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The Value of Standardized Connected Vehicle Data

GENIVI, All Member Meeting
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A world leader in Connected Vehicle

- Engineering company building analytics, fleet management & IoT solutions
- Started in North America in 2000 now has:
  - More than 500 partners and a flourishing ecosystem
  - Over 1.600 Employees and offices in Oakville, Kitchener, Las Vegas, Mexico City, London, Madrid, Paris, Rome, Munich, Aachen, Shenzhen & Adelaide
  - Largest penetration in Fortune 500 companies
- Financially Strong
- Pushing OPEN standards for Connected Vehicle
- Customer wins through choice

Big Data @ Geotab

>2 Million

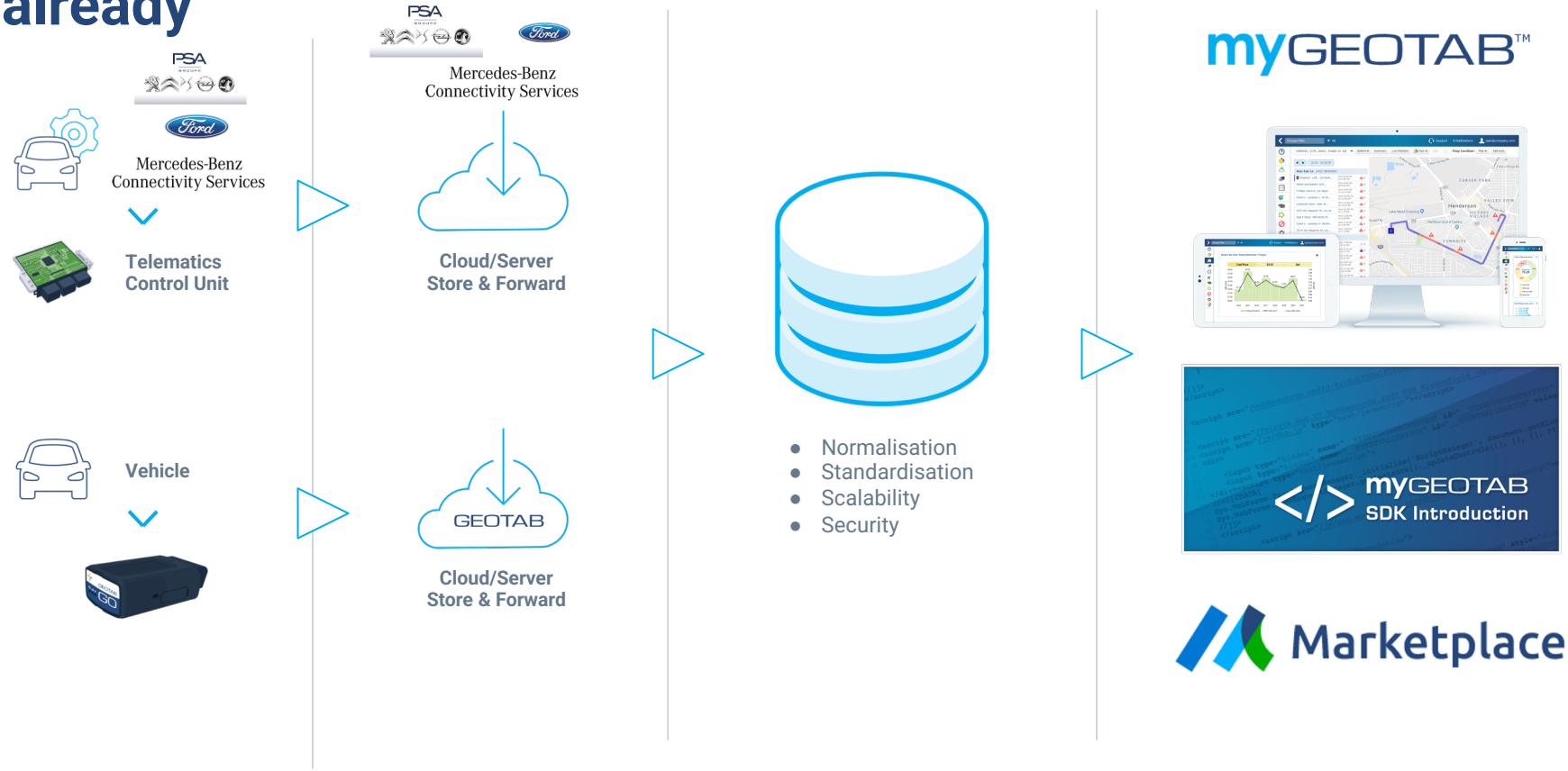
connected vehicles, globally

>40 Billion

data points collected daily

Richest telematics dataset
in the world including GPS, traffic,
accelerometer, engine data, weather,
driver behaviour, and more.

Why is this relevant for Geotab: integrating data from OEMs already



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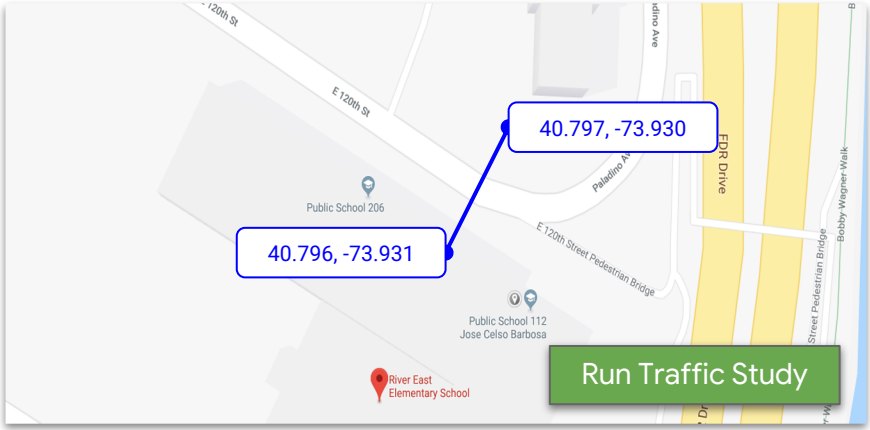
The Why: It’s a complex world

Standardization helps to reduce complexity

Case Study: Data collection with Pneumatic Tubes. Really?



Cities currently collect traffic data by laying tubes on a road to record wheel passes. These studies typically collect data for 2 weeks before raw data is processed and ready for use.

With Geotab data, this can be done virtually in a matter of minutes. Customers aren't constrained to a limited number of physical resources. Draw a virtual pneumatic tube across any road and conduct a study instantly.

Complexity: vehicles differ across makes, models and years

Different types, makes, model, years - and data

Different data sets in vehicle

- Across makes & models, even model years
- Vehicle types (e.g. spreader, reefer, plough, …)

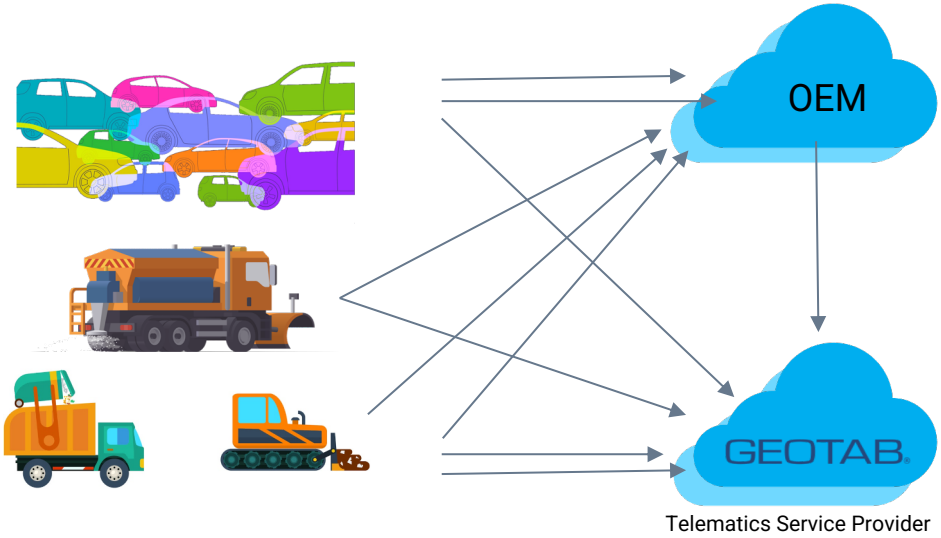
OBD

- Originally intended as Diagnostic interface
- Only “standardized” telematics interface - compatibility of OBD-II protocols for EV?
- Reverse engineering cumbersome
- Future certification and authentication required?

Vehicle 2 vehicle communication

- accident warning
- Traffic information
- Autonomous driving

Telematic service provider need to integrate with different systems or vehicles



Different clouds
- OEM proprietary clouds
- Multi-make TSP clouds

Multiple Data streams
- Depending on installed Hardware

Cloud-2-Cloud
- TSP integrate OEM data in their systems
- OEM proprietary APIs and data sets

Different types, makes, model, years - and data

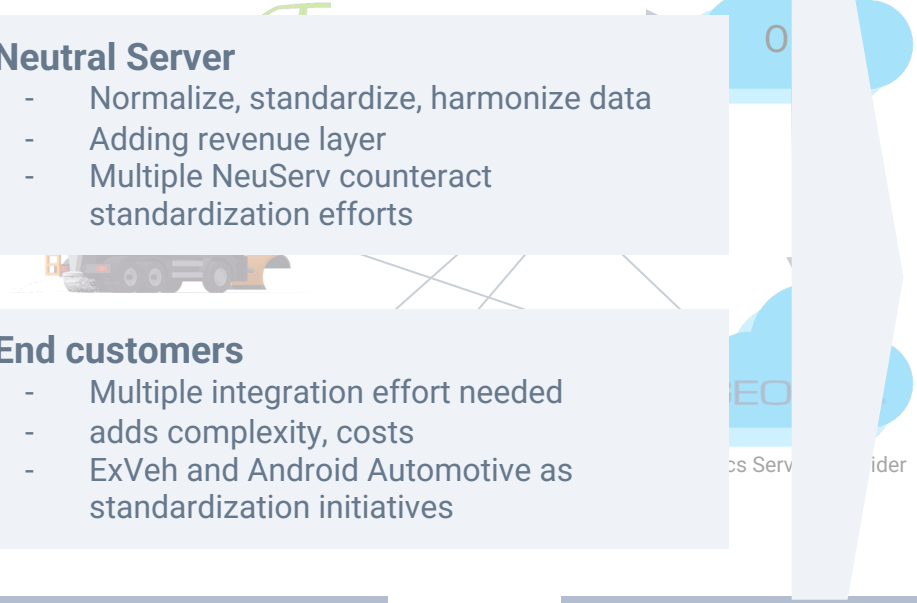
X

Multiple OEM and TSP clouds

Hugh integration efforts for the ecosystem partners

Neutral Server
- Normalize, standardize, harmonize data
- Adding revenue layer
- Multiple NeuServ counteract standardization efforts

End customers
- Multiple integration effort needed
- adds complexity, costs
- ExVeh and Android Automotive as standardization initiatives



- Fleet Owner
- Charging Providers
- LeaseCos
- Insurance
- ExVeh
- Traffic Infrastructure
- Smart cities
- ...

Different types, makes, model, years - and data

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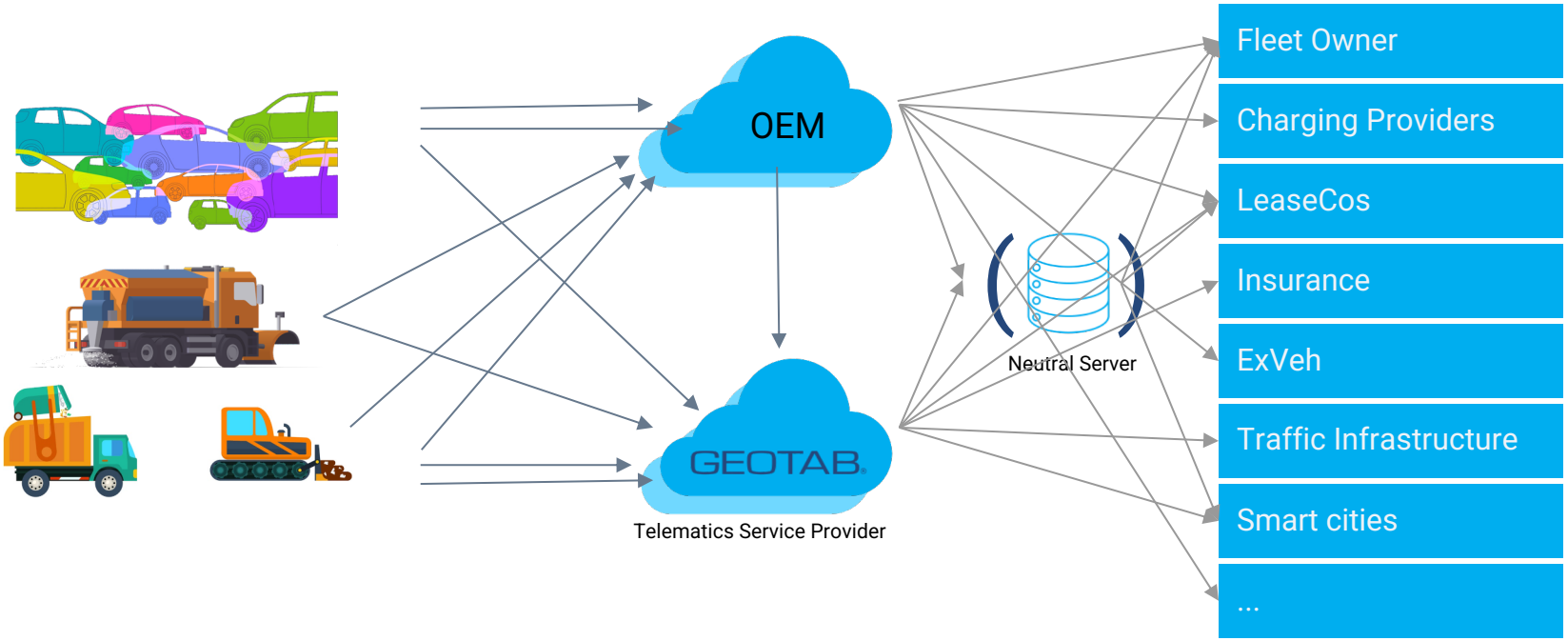
Multiple OEM and TSP clouds

X

Multiple data users

The whole picture: multiple APIs to connect in every stage of the value chain



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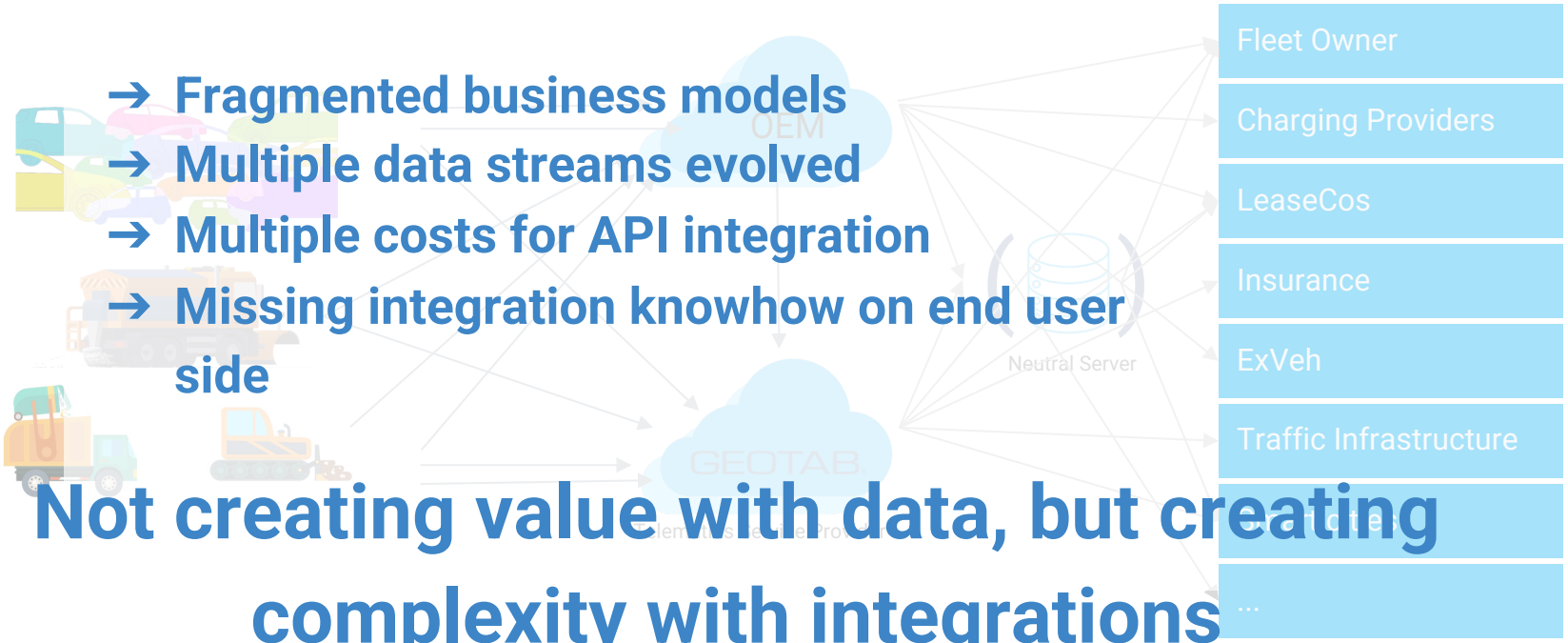

- ➔ Fragmented business models
- ➔ Multiple data streams evolved
- ➔ Multiple costs for API integration
- ➔ Missing integration knowhow on end user side

Not creating value with data, but creating complexity with integrations

Different types, makes, model, years - and data

X

Multiple OEM and TSP clouds

X

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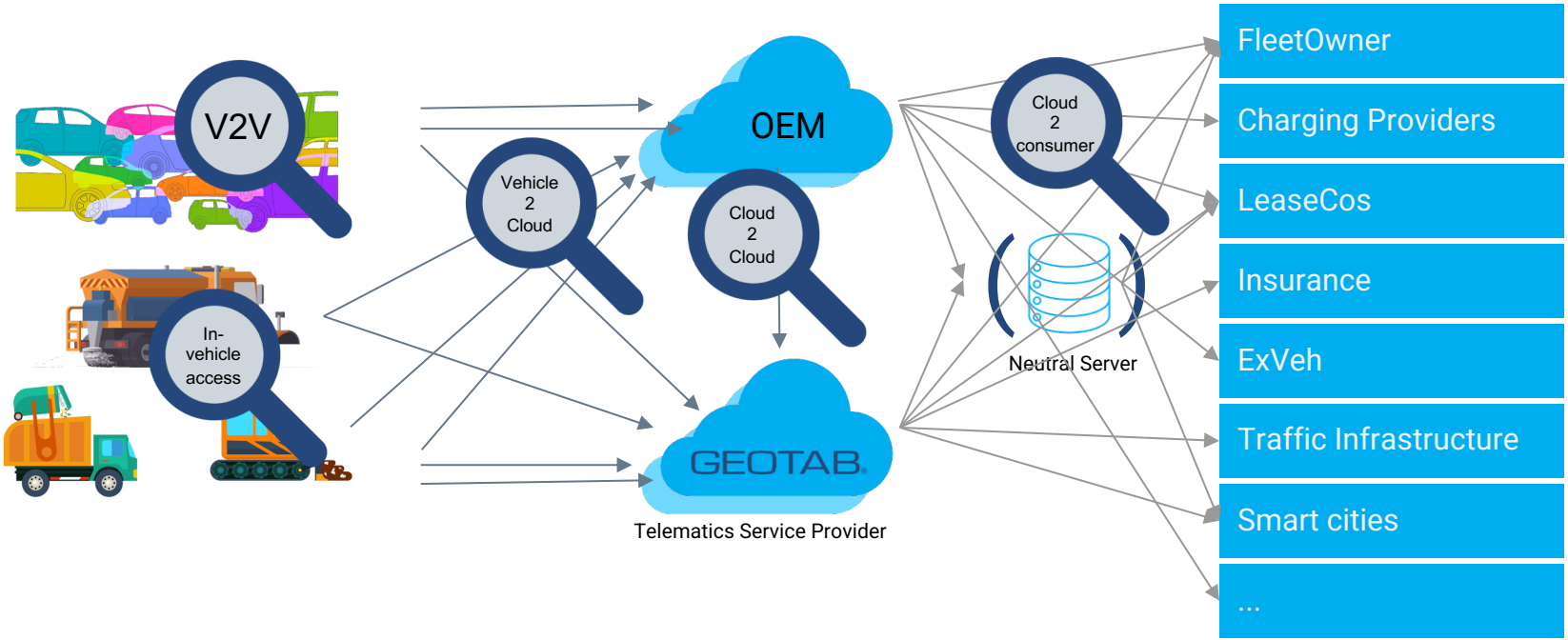
Where standardization could help to reduce complexity



Different types, makes, model, years - and data

X

Multiple OEM and TSP clouds

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Multiple data users

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The benefit

How standardization creates value

Standardization can help in all parts of the value chain

Aggregated insights over multiple vehicles & fleets

Increased Security
by defined, accepted and implemented standards

Single source of truth of data
if vehicle data is made available by OEMs and reverse engineering not required anymore

Faster, value-adding development
Focussing on data products and insights, not accessibility and integration

Accident avoidance
By V2V communication across makes, models
e.g. slippery road detection

Decision making based on a broader set of data
E.g. for road design, pothole detection, dynamic parking awareness, …
E.g. power grid management by aggregated EV charge data to predict and balance electrical loads effectively

Case Study Trucks: From FMS to rFMS

In 2002 (!) MAN, Scania, Volvo, Renault Trucks, DAF Trucks, Daimler agreed (under umbrella of ACEA) on an **J1939-Interface** to provide a set of **≈20 data points** made available **in-vehicle**

- *Standard*
- *Secure*
- *Accepted*
- *Across brands*
- *Enabled growth of fleet telematics for trucks*

Starting discussions in 2009, **in 2014** the **rFMS-Standard** was introduced, OEMs (truck & bus) provide the data via an standardized REST-API

Barriers to overcome

"How will I (as an OEM, TSP or Partner) be able to differentiate if everything is "standard"?"

Differentiation is not in the interfaces or APIs, it's in the product and the value of data insights
Data is one of the few good that get more valuable when shared

Why should I contribute knowledge?

Give and take - work with the experts to define the best possible solution for everybody

We have invested a lot in the current setup / solution - why should we change that?

Given the speed of technological development no system last longer than 5-7 years anyway - when designing your new solution, learn from the experts here

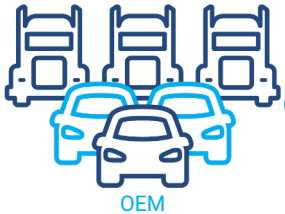
It takes to long until a standard has been defined, accepted and implemented.

Then it is time to start now!

Case Study: OEM integration yields benefits for everybody

- Avoid double payment (GO-Device and ex-factory connectivity)
- No cost (and time) for installation and removal

- Activation with “push of a button”
- Less Logistics & stock
- Less Warranty & support



- Make use of built-in connectivity in car
- Additional Revenue streams

Summary

We are wasting resources, time and money

- ➔ OBD devices next to factory-fitted TCU in the car
- ➔ All parties develop, maintain and operate multiple API-connections
- ➔ A different data set (frequency, data points, …) from different sources require normalization and harmonization efforts for everybody

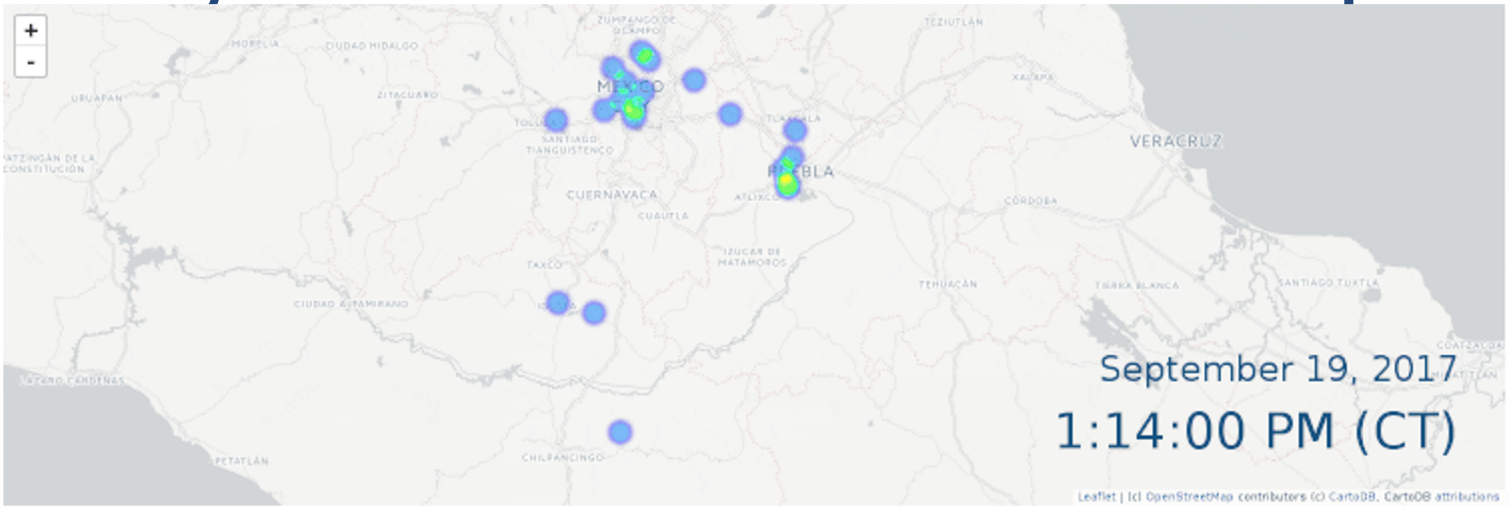
Standardization delivers...

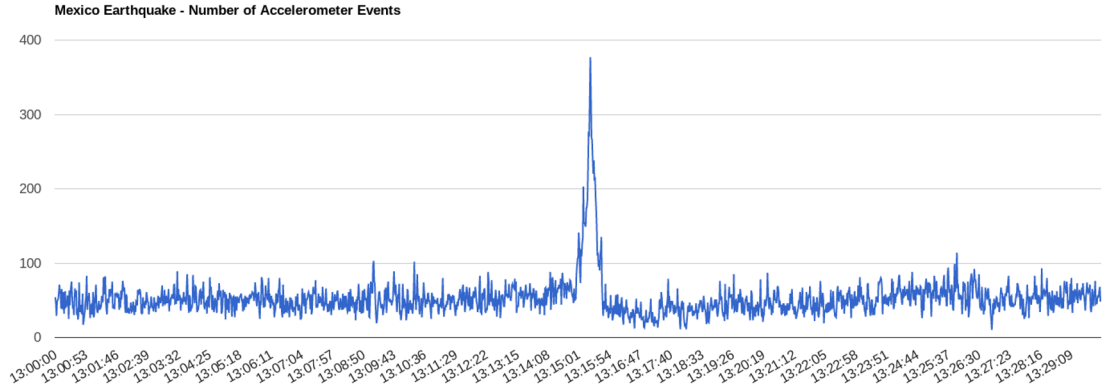
… decrease in cost and time, Increase in efficiency

… more revenues by scaling, cost reduction and effort put into new product development

Standardized Data, APIs and processes = VALUE!

Case Study: Connected Cars Detect Mexico Earthquake





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Take away

Standardization drives the market

If **all parties** - from Suppliers to OEMs and TSPs - make use of the **joint expert knowledge** they can create something fantastic that helps

- to **drive the market**,
- **reduce** overall **cost**,
- **free resources** to enable **new innovations** and
- make the **customers happy**

Why not start today?

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