrel?
- Shoe coverings for a marching band uniform?
- A baby oyster?

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SPaT Challenge | mndot.gov/

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What Is SPaT?

- Signal
- Phase
- and
- Timing



Photo USDOT

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What Is SPaT?

SPaT Enables Applications:

- Red light violation warning
- Eco-Driving
- Automated vehicles

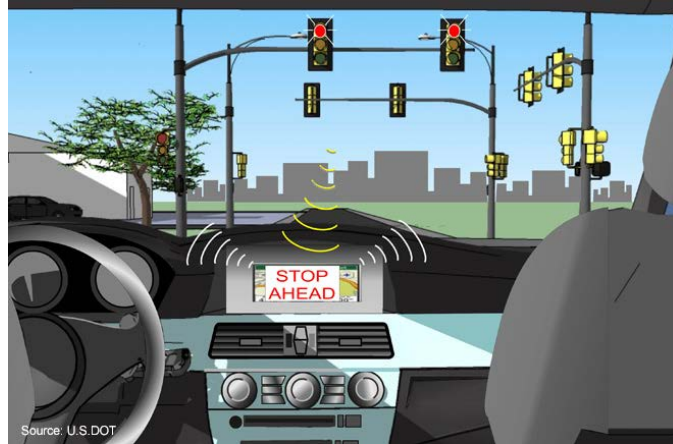


Photo USDOT

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What Is the SPaT Challenge?

- “AASHTO is challenging the state and local public sector transportation infrastructure owners and operators to cooperate together to achieve deployment of DSRC infrastructure with SPaT, MAP, and RTCM broadcasts in at least one corridor or network (approximately 20 signalized intersections) in each of the 50 states by January 2020 (referred to as the “AASHTO SPAT Challenge”)”
- Or, “20 in 50 by 20”

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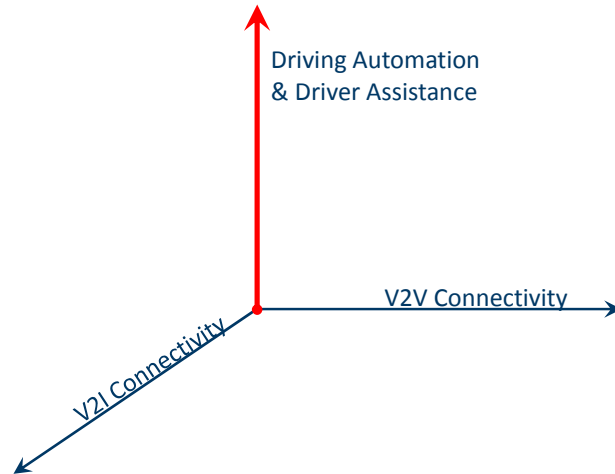
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Why the SPaT Challenge?

3 Dimensions of Connected & Automated Vehicles

Driving Automation & Driver Assistance

- Market Driven
- Standalone
- Already available



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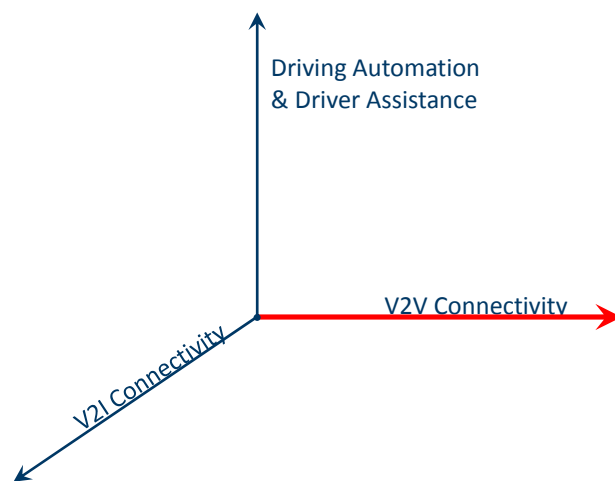
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Why the SPaT Challenge?

3 Dimensions of Connected & Automated Vehicles

Vehicle to Vehicle Connectivity

- NHTSA mandate



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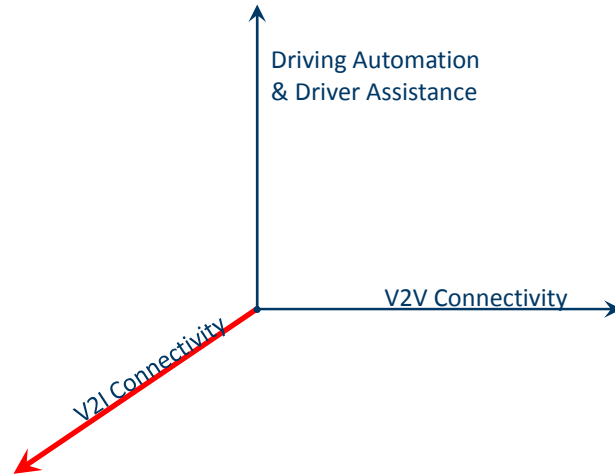
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Why the SPaT Challenge?

3 Dimensions of Connected & Automated Vehicles

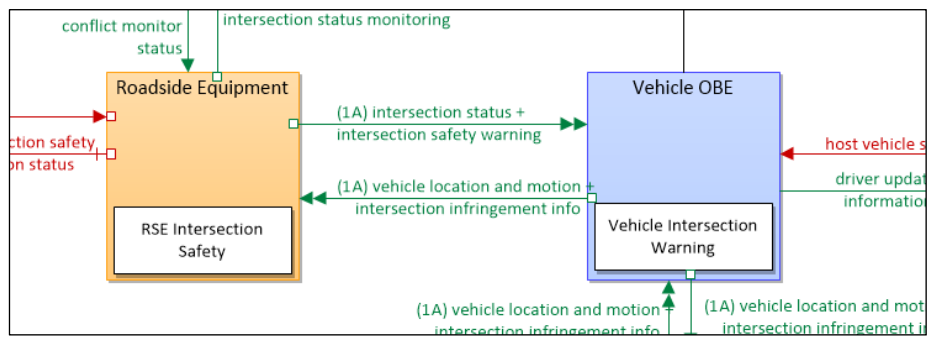
Vehicle to Infrastructure Connectivity

- V2I has institutional complexities
- No benefit for unilateral deployment
- No V2I Mandate



Why the SPaT Challenge?

CVRIA - Red Light Violation Warning



Why the SPaT Challenge?

Chicken and Egg



<http://free-illustrations.gatag.net>



Why the SPaT Challenge?

Chicken and Egg

The chicken volunteers to be first.



<http://free-illustrations.gatag.net>



Why the SPaT Challenge?

Why the SPaT Challenge?

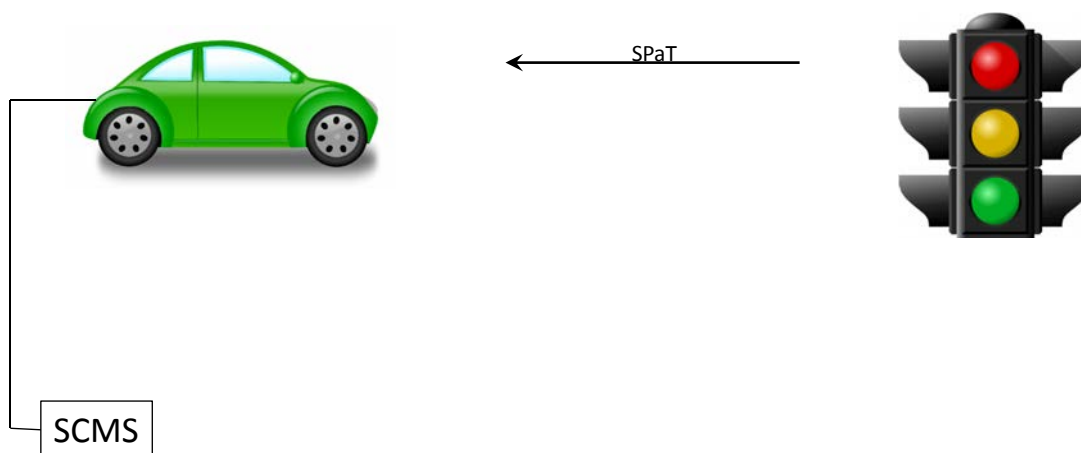
- Demonstrate to vehicle manufacturers (OEMs) Infrastructure Owner Operator (IOO) commitment to SPaT
- Gain experience with procurement, licensing, installation and operation
- Provide entry into DSRC-based V2I deployment
- Lay ground work for more advanced V2I deployments

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Messages for SPaT

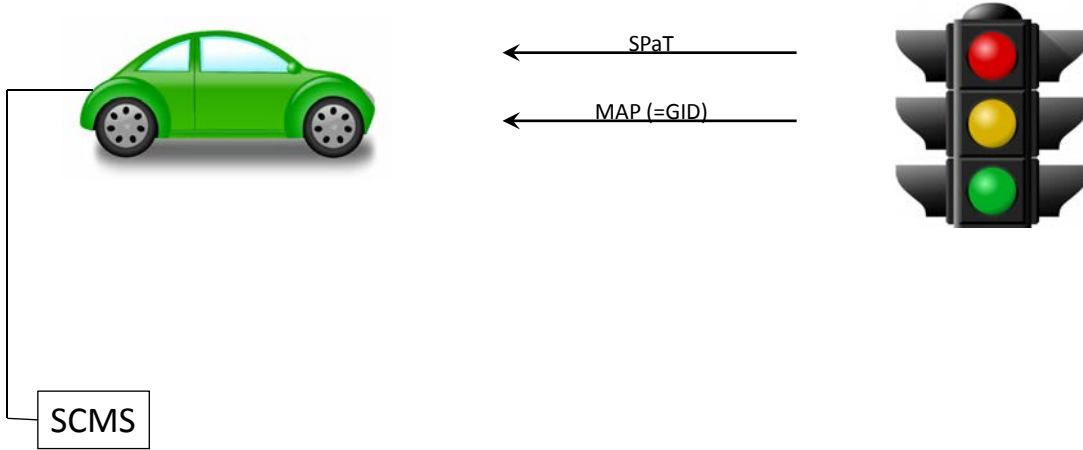


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Messages for SPaT

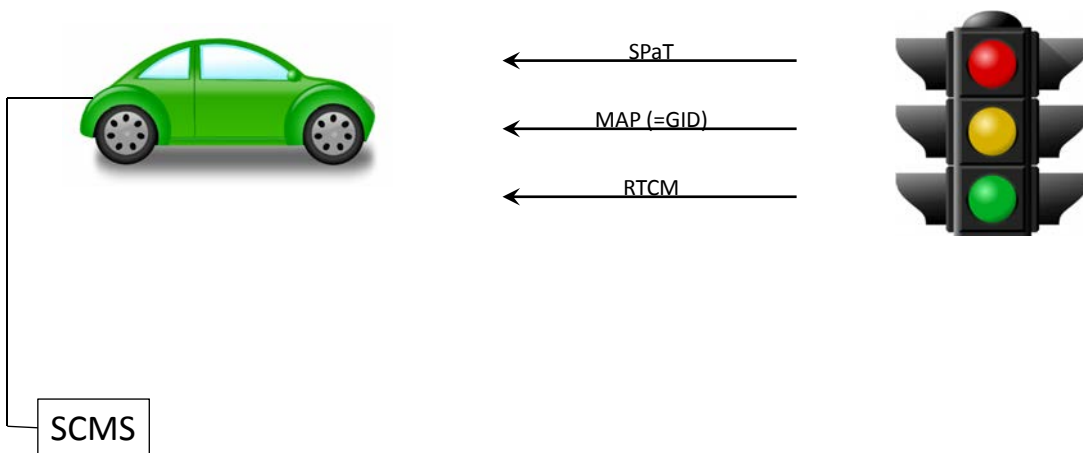


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Messages for SPaT

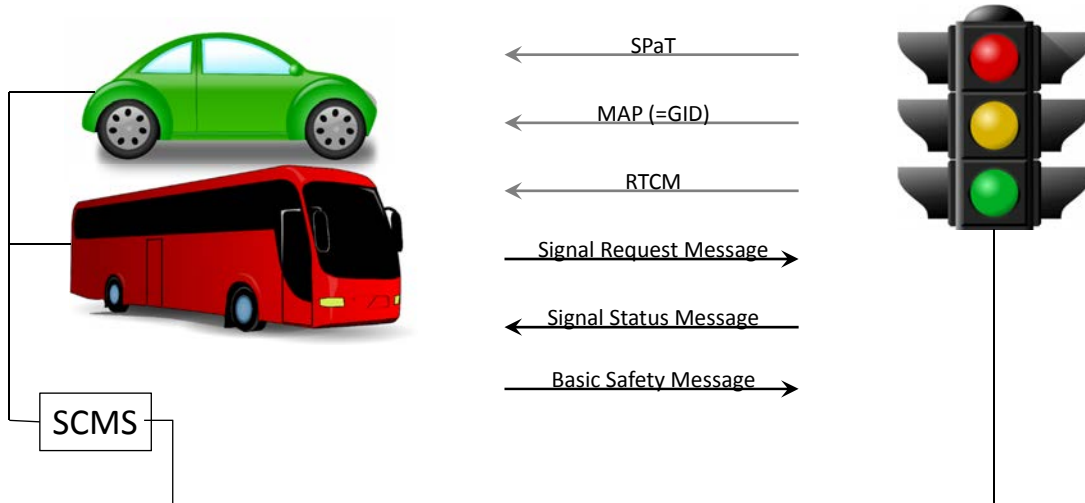


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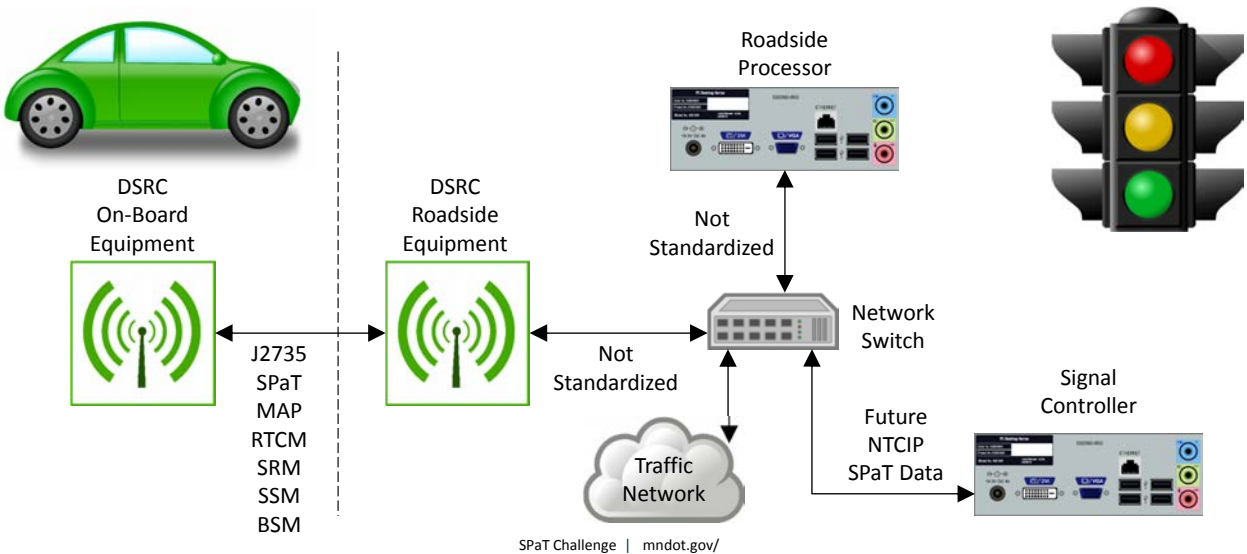
Optional Messages for SPaT



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Hardware, Software, Data & Interfaces



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Hardware, Software, Data & Interfaces



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Hardware, Software, Data & Interfaces



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Summary

We covered:

- What is SPaT?
- What is the SPaT Challenge?
- Why the SPaT Challenge?
- Messages for SPaT
- Hardware, Software, Data & Interfaces

Summary

Accepting the SPaT challenge will:

- Demonstrate to vehicle manufacturers (OEMs) Infrastructure Owner Operator (IOO) commitment to SPaT
- Gain experience with procurement, licensing, installation and operation
- Provide entry into DSRC-based V2I deployment
- Lay ground work for more advanced V2I deployments

Thank you again!

Ray Starr

ray.starr@state.mn.us

651-234-7050

SPaT Challenge | mndot.gov/

1/23/2017

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Audi Traffic Light Information



What We Are Doing



- TTS is currently deploying a nationwide V2I/I2V system for automotive OEMs, tier 1s, and other services
- No DSRC equipment is required
- Interface at ATMS, limiting connection points for security and communication redundancy
- Audi 2017 vehicle models, released in Q3 2016, will support TTS data products

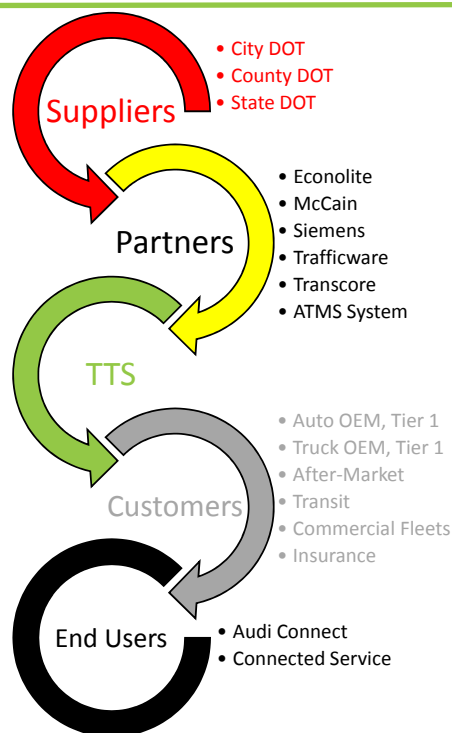


What is Our Product?



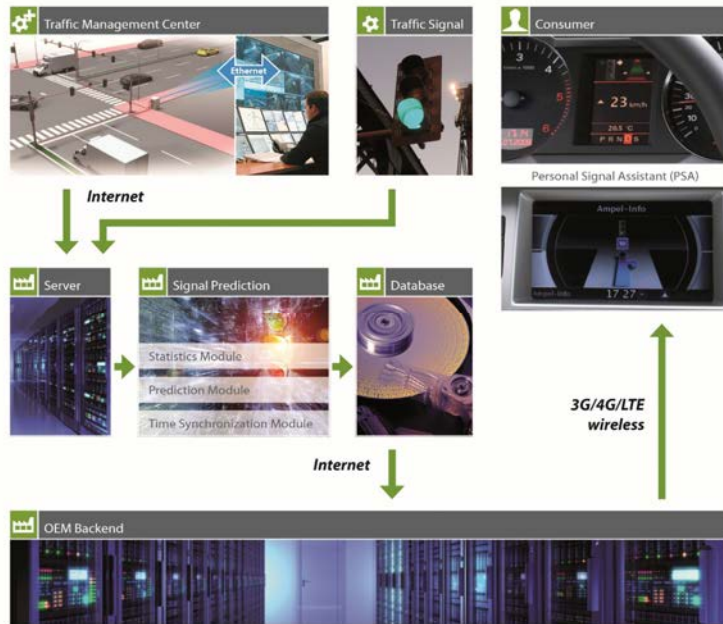
- Personal Signal Assistant
 - SPaT (Signal Phasing and Timing) message
 - Current signal status
 - Predicted signal switch times
 - Emergency vehicle preemption
 - Protected/permissive operations
 - MAP message
 - Lanes, geometry, stop bar locations
 - Phase assignments
 - Speed limits
 - SAE J2735 protocol, compliant
 - Delivery to customer's backend system or via API

How Does It Work? Relationships



- Suppliers own data, as by-products of the infrastructure
- Partners deliver the data from ATMS, based TTS' API
- TTS connects the systems, develops the information, and delivers the data product
- Customers develop and provide the connected vehicle applications
- End Users are consumers

Data Flows



Thank You!

info@traffictechservices.com