



Welcome to the World of Standards



5TH ITS PLUGTEST – KICKOFF – PRESS CONFERENCE

Florence, Italy 20.9.2016

Sebastian Müller, ETSI CTI

- ETSI produces globally-applicable standards for Information and Communications Technologies including fixed, mobile, radio, converged, broadcast and internet technologies
- The most famous ETSI standards are DECT, Smart Cards, electronic signatures..and **GSM** (3GPP)
- Today ETSI is famous for NFV.. and IoT/M2M developed in oneM2M and TC SmartM2M, part of ETSI « Connecting Things » cluster
- 800 member organizations, 64 countries and five continents

Standards-making

- Development of base communications standards
- Development of conformance and interoperability test specifications
- European Standards (ENs) are developed following a standardization request (mandate) from the European Commission (EC)/European Free Trade Association (ETFA)

Supporting services

- Specification of methodologies for standards writing and test development
- Arrangement and management of interoperability testing events, called Plugtests™

Why do we need standards ?



- Enable **interoperability** of systems/services
- **Encourage innovation**, foster enterprise and open up new markets for suppliers
- **Create trust and confidence** in products and services
- **Expand the market**, brings down costs and increases competition
- Help to **prevent duplication of effort**
- Support greater **confidence in procurement**
- **Interchangeability** of system component suppliers

Marco Annoni, Telecom Itali S.p.A./TILAB – Service Platform Innovation – ITS & Logistics

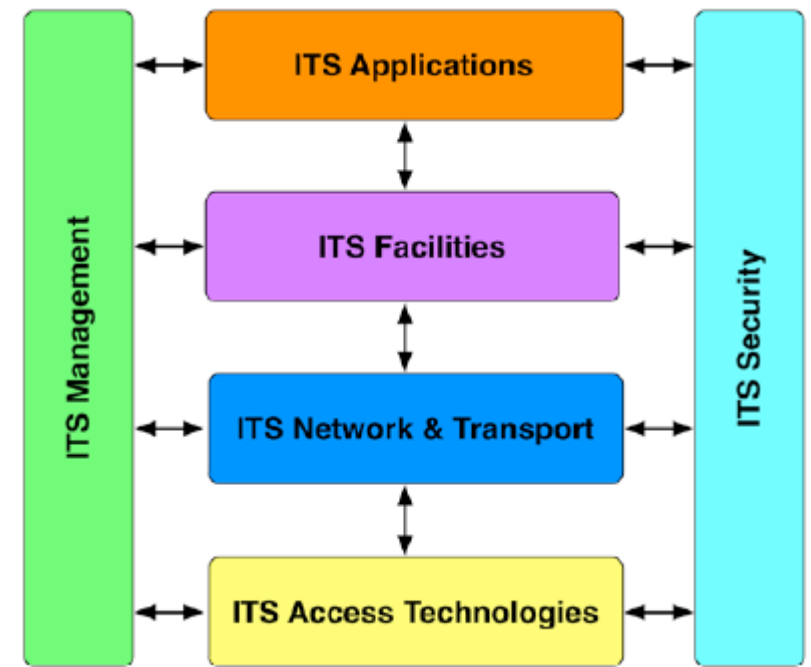
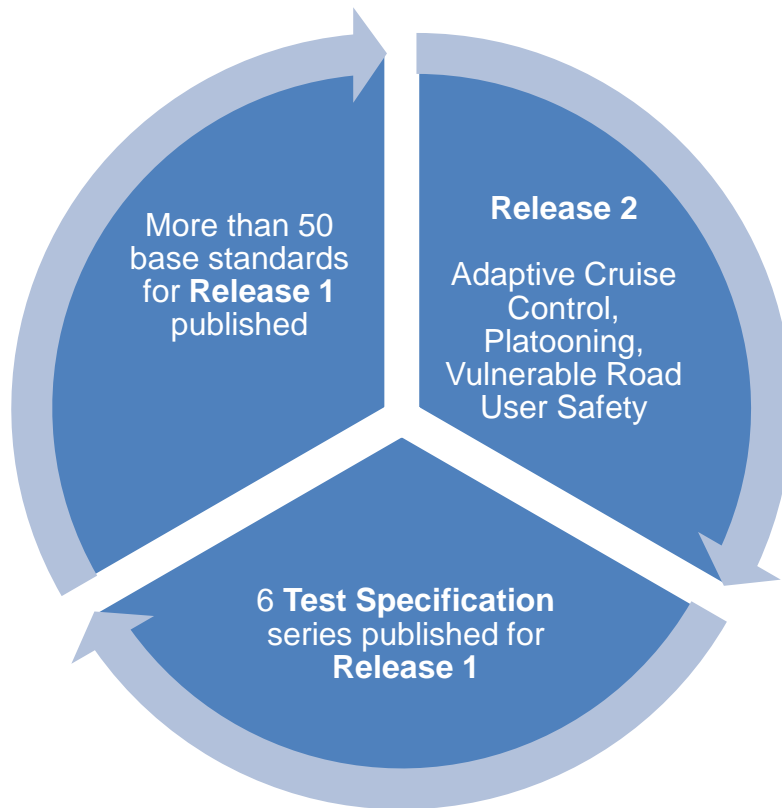


Transport White Paper 2011

- EC Roadmap to a Single European Transport Area
- Towards a competitive and resource efficient transport system
- To meet the challenges, transport has to:
 - Use less energy
 - Use cleaner energy
 - Exploit efficiently a multimodal, integrated and 'intelligent' network
- By 2050 reduce emissions by 60%, and 20% by 2020 (2008 level)
- By 2050 move close to zero fatalities in road transport, halving road casualties by 2020



ETSI TC ITS – Minimum set of standards for interoperability



Release 1

- ETSI TR 101 607

Facility

- ETSI EN 302 637-2 Cooperative Awareness
- ETSI EN 302 637-3 Decentralized Environ Notification

Transport/Network

- EN 302 634-4-1 Geo Networking

Access

- IEEE 802.11p profile
- Congestion Control

Security

- ETSI TS 103 097 Security Header and Certificate Formats

What is a Plugtests™ event?



- A test event
 - Organized and run by ETSI (as neutral body) in collaboration with industry partners
 - Scope, test infrastructure and test plan based on standards
 - Feedback to the ETSI technical group
 - A tool for the ETSI technical group to validate and enhance the quality of their standards
- An opportunity for implementers
 - To validate their understanding of the standard
 - To test with (many) other real implementations
 - To debug their implementation: early bug fixing, saving time
- An opportunity for the community
 - To promote the technology and the eco system
 - To demonstrate end-to-end interoperability

Previous Plugtests editions



Event Date & Location

Companies

Test Scopes

1st Plugtests
Nov. 11-18, 2011
Helmond, Netherlands
(Hosted by TNO)



2nd Plugtests
Jun. 11-15, 2012
Versailles, France
(Hosted by IFSTTAR)



3rd Plugtests
Nov. 25-29, 2013
Essen, Germany
(Hosted by Cetecom)



4th Plugtests
Mar. 17-27, 2015
Helmond, Netherlands
(Hosted by Tass International)



The event in Livorno (Nov. 2016)



This Plugtest is a lighthouse project which allows for more follow-up projects

- First outdoor ITS Plugtest
- IoT in ITS showcase
- Port Innovation Day 2016
- Port and Tuscan motorways / highways
- Institutions and Industries collaborating together

<http://www.etsi.org/news-events/events/1054-plugtests-2016-itscms5>

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News & Events | Upcoming Events | ITS Cooperative Mobility Services Event 5

PLUGTESTS INTEROP EVENTS ITS Cooperative Mobility Services Event 5

07-18 NOVEMBER 2016 ADD THIS TO MY CALENDAR

THIS EVENT IS FREE OF CHARGE

PORT OF LIVORNO, ITALY EXPAND

REGISTER

Partners: Autorità Portuale di Livorno

External Links: ERTICO-ITS Europe, EUROPEAN COMMISSION



REGIONE TOSCANA

Test premises

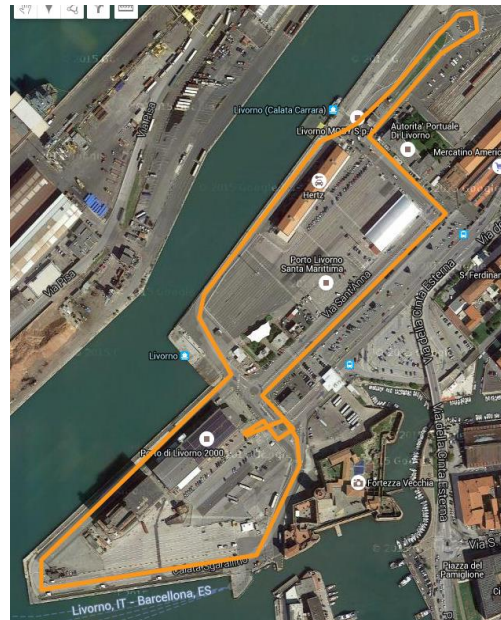
- 45 industries already registered
- 2 test tracks
- 15 test vehicles



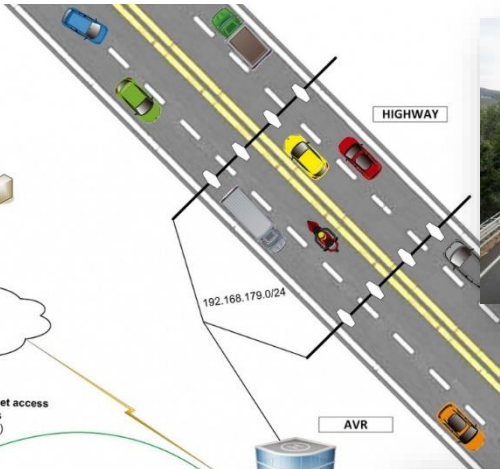
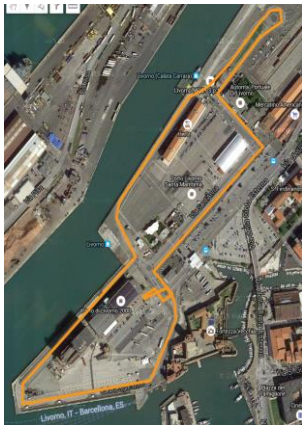
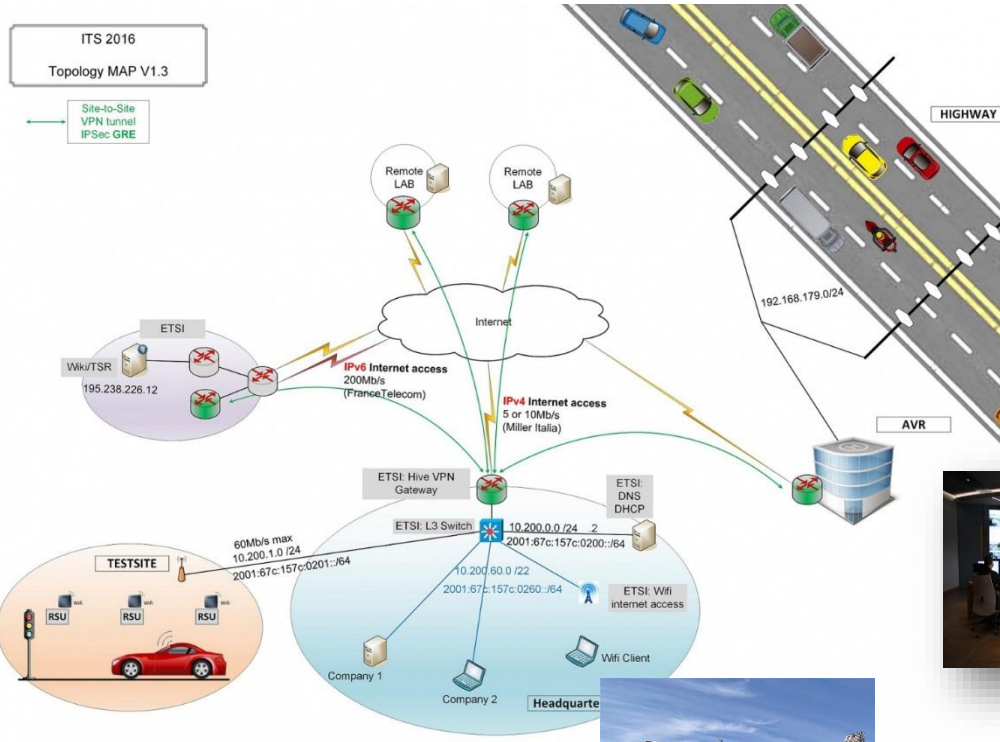
Headquarter

PARTICIPANTS (in progress)

ALPS	LEGHORNGROUP
AMB Consulting	Marben
ARICENT	NEAVIA Technologies
AT4 wireless	NEC Europe
Autotrade	New Generation Sensors
Autotalks	NORDSY
AVR	NXP Semiconductors
Commsignia	Qatar Mobility Innovations Center
Cohda Wireless	Q-Free ASA
Commsignia	Renesas
CTAG	Security Innovation
DENSO AUTOMOTIVE	Savari Inc.
Dynniq	Siemens
EGLOBAL MARKET	SWARCO Traffic Systems
ESCRYPT	Telecom Italia
Filatov DV	Telecom Italia Trust Technologies
IPGallery	
IRT SystemX	Trialog
ITRI	Unex Technology Corporation
Kapsch	URCA (universit� de Reims)
Kiunsys	YoGoKo



Test Tracks



Participants – Status 15.Sep 2016



ALPS

Aricent

austriatech



autostrade||Tech

Autotalks



cnit consorzio nazionale
interuniversitario
per le telecomunicazioni



commsignia



DATA CH
TECHNOLOGIES

escrypt
Embedded Security II by ETAS



iPgallery
Converged Communications

工業技術研究院
Industrial Technology
Research Institute

kapsch >>>
challenging limits



MARBEN

NGS srl
New Generation Sensors

nordsys
NORDEUTSCHE SYSTEMTECHNIK



RENESAS

SAVARI™

SECURITY INNOVATION



swarco

SystemX
INSTITUT DE RECHERCHE
TECHNOLOGIQUE

TIM

Unex

Phase 1: Setup of Test Infrastructure

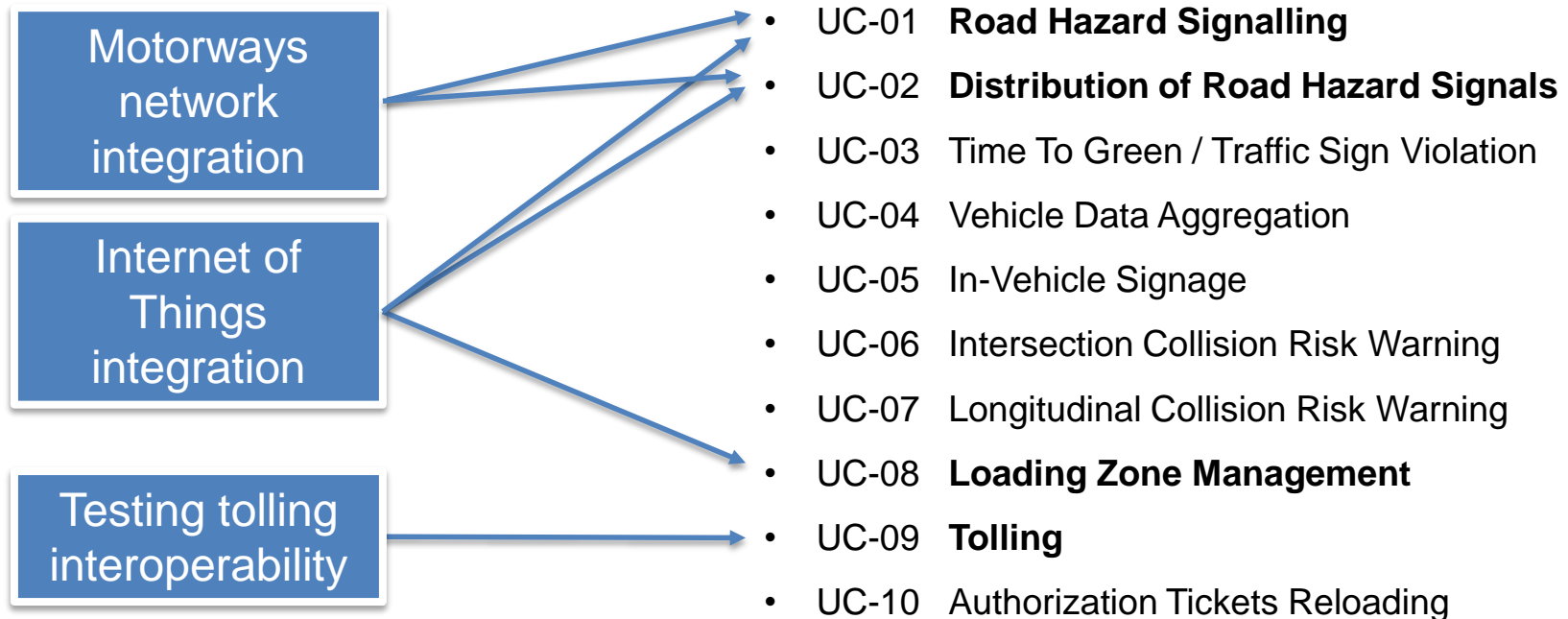
- Livorno-Florence highway
- IoT testbed
- Test track through the port of Livorno
- Conformance Testing

Phase 2: Connecting all participants

- Remote labs
- AVR
- TCC of Autostrade

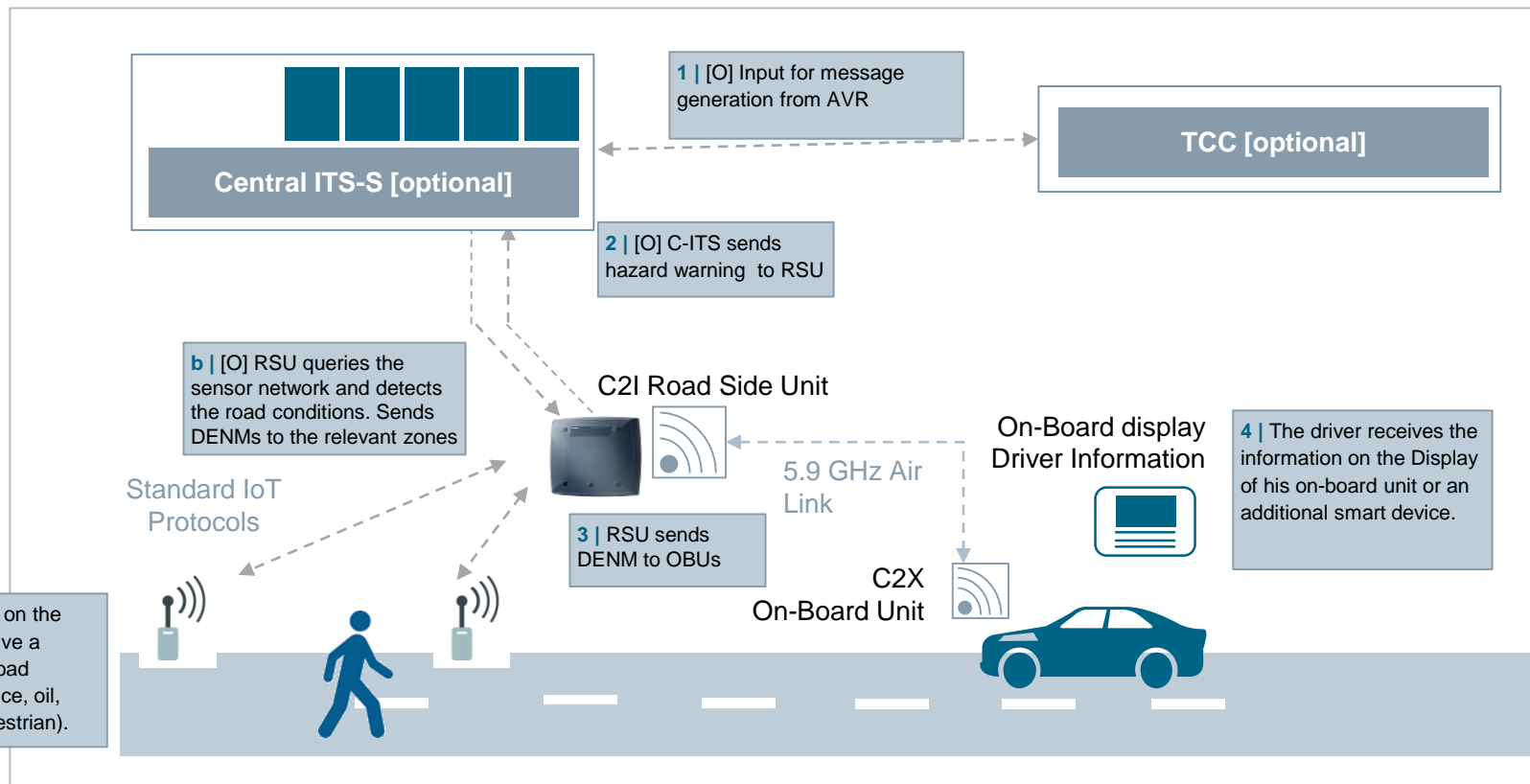
Phase 3: Testing !

- 1 week lab test in Cruise Terminal
- 1 week of field tests on test track



Use Case #1 Road Hazard Signalling

- AVR Control Center provides input for message generation (DENM)
- RSUs which cannot connect to C-ITS send pre-defined messages
- Project related Data elements can be send, e.g. Wrong Way Driving, Weather Condition, Hazardous Location, Traffic Condition, Emergency Vehicle Approaching

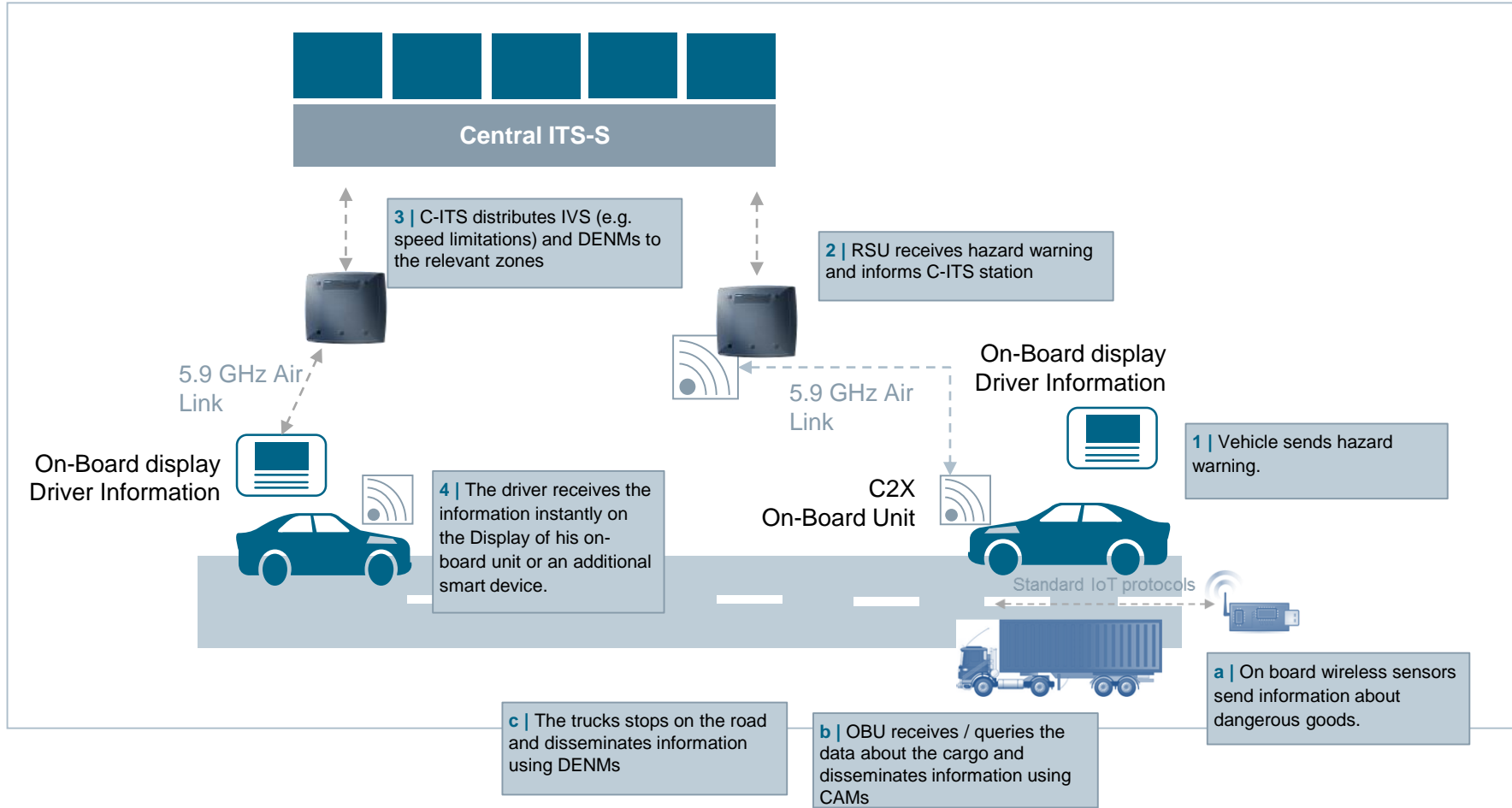


Use Case #2



Distribution of locally detected Hazard Warning

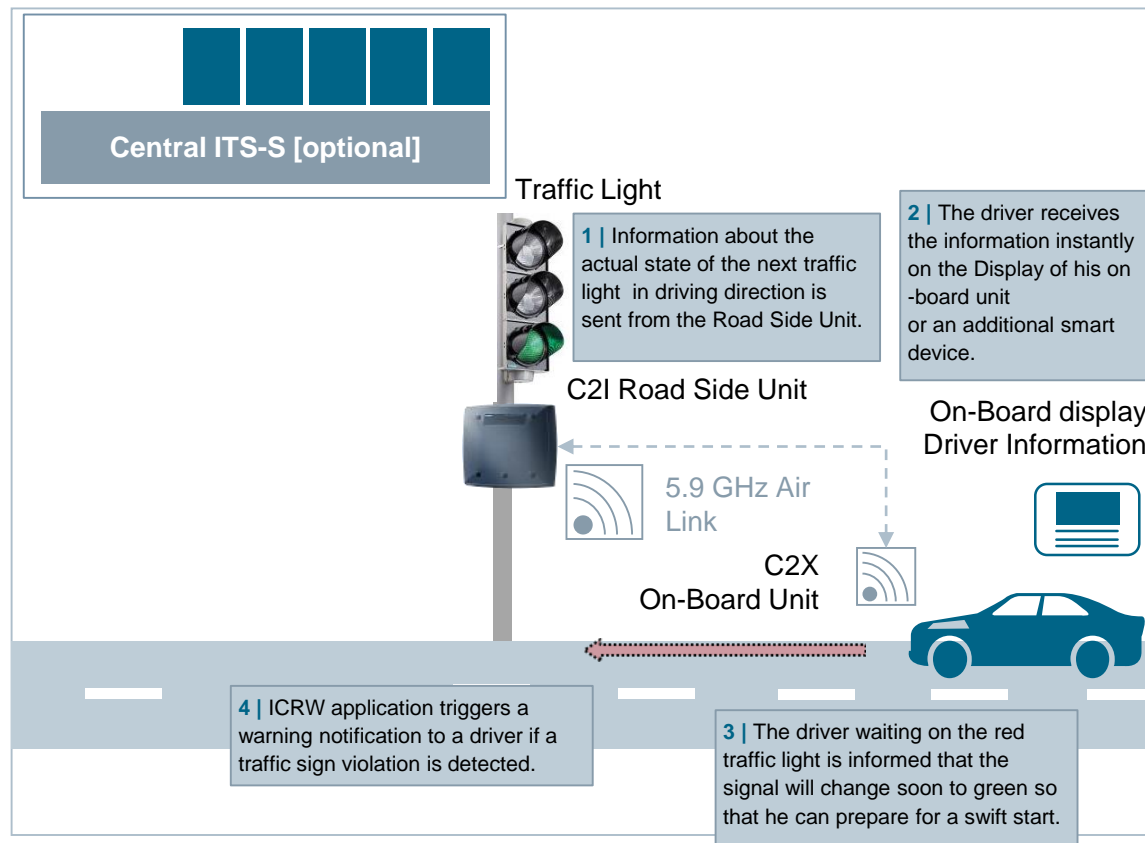
- 1 A vehicle sends a Traffic Hazard/Stationary Vehicle Warning
- 2 A RSU receives the warning and sends the information to the C-ITS station
- 3 C-ITS station distributes information



Use Case #3

Time To Green / Traffic Sign Violation

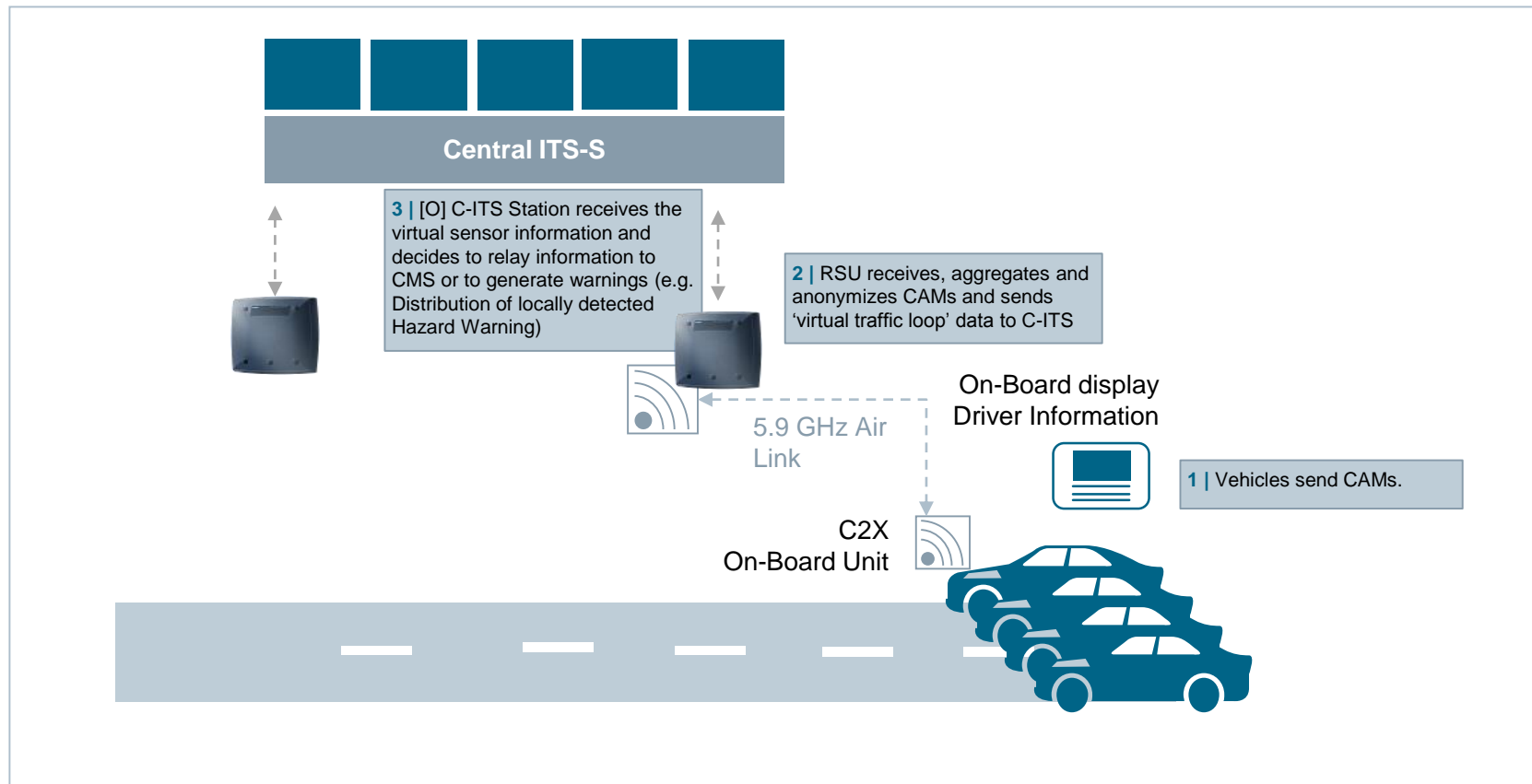
- The traffic light sends a pre-defined sequence of SPAT+MAP messages
- Based on GPS positioning and the Intersection Information, the in-vehicle application can provide different intersection assistance functionalities such as Fast preemption of traffic due to traffic light signal change (red to green)
- RSUs which cannot generate SPAT/MAP messages send pre-defined messages



Use Case #4

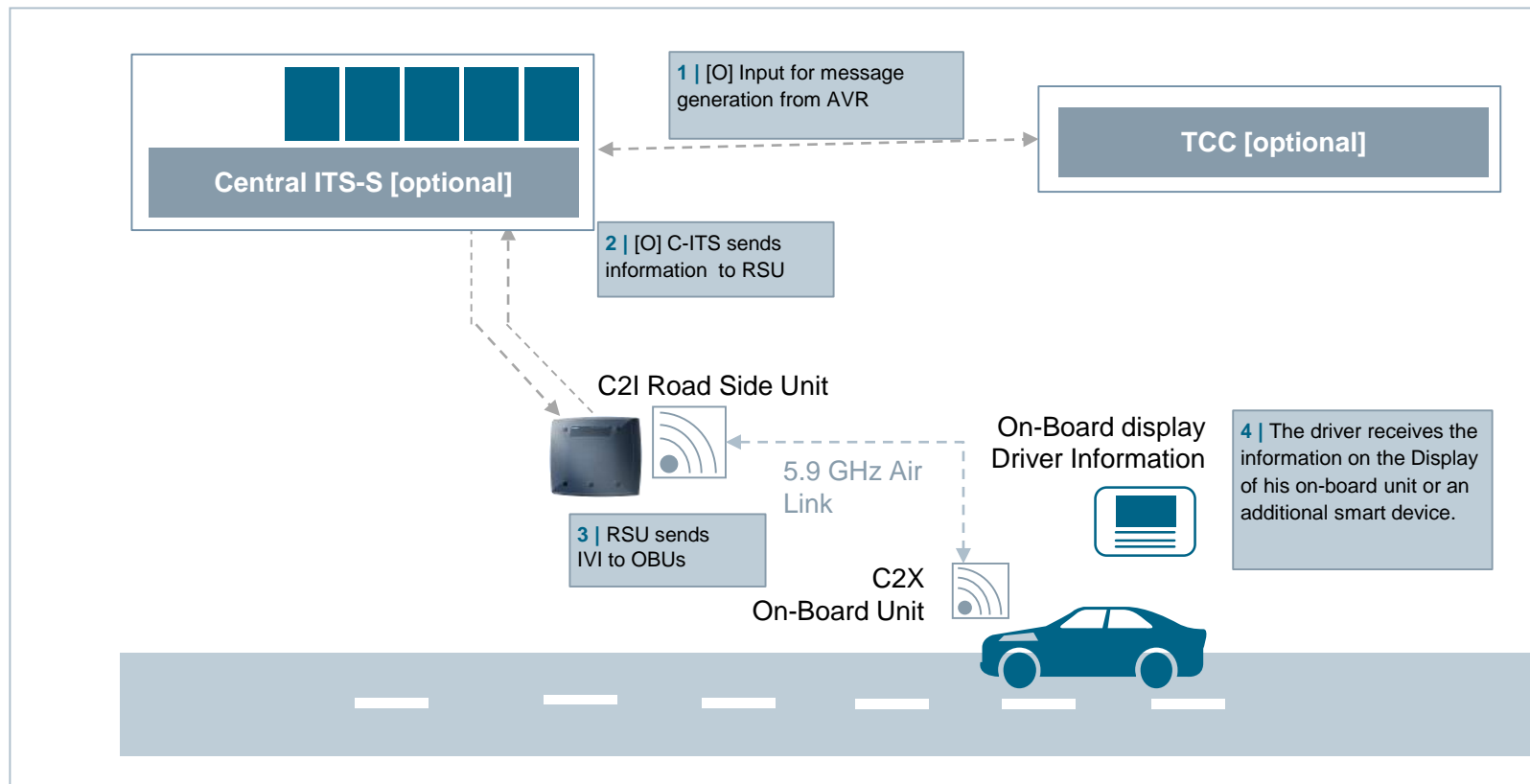
Virtual Traffic Loop (Data Aggregation)

- Virtual Traffic Loop functionality implemented by RSU
- RSU aggregates CAM data from multiple vehicles and provides information to C-ITS



Use Case #5 In-Vehicle Signage

- AVR Control Center provides input for message generation (IVI)
- RSUs which cannot connect to C-ITS send pre-defined messages



Use Case #6 Intersection Collision Risk Warning – (Stop and Go Scenario)



- HV (host vehicle under test) will run ICRW.
- Target speed of RV can be 20/40 kmh (depends on real traffic situations)
- The distance (testing criteria) between cone RV-A and cone RV-D can be 50m/25m (can be changed according to a vendor's implementation) with respect to the target speed 20/40 kmh.

6. RV makes a controlled stop after passing the intersection.

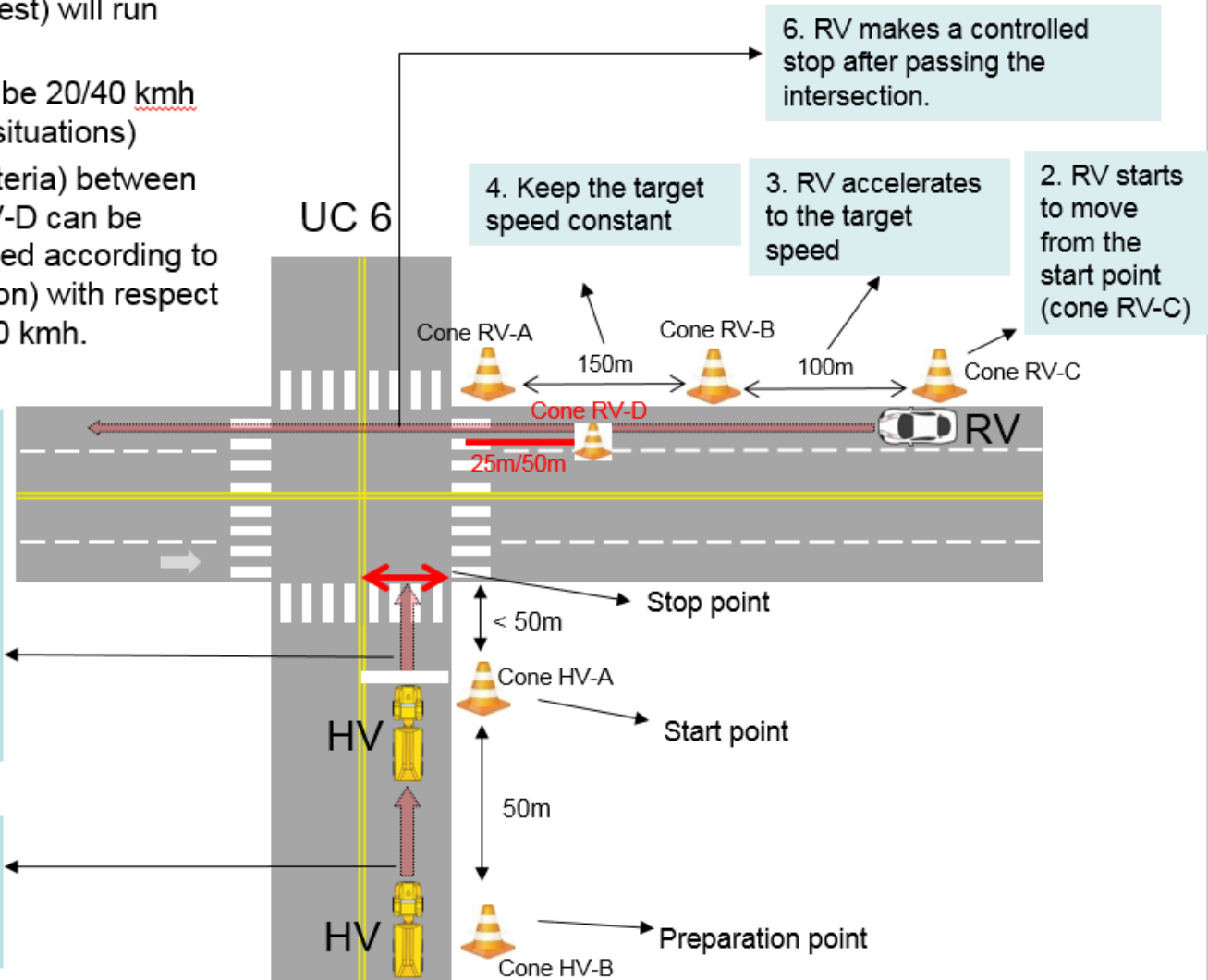
4. Keep the target speed constant

3. RV accelerates to the target speed

2. RV starts to move from the start point (cone RV-C)

5. After RV passes cone RV-D, HV start to move forward a short distance (less than 50m) with a very slow speed (less than 10kmh) and then stop by the stop point to prevent from entering into the intersection. ICRW may show a collision warning before RV goes through the intersection point (cone RV-A).

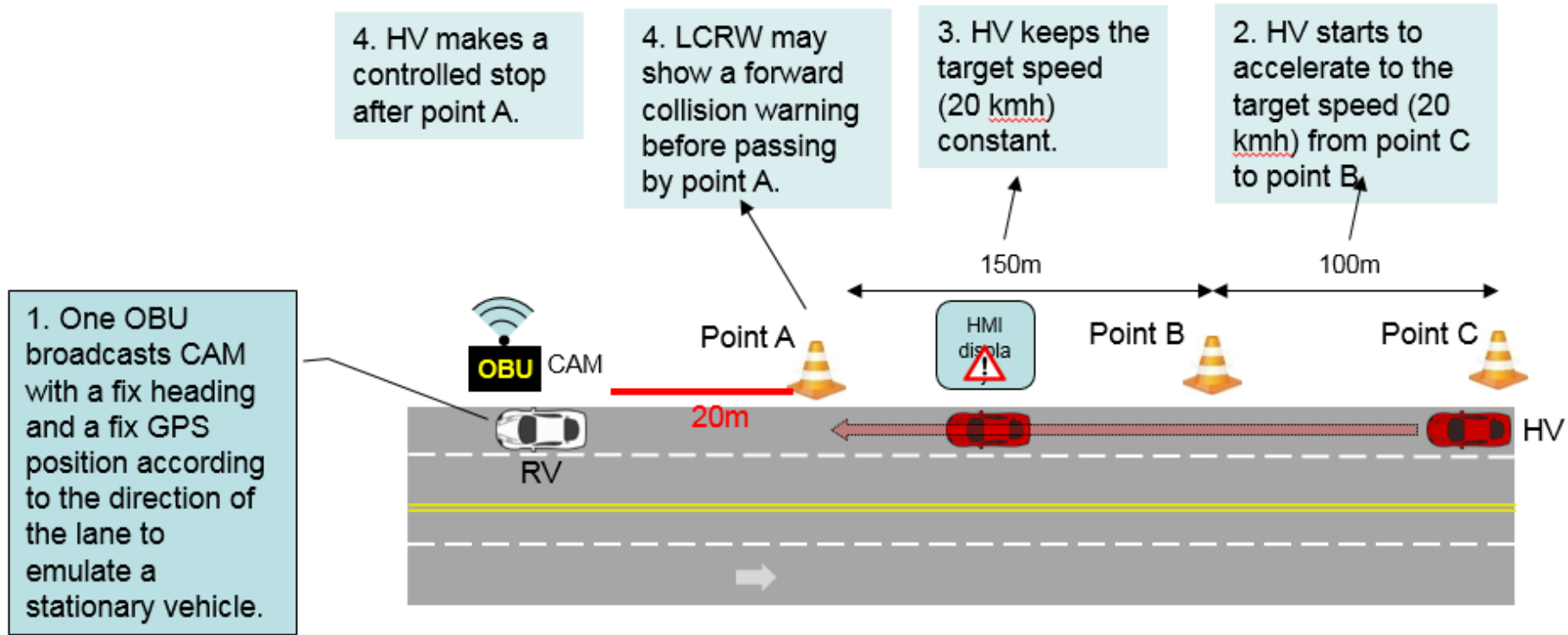
1. HV moves forward 50m from the preparation point (cone HV-B) and then stop by the start point (cone HV-A).



Use Case #7 Longitudinal Collision Risk Warning – Stationary Vehicle



- HV (vehicle under test) will run LCRW
- The distance (testing criteria) between the point A and the emulator is 20m (can be changed according to a vendor's implementation).

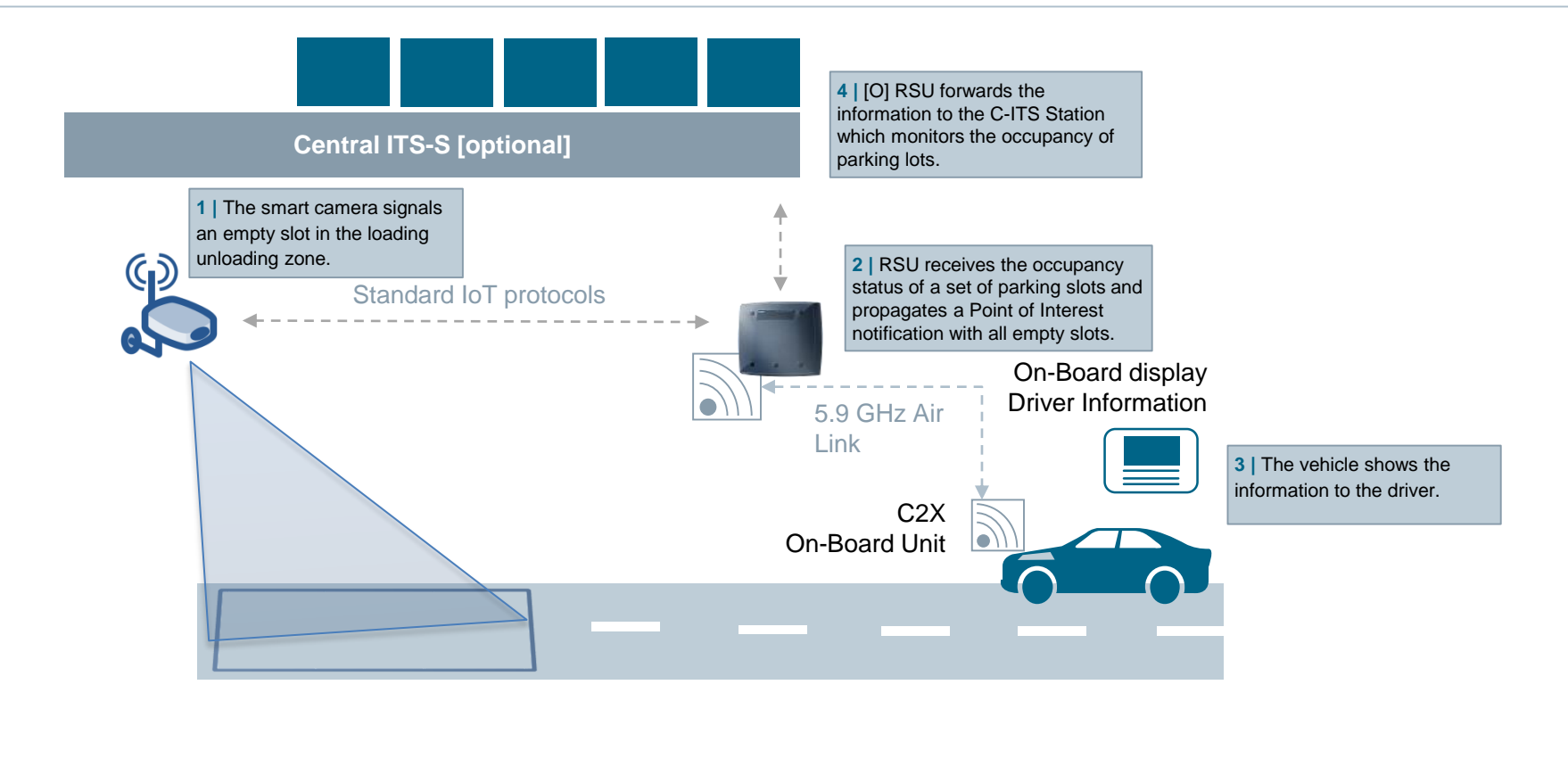


Use Case #8



Monitored loading/unloading zone

- A network of smart camera or presence sensors monitors the occupancy of a loading zone
- A RSU is able to receive the information and to propagate Point of Interest notification for each free parking slot



Use Case #10

Authorization Tickets Reloading

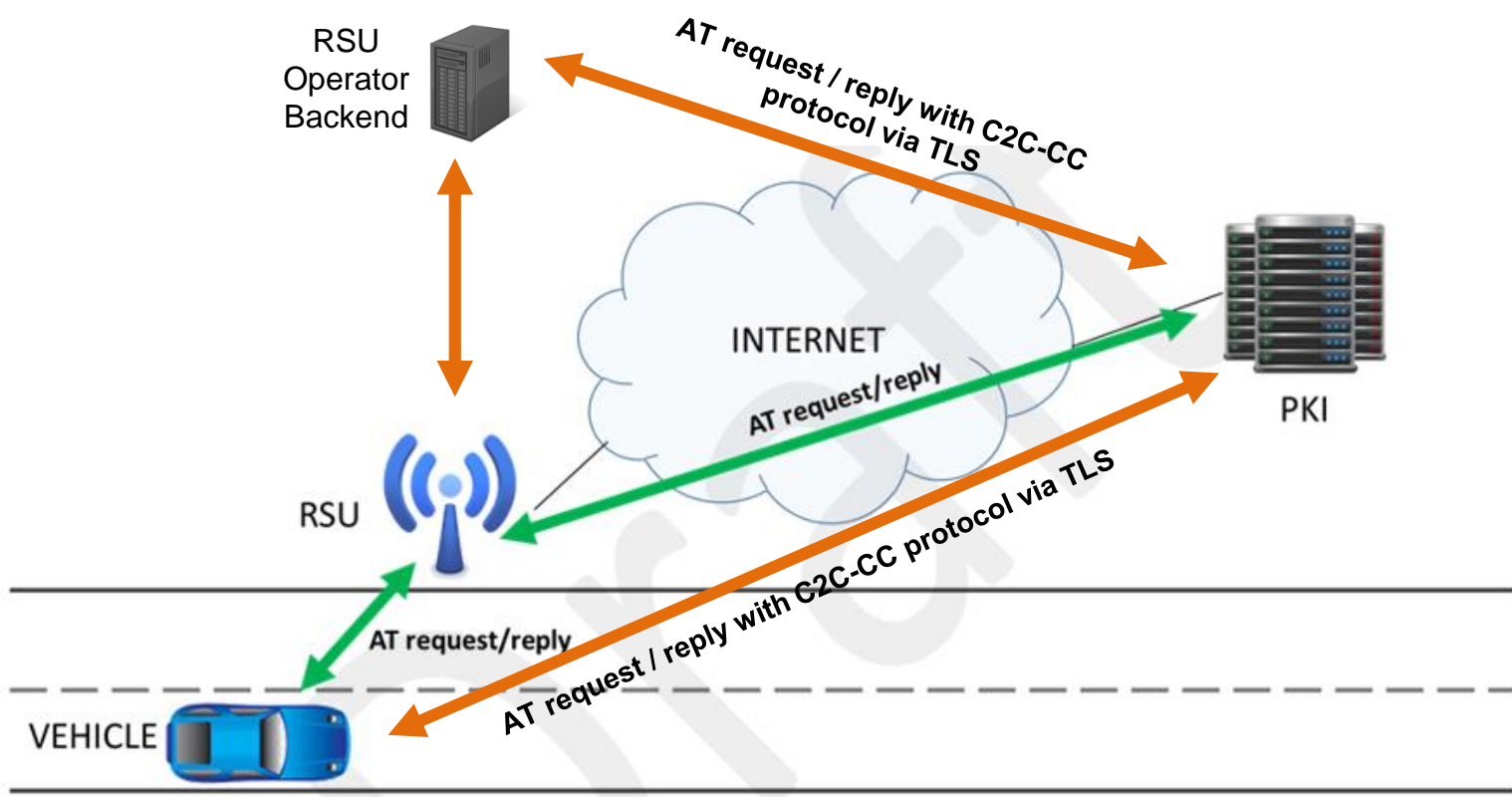


Figure 1: Authorization Tickets reloading scenario

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Thank you!