NordicWay 2

Activity 9 – The Swedish pilot
Project management board May 2019

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Overview of C-ITS services piloted in Sweden within Nordic Way 2

- EVA, **E**mergency **V**ehicle **A**pproaching
- RWW, **R**oad **W**orks **W**arning
- Dynamic access control of designated infrastructure
- Dynamic environmental zones
- TTG, **T**ime **T**o **G**reen
- GLOSA, **G**reen **L**ight **O**ptimal **S**peed **A**dvisory
- TSP, **T**raffic **S**ignal **P**riority for designated vehicles. “BussPrio” In Uppsala

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Emergency Vehicles Approaching (EVA)

- Alerting vehicles of approaching Emergency Vehicles, well in advance of seeing or hearing blue light or sirens
- More warning time will lead to faster reaction and shortened travel time for Emergency Vehicles.

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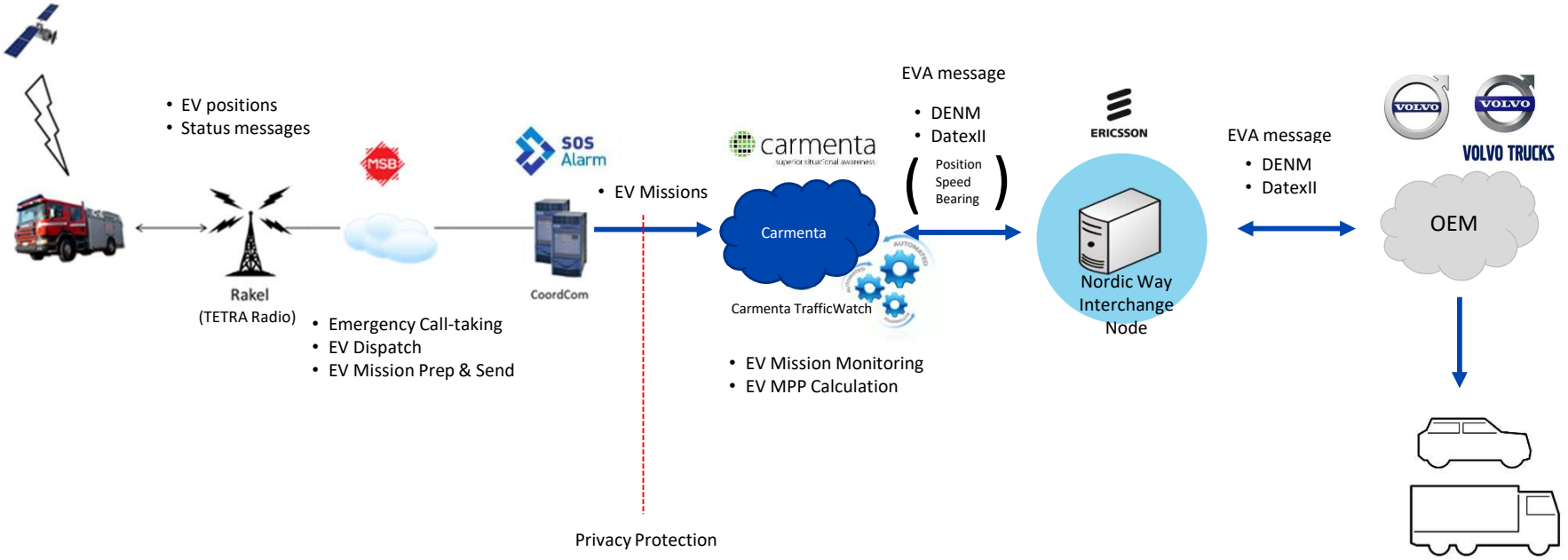
Data flow in Emergency Vehicles Approaching (EVA)



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vti

VTI provides analysis and simulations.

Road Works Warning (RWW)

- The goal is to improve road safety, especially for car drivers
- RWW also provides better travel planning opportunities
- Further development on Nordic Way 1 RWW systems
- Producing a system ready for full scale deployment
- Supporting formulation of national requirements (STA)

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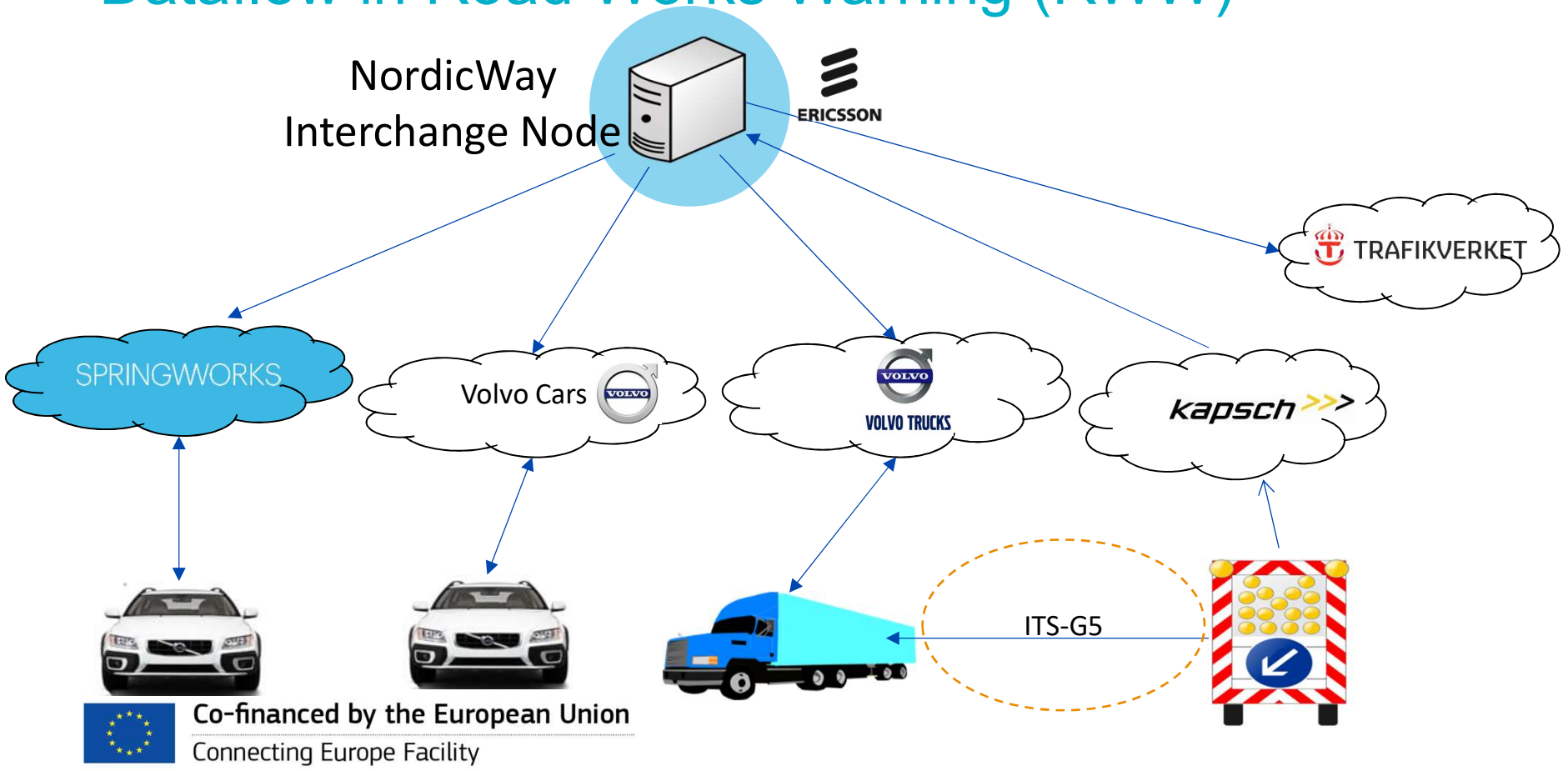
Dataflow in Road Works Warning (RWW)



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Dynamic access control of designated infrastructure

Nordic WAY 2

- Test of systems for active traffic management that will contribute to a more efficient use of existing infrastructure
- Increase accessibility for socially beneficial transports
- Enables implementation of incentives for more sustainable transports
- Systems that support future smart traffic management functions

SCANIA

Technolution

TRAFIKVERKET

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Scenario and dataflow – Dynamic access control

- More efficient use of already existing priority lanes
- Vehicles that meet set efficiency requirements get access to priority lanes (based on the traffic situation)

Source: Recording Project "Godstransporter i kollektivtrafikkörfält" (Nynäsvägen, Farsta)

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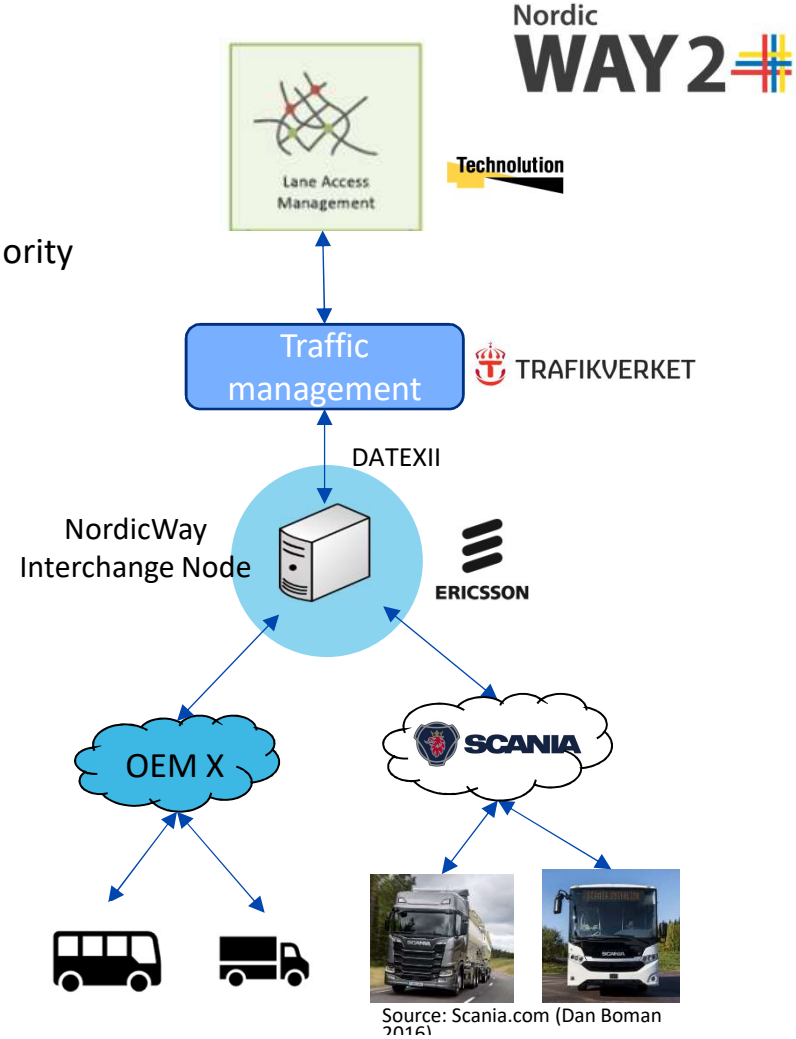

Source: Scania.com (Dan Boman 2016)

Dynamic environmental zones
(Dynamic controlled zones)

Nordic WAY 2

- Road operators establish and define zones based on different criteria, for example;
  - High emission levels (environment/noise)
  - Time of day
  - Areas with a lot of movements (ex. event)

- Vehicles that subscribe to the service may receive certain benefits, eg. free parking, access etc. (up to the road operator)

Source: Government assignment test and demo project with geo-fence in urban environments

VOLVO

Göteborgs Stad

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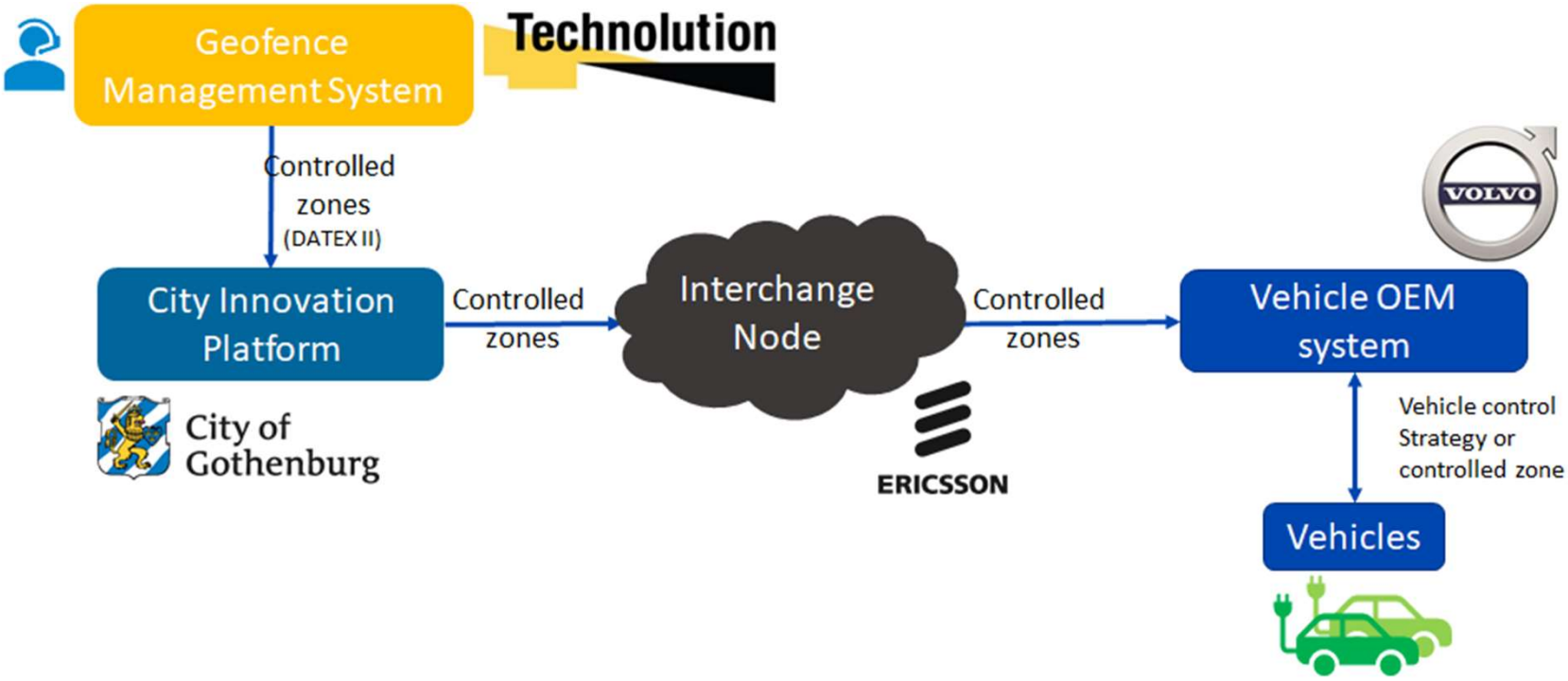
Scenario and data flow - Dynamic environmental zones

Nordic WAY 2



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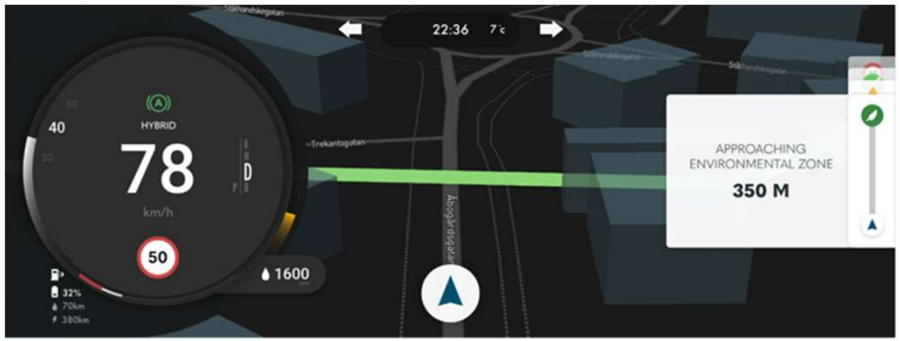
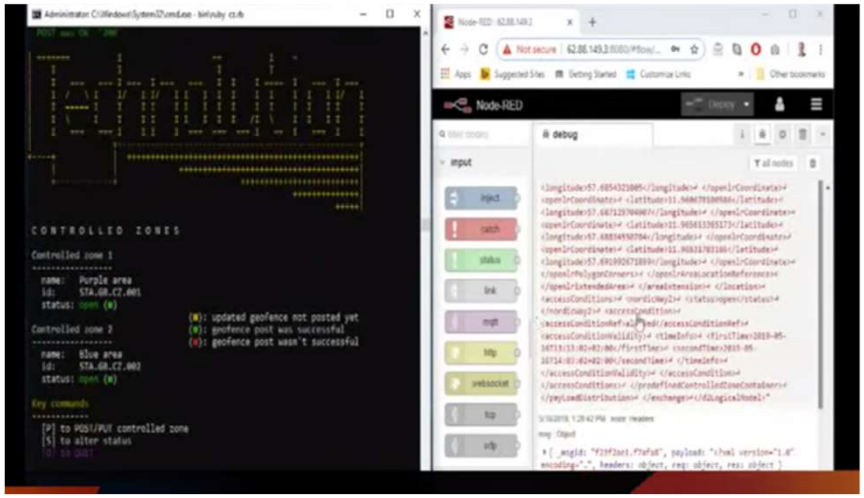
Prototype HMI



Volvo Cars



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Connected Traffic Signals for different services, TTG, GLOSA, Prio etc.

Nordic WAY 2

- Göteborg 5 intersections Linnéplatsen – Sahlgrenska. Fixed time and vehicle actuated traffic lights.
- Uppsala 6 intersections, Luthagsesplanaden. Adaptive traffic lights.
- Trafikverket X, Y and Z intersections in Göteborg-, Stockholm- and Södertälje area. Vehicle actuated traffic lights?

SCANIA VOLVO VOLVO TRUCKS ZENUITY Make it real.

swarco ERICSSON Technolution

TRAFIKVERKET Uppsala kommun Göteborgs Stad Stockholms stad

RI. SE

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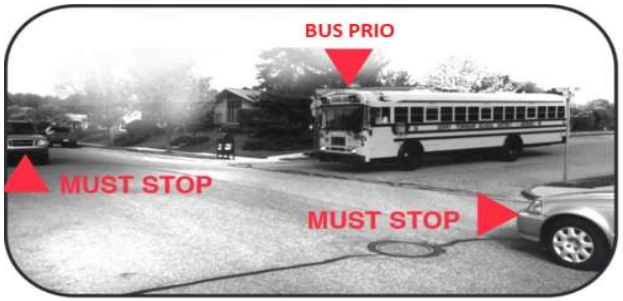
Task 4.Time To Green (TTG)

Picture from Volvo Cars

Assumption, saving of energy **about 8 – 22%**
Increased using of capacity,
Cars really starts when switch to green.

WP #1 Uppsala
WP #2 Stockholm
WP #3 Göteborg
WP #4 Gbg/Trafikverket
WP #5 Södertälje/ Trafikverket

Task 5. TSP, Public Transport "BusPrio"



Use of standard TSP format
Assumption Travel time reduction about **7 - 15%**

WP #1 BusPrio
IRL Uppsala
PT Prio Request
ITxPT approach

WP #2 MCS/MCS

WP #3 RLVW Red Light Violation Warning

WP #4 TMC Role!? Other

WP #5 TSP SRM

Task 6. Green Light Optimal Speed Advisory (GLOSA)

Picture from Volvo Cars

Assumption, saving of energy about **10 - 15%**
Travel time reduction about **5 - 20%**

WP #1 Uppsala – adaptive
WP #2 Stockholm – vehicle actuated
WP #3 Göteborg – fixed time/ vehicle actuated
WP #4 Gbg/Trafikverket
WP #5 Södertälje/ Trafikverket
WP #6 GLOSA Impact

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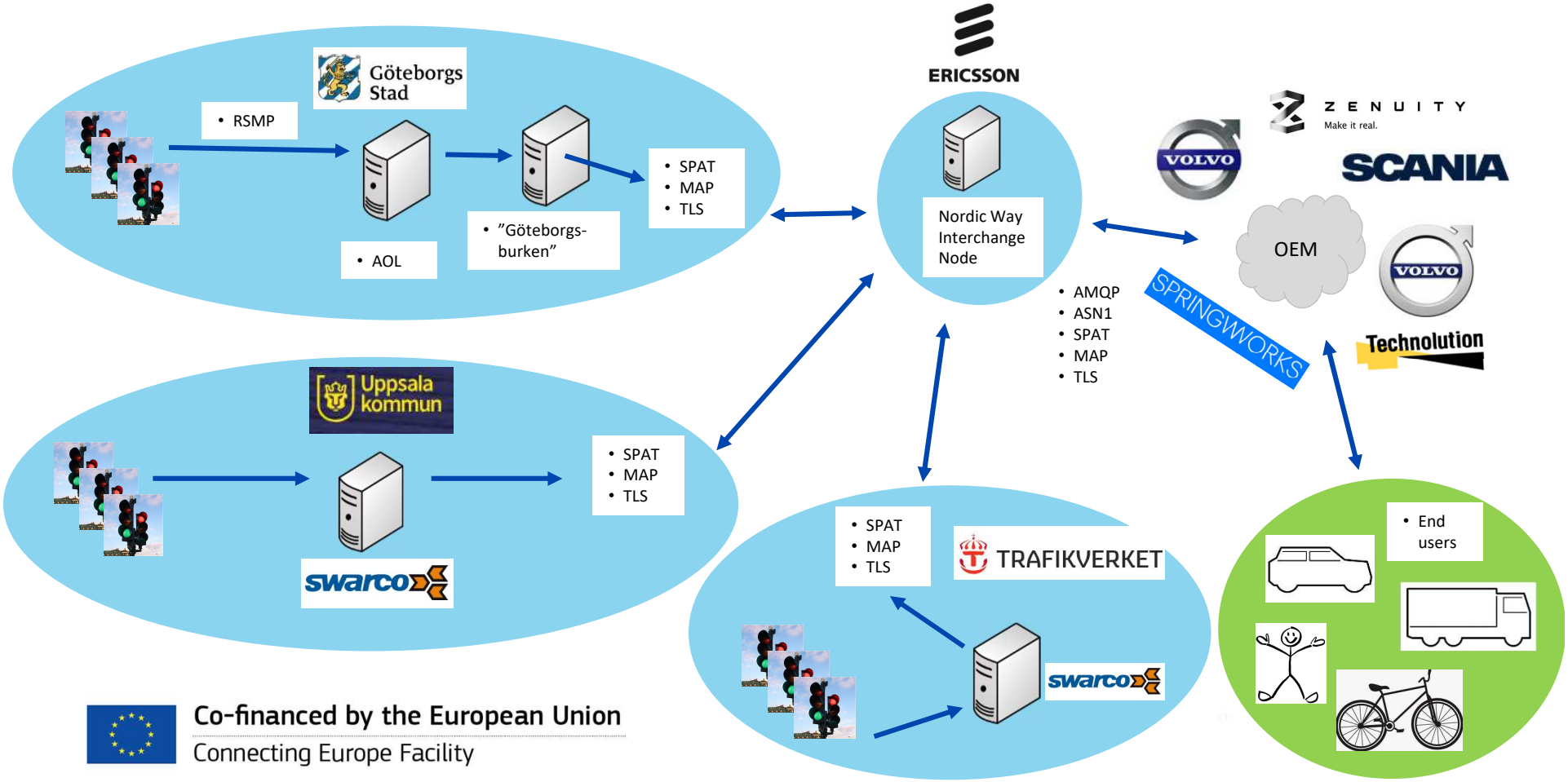
Dataflow from traffic signal to the vehicle and other



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HMI Prototype

Volvo Cars

Zenuity

Scania
(Uppsala view)

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