WAVESTONE

GRIMALDI STUDIO LEGALE

TNO CEPS KOMIS

3rd Workshop

Pilot on **Fair and equal data sharing for cooperative, connected and automated mobility**
From Challenges to Opportunities

Big Data and B2B platforms: the next big opportunity for Europe
EASME/COSME/2018/004

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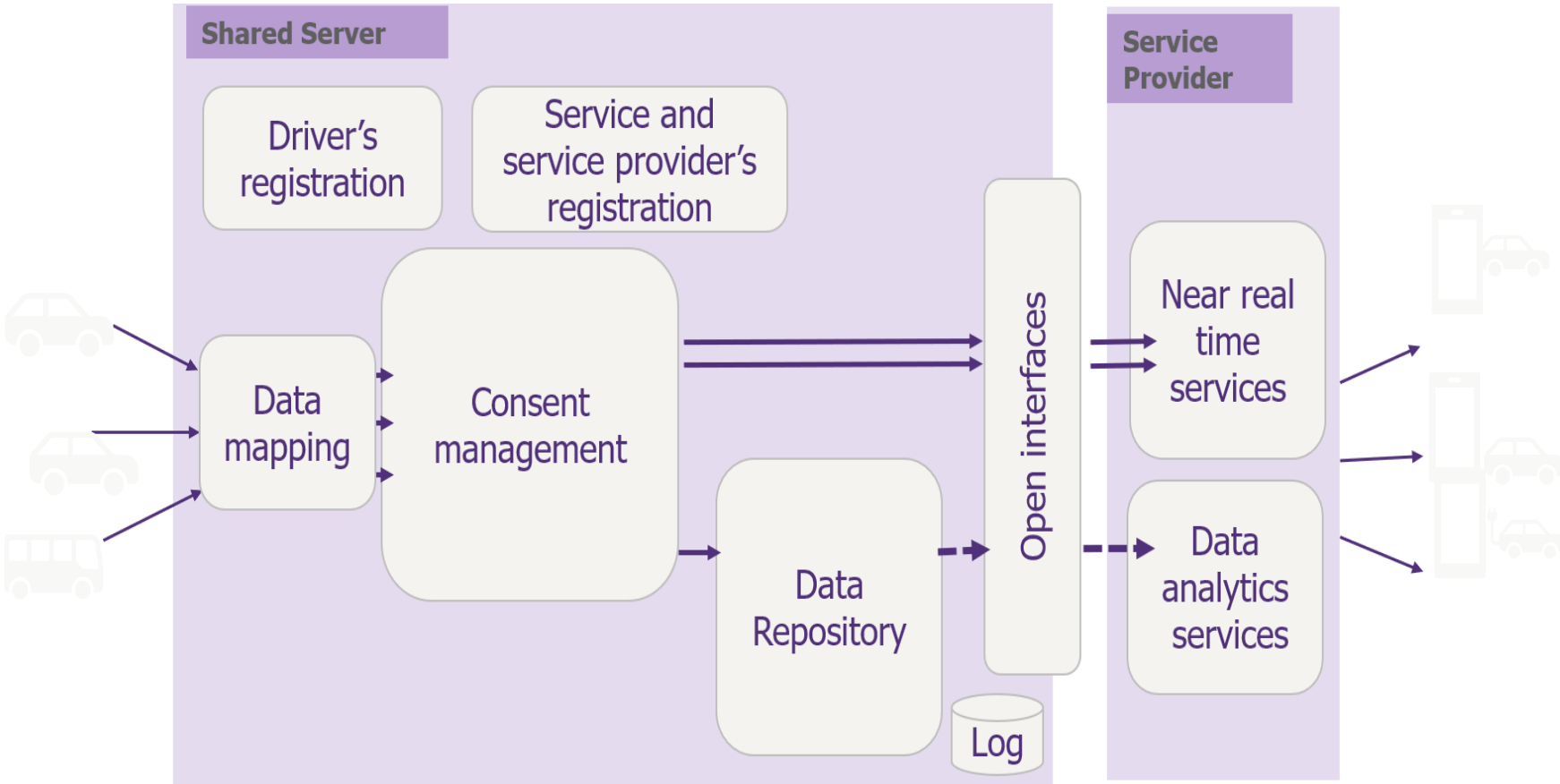
EASME - European Commission Executive Agency for Small and Medium-sized Enterprises

European Commission

Online Workshop
23 June, 2020

The big picture – Two main roles



Two main data products **are being available** by the Shared Server

Streaming data

Streaming Data is data that is generated continuously by thousands of vehicles.

They filtered on the fly concerning drivers' consents and they become immediately available to the service providers.

Requires latency in the order of seconds or milliseconds

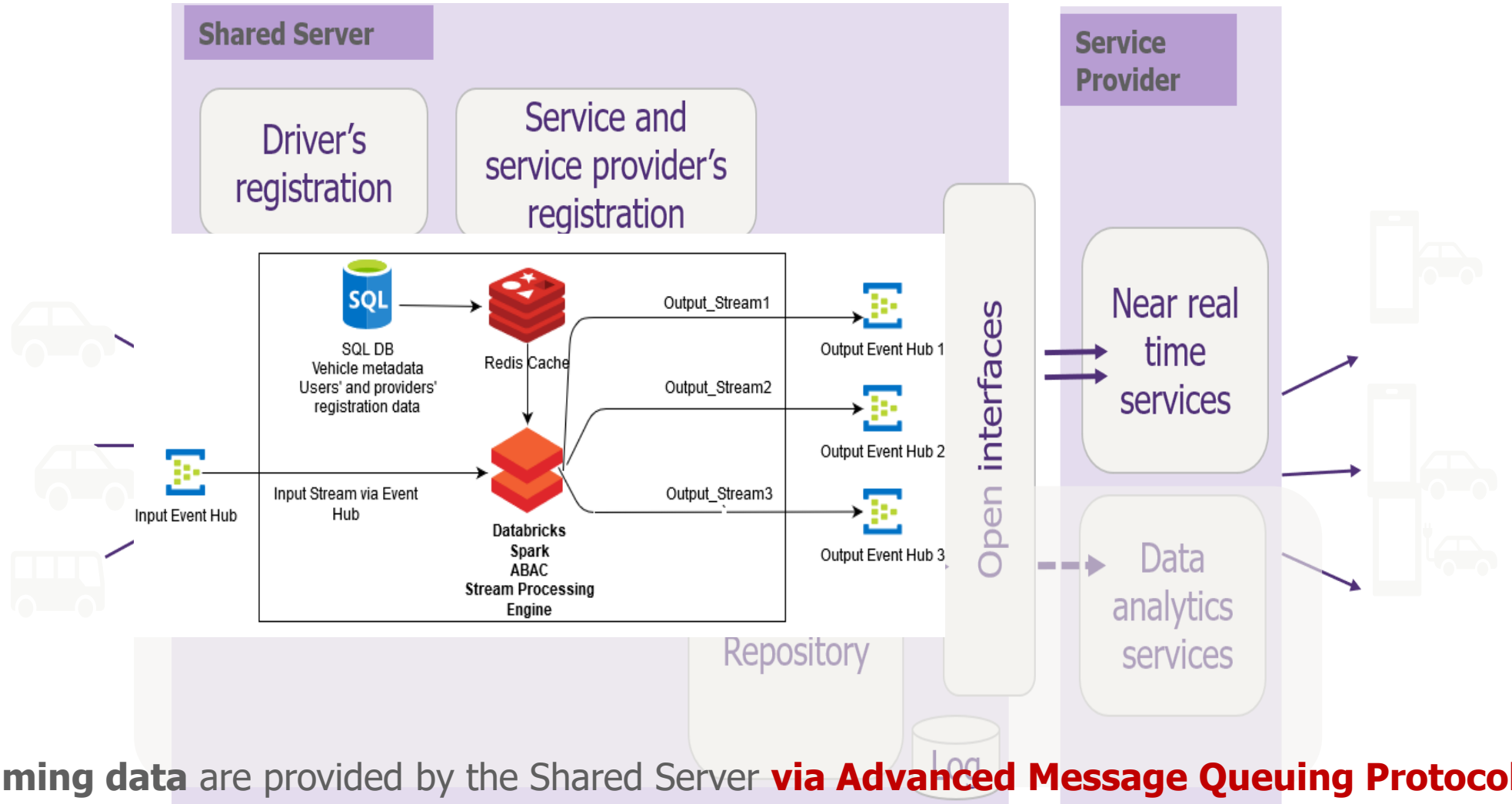
Data at rest

Data at rest is data that have been stored into the repository after the initial processing and filtering of incoming in-vehicle data concerning the drivers' consents.

They may be stored in several forms and media systems such as relational databases, non-SQL data storages, even in cold storage for long preservation if needed.

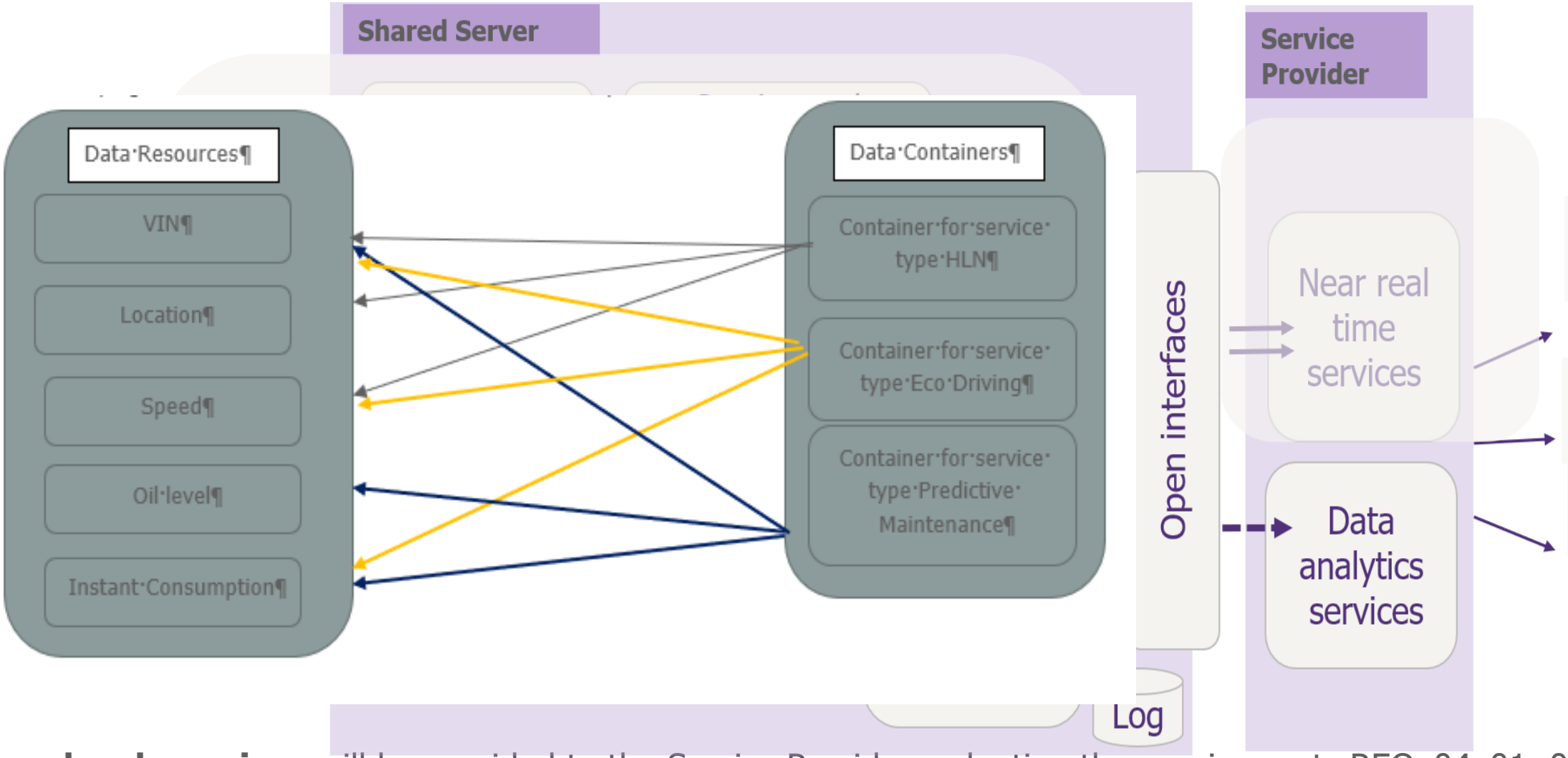
Powerful complex analytics

Streaming Data – **An Internet of Things (IoT) approach**



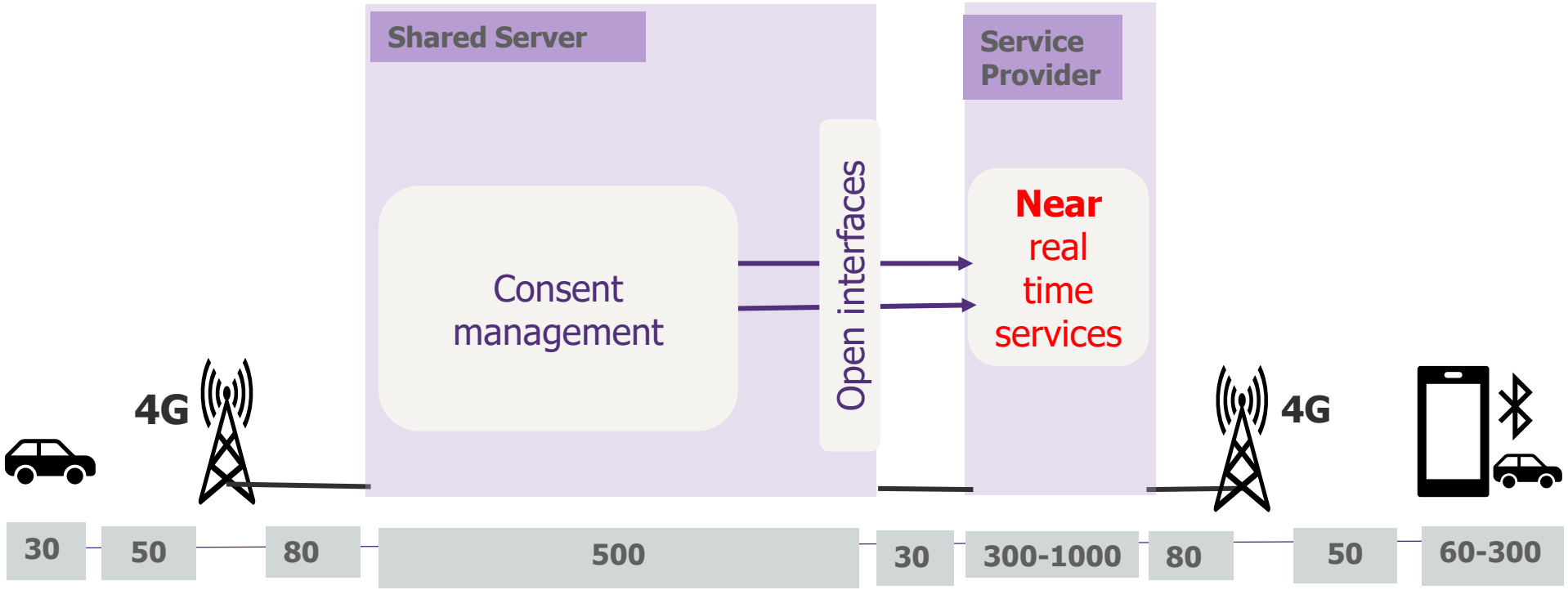
Streaming data are provided by the Shared Server **via Advanced Message Queuing Protocol (AMQP)** messages with **Transport Layer Security** (TLS) (v.1.3. or higher) protocol.

Data at Rest – **They provided under the ISO20078-2:2019 provisions**



REST based web services will be provided to the Service Providers adopting the requirements REQ_04_01, 02,0 of the **ISO/IEC ISO20078-2:2019 Road vehicles — Extended vehicle (ExVe)** using (HTTP) as transport protocol with Transport Layer Security **(TLS)**

The challenge of latency barriers – **Thanks to Streaming data** technology



Most of the C-ITS services of "day 1" and "day 1.5" may be deployed **with 4G communication network**

Data complexity – Mapping data

- Different semantics
- Different measurement units
- Different data types
- Different encoding
- Different versions

… for each manufacturer and type approval

It might be solved by regulation
i.e:
by the European Telecommunications Standards Institute (ETSI) or other standardisation body
https://www.etsi.org/technologies/automotive-intelligent-transport.

Maintaining vocabularies and data mapping charts from the manufacturers

Already Implemented

Consent management

Open interfaces

HTTP over TLS
RESTful services
JSON, XML
Active Directory
Domain Services

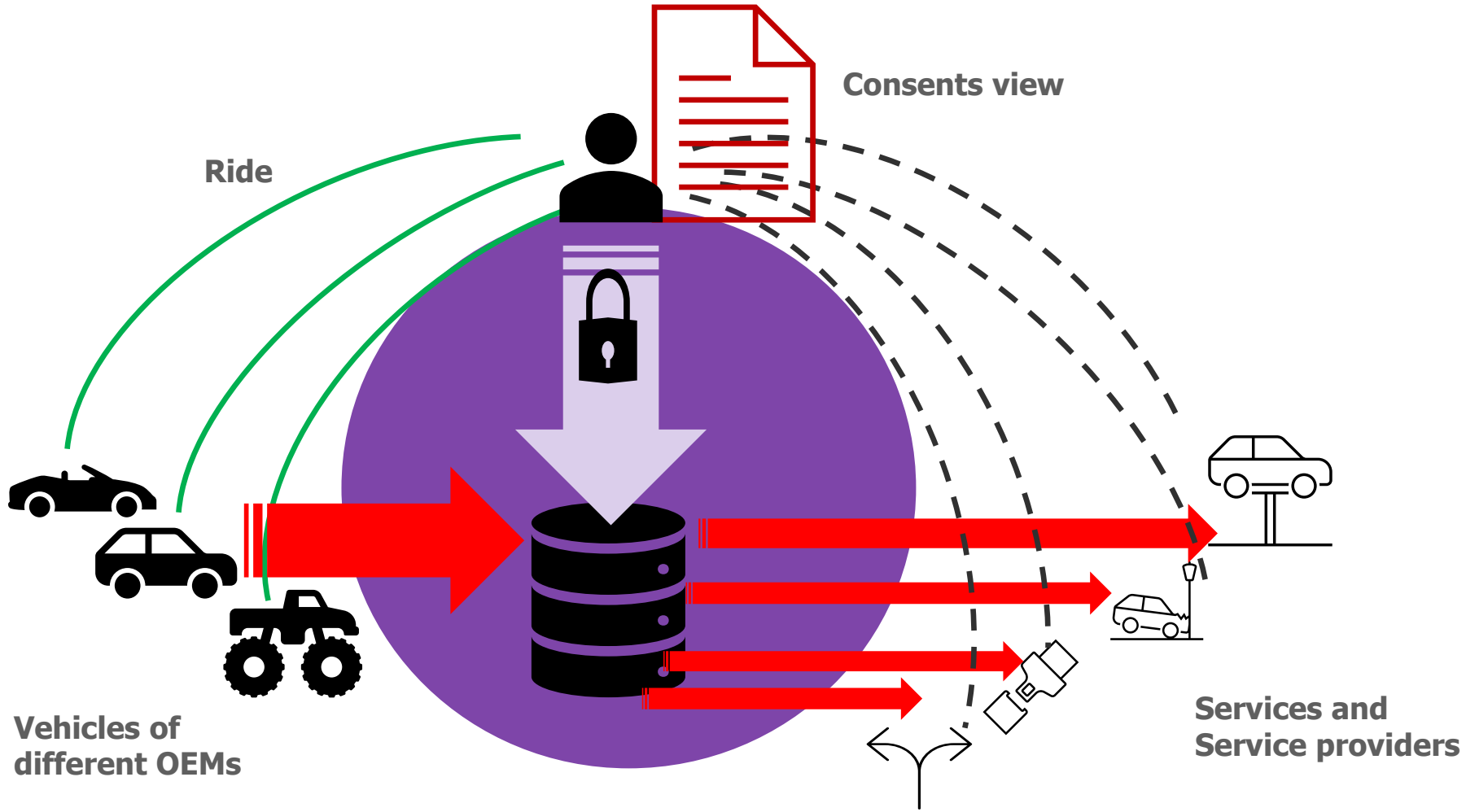
The challenge of personal data protection – **Earn Trust**

78% of consumers state that it is hard to trust companies when it comes to the way they use consumer personal data

The future of Digital Trust - Orange (2014)

…thanks MyData Finland for noticing that

Shared Server as a unified platform for user authentication and consent management



The challenge of personal data protection – the Shared Server response

Shared Server is becoming user centric

The user has a centralised overview of her consents to service providers and services and can exercise her rights on the data in a convenient way

…while further fosters the open business environment

The user can easily change services and service providers without **“data locks”**

It facilitates the use of personal data in a transparent way for users and service providers

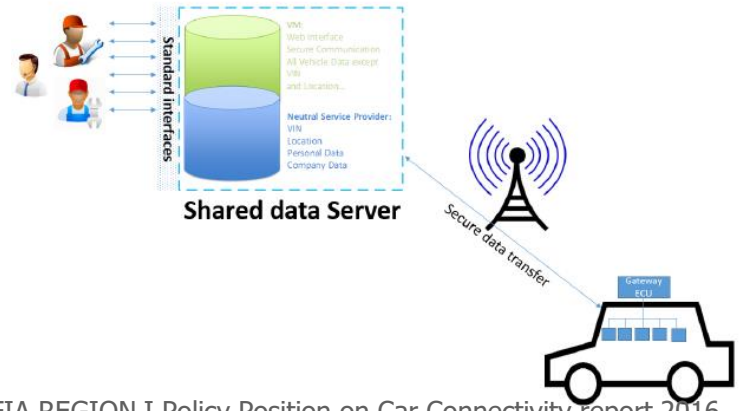
fostering the compliance with **the GDPR across EU** and **discouraging unfair practices and market distortion.**

providing to the service providers common user authentication and registration functionalities, thus service providers **could share the IT infrastructure and cut costs**

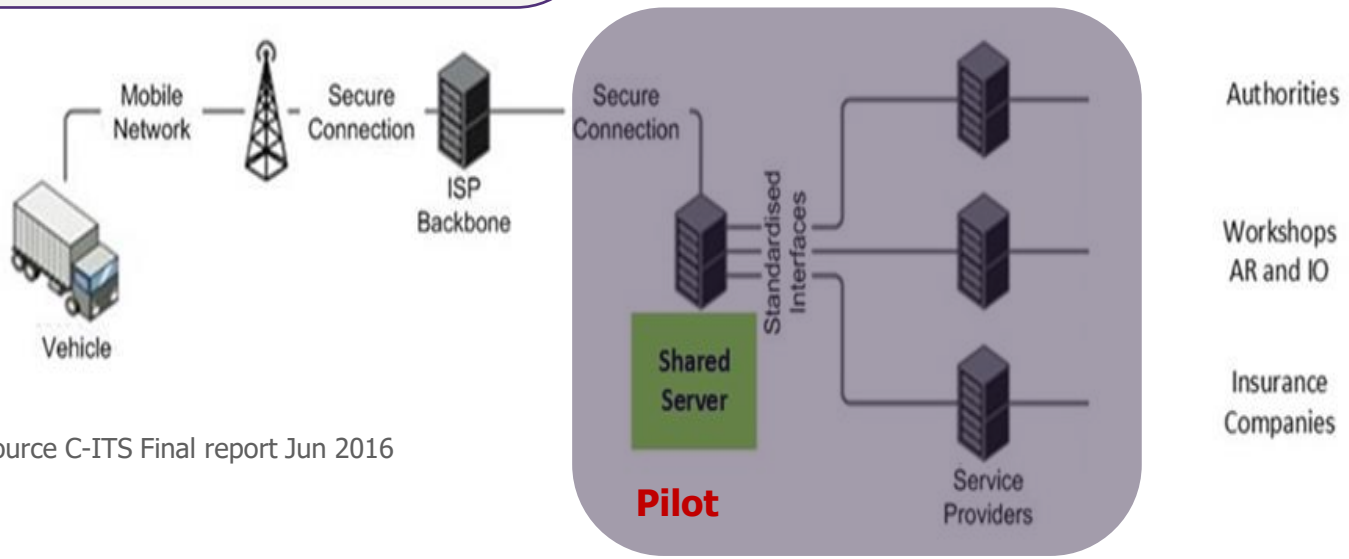
We started **from the initial** Shared Server Concept

…that ensured for a level playing field for the access to in-vehicle data
while
OEMs have access to the vehicle

Access to In-Vehicle Data and Resources, Final Report, TLR, May 2017



FIA REGION I Policy Position on Car Connectivity report 2016



Source C-ITS Final report Jun 2016

We elaborated and discussed during the workshops several architectures and ideas

Shared Server SWOT analysis

S: refers to gathering strength points for **BOTH** the OEMs **AND** the SMEs, in terms of implementation and running costs, sharing data and infrastructures and low implementation and viability risks.

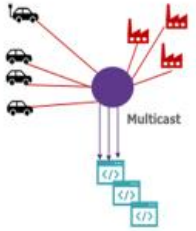
W: refers to gathering weak points for **EITHER** the OEMs **OR** the SMEs in terms of implementation and running costs, sharing data and infrastructures.

O: refers to gathering opportunities for **BOTH** the OEMs **AND** SMEs.

T: refers to pointing out risks and threats for the implementation or the viability of the project.

"Multicast" scenario was preferred by most of the participants however, OEMs representatives were strongly opposed to it

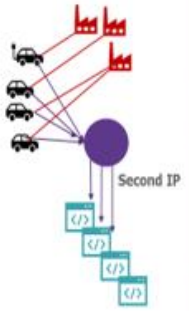
Data Flow 1: In-vehicle data are transmitted to the OEMs and SMEs via multicasting



S • Equal terms for SMEs and OEMs • **Shared operational and telecommunication costs** • **Shared infrastructures and cutting costs for the OEMs**	W • **Depreciates existed investments and infrastructures of the OEMs** • High operational complexity • Time will be needed for deploying changes and asking for additional data points of the in-vehicle data sets (expansion of the required data)
O • Common user's consent management for the automotive sector • Common technical environment for service development for the automotive sector – especially for safety and environmental apps	T • **Product liability issues will arise, as the OEMs may not be liable for the vehicle anymore** • **High resistance from the OEMs** • Collaborative development entails high coordination and high complexity. • Project setup and implementation may take too much time

"Second IP" scenario seemed to be acceptable by many of the participants

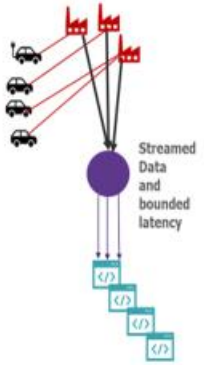
Data Flow 2: In-vehicle data are transmitted simultaneously to the Shared Server and the OEM's server



S • Equal terms for SMEs and OEMs • Easier implementation, since the Shared Server will handle only SMEs data • **High technology readiness level** • **Does not depreciate existed investments and infrastructures of the OEMs**	W • **Lack of common use of same vehicle data and resources** • **Telecommunication costs will be high and will be fall to the Shared Server** • Time will be needed for deploying changes and asking for additional data points of the in-vehicle data sets (expansion of the required data)
O	T • May be very hard to monitor the conformance of the OEMs, potentially resulting in low quality of service for the SMEs

"Streamed data and bounded latency" was rejected by most of the workshop participants

Data Flow 3: OEMs' server streams data with specified upper latency bound



S • Easier implementation, since the Shared Server will handle only SMEs data • **Does not depreciate existed investments and infrastructures of the OEMs** • **There is no need to alter the vehicles' systems** • **Shared telecommunication costs** • OEMs should be liable for the data	W • **OEMs retains a competitive advantage of the latency over the SMEs, in the order of a few hundreds of milliseconds** • **We cannot get anything better than the OEM can serve in terms of time intervals and data points**
O	T • May be very hard to monitor the conformance of the OEMs, potentially resulting in low quality of service for the SMEs

Resulting in a powerful **Shared Server Architecture with streaming capabilities**

Using Spark and Kafka within Shared Server Architecture will be facilitated secure, low latency and high-throughput,

- back and forth communication between vehicle and OEM,

in tandem with

- data transmission from the vehicle to the pipeline for the Serviced Providers


Questions
Answers