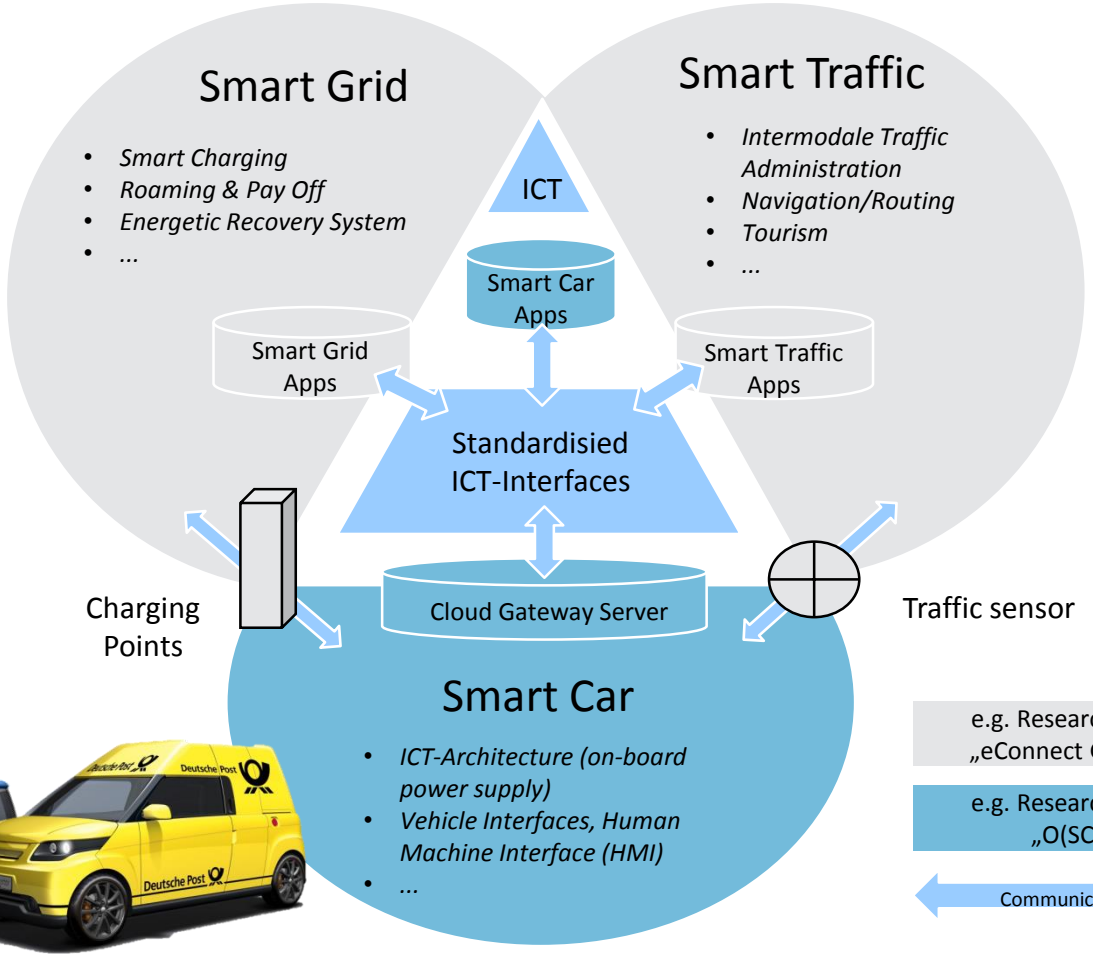
6th European Conference on ICT for Transport Logistics

Title:	Architecture vision for an Open Service Cloud for the smart car in logistics
Presenter:	Birkmeier, Martin, Dipl.-Inf. Univ.
Date:	23.10.2013

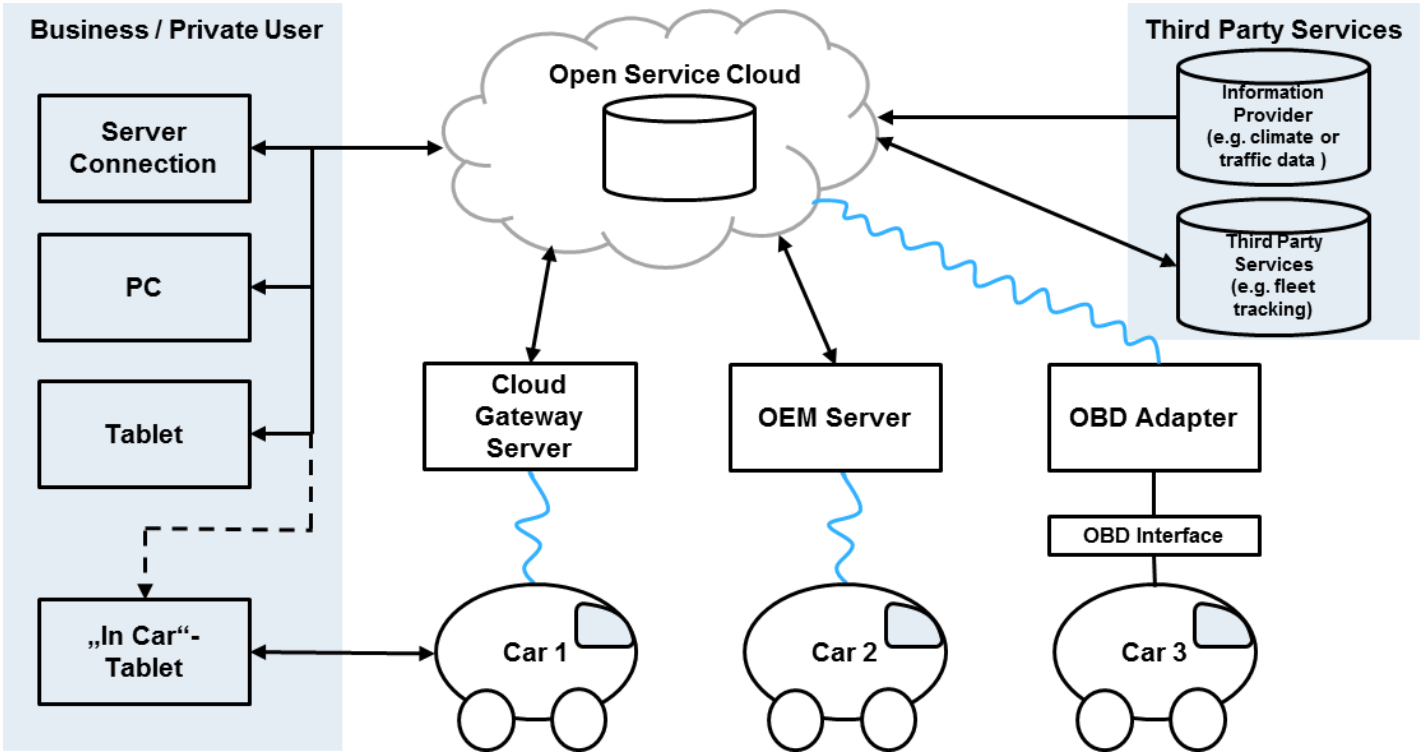
Content

- Overview of project oscar
- Open Service Cloud and Interfaces
- Secure “In Car” – App Framework
- Data collection and data profiles
- Use Cases
- Foresight use case in logistics

Overview of oscar

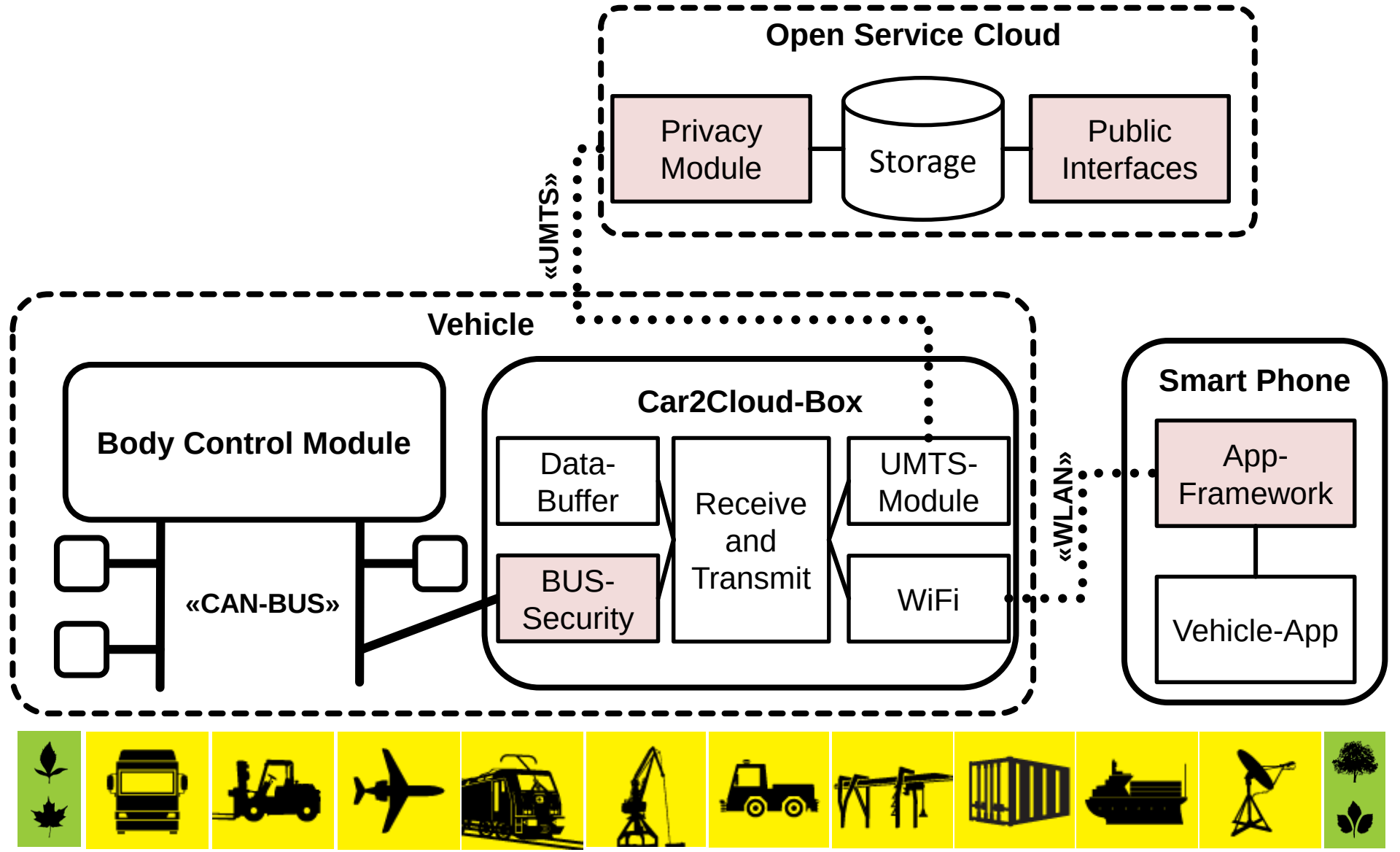


OSC and Interfaces

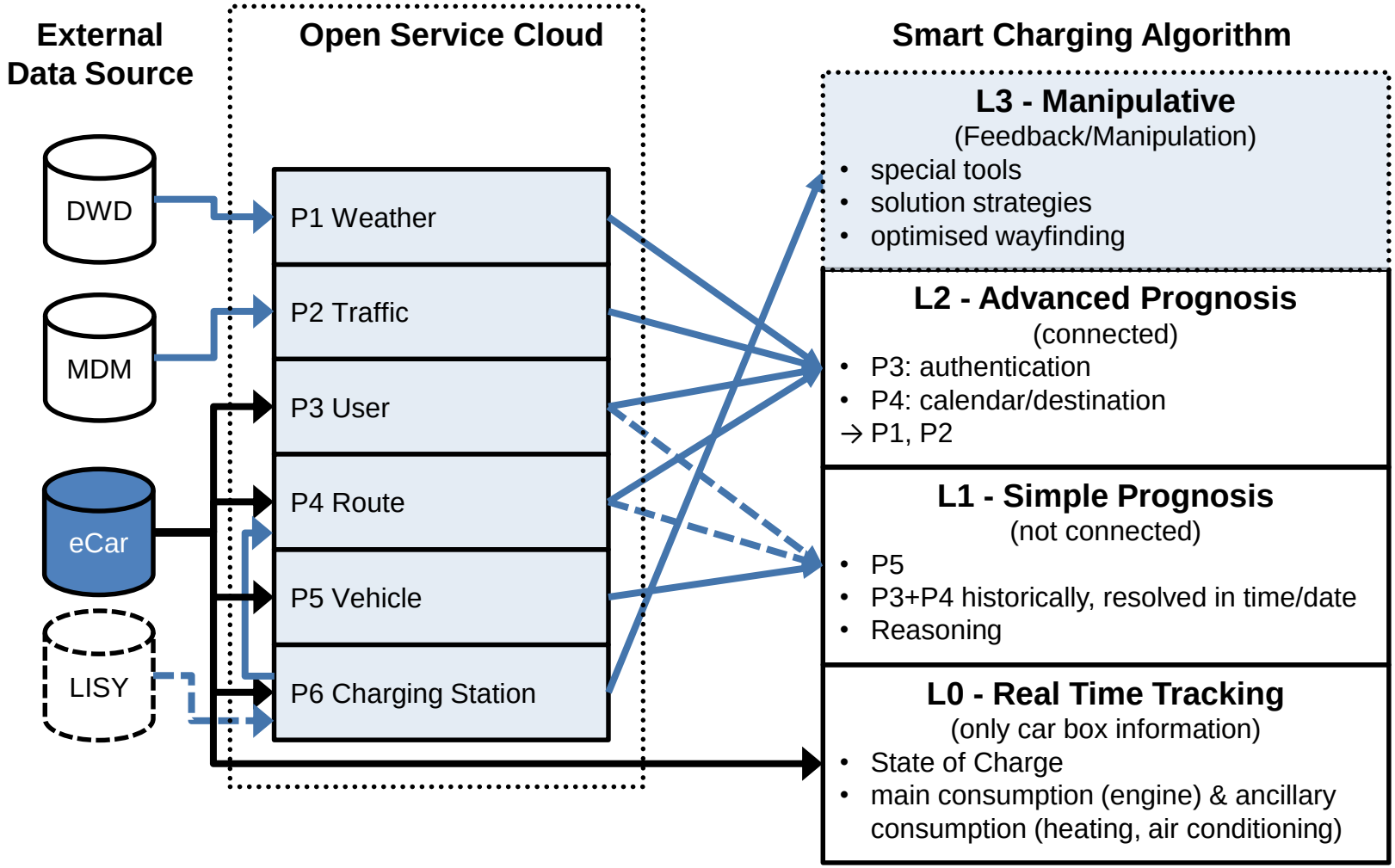


- Open Cloud Service interacts with several Servers (Cloud Gateway Server, OEM Server, OBD Adapter) wich are connected with the cars via umts (later lte).
- The vehicles provide their data on a real time bases.
- Business / Private Users can access the data on the Open Service Cloud and transmit data to the vehicles.
- Information Providers deliver additional environmental Information and can get accumulated feedback of the car data (traffic, weather, etc.)

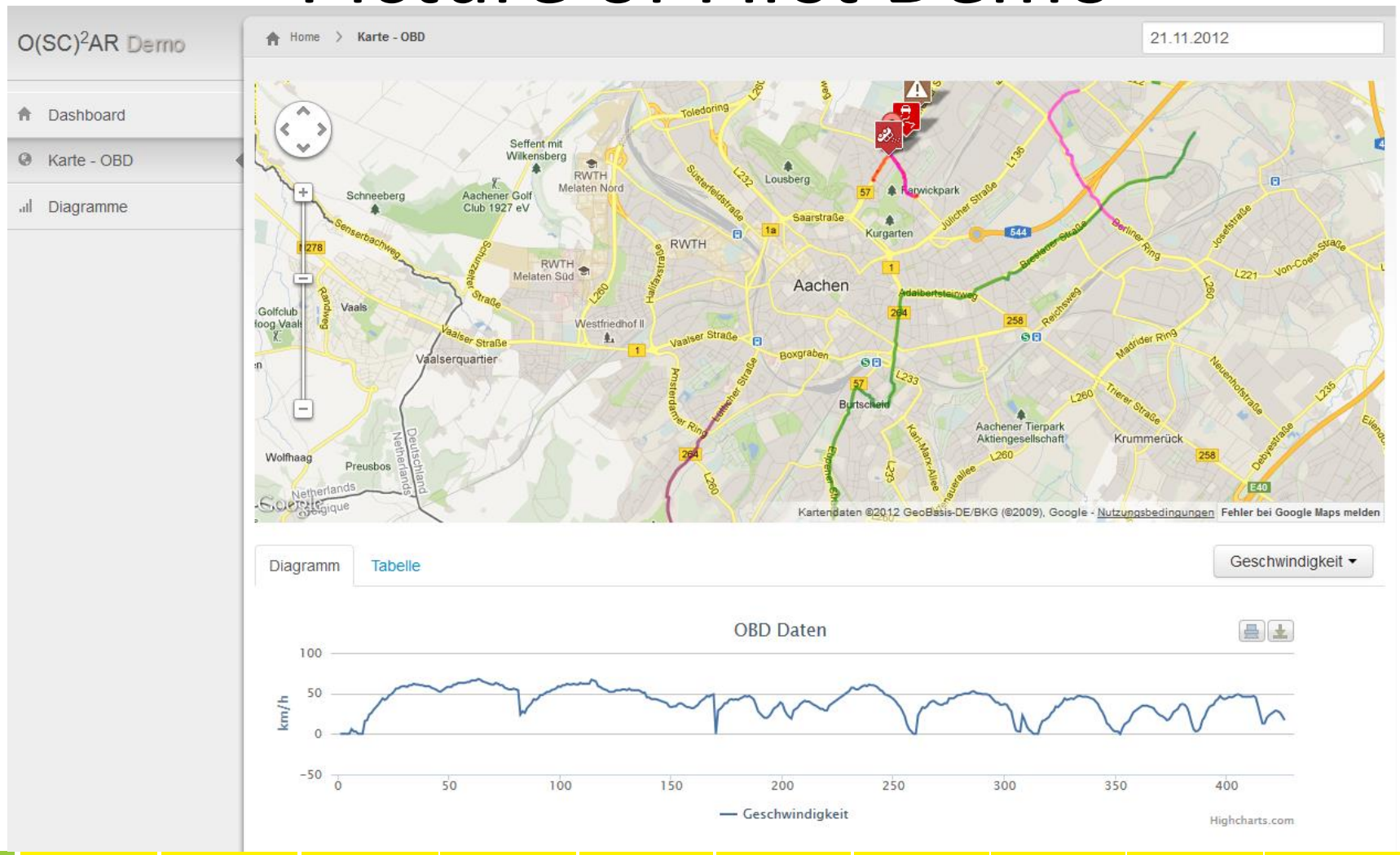
Secure „In Car“ – App Framework



Data collection and data profiles



Picture of First Demo



Possible - Use Cases

Energy Grid (NRG4Cast)

- Energy Demand Prognosis for eletric vehicles

Third Party Applications (oscar)

- Secure framework for data access and data input of third party services.
- Secure framework for “In Car“-applications with limited vehicle control.
- Integration of external data input (Smart Grid, Smart Traffic, etc.).
- Additional control systems can be integration with the provided interfaces.

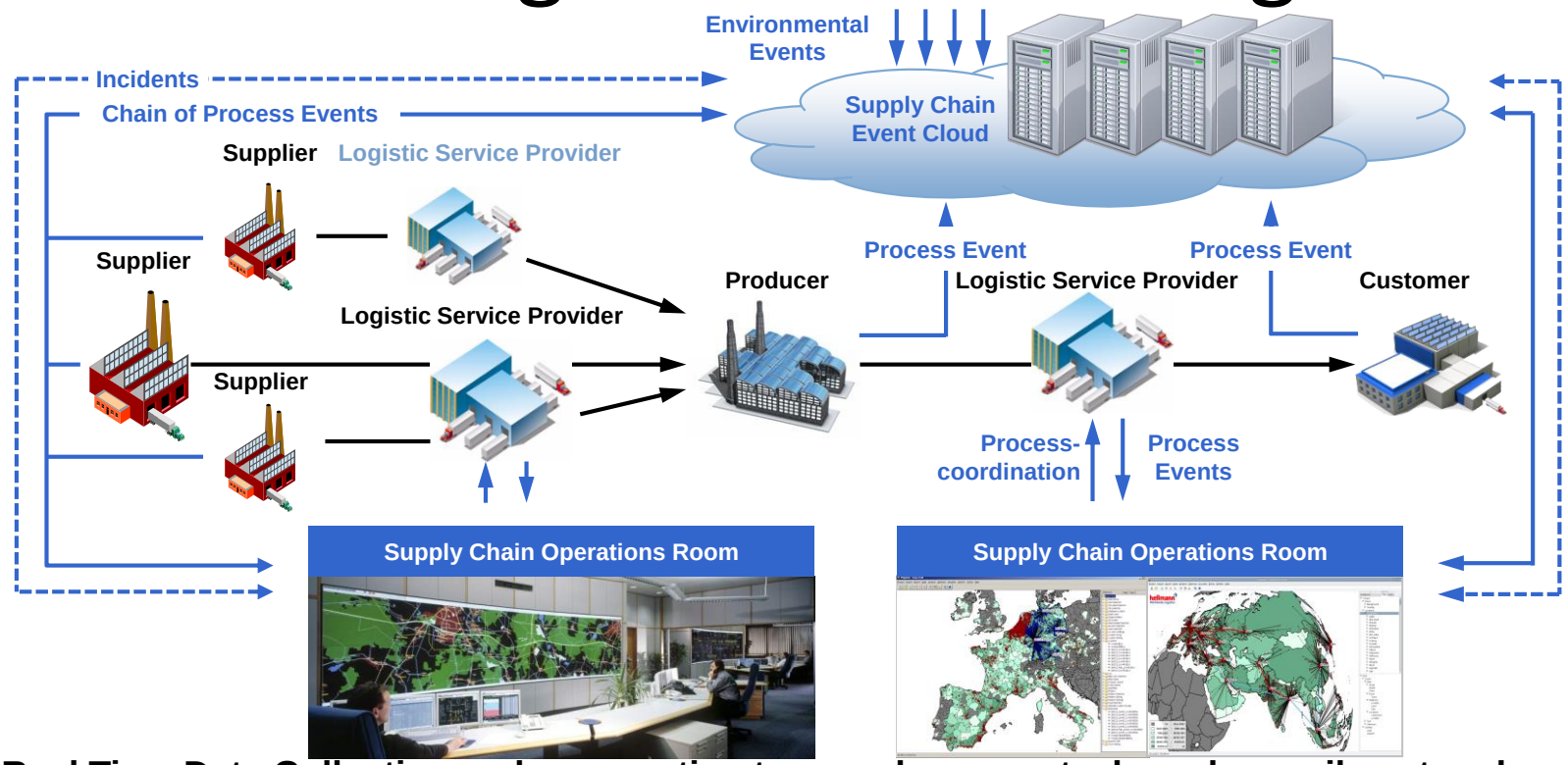
Fleet (oscar)

- Real time information of the vehicle state.
- Vehicle monitoring and maintenance for the OEM.
- Data profiles for third party services.



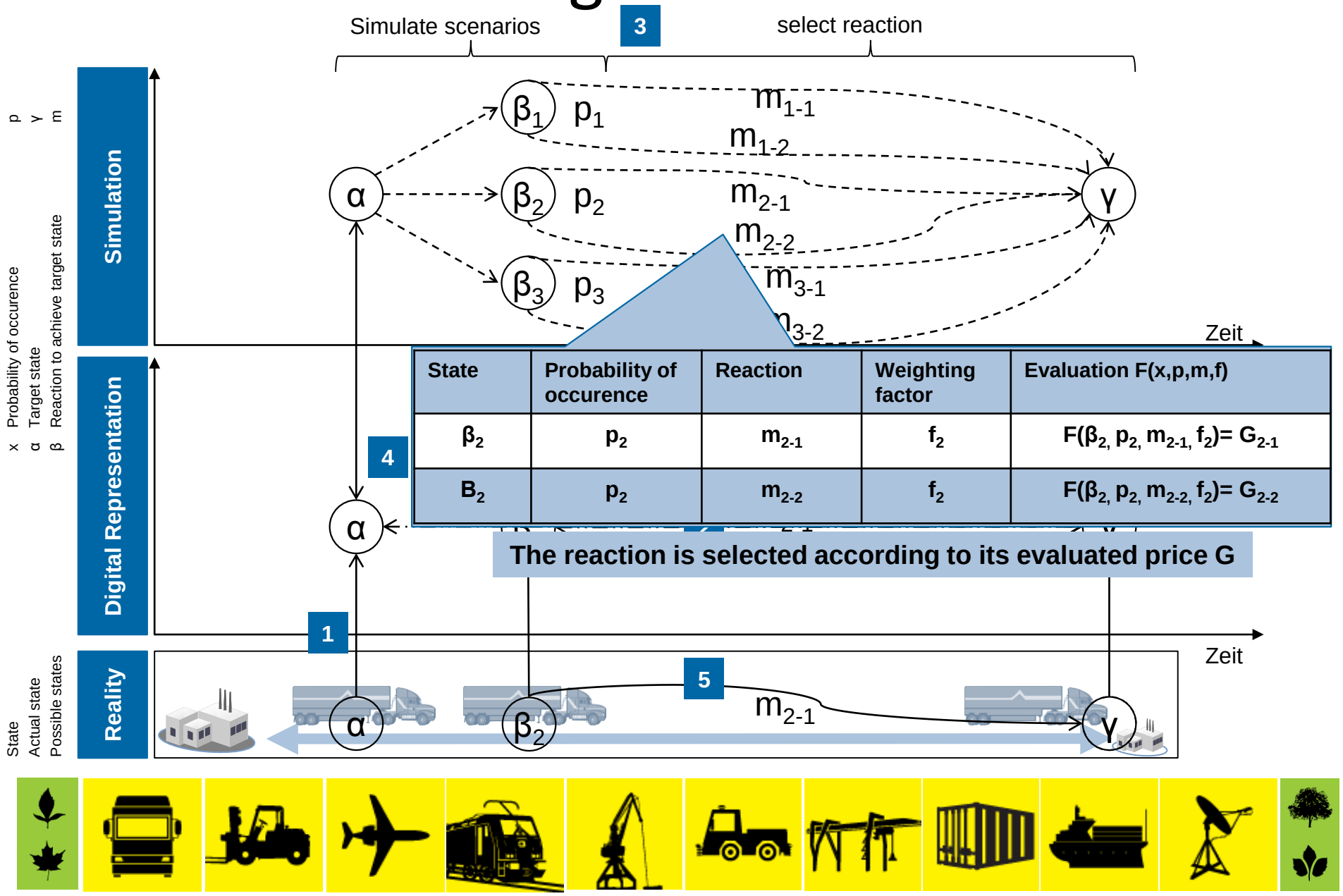

Sources of the pictures: http://www.ewea.org/blog/wp-content/uploads/2011/01/99126699.jpg; https://devimages.apple.com.edgekey.net/icloud/images/icloud-apis.png; http://www.hertzlease.ro/images/fleet.jpg; http://www.swerus-logistics.com/images/bg_logistics.jpg

Use Cases – Logistics – Smart Logistic Grids



- **Real Time Data Collection and aggregation to complexe events, based on agile networks and intermodale supply network chains**
- **Supply chain operations room is a visualisation for all evaluated reactions to optimate the network.**
- **Target is the highest level of automation for executing the reactions, to optimise the network as fast as possible**

Use Cases – Logistics - Preevaluation



State	Probability of occurence	Reaction	Weighting factor	Evaluation F(x,p,m,f)
β_2	p_2	m_{2-1}	f_2	$F(\beta_2, p_2, m_{2-1}, f_2)= G_{2-1}$
B_2	p_2	m_{2-2}	f_2	$F(\beta_2, p_2, m_{2-2}, f_2)= G_{2-2}$

Conclusion

- Open architecture as basis for third party services and integration of several OEMs.
- Easy integration of additional sensorics and data.
- Accessability of data „In Car“, on external devices and for services via server access.

Thank you for your Attention!

www.fir.rwth-aachen.de

fir an der RWTH AACHEN

Campus-Boulevard 55,
52074 Aachen -Germany

Dipl.-Inf. Univ.

Martin Birkmeier

Telefon: +49 (0)241 477 05-510
Fax: +49 (0)241 477 05-199
Mobil: +49 (0)177 579 02 74
E-Mail: Martin.Birkmeier@fir.rwth-aachen.de